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BELL & HOWELL

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March 2, 1971 Volume 884 Number 1

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of Mar. 2, 1971

Re. 26,990
D. 217,381
D. 218,681
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3,547,717

Service by Publication

Peter N. G. Murdoch and David Lance Wyman

In accordance with Rule 47(b) of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on March 14, 1968, of an application for patent entitled "Pig Figure for Playground Apparatus," on behalf of Peter N. G. Murdoch and David Lance Wyman, whose last known address is 257 E. 72nd St., New York, N.Y. The application was made in compliance with Rule 47(b) and 35 U.S.C. 118 by Creative Parks and Playgrounds Inc. without execution by the said Peter N. G. Murdoch and David Lance Wyman. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Peter N. G. Murdoch or the said David Lance Wyman in connection with the said application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Errata

All references to Patent Number 3,560,497 to Max W. Miller, 2-Phenyl-as-Triazine-3,5(2H,4H) Diones, appearing in the OFFICIAL GAZETTE of February 2, 1971 should be deleted as the application was withdrawn from issue and the patent was not issued.

Disclaimer and Dedication

3,444,597.—*Arnold R. Bone,* Needham, Mass. FILAMENT TYPE ATTACHMENT DEVICE AND MANUFACTURE OF SAME. Patent dated May 20, 1969. Disclaimer and dedication filed Oct. 21, 1970, by the assignee, *Dennison Manufacturing Company.*

Hereby disclaims claims 1–8 of said patent and dedicates said patent to the Public.

Disclaimers

2,840,670.—*Winthrop M. Leeds,* Forest Hills, *Benjamin P. Baker,* Monroeville, and *Robert E. Friedrich,* Baldwin Boro, Pa. CIRCUIT INTERRUPTERS. Patent dated June 24, 1958. Disclaimer filed Nov. 9, 1970, by the assignee, *Westinghouse Electric Corporation.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,093,864.—*William D. Waldron,* Midland, *Donald L. McIntosh,* Bay City, and *Robert E. Schroeder,* Essexville, Mich. APPARATUS FOR LINING VALVES WITH PLASTIC. Patent dated June 18, 1963. Disclaimer filed Nov. 27, 1970, by the assignee, *The Dow Chemical Company.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

3,122,483.—*Murray W. Rosenthal,* East Brunswick, N.J. STRONTIUM ION TOOTHPASTE. Patent dated Feb. 25, 1964. Disclaimer filed Nov. 20, 1970, by the assignee, *Block Drug Company, Inc.*

Hereby enters this disclaimer to claims 1 through 5 and 11 of said patent.

3,137,917.—*Joseph F. Dowd,* Orange, Mass. TOOL BITS. Patent dated June 23, 1964. Disclaimer filed Nov. 17, 1970, by the inventor.

Hereby enters this disclaimer to claims 1, 2, 4, and 7 of said patent.

3,176,940.—*Charles M. Echeverria, Jr.,* Milford, Conn. HELICOPTER POD POSITIONING AND SUPPORTING MEANS. Patent dated Apr. 6, 1965. Disclaimer filed Nov. 27, 1970, by the assignee, *United Aircraft Corporation.*

Hereby enters this disclaimer to claims 1 through 3 of said patent.

3,199,658.—*Carl D. Graber,* Orrville, and *Raymond L. Alvarez,* Canton, Ohio. POWER FILING APPLIANCE. Patent dated Aug. 10, 1965. Disclaimer filed Oct. 29, 1970, by the assignee, *Diebold, Incorporated.*

Hereby enters this disclaimer to claim 14 of said patent.

3,364,837.—*Reginald George Schooling,* Yeovil, Somerset, England. PRESSURE CONTROL SYSTEMS. Patent dated Jan. 23, 1968. Disclaimer filed Oct. 20, 1970, by the assignee, *Westland Aircraft Limited.*

Hereby enters this disclaimer to claims 1, 2, 5, 11, 13, 15, 16, 17, 18, 19 and 20 of said patent.

3,390,557.—*Karl H. Erickson* and *Richard L. Bildahl,* Rockford, Ill. DOOR LATCH. Patent dated July 2, 1968. Disclaimer filed Nov. 23, 1970, by the assignee, *Amerock Corporation.*

Hereby enters this disclaimer to claim 10 of said patent.

3,451,112.—*Yale Karmell,* Chicago, and *Kermit K. Geiger,* Carpentersville, Ill. RUBBER COVERED STEEL MILL ROLLERS. Patent dated June 24, 1969. Disclaimer filed Oct. 16, 1970, by the assignee, *Samuel Bingham Company.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,469,334.—*Nick C. Katcgian,* Chicago, Ill. DISPLAY DEVICES. Patent dated Sept. 30, 1969. Disclaimer filed Oct. 9, 1970, by the assignee, *Brandell Products Corporation.*

Hereby enters this disclaimer to claims 1 to 16, inclusive, of said patent.

3,471,134.—*Carroll Cone,* Maumee, Ohio. WALKING BEAM FURNACE. Patent dated Oct. 7, 1969. Disclaimer filed Oct. 16, 1970, by the assignee, *Midland-Ross Corporation.*

Hereby enters this disclaimer to claims 13 through 16 of said patent.

3,472,745.—*Laszlo A. Herédy,* Canoga Park, Calif. FUSIBLE ALKALI-METAL SALT ELECTROLYTE. Patent dated Oct. 14, 1969. Disclaimer filed Nov. 2, 1970, by the assignee, *North American Rockwell Corporation.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5 and 8 of said patent.

3,472,746.—*Laszlo A. Herédy,* Canoga Park, Calif. ELECTROLYTIC SYSTEM FOR PRODUCTION OF ALKALI METALS. Patent dated Oct. 14, 1969. Disclaimer filed Nov. 2, 1970, by the assignee, *North American Rockwell Corporation.*

Hereby enters this disclaimer to claims 1, 2, 6 and 8 of said patent.

3,505,320.—*Erich Dabritz* and *Heinz Herlinger,* Leverkusen, and *Marianne Bock,* Wuppertal-Elberfeld, Germany. 5-NITROTHIAZOLE DERIVATIVES AND THEIR PRODUCTION. Patent dated Apr. 7, 1970. Disclaimer filed Nov. 2, 1970, by the assignee, *Farbenfabriken Bayer A.G.*

Hereby enters this disclaimer to claims 4, 9 and 10 of said patent.

3,515,709.—*Alfred R. Nelson,* Bay City, and *Vernon D. Floria,* Midland, Mich. PROCESS FOR ELIMINATING POLYMER BUILD-UP ON REACTOR WALLS DURING POLYMERIZATION OF WATER-INSOLUBLE MONOETHYLENICALLY UNSATURATED LIQUID MONOMERS. Patent dated June 2, 1970. Disclaimer filed Oct. 5, 1970, by the assignee, *The Dow Chemical Company.*

Hereby enters this disclaimer to claims 1, 4, 5, 6 and 9 of said patent.

3,519,741.—*Mark Berwyn Knight,* North Caldwell, N.J. REGULATED HIGH VOLTAGE POWER SUPPLY. Patent dated July 7, 1970. Disclaimer filed Oct. 8, 1970, by the assignee, *RCA Corporation.*

Hereby enters this disclaimer to claims 1–6 of said patent.

3,536,209.—*Arthur R. Burch,* Wayzata, and *Charles E. Bates,* Minneapolis, Minn. AUTOMATIC MATERIAL-UNIT STORAGE AND METHOD. Patent dated Oct. 27, 1970. Disclaimer filed Oct. 1, 1970, by the assignee, *Clark Equipment Company.*

Hereby disclaims the terminal portion of the term of said patent subsequent to Mar. 31, 1987.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF FEBRUARY 23, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-04-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-08-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-09-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-01-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-07-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	5-01-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-01-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-24-70
PHYSICS, GROUP 280—R. L. EVANS, Director Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-14-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts; Household, Personal and Fine Arts.	5-11-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-04-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-01-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-13-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	2-25-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	12-24-69

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,670,468 to 2,673,977, inclusive
Plant Patents	Numbers 1,260 to 1,266, inclusive

REISSUES

MARCH 2, 1971

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,078

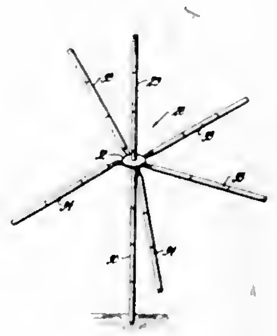
RADIATION SURVEY TRAINING APPARATUS

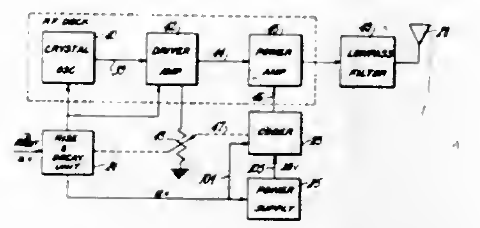
Benjamin Chandler Shaw, Granada Hills, and Howard B. Morrow, Jr., Burbank, Calif., assignors to Cook Engineering Company, Alexandria, Va.

Original No. 3,293,777, dated Dec. 27, 1966, Ser. No. 385,109, July 27, 1964. Application for reissue Dec. 23, 1968, Ser. No. 799,134

Int. Cl. G09b *9/00*

U.S. Cl. 35—1 **21 Claims**





12. Radiation survey training apparatus comprising: a radio transmitter including means to generate a continuous succession of radio frequency oscillations in transmitted radio signals; a rise and decay control unit operable to vary the signal strength of said oscillations in respective stages of rising and decaying signal strength simulating the intensity of nuclear radiation levels during rise and decay of nuclear fallout emission; and selector means for selectively operating said rise and decay unit to enable operation of the apparatus to provide output transmission as well as to confine the operation of the apparatus to simulate either a rise or a decay of fallout emission.

27,079

METHODS AND APPARATUS FOR LOGGING SPONTANEOUS POTENTIALS IN WELLS

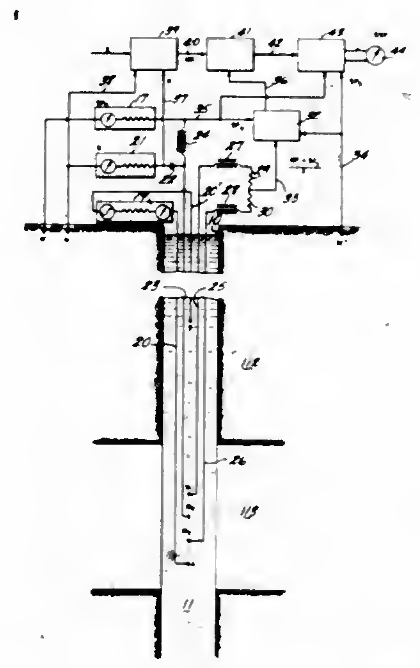
Henri-Georges Doll, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, Honston, Tex.

Original No. 2,728,047, dated Dec. 20, 1955, Ser. No. 293,242, June 13, 1952. Application for reissue Oct. 31, 1957, Ser. No. 694,700

Int. Cl. G01v *3/18*

U.S. Cl. 324—1 **34 Claims**

1. In a method of determining a spontaneous potential characteristic of a formation traversed by a bore hole, the steps of measuring the spontaneous potential at a point in the bore hole, determining the rate of change of the slope of the spontaneous potential curve for the bore hole at the said point, supplying values representing the spontaneous potential and the rate of change of the slope of the spontaneous potential curve as quantities in an equation representing the desired spontaneous potential characteristic of the formation, and indicating the solution of this equation as a function of the location of the point in the bore hole.



27,080

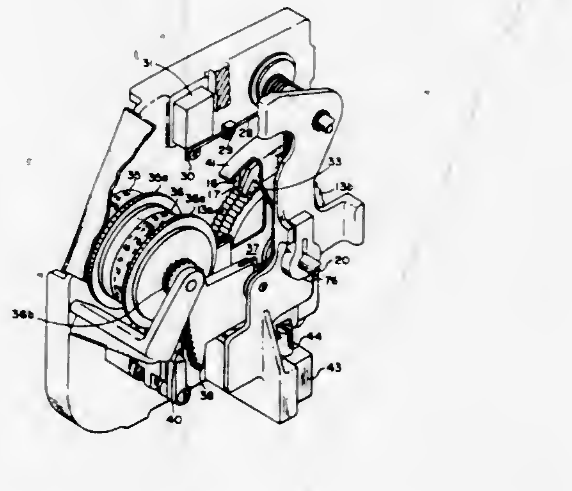
INCREMENTAL DRIVE MECHANISM

Igor Fisnar, Bayside, and Russell H. Lester, Jr., Commack, N.Y., assignors to Fairchild Camera and Instrument Corporation

Original No. 3,456,516, dated July 22, 1969, Ser. No. 668,273, Aug. 14, 1967. Application for reissue Dec. 10, 1969, Ser. No. 883,847

Int. Cl. F16h *27/02*

U.S. Cl. 74—143 **9 Claims**



A continuously rotating input shaft drives a single-revolution mechanism which, in turn, oscillates a pair of pawl carriers each carrying a pair of pawls engaging a common ratchet wheel which drives the output shaft. Individually interposed between the pawls and the ratchet wheel is a pair of individually angularly adjustable arcuate masks which limit the engagements between their respective pawls and the ratchet wheel. A shroud encloses the pawls and is movable selectively to disable either of them in order to select either of two preset incremental movements of the output drive shaft for each oscillation of the pawl carriers.

27,081

FORMATION OF LOW FRICTION GLASS-LIKE SURFACE ON ALUMINUM SILICON ALLOY FOR ENGINE OPERATION

Gilbert R. Shockley, Richmond, Harold H. Macklin, Jr., Bon Air, and Erik F. Barkman and Harold J. Coates, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va.

No Drawing. Original No. 3,33,579, dated Aug. 1, 1967, Ser. No. 378,944, June 29, 1964. Application for reissue July 28, 1969, Ser. No. 860,443

Int. Cl. F02f *5/00;* **C23f** *1/00*

U.S. Cl. 123—193 **10 Claims**

Method of treating the surface of a hypereutectic silicon aluminum base alloy article which comprises the steps of preferentially removing aluminum from and polishing surface layer of the article to provide plateaus of silicon which are substantially free of sharp edges where they protrude above the surrounding surface and the resultant high silicon aluminum base alloy article having plateaus of silicon above the surrounding surface thereof which are substantially free of sharp edges.

27,082

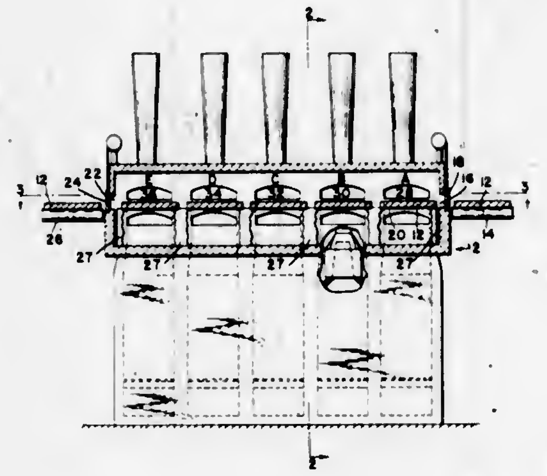
METHOD OF REHEATING A PARTIALLY COOLED CONTINUOUSLY CAST SLAB

Frank A. Alexander, Jr., West Boylston, Mass., assignor to Morgan Construction Company, Worcester, Mass.

Original No. 3,451,664, dated June 24, 1969, Ser. No. 669,480, Sept. 21, 1967. Application for reissue Sept. 2, 1969, Ser. No. 856,863

Int. Cl. F27b *9/14*

U.S. Cl. 263—52 **2 Claims**



The invention relates to a process for reheating a slab *or billet* of metal that has just been removed from a continuous casting process whereby the reheated slab *or billet* may then be sent directly from the reheating furnace to the rolling mill. The reheating process of the present invention is applied to a slab *or billet* in which the interior thereof is hotter than the exterior. Because of the inverted temperatures, the character of the heating must differ substantially from the conventional type of reheating applied to a cold slab *or billet.*

27,083

SINTERED TRANSPARENT BODIES OF ALUMINIUM OXIDE AND METHOD OF PREPARING THE SAME

Emil A. Klingler, Plochingen, Walther Dawihl, Illingen, and Erhard Dorre, Plochingen, Germany, assignors to Feldmuhle A.G., Dusseldorf, Germany

Original No. 3,311,482, dated Mar. 28, 1967, Ser. No. 522,849, Jan. 25, 1966, which is a continuation-in-part of Ser. No. 240,735, Nov. 28, 1962. Application for reissue Mar. 12, 1969, Ser. No. 806,746

Claims priority, application Germany, Dec. 1, 1961, F 35,450, Patent 1,261,436

Int. Cl. C04b *35/10*

U.S. Cl. 106—65 **18 Claims**

A dense polycrystalline body of aluminum oxide having an average grain size of less than ten microns, at least 80 percent of the grains being smaller than 7 microns, yet having high light transmissivity is obtained from aluminum oxide particles ground to a size of about 3 microns or less until their X-ray diffraction spectrum is practically free of Kα doublets by sintering the particles at 1700° to 1950° C. in a vacuum for a few minutes only.

27,084

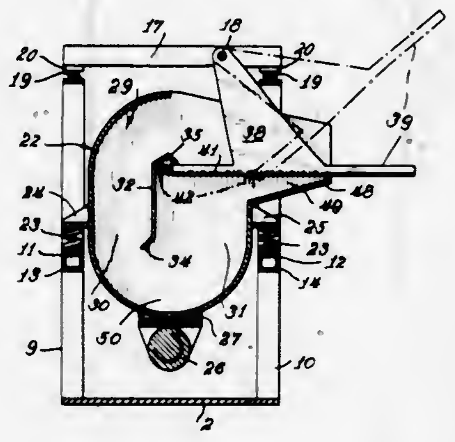
FINISHING APPARATUS AND METHOD

Gunther W. Balz, Kalamazoo, Mich., assignor to Roto-Finish Company, Kalamazoo, Mich.

Original No. 3,161,993, dated Dec. 22, 1964, Ser. No. 323,004, Nov. 12, 1963. Application for reissue Oct. 13, 1968, Ser. No. 793,202

Int. Cl. B24b *31/00, 1/00*

U.S. Cl. 51—163 **41 Claims**



Finishing machines and process whereby finishing medium and parts or work pieces are transported vertically during the finishing process, finishing medium automatically separated from finished parts in an elevated separation zone, finished parts automatically discharged upon completion of desired finishing, and finishing material returned to finishing zone by means of gravity.

27,085

SHOULDERED WASHER AND FASTENING ELEMENT

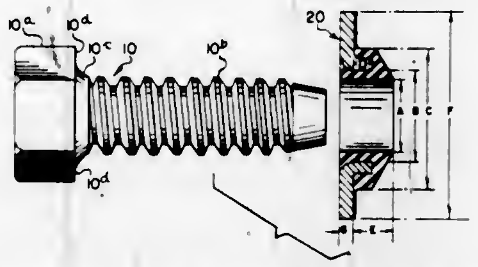
Harry C. Weidner, Jr., Shaker Heights, Ohio, assignor to Atlas Bolt and Screw Company, Cleveland, Ohio

Original No. 3,286,577, dated Nov. 22, 1966, Ser. No. 367,079, May 13, 1964. Application for reissue Nov. 21, 1968, Ser. No. 785,823

Int. Cl. F16b *35/00, 43/00*

U.S. Cl. 85—1 **14 Claims**

An assembly of a washer and fastening element, or a washer for use with a fastening element, having a shank with an enlarged head at one end thereof, wherein the washer comprises a backing member adapted to bear against the enlarged head and a rubber-like sealing ring secured to the opposite surface of the backing member. The backing member and the sealing ring are both provided with centrally disposed holes for receiving the shank of the fastening element. The backing member further includes axially directed portions contiguous to the sealing ring for determining the driven position of the fastening element and the washer.



27,086

SUPPORT FOR DRAPERIES AND THE LIKE

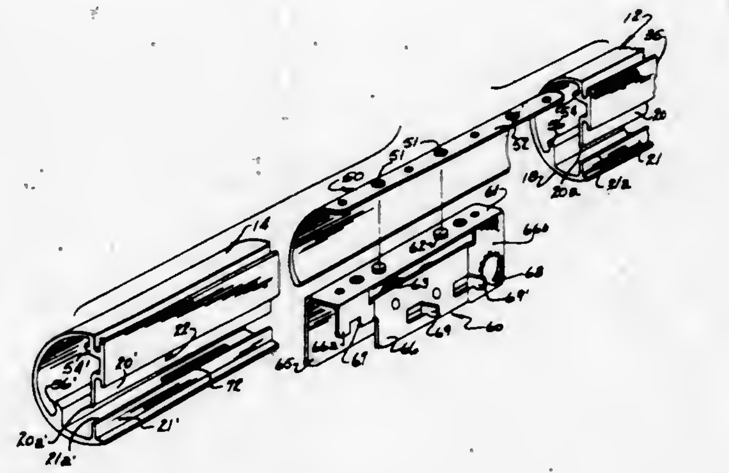
Joseph V. Graber, Waunakee, and Ferdinand F. Salzmann, Madison, Wis., assignors to Consolidated Foods Corporation, Chicago, Ill.

Original No. 3,342,247, dated Sept. 19, 1967, Ser. No. 474,397, July 23, 1965. Application for reissue Sept. 16, 1968, Ser. No. 777,926

Int. Cl. A47h *5/00*

U.S. Cl. 160—345 **7 Claims**

A hollow drapery rod having a slot for drapery carriers is formed in separate rod sections abutted end-to-end and an internal splice extends into the hollow rod sections to join the same. Splice locating means are provided on the inside of the rod sections at the longitudinal edges of the splice to retain the splice spaced from the slot and hold the rod sections aligned. Traverse cord guide means for guiding the traverse cord are connected to the splice.



PLANT PATENTS

GRANTED MARCH 2, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,030
AZALEA PLANT

Frank K. Ishida, South Gate, Calif., assignor to Monrovia Nursery Company, Azusa, Calif.
Filed Apr. 21, 1969, Ser. No. 818,160
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—57 **1 Claim**

1. A new and distinct variety of azalea plant, substantially as described and illustrated herein, and characterized by the large size and unique, brilliant color of its flowers, dense branching, and dark green foliage.

3,031
AZALEA PLANT

Frank K. Ishida, South Gate, Calif., assignor to Monrovia Nursery Company, Azusa, Calif.
Filed Apr. 21, 1969, Ser. No. 818,159
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—57 **1 Claim**

1. A new and distinct variety of azalea plant, substantially as described and illustrated herein, and characterized particularly by the large size and unique coloring of its flowers, vigorous growth, and dense, dark green foliage.

3,032
POA PRATENSIS

Eugene W. Mayer, Marysville, Ohio, and Torao T. Fuchigami, Long Beach, Calif., assignors to The O. M. Scott and Sons Company, Marysville, Ohio
Filed Aug. 2, 1968, Ser. No. 749,888
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—88 **1 Claim**

A variety of *Poa prâtensis* which is capable of producing turfs of superior quality. The variety exhibits good color, high density, and superior vigor and rhizome formation and is unusually resistant to the debilitating effects of high temperature and to turf diseases such as *Fusarium roseum,* Helminthosporium spp, and *Ustilago striiformis.*

3,033
ROSE PLANT

Seizo Suzuki, 324, 3-chome, Tamayawa-Okusawa-cho, Setagaya-ku, Tokyo, Japan
Filed Oct. 16, 1968, Ser. No. 768,199
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—6 **1 Claim**

1. A new and distinct variety of rose plant of the climbing class substantially as herein shown and described primarily characterized by: the most early-blooming, large flowers in unique color which are produced recurrently and the petals of which fall clear after full blooming, without retaining dirty remnants.

3,034
PHILODENDRON PLANT

Robert H. McColley, Orlando, Fla., assignor to Yoder Bros. Inc., Barberton, Ohio
Filed Mar. 10, 1969, Ser. No. 805,911
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—88 **1 Claim**

1. A new and distinct variety of philodendron plant substantially as herein disclosed, characterized as to novelty by its compact growth with better plant volume, improved petiole and stem coloration, high tolerance to unfavorable home conditions, excellent resistance to "shotgun fungus" and bacterial soft rot.

3,035
APPLE TREE

Corliss R. Maxam, 308 Beverly Road,
Barrington, Ill. 60010
Filed Mar. 29, 1968, Ser. No. 717,478
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—35 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by fruit of uniform size and uniform deep red color with no markings, the fruit having a dark red stem, dark green leaves each having a light green underside, red petiole and red main and secondary veins, heavy productivity, uniform coloring habit of fruit throughout the tree with simultaneous maturation throughout the tree.

3,036
GARDENIA PLANT

Frank L. Hiers, P.O. Box 688, Macclenny, Fla. 32063
Filed Oct. 3, 1968, Ser. No. 764,972
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—54 **1 Claim**

1. The new and distinct variety of gardenia herein shown and described, identified by the combination of characteristics set forth hereinabove.

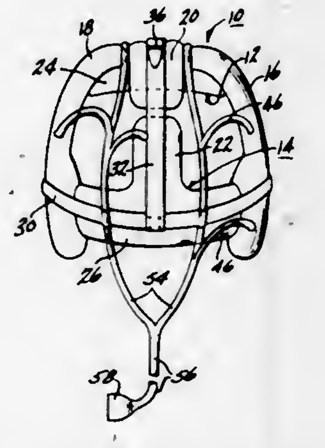
PATENTS

GRANTED MARCH 2, 1971

GENERAL AND MECHANICAL

3,566,409
VENTILATED BUMP HAT

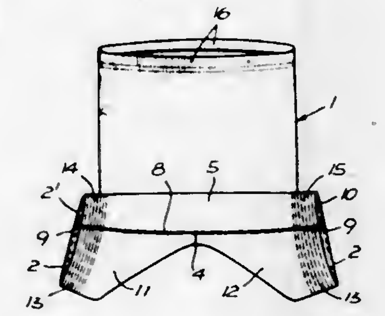
James H. Hopper, Hazardville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Nov. 8, 1966, Ser. No. 592,939
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 **5 Claims**



A protective headgear device to be worn over extended periods of time by persons, particularly occupants of moving vehicles, subject to head injuries caused by bumping against surrounding objects, compartment walls, etc., wherein the device is provided with forced air ventilation to decrease discomfort resulting from constant wear of the headgear.

3,566,410
TROUSERLIKE GARMENT

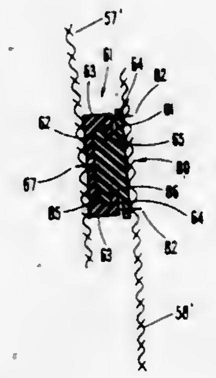
Martin Merk and Karl Hügle, Radolfzell, Bodensee, Germany, assignors to Trikotfabriken J. Schiesser A.G., Radolfzell, Bodensee, Germany
Filed Oct. 11, 1965, Ser. No. 494,597
Claims priority, application Germany, Oct. 14, 1964, T 27,191
Int. Cl. A41b *9/02, 9/04*
U.S. Cl. 2—224 **1 Claim**



The trouserlike garment comprising a tubular piece with two legs, each leg having a welt on its end. The garment has a gusset the ends of which extend into the ends of the legs and have there the same welt-structure as the welts of the legs. The garment is formed by providing a tubular piece of fabric which is cut open along two diametrically opposing lines each beginning at said welt and leading parallelly to wales unto a point forming the crotch. A strip-shaped gusset formed by a single fabric piece and having longitudinal parallel sides and end portions of welt-structure is provided. The longitudinal sides of the gusset are sewed together with the edges of the cut parts of the tubular piece so that both welt-structured end portions of said gusset and the welt portions of said tubular piece together form substantially uniform welt-structured ends of both legs of the trouserlike garment.

3,566,411
PANTY HOSE CONSTRUCTION

Melvin J. Gordon, Wellesley Hills, Mass., assignor to Manchester Hosiery Mills, Manchester, N.H.
Filed Apr. 16, 1968, Ser. No. 721,804
Int. Cl. A41b *11/00*
U.S. Cl. 2—240 **4 Claims**



A panty hose construction having a separable torso or panty portion and leg portions in which the leg or hose portions are removably secured at the upper periphery to the periphery of the leg openings by fastening means. In one embodiment the fastening means for each hose portion comprises an elastic band that is secured continuously about the leg opening of the panty portion with a series of uniformly spaced fastener halves projecting from the band. Complementary fastener halves are secured to another elastic band at the same uniformly spaced distances with the other elastic band in turn secured to the upper periphery of the hose portion. In another embodiment the fastener consists of a series of rings stitched in spaced relation to the upper periphery of the hose portion at uniform distances with a series of complementary positioned hooks secured to the leg opening of the panty portion. In a third embodiment, an open mesh border extends continuously about and downwardly from the leg openings of the panty portion which mesh is adapted to engage hooks in turn secured to the upper periphery of the hose portions. A fourth fastening means comprises a longitudinally elastic stretchable extruded fastener having complementary extruded female and male portions with the female portion secured to the panty portion about a leg opening and the male portion secured to the inner upper periphery of the hose portion and adapted to be interlocked by pressured inter-engagement with the female portion.

3,566,412
FLAME-RESISTANT FABRIC COMPOSITION

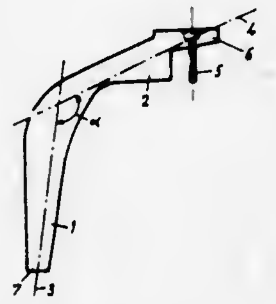
William John Myles, Summit, N.J., assignor to Celanese Corporation, New York, N.Y.
No Drawing. Filed Aug. 27, 1968, Ser. No. 755,737
Int. Cl. A41d *27/00*
U.S. Cl. 2—243 **7 Claims**

The flammability of sewn textile structures is reduced by using meltable sewing thread in all manufacturing operations requiring a sewing process step.

3,566,413

MIDDLE EAR PROSTHESIS

Jean F. E. Marquet, 239 Lange Leemstraat,
Antwerp, Belgium
Filed Apr. 11, 1969, Ser. No. 815,392
Claims priority, application Belgium, Apr. 12, 1968,
713,666
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **5 Claims**

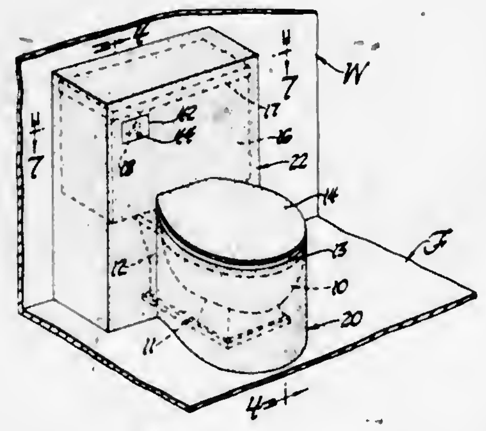


A middle ear prosthesis to restore hearing by mechanically connecting the hammer to the stirrup-bone plate or the internal ear when damage has occurred to the interconnecting bone structure in the middle ear. The prosthesis has two arms interconnected to form an angle of slightly greater than 90° between their axes with an arm having a free end portion provided with a self tapping screw for attachment to the hammer while the free end of the other arm is in contact with the stirrup plate or internal ear.

3,566,414

TOILET ENCLOSURE

Margarete Basner, 18511 Margareta,
Detroit, Mich. 48219
Filed Feb. 24, 1969, Ser. No. 801,296
Int. Cl. A41k *17/00;* **B65b** *11/00;* **B65d** *65/02;*
B65h *81/00*
U.S. Cl. 4—1 **1 Claim**



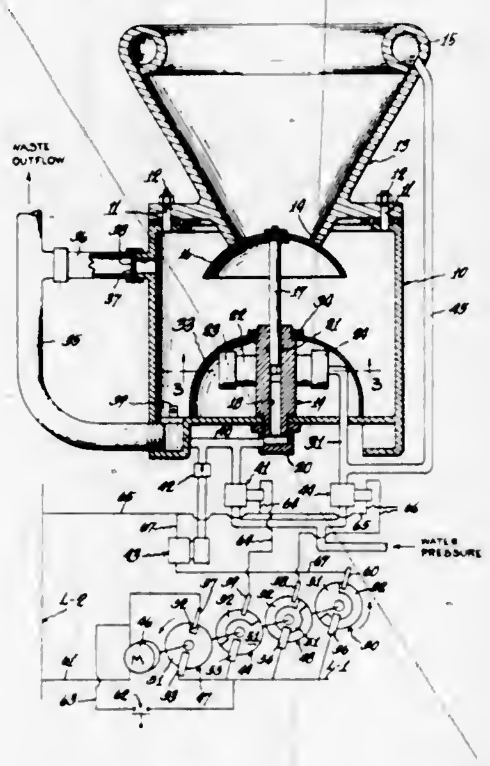
An enclosure for water closets of the type including a floor mounted bowl and a water tank disposed rearwardly of the bowl comprising a free-standing semielliptical frame enclosing the bowl and a free-standing generally rectangular frame enclosing the tank, the frames combining to produce a unitary appearance. A decorative material covers the frames.

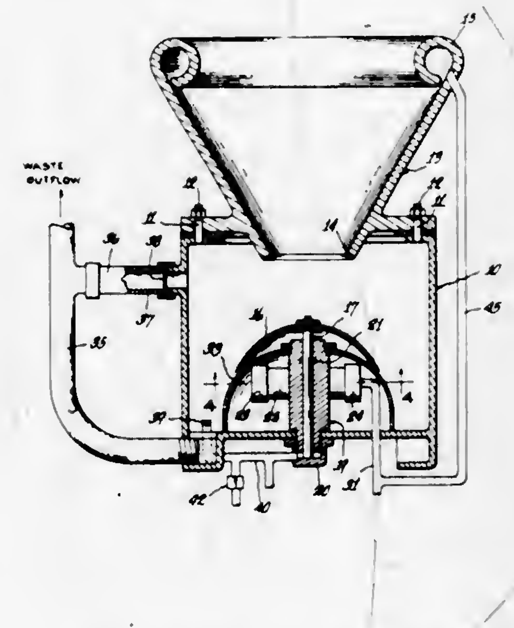
3,566,415

PRESSURE DISCHARGE WASTE DISPOSAL APPARATUS

Duane Culp, P.O. Box 345, North Lima, Ohio 44452
Filed Aug. 20, 1969, Ser. No. 851,581
Int. Cl. E03d *1/36, 1/30, 3/10*
U.S. Cl. 4—10 **12 Claims**

A pressure discharge waste disposal device, such as a toilet, for use where waste must be discharged upwardly against the force of gravity or against a head of pressure resulting for any other reason. Said device comprises a chamber for receiving waste, a valve in the chamber shiftable to one position to permit gravitation of waste and flow of water into the chamber, and shiftable to another position so that air under pressure may be introduced to forceably discharge the waste and water from the chamber through a waste conduit.





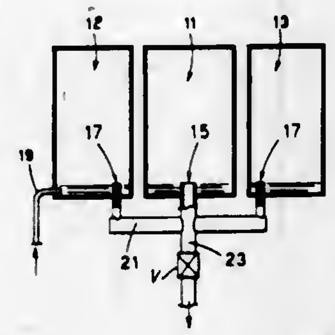
3,566,416

WATER CLOSET APPARATUS

Pietro Altieri, Pisa, Ezio Giunchiglia, Tirrenia, Pisa, and Roberto Trebbi, Leghorn, Italy, assignors to Pietro Altieri, Ezio Giunchiglia, Roberto Trebbi, and Giuseppi Conti, Leghorn, Italy
Filed Sept. 5, 1968, Ser. No. 757,539
Claims priority, application Italy, Sept. 9, 1967,
4,728/67; June 12, 1968, 4,093/68
Int. Cl. E03d *7/22*
U.S. Cl. 4—40 **16 Claims**

A tank for water closet apparatus has first and second closed chambers communicating via an opening which is smaller in size than a drain aperture from the first chamber, the second chamber being connected to a supply circuit such that when the drain aperture is closed the chambers are filled with water and a compressed air cushion is formed in each chamber whereas when the drain aperture is opened water is discharged therethrough

rapidly and intensely in a first drain stage whereafter the water from the second chamber is more slowly and gradually discharged during a second drain stage.

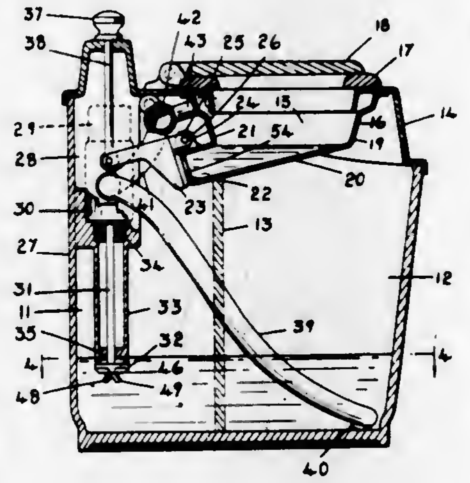


The chambers are preferably formed by two molded sections connected together with a gasket interposed therebetween.

3,566,417

COMBINATION TOILET AND HOLDING TANK

William K. Gross, Agincourt, Ontario, Canada, assignor to Canadian Gisholt Plastics Limited, Toronto, Ontario, Canada
Filed Nov. 21, 1968, Ser. No. 777,629
Claims priority, application Canada, Nov. 25, 1967,
6,089
Int. Cl. E03d *11/10*
U.S. Cl. 4—77 **7 Claims**



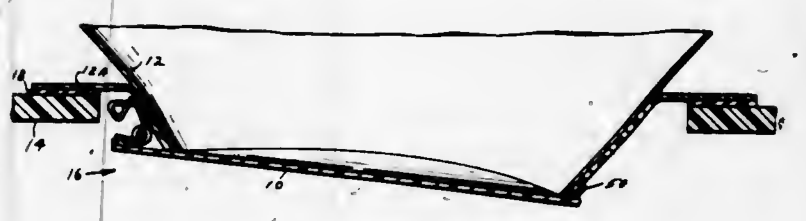
A toilet for house trailers, boats, cottages and the like has a holding tank for container sewage of organic origin, a perforate partition dividing the holding tank into a primary chamber which contains a spinning macerator which produces a cyclo-flow of liquid therein and a secondary chamber; the baffle acting as a deflector to maintain the cyclo-flow and prevent current into the secondary chamber. The rotating plate of the macerator which creates the cyclo-flow and breaks up solids has a pair of downwardly projecting fingers that lean backward relative to the direction of spin of the rotating plate.

3,566,418

SEPARATOR FLAP ASSEMBLY

Kenneth B. Carlson, Granada Hills, and Norbert J. Palmer, Playa del Rey, Calif., assignors to Monogram Industries, Inc., Venice, Calif.
Filed May 27, 1968, Ser. No. 732,432
Int. Cl. E03d *11/10*
U.S. Cl. 4—84 **8 Claims**

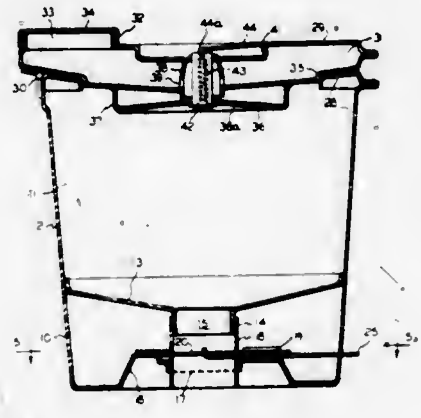
A toilet assembly involves a flushing bowl and a separator flap pivotally mounted and spring-urged near the lower end of such bowl to normally block the view into a lower, bottom tank. The flap is displaceable by flushing liquid to an open position during normal flushing operations and the spring then returns the flap automatically to closed position. For cleaning and other purposes the flap may be moved to an extreme open position, wherein it is automatically maintained in a latched condition by a specially constructed spring which, in addition, performs the other functions mentioned above.



3,566,419

PORTABLE TOILET WITH BOTTOM DISCHARGE VALVE

George J. Danko, Glenmar Park, Md.
(Rte. 1, Box 276–A, White Stone, Va. 22578)
Filed Apr. 2, 1969, Ser. No. 830,167
Int. Cl. A47k *11/02*
U.S. Cl. 4—128 **5 Claims**



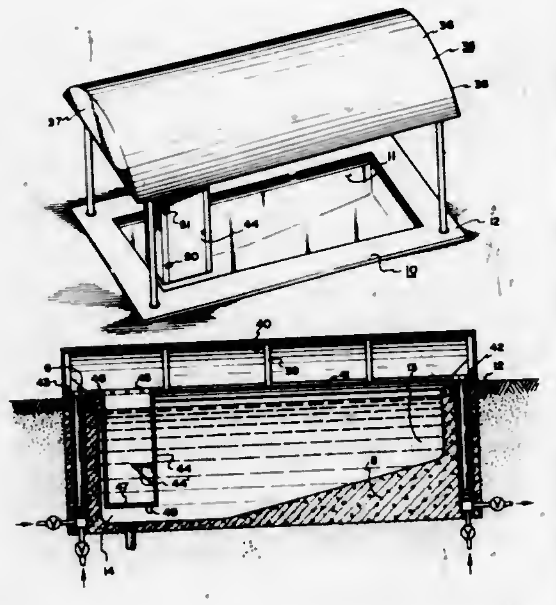
A portable toilet which has a bottom discharge valve in the form of a flexible tube which is closed by a linkage actuated pair of opposed plates, and which has a hollow cover adapted to contain a charge of cleaning and rinsing liquid and valve means to control the discharge of the cleaning and rinsing liquid into the bowl of the toilet and to break the vacuum in the bowl.

3,566,420

SWIMMING POOL COVER AND SUBMERGIBLE DRESSING ROOM COMBINATION

Ro Mell Peterson and Le Roy S. Peterson, both of 875 S. Redwood Road, Salt Lake City, Utah 84104
Filed Aug. 26, 1968, Ser. No. 755,044
Int. Cl. E04h *3/18*
U.S. Cl. 4—172.11 **3 Claims**

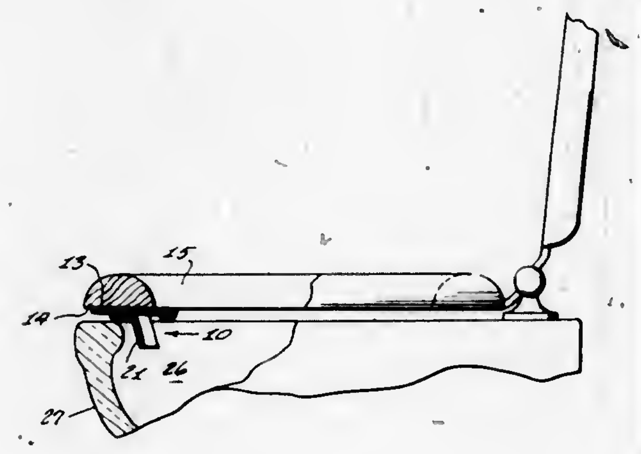
The present invention presents an elevatable, preferably rigid, swimming pool cover and, preferably in combination therewith, a submergible dressing room structure. The cover is designed to offer shade to the pool area as well as provide substantial protection against accidents when the pool is not in use. The dressing room structure provided and cooperatively mounted to the cover structure affords a convenient change enclosure at the pool area and, additionally, permits the dressing room structure to be submerged in the pool when the pool is not in use. This avoids the necessity of permanent structures erected separate from the pool.



3,566,421

TOILET SEAT GUARD

Olive M. Waddle, 8800 N. Highway Drive,
New Brighton, Minn. 55112
Filed Aug. 28, 1968, Ser. No. 755,867
Int. Cl. A47k *13/00*
U.S. Cl. 4—237 **1 Claim**



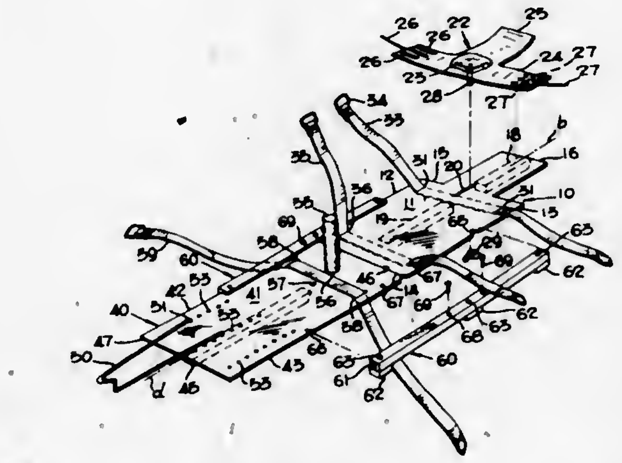
A deflector secured to the underside of a forward portion of a toilet seat so to deflect urine into a toilet bowl and not allow the same to seep through the opening between the seat and the vitreous toilet bowl and run down the front thereof thus ruining a floor covering.

3,566,422

SPINE BOARD APPARATUS FOR RESCUE OF FRACTURE PATIENTS AND THE LIKE

Allen P. Klippel, 7112 Wydown Blvd.,
Clayton, Mo. 63105
Filed Jan. 23, 1969, Ser. No. 793,514
Int. Cl. A61g *7/10*
U.S. Cl. 5—82 **5 Claims**

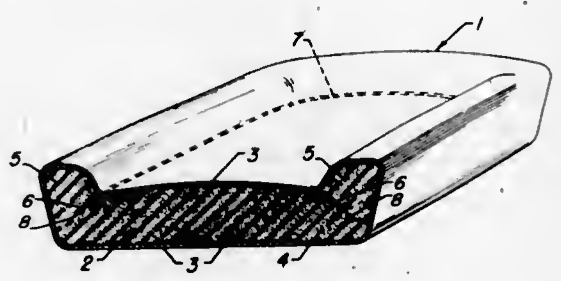
Spine board apparatus to be carried, dismantled, in emergency vehicles, for use in rescuing and tarnsporting fracture patients. A short upper board member is first secured behind the patient's back and neck. The patient's lower body is then secured to a short lower board member. Each of these board members has a centerline keel serving as a balancing support. When the two board members are aligned, resting on their keels and tilted downward to ward one side edge, a grooved rail is applied over the other side edges, to connect them. The assembly is then tilted to raise the lowered edges, and a second rail is applied to connect them.



3,566,423

CONTOURED CUSHION

Edward J. Reinfeldt, Brookfield, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Sept. 5, 1968, Ser. No. 757,669
Int. Cl. A47c *27/00*
U.S. Cl. 5—345 **1 Claim**



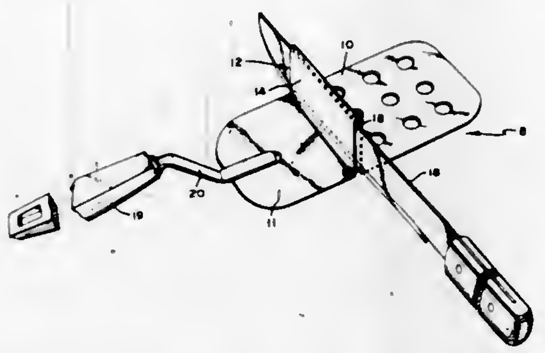
In a contoured cushion having a pad and a separate skin, the improvement, comprising strips of material sewn to the underside of said skin and fastened between a central portion and edge portions of said pad, whereby the skin is pulled taut over the central portiton of said pad and is contoured to the intersection of the outer surface of the central portion of the pad with the outer surfaces of the edge portions of the pad.

3,566,424

COMBINATION SPATULA

Henry Burbig, 1519 Metropolitan Ave.,
New York, N.Y. 10462
Filed Jan. 13, 1969, Ser. No. 790,651
Int. Cl. A47j *43/28;* **B25f** *1/00;* **B27g** *17/04*
U.S. Cl. 7—1 **3 Claims**

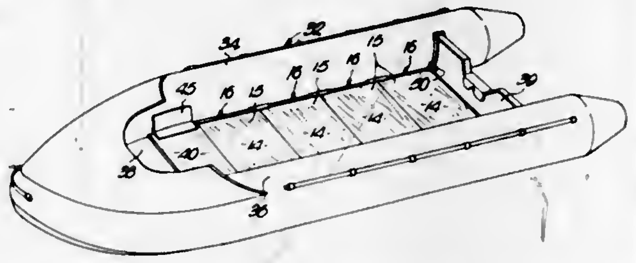
A combined spatula or pancake turner, and holddown device with a channel for guiding a cutting knife. The spatula has a blade formed from a single piece of flat spring sheet metal with front and rear sections lying on about the same plane and is formed with an inverted U-shaped channel between the sections which extends upwardly from said plane. The channel forms a slideway to receive a knife for cutting flat articles of food which are firmly held against a support while being cut with the knife. The upper end of the channel also forms a bending area to permit the second section to be bent upwardly while the first section is held flat against a pan to remove articles from the pan lying near the edge thereof.



3,566,425

FLOORBOARD APPARATUS FOR INFLATABLE BOATS OR THE LIKE

Charles R. Welty, Overland Park, Kans., assignor to Bonair Boats, Inc., Merriam, Kans.
Filed Sept. 10, 1969, Ser. No. 856,776
Int. Cl. B63b *7/08*
U.S. Cl. 9—2 **9 Claims**



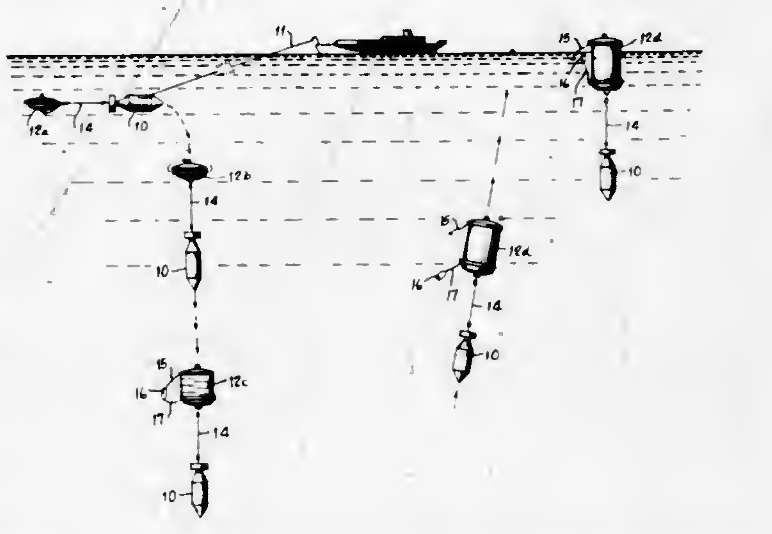
Floorboard apparatus comprising a plurality of floor sections adapted to be disposed in successively contiguous relationship releasably interconnected by slidable coupling means. Each of the essentially identical sections includes means thereon presenting enlarged portions along two side edges of each section. A plurality of generally C-shaped tubular members are slidable along the enlarged portions and move from a first position upon a section permitting adjacent sections to be moved to and from aligned relationship to a second position overlappingly engaging the enlarged portions of a pair of adjacent sections thereby locking the sections in aligned relationship.

3,566,426

FLOTATION SYSTEM

William M. Davidson and Howard W. Cole, Jr., Mountain Lakes, N.J., assignors to Proteus, Inc., Mountain Lakes, N.J.
Filed Apr. 30, 1968, Ser. No. 725,398
Int. Cl. B63b *21/52*
U.S. Cl. 9—9 **10 Claims**

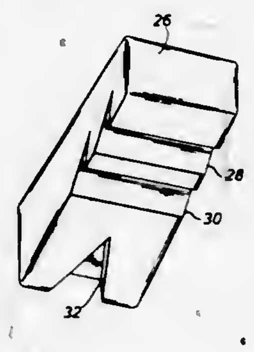
A flotation device useful for lifting a submerged load to the surface comprises a clam-shaped container made up of a top cover and a bottom cover and an inflatable bag therein. The open end of the inflatable bag is fixed to the inside of the bottom cover and the closed upper end of the inflatable bag is fixed to the inside of the upper cover, said top and bottom covers being releasably gripped together. Gas generating means preferably made up of a solid chemical compound reactive upon contact with water to generate a gas, such as hydrogen gas, is provided within the container. The container is free flooding and when the gas generating means is activated to expose said chemical compound, such as a hydride, oxide or peroxide of a metal selected from the group consisting of lithium, sodium, calcium, potassium and aluminum and mixtures thereof, to contact with water, the resulting generated gas releases the top cover from the bottom cover and is confined within and inflates the inflatable bag so as to lift the submerged object to which the device is attached.



3,566,427

WATER WALKING APPARATUS

Bill Davis and Larry T. Hodon, Austin, Tex., assignors to Bill Davis, doing business as Texas Urethanes, Austin, Tex.
Filed Feb. 12, 1969, Ser. No. 798,663
Int. Cl. A63c *15/00*
U.S. Cl. 9—310 **5 Claims**



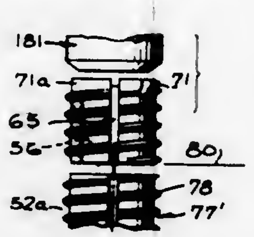
For use in water, apparatus permitting the user to walk on the water through the use of said apparatus which comprises suitably shaped receptacles for receiving the feet of the user to provide suitable support thereto, and which comprises preferably rectangular members with sides which slightly taper and further preferably including means in the water to enable the user to move one foot forward with respect to the other, said means preventing backward slippage of the apparatus in the water.

3,566,428

METHODS OF FORMING THREADED FASTENERS HAVING FLANGES

Robert Neuschotz, 1162 Angelo Drive,
Beverly Hills, Calif. 90210
Division of application Ser. No. 750,072, Aug. 5, 1968, now Patent No. 3,513,896, which is a continuation-in-part of applications Ser. No. 597,455, Nov. 28, 1966, now Patent No. 3,405,591, Ser. No. 648,598, June 26, 1967, and Ser. No. 664,063, Aug. 29, 1967, now Patent No. 3,451,181. This application Aug. 14, 1969, Ser. No. 850,703
Int. Cl. B21d *53/24*
U.S. Cl. 10—86 **14 Claims**

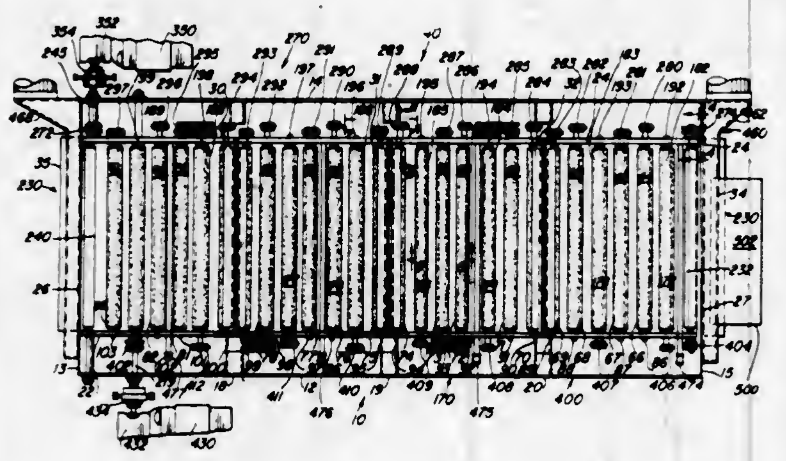
Methods for producing threaded fasteners having external threads to be screwed into a carrier part, and having a second set of threads for connection to another member, with the fastener having a laterally projecting flange at the axially outer end of the external threads, which flange may limit threaded advancement of the fastener into the carrier part. The flange is formed by initially providing a projection extending generally axially at the end of the external threads, and then deforming the projection to form an increased diameter flange.



The fastener may be made from stock having an outer surface which is initially non-cylindrical and shaped to at least partially define the configuration of the external threads.

3,566,429
APPARATUS FOR CLEANING PLANAR OBJECTS

William R. Hamilton, Western Springs, Ill., assignor to Baron Blakeslee, Inc., Chicago, Ill.
Filed June 20, 1968, Ser. No. 738,576
Int. Cl. A46b *13/02*
U.S. Cl. 15—77 **14 Claims**

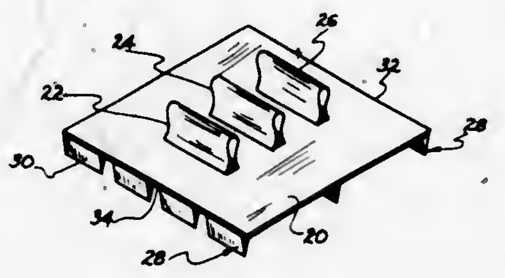


Relatively lightweight objects such as electronic circuit boards may be cleaned by allowing the object to pass between pairs of opposed cylindrical drive brushes that are rotated at a speed such that the object is driven in a predetermined direction at a speed equal to the tangential velocity of an outer edge portion of each brush. The drive brush bristles apply cleaning forces substantially perpendicular to the surface of the object. In addition, independently driven pairs of opposed cylindrical skimming brushes may be provided between certain pairs of the drive brushes along the path traveled by the object, and the skimming brushes are rotated in a direction tending to aid the movement of the object along the path in the predetermined direction and at a speed such that the tangential velocity of an outer edge portion of each skimming brush substantially exceeds the speed of the object, thereby applying tangential cleaning forces. Cleaning of the object is improved when carried out in the presence of a cleaning solvent.

3,566,430
WINDOW SCRAPING DEVICE

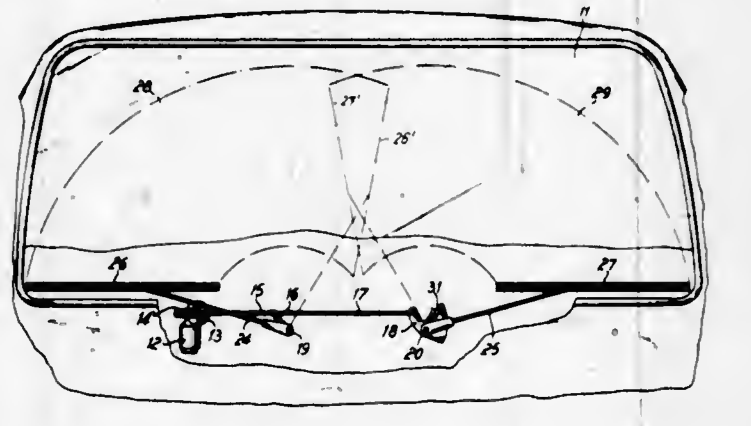
Edward L. Young, 415 Amity Road, Galloway, Ohio 43119
Filed Dec. 11, 1968, Ser. No. 782,937
Int. Cl. A47l *1/06, 1/16*
U.S. Cl. 15—236 **3 Claims**

A scraping tool for removing snow or ice from vehicle windows and windshields which includes a flat, flexible base provided with a plurality of scraping means arranged on one surface thereof in spaced, substantially parallel rows. The opposite surface of the base preferably includes three spaced handle means arranged to permit the user to flex the base to conform to either a concave or convex surface by selective pressure on certain of the handle means thereby assuring maximum contact between the scraping means and the surface being scraped.



3,566,431
WINDSHIELD WIPER ASSEMBLY

Johann Jäckel, Baden-Baden, Erich Kolb, Eisenthal, Buhl, and Hubert Mainka, Buhlertal, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Dec. 31, 1968, Ser. No. 788,126
Claims priority, application Germany, Jan. 13, 1968, P 16 55 964.1
Int. Cl. A47l *1/00;* **B60s** *1/02*
U.S. Cl. 15—250.17 **15 Claims**

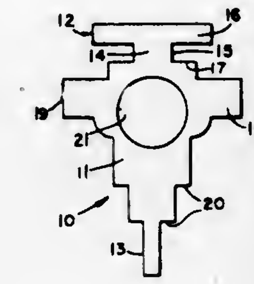


A windshield wiper assembly wherein two blades move back and forth in the same direction when the assembly is in use, wherein one of the blades is started with a delay following starting of the other blade, and wherein the one blade comes to rest in parking position while the other blade continues to move toward parking position to thereby effect stoppage of the drive. The means for moving the one blade comprises a coupling which is mounted externally of the prime mover of the windshield wiper assembly.

3,566,432
WINDSHIELD WIPER SQUEEGEE

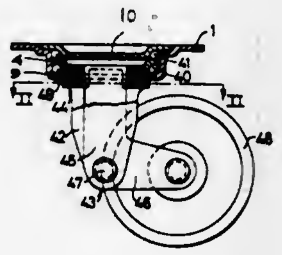
William J. Quinlan and Lawrence L. Huver, Hastings, Mich., assignors to Hastings Manufacturing Company, Hastings, Mich.
Filed Jan. 17, 1969, Ser. No. 792,096
Int. Cl. B60s *1/32, 1/28;* **A47l** *1/02*
U.S. Cl. 15—250.36 **9 Claims**

A squeegee component of a windshield wiper blade, the squeegee having an elongated elastomeric body with a longitudinal mounting portion and a longitudinal wiping lip. The body is progressively narrower in the direction of the lip and is provided in its relatively wide portion with a longitudinal hollow core. The core is deformable in cross-section to correspondignly deform and vary the resiliency of portions of the body surrounding the core, as a function of changes in wiping forces at the lip.



3,566,433
CASTER WHEEL ARRANGEMENT WITH DAMPING DEVICE

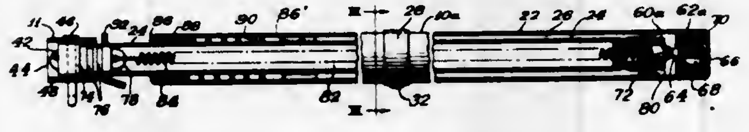
Gunnar Erik Werner Lewin, Viggbyholm, Sweden, assignor to AB Lyckeaborgs Bruk, Torskors, Sweden
Original application Nov. 20, 1967, Ser. No. 684,160. Divided and this application June 2, 1969, Ser. No. 829,284
Claims priority, application Sweden, Dec. 2, 1966, 16,521/66; June 2, 1967, 7,736/67; June 30, 1967, 9,906/67
Int. Cl. A47b *91/00*
U.S. Cl. 16—44 **1 Claim**



A caster wheel arrangement is provided with means for damping shocks and jars when obstacles are encountered by the caster wheel whereby the structure of the caster wheel arrangement as well as the load carried thereby is protected from damage.

3,566,434
TELESCOPIC CLOSER FOR DOORS

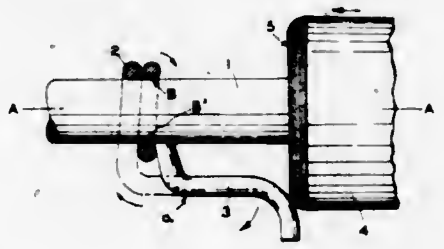
James J. Grinsteiner, 39 W. Forest Ave., Roselle, Ill. 60172
Filed Feb. 3, 1969, Ser. No. 795,797
Int. Cl. E05f *3/10*
U.S. Cl. 16—66 **28 Claims**



Closer for slide closure and hinged closures. The closer is of the telescopic type and, when the closure controlled thereby is open, the rate of restoration of the closure to closed position is controlled by a spring and an air cushion, both internally located in the closer. By manipulation of external devices provided, the effective spring tension and the bleed rate of the air cushion in the closer are readily adjusted. A vacuum breaking valve on one of the telescoping members automatically opens and prevents a vacuum from developing in the volume of the air cushion when the closer is extended.

3,566,435
STOP MEANS FOR PNEUMATIC DOOR CHECKS

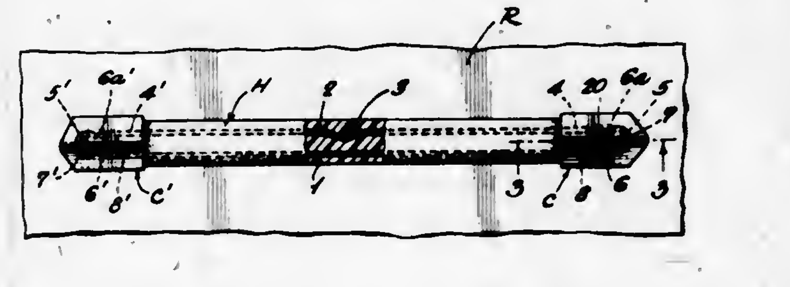
Kazuo Nakamura, Kashihara, Osaka, Japan, assignor to Hinaka Mfg. Co., Ltd., Osaka, Japan
Filed June 27, 1969, Ser. No. 837,176
Int. Cl. E05f *5/06*
U.S. Cl. 16—85 **1 Claim**



A settable stop means for pneumatic door checks. A coiled spring having an inner diameter slightly larger than the diameter of the piston rod of the door check is placed around the rod, and the opposite end portions of the coiled spring are bent in the same direction substantially parallel to the axis of the coiled spring, and are then bent outwardly away from said axis. The coil spring fits loosely on the rod, with the end portions extending toward the cylinder of the door check, so that the stop means can be moved along the piston rod into engagement with the door check.

3,566,436
COLLAPSIBLE STRAP HANDLE FOR LUGGAGE AND THE LIKE

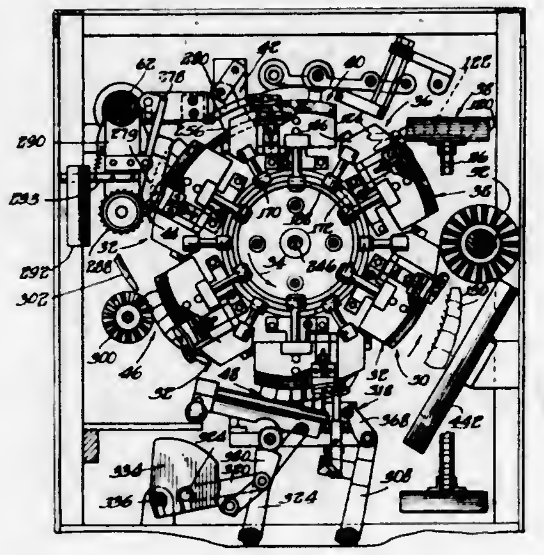
Lou F. Marks and Bela G. Szabo, Pittsburgh, Pa., assignors to Bruce Plastics, Inc., Moon Run, Pa.
Filed Apr. 11, 1969, Ser. No. 815,360
Int. Cl. A47b *95/02*
U.S. Cl. 16—115 **14 Claims**



A strap handle for luggage and analogous portable receptacle bodies adapted to assume alternate operative and inoperative positions when extended and collapsed, respectively, and comprised essentially of a wire end loop of spring steel extending from each end of the handle in embracing relation to a relatively fixed spacer sleeve of hardened material mounted on the receptacle. Each loop is adapted to assume alternate positions when an intermediate narrowed portion formed therein moves relative to its mounting sleeve, as the loop is shifted inwardly when the body is lifted, to dispose the sleeve at the outer end of the loop, and outwardly when the handle is collapsed to dispose the sleeve between the narrowed portion and the inner end of each loop.

3,566,437
SHRIMP PROCESSING MACHINE AND METHOD

Gregor Jonsson, Lake Forest, Ill. (% Gregor Jonsson Associates Inc., 1520 Berkeley Road, Highland Park, Ill. 60035)
Filed Dec. 16, 1968, Ser. No. 783,807
Int. Cl. A22c *29/00*
U.S. Cl. 17—48 **30 Claims**

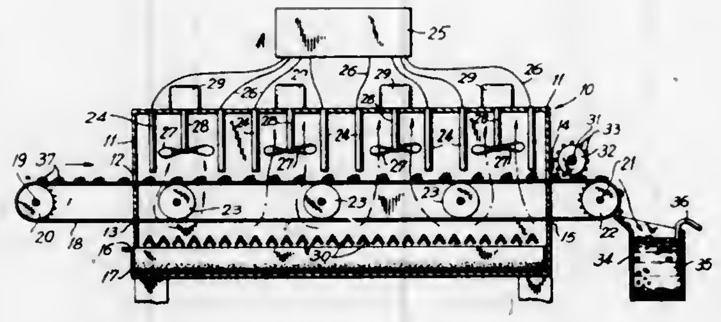


A shrimp processing machine and method including an intermittently operating conveyor from which beheaded shrimp are pulled tail first by sets of clamps on a rotary wheel turning at a uniform rate. The shrimp shells and part of the meat are slit, and the sand vein is removed by the rotary brush. The intermittently operating conveyor mechanism is driven from the rotary wheel by a Geneva drive mechanism.

The shrimp meat is finally removed from the shell by a shell separating mechanism including a plurality of spikes which penetrate the meat and move forward at a more rapid rate than the peripheral movement of the shells as carried by the clamps on the wheel for a short distance, partially to separate the meat from the shell, the spikes then moving rearwardly relative to the direction of the wheel positively to pull the meat from the shell. Positive stripping means is provided to remove the meat from the spikes, and either a mechanical wiper or water jets move the meat from the stripper to a utilization station.

3,566,438
SHUCKING OF BIVALVES

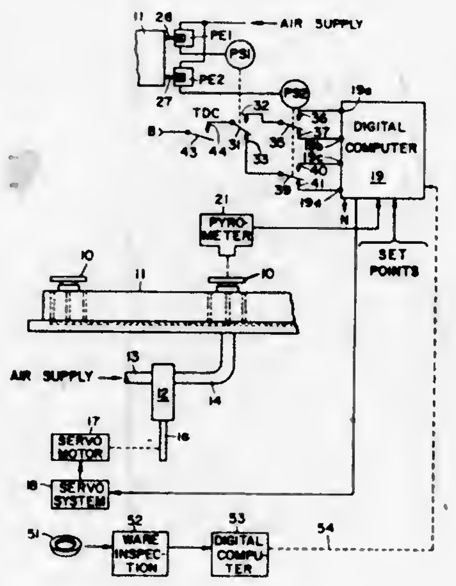
Harold F. Snow, Scarborough, Maine, assignor to Borden, Inc., New York, N.Y.
Filed Feb. 23, 1968, Ser. No. 707,666
Int. Cl. A22c *29/00*
U.S. Cl. 17—74 **6 Claims**



This invention relates to the method of and apparatus for separating the meats of bivalves from the shells and comprises a cell, means for continuously moving said bivalves through said cell, means for heating said cell, and means for directing a stream of high velocity heated gas upwardly about said bivalves, means for crushing said shells, and means for displacing said shells from said meats.

3,566,439
TEMPERATURE CONTROL SYSTEM FOR MOLDS

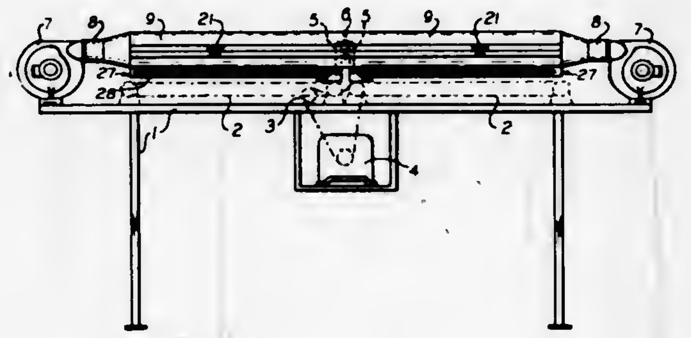
Raymond J. Mouly, Corning, and Robert L. Thomas, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Nov. 22, 1968, Ser. No. 778,280
Int. Cl. B29c *1/00;* **G01k** *17/00*
U.S. Cl. 18—4 **2 Claims**



A system for automatically sensing and controlling the temperature of each of a plurality of molds to within a desired temperature range therefor, each such mold being intermittently positioned at a station where cooling fluid supplied to each mold is adjusted in accordance with a programmed manipulation of a signal representing the sensed temperature of the respective mold and a set point signal representing the desired temperature for such mold.

3,566,440
APPARATUS FOR THE MANUFACTURE OF ARTIFICIAL, NEEDLE BEARING BRANCHES

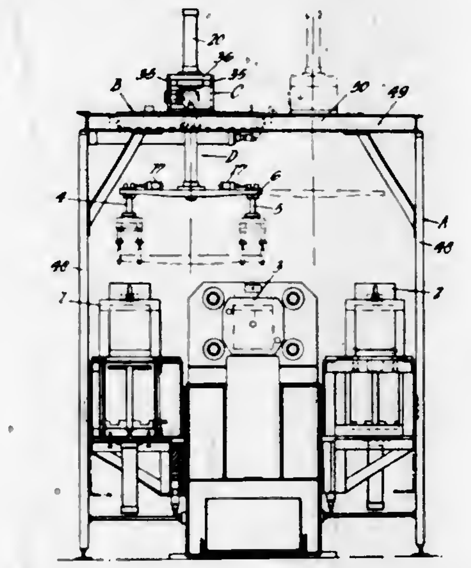
Alfred Romanowski, Kleineichen, and Wilfried Krueger, Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Jan. 27, 1969, Ser. No. 793,946
Claims priority, application Germany, Jan. 26, 1968, P 17 53 116.7
Int. Cl. B29b *3/00;* **B29c** *1/00*
U.S. Cl. 18—5 **8 Claims**



Process for production of artificial, needle bearing branches, such as stems or twigs, from pieces formed of a core member and needles made of thermoplastic material, projecting radially outwardly from the core member, which are in the form of cylindrical brushes, the process comprising heating the needles and drawing the cylindrical branch axially through and relative to an opening of a shaping tool. The opening is shaped so that the shaping tool works the needles during the drawing. The heating is correlated with the drawing so that needles are shaped relative to the core. The process and apparatus for practice thereof are claimed.

3,566,441
INJECTION/BLOW MOULDING MACHINE

Michael Thorn and William Gemmell Brackenbridge, Kingston-on-Thames, England, assignors to Blewis & Shaw (Plastics) Limited, Kingston upon Thames, England
Continuation of application Ser. No. 577,456, Sept. 6, 1966. This application June 4, 1969, Ser. No. 830,321
Claims priority, application Great Britain, May 26, 1966, 23,644/66
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **9 Claims**

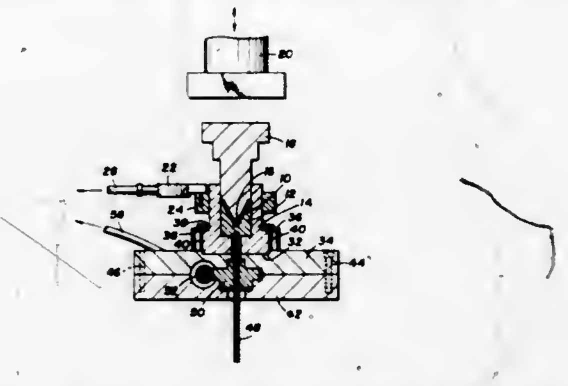


The disclosure relates to an injection/blow moulding machine in which the parison stick transfer mechanism can be connected to and disconnected from the parison sticks employed in the moulds of the machine. The transfer mechanism is arranged so that a typical sequence of operations in respect of an injection mould and a pair of blow moulds served by the injection mould, is as follows: (1) the parison sticks respectively of one of the blow moulds and the injection mould are connected to the transfer mechanism, (2) after that blow mould and the injection mould have opened, simultaneously, the parison stick of the latter is transferred to the blow mould and the parison stick of the blow mould is transferred to the injection mould (i.e., after stripping off of the blown article), (3) the parison sticks of the blow mould concerned and the injection mould are disconnected, after the moulds have closed, from the transfer mechanism, and (4) the transfer mechanism then assumes a position to carry out a like transfer between the injection mould and the other of the two blow moulds.

3,566,442
METHOD AND APPARATUS FOR THE MANUFACTURE OF THIN WALLED ARTICLES

John R. Hakala, Fort Worth, Tex., assignor to Harrison Jet Guns, Inc., Houston, Tex.
Filed Dec. 22, 1967, Ser. No. 692,799
Int. Cl. B30b *3/04, 11/00*
U.S. Cl. 18—16 **3 Claims**

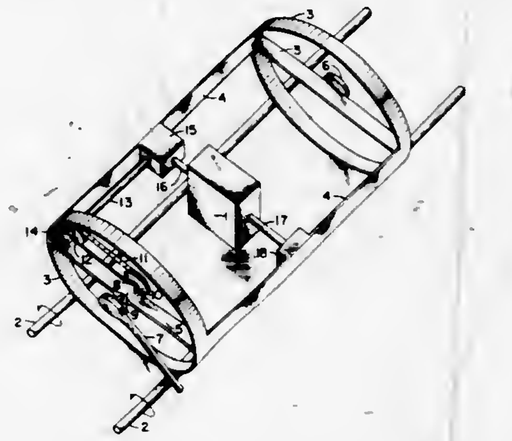
Measured quantities of metal powder are deposited in a female mold and a male die is moved into the mold to form the metal powder into a desired article configuration. The female mold and the male die are relatively



rotated and the female mold is vibrated during the forming operation in order to evenly distribute the metal powder to form an article having uniform thin walls.

3,566,443
MOLDING DEVICE

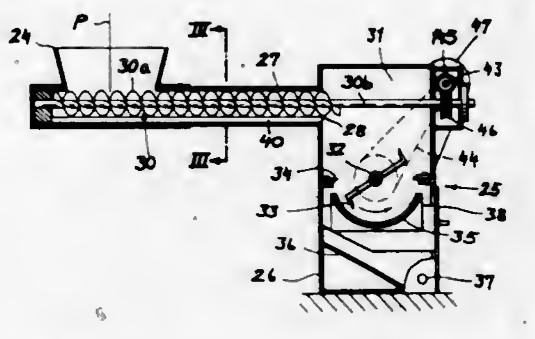
Fernando V. Guerrero, Chagrin Falls, Ohio, assignor to Continental Oil Company, Ponca City, Okla.
Filed Feb. 6, 1969, Ser. No. 796,963
Int. Cl. B29c *5/04*
U.S. Cl. 18—26 **3 Claims**



Device for rotating a mold on two perpendicular axes while simultaneously transporting it, e.g. through sequential loading, heating, cooling, and unloading zones, useful for molding large hollow objects.

3,566,444
SCRAP GRINDER FOR INJECTION-MOLDING MACHINE

Herbert Rees, Willowdale, Ontario, Canada, assignor to Husky Manufacturing and Tool Works Limited, Toronto, Ontario, Canada
Filed May 27, 1968, Ser. No. 732,148
Int. Cl. B02c *18/44*
U.S. Cl. 18—30 **6 Claims**

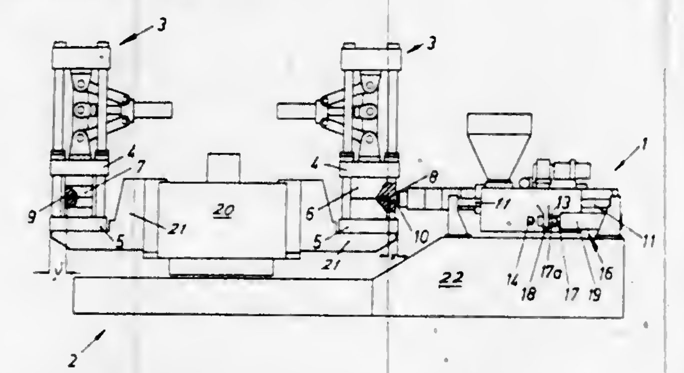


A grinder with rotary knives is positioned below the mold level of an injection-molding machine and offset from the mold path, an auger driven by the knife motor extending horizontally from a hopper beneath the mold path to the grinder mouth for delivering runners dropping from the opening mold to a lateral entrance of an otherwise closed knife housing.

3,566,445
CONTROL DEVICE FOR INITIATING THE INJECTING PROCESS OF INJECTION MOLDING MACHINES

Manfred Niklarz, Rinteln, Germany, assignor to Friedrich Stubbe
Filed July 3, 1968, Ser. No. 742,352
Int. Cl. B29f *1/00*

U.S. Cl. 18—30 **4 Claims**

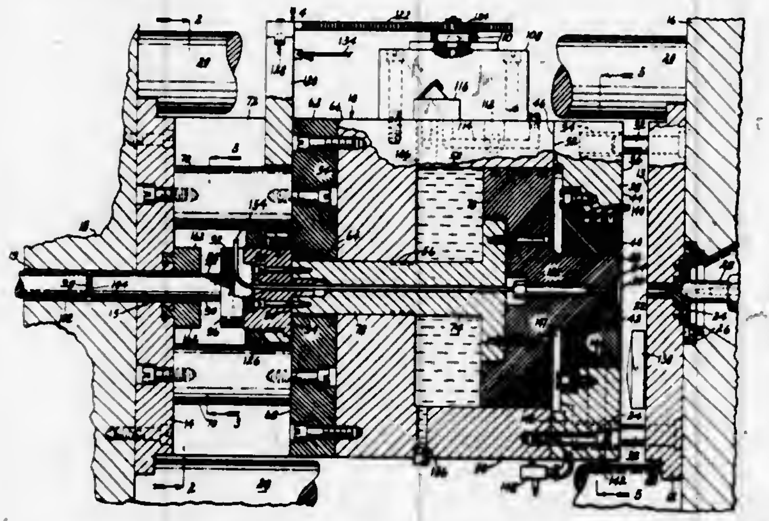


A control device for initiating the injection step of an injection molding machine cycle, wherein the injection nozzle and the mold are moved toward and pressed against each other by means of a feed unit.

3,566,446
MOLD SIMULATOR

George R. Smoluk, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Feb. 5, 1969, Ser. No. 796,724
Int. Cl. B29f *1/00*

U.S. Cl. 18—30 **10 Claims**



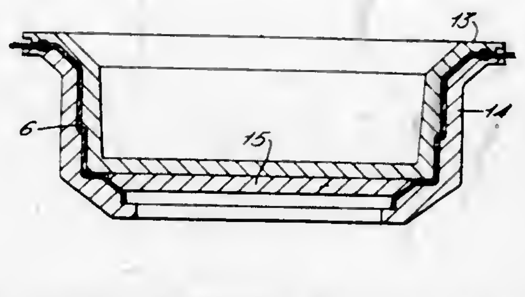
An apparatus to stimulate the behavior of a large number of various injection molding machine molds the behavior of which can be reduced to a program of pressure variation in combination with a variety of flow duration situations.

3,566,447
MOULDING EQUIPMENT

Dennis Henry Ogden, Dudley, England, assignor to British Industrial Plastics Limited, Manchester, England
Filed Jan. 25, 1968, Ser. No. 700,559
Claims priority, application Great Britain, Feb. 6, 1967, 5,551/67; Sept. 27, 1967, 43,970/67
Int. Cl. B29c *1/02*

U.S. Cl. 18—35 **9 Claims**

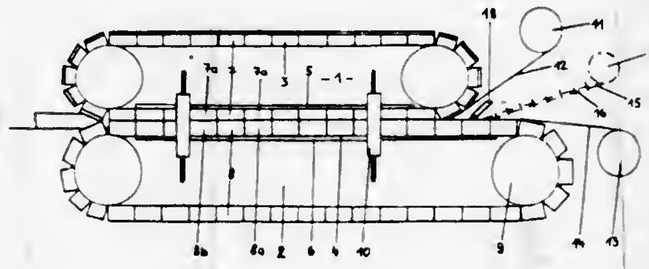
A mould for use in a cold-moulding process comprises a pinch-off of resilient material, suitably a rubber. Better control of resin flow and reduced wear of the mould proper is obtained. Cold-press moulds are described which are of glass-reinforced polyester, with or without a plastics foam backing; moulds of plastics foam alone, and moulds adapted to accept inserts to be moulded into a moulding.



3,566,448
APPARATUS FOR THE CONTINUOUS PRODUCTION OF SECTIONS OF FOAMED MATERIALS, PARTICULARLY ON A POLYURETHANE BASE

Rudolf Ernst, Strasslach, near Munich, Germany, assignor to Maschinenfabrik Hennecke Gesellschaft mit beschrankter Haftung, Leverkusen, Germany
Filed July 16, 1968, Ser. No. 745,160
Claims priority, application Germany, July 27, 1967, M 74,954
Int. Cl. B29c *15/00*

U.S. Cl. 18—4 **6 Claims**

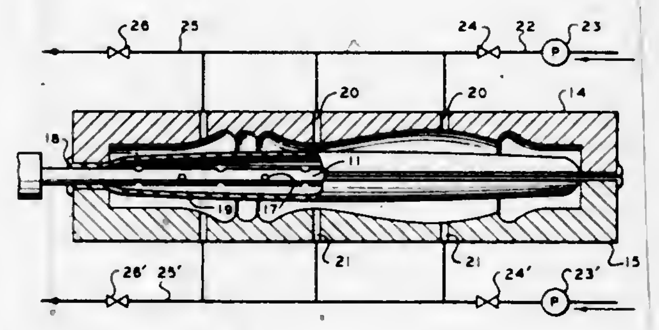


Apparatus for the continuous production of structural sections of foamed or spongy materials where a hollow space is defined between two conveyor bands disposed one over the other, which move at a speed corresponding to the reaction velocity of the foam mass and/or corresponding to the quantity of the mass, and where the hollow space is formed by split forms that abut against one another.

3,566,449
APPARATUS FOR MOLDING PLASTIC FOAM

Robert R. Goins and Dan E. Perry, Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed Nov. 27, 1968, Ser. No. 779,495
Int. Cl. B29c *1/00*

U.S. Cl. 18—5 **7 Claims**

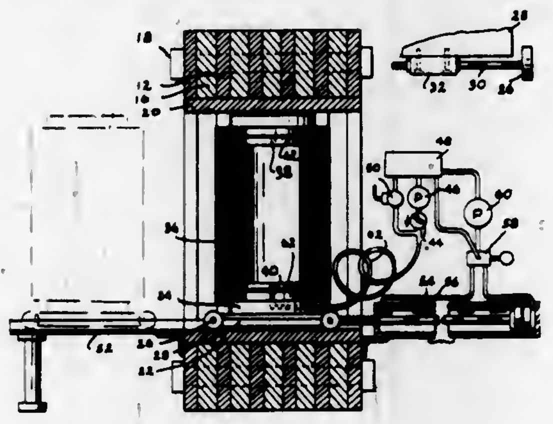


Smooth-surface, foamed plastic articles are made by charging a foam melt into a mold between restraining elastic sheets and then releasing the restraining force to allow the charge to expand to the mold walls.

3,566,450
HIGH PRESSURE CYLINDER AND PRESS STRUCTURE FOR THE CYLINDER

Albert Samuel Roberts, Rector, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Filed Jan. 25, 1968, Ser. No. 700,612
Int. Cl. B29c *1/02*

U.S. Cl. 18—34 **6 Claims**

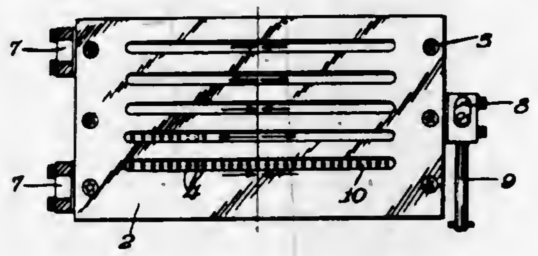


The invention concerns a high pressure cylinder formed by winding up one or more strips of high tensile strength material to form the cylinder. Closure members are sealingly mounted at the ends of the cylinder so that pressure can be developed in the cylinder. A press in the form of a frame with an opening therein is arranged for receiving the cylinder and its closure members and the opening is of such a size that when pressure is built up in the cylinder, the closure members will be engaged by the press frame and support the closure members against movement out of the ends of the cylinder.

3,566,451
PROCESS FOR WIDENING AND LOOSENING CONTINUOUS ARTIFICIAL FIBER

Hans Weigand, Freiburg im Breisgau, Germany, assignor to Deutsche Rhodiaceta AG., Freiburg, Germany
Original application Mar. 1, 1967, Ser. No. 619,774, now Patent No. 3,444,592, dated May 20, 1969. Divided and this application Oct. 30, 1968, Ser. No. 794,442
Claims priority, application Germany, Mar. 2, 1966, D 49,482
Int. Cl. D01b *3/10*

U.S. Cl. 19—66 **2 Claims**



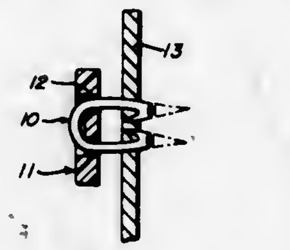
Continuous artificial fiber strands are widened and loosened by means of a single or multiple passes through an apparatus having a plurality of rows of nozzles. Gas is blown through one row of nozzles away from the center, and is blown through the adjacent row of nozzles toward the center of the apparatus.

3,566,452
BUTTON HOLDER

Robert L. Hocker, 1400 Devereux Drive,
Dayton, Ohio 45419
Filed Dec. 2, 1968, Ser. No. 780,401
Int. Cl. A44b *1/18*

U.S. Cl. 24—103 **5 Claims**

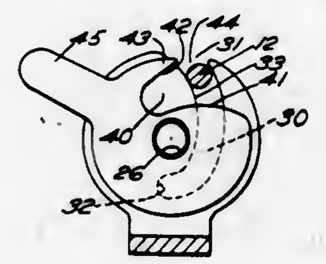
A U-shaped holder adapted to secure a button on a fabric material. Sharp points are provided on the ends of the U-shaped member to enable it to penetrate the fabric so that the holder replaces the threads which normally hold the button on the fabric. The pointed ends of the holder are notched so that the points can be removed once they penetrate the cloth, and hooks are provided adjacent the ends so that the holder cannot be withdrawn from the fabric by normal use of the button.



3,566,453
SAFETY CATCH

George W. Kellum, Rehoboth, Mass., assignor to General Findings, Inc.
Filed Nov. 19, 1968, Ser. No. 776,885
Int. Cl. A44b *9/10*

U.S. Cl. 24—157 **2 Claims**

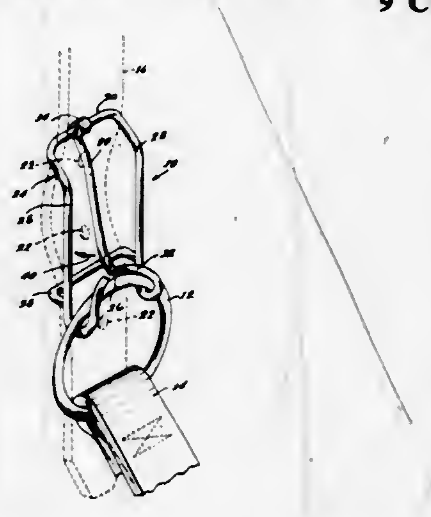


A safety catch for use with a pin-like stem having a fixed member and a keeper member rotatably mounted therein, which members in one relative position present aligned openings to receive the pin stem, the keeper member being of such construction that the pressing of the pin stem into the mouths of the aligned openings will cause a relative rotation of the keeper member so as to move it to a position to lock the pin stem in the catch.

3,566,454
QUICK RELEASE BUCKLE

Albert A. Schmidt, 4717 Del Paso Court,
Los Angeles, Calif. 90032
Filed Dec. 12, 1968, Ser. No. 783,229
Int. Cl. A44b *11/28, 11/24*

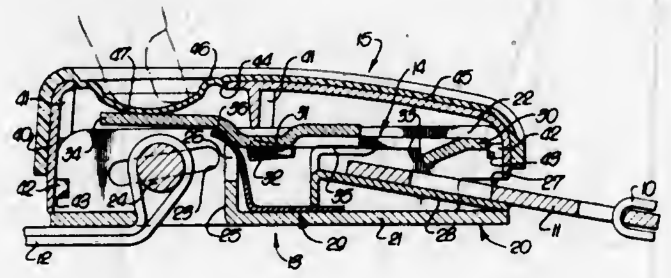
U.S. Cl. 24—165 **9 Claims**



A buckle comprising an open frame bent at one end to form a hook for supporting a ring or other such member detachable from the buckle frame, and provided with a tongue member movable outwardly to contact the hooked member to thereby enclose the ring and movable inwardly to allow release of the ring. A strap is received in the frame and a transverse retaining bar for the strap is provided proximate to the hooked member whereby the tongue member, disposed through the restrained strap, is resiliently urged into contact with the hooked member.

3,566,455
RESTRAINT BELT BUCKLE COVER

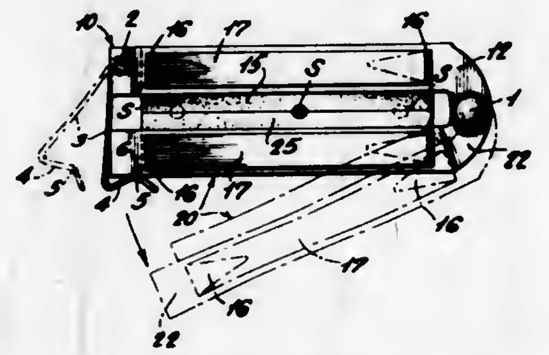
Gregory G. Kuszynski, Pasadena, Calif., assignor to American Safety Equipment Corporation, Sherman Oaks, Calif.
Filed Sept. 22, 1969, Ser. No. 859,931
Int. Cl. A44b *11/26*
U.S. Cl. 24—230 **8 Claims**



In a restraint belt buckle frame with latching mechanism including depressible release means, a semi-rigid casing having an opening over the release means continuously covered by a flexible covering having a folded portion and a central concave portion which when pressed straightens the folded portion, and depresses the release means. An alternative embodiment inserts the flexible covering between mating inner and outer casing members.

3,566,456
CLOTHES HANGER CLAMP AND GARMENT BAG ASSEMBLY

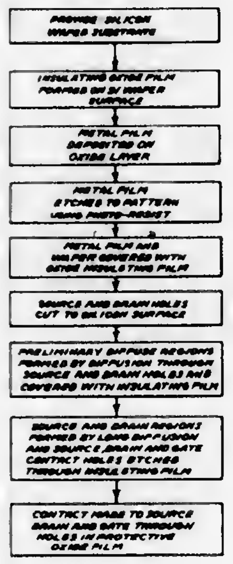
Wallace London, 302 S. Central Ave., Baltimore, Md. 21202
Continuation-in-part of application Ser. No. 744,563, July 12, 1968. This application Feb. 12, 1970, Ser. No. 10,928
Int. Cl. A44b *21/00;* **B65d** *85/18*
U.S. Cl. 24—248 **10 Claims**



A clamping assembly for clothes hangers constituted by a pair of clamping jaws in the form of C-shaped sheet metal channels in face-to-face relation, each channel seating a block of flexible material therein with one edge protruding beyond the open face of the channel, said channels being pivoted to each other at one end thereof to permit their spreading for the insertion of one or more garment hangers between the jaws followed by their clamping together with a clasp device disposed at the opposite end of the channels. The channels are fitted with prongs, fastening flanges or the like, to permit the ready affixation thereof to garment bags in the course of their production or thereafter, to provide a tight seal for the bags and reliable support for the gament hangers therein, making possible the facile handling and transport thereof.

3,566,457
BURIED METALLIC FILM DEVICES AND METHOD OF MAKING THE SAME

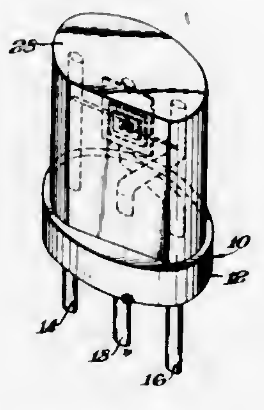
William E. Engeler, Scotia, N.Y., assignor to General Electric Company
Continuation-in-part of application Ser. No. 675,225, Oct. 13, 1967. This application May 1, 1968, Ser. No. 725,683
Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 **9 Claims**


PROVIDE SILICON WAFER SUBSTRATE
INSULATING OXIDE FILM FORMED ON SI WAFER SURFACE
METAL FILM DEPOSITED ON OXIDE LAYER
METAL FILM ETCHED TO PATTERN USING PHOTO-RESIST
METAL FILM AND WAFER COVERED WITH OXIDE INSULATING FILM
SOURCE AND DRAIN HOLES CUT TO SILICON SURFACE
PRELIMINARY DIFFUSE REGIONS FORMED BY DIFFUSION THROUGH SOURCE AND DRAIN HOLES AND COVERED WITH INSULATING FILM
SOURCE AND DRAIN REGIONS FORMED BY LONG DIFFUSION AND SOURCE, DRAIN AND GATE CONTACT HOLES ETCHED THROUGH INSULATING FILM
CONTACT MADE TO SOURCE DRAIN AND GATE THROUGH HOLES IN PROTECTIVE OXIDE FILM

Electrical conductors and field plates utilized in integrated circuit components are buried in insulating media by forming an insulated film on the semiconductor substrate, depositing a metal thereover which is nonreactive with the insulator at temperatures of the order of 1100° C., and covering the conductive film with another insulating film. After all fabrication steps for the integrated circuit device are completed, contact to the metallic layer is made by etching a hole through the last deposited insulating film at one point with an etchant which is nonreactive with the metallic film, and metalizing the device in that region, making contact with the buried conductor. Such buried conductors may be utilized as conductors in printed circuit and monolithic semiconductor devices, as capacitor plates, and as gate electrodes in field-effect transistors.

3,566,458
METHOD OF ENCAPSULATING A TRANSISTOR

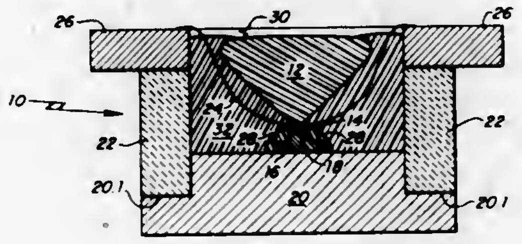
Attillio O'Cone, Concord, N.H., assignor to Sprague Electric Company, North Adams, Mass.
Filed May 22, 1968, Ser. No. 731,100
Int. Cl. B01j *17/00;* **H01l** *1/10*
U.S. Cl. 29—588 **6 Claims**



The method of encapsulating a transistor involving mounting a transistor to the lead posts of a header. The header is a plurality of lead posts fixed in position by a first insulative material. Encapsulating the transistor in a second insulative material and selectively solvent removing the first insulative material.

3,566,459
PRESSURE SENSITIVE TRANSDUCERS

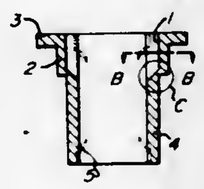
Wilhelm Rindner, Lexington, Americo A. Iannini, Marlboro, and Andre Garfein, Brighton, Mass., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 19, 1968, Ser. No. 738,315
Int. Cl. B01j *17/00;* **H01l** *1/10*
U.S. Cl. 29—588 **3 Claims**



According to the disclosure, there is disclosed a miniature electromechanical junction transducer, the operation of which is based on piezojunction effect. The mechanical input coupling member, in the subject invention, as distinquished from the prior art, is formed in situ and spread over the top of the mesa structure to form an exact duplicate of the mesa surface at the areaof contact.

3,566,460
METHOD OF PRODUCING COMMUTATOR FOR ROTARY ARMATURES

Terumoto Yamaguchi, Anjo-shi, Japan, assignor to Nippon Denso Company Limited, Kariya-shi, Japan
Filed Feb. 5, 1969, Ser. No. 796,811
Claims priority, application Japan, Apr. 19, 1968, 43/26,309
Int. Cl. H01r *43/00*
U.S. Cl. 29—597 **1 Claim**

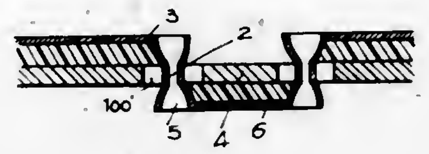


A method of producing a commutator for rotary armatures, which comprises bulging the wall of a flanged end portion of a flanged tube of electrically conductive material radially outwardly to form longitudinally extending recesses at portions where windows are to be formed, forming engaging hooks on the inside wall surface of said tube for each of the tube sections which will provide independent commutator segments, molding the said tube with an insulating material and thereafter punching the flange of the tube in such a manner as to form wire-hooking lugs and to remove the outwardly bulged portions of the tube defining said recesses.

3.566,461
METHOD OF MAKING A MAGNETIC CIRCUIT ELEMENT

Michel Carbonel, 'Paris, France, assignor to CSF-Compagnie Generale de Telegraphie Sans Fil
Filed July 2, 1968, Ser. No. 742,087
Claims priority, application France, July 4, 1967, 113,054
Int. Cl. H01f *7/06*
U.S. Cl. 29—604 **10 Claims**

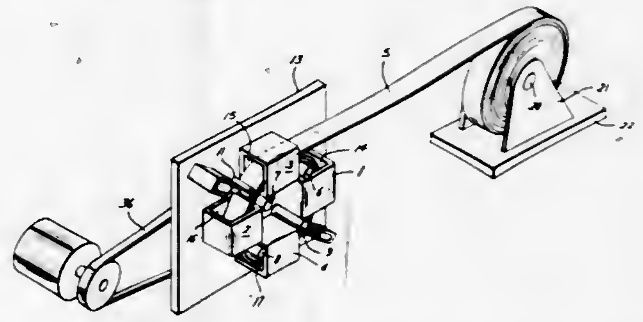
A method for manufacturing integrated circuit elements, including a ferromagnetic plate with an aperture through which extend the associated conductors, comprises essentially the steps of depositing copper on the two sides of the plate, forming holes in the sandwich thus obtained, electrodepositing, with the copper as an anode, a conductor along a pattern alternately extending



on the two sides of the said plate, and through said holes; forming the aperture in the plate; removing the remaining copper and inserting between the plate and the conductor an insulating material.

3,566,462
METHOD AND APPARATUS FOR MAKING TOROID TRANSFORMER

Buell Moore, Houston, Tex., assignor to Esquire, Inc., New York, N.Y.
Continuation-in-part of application Ser. No. 466,406, June 23, 1965, which is a continuation-in-part of application Ser. No. 369,395, May 22, 1964. This application Jan. 23, 1969, Ser. No. 814,218
Int. Cl. H01f *5/00, 7/06;* **H02k** *15/04*
U.S. Cl. 29—605 **31 Claims**

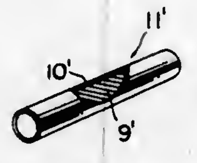


Apparatus and method are provided for making a transformer core of toroid shape. The apparatus includes a template to which performed transformer coils are detachably connected, a plurality of rotatable elongate posts extending through the template and on one side of the template serving to support strip material from which the core is constructed and properly direct such material into the coils, and on the other side having gear teeth for receipt of a ring gear so that the posts may be rotated in unison. An alternate embodiment provides gears mounted in housings, with the housings operable by screws in elongate slots, so that the gears are moved inwardly or outwardly with respect to the center of the template. In another embodiment, rotatable posts are provided which are disposed perpendicular to the core strip, and upon which the core strip rests during winding, in order to prevent slippage of the strip.

3,566,463
METHOD OF PRODUCING A CIRCUIT BREAKER SWITCH

Hiroshi Kobayashi and Elji Fujimoto, Tokyo, Japan, assignors to Meidensha Electric Mfg. Co., Ltd., Tokyo, Japan
Filed Feb. 15, 1968, Ser. No. 705,822
Claims priority, application Japan, Dec. 20, 1967, 42/82,085
Int. Cl. H01h *11/00*
U.S. Cl. 29—622 **9 Claims**

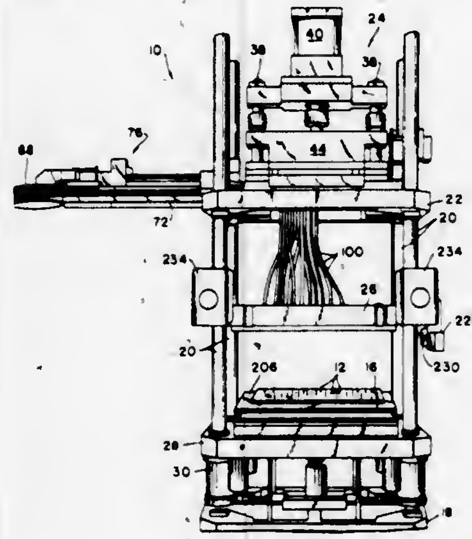
Contact elements for a vacuum circuit breaker are made from a diffusion alloy prepared by coating a copper, silver or aluminum base stock with bismuth, lead, tellurium, indium, thallium or tin by vacuum deposition, immersion or plating, and by heating tightly packed portions of the coated stock to a temperature below the melting point of the primary component in a vacuum or in a reducing atmosphere until the coating material diffuses into the base to produce an electrode material not prepared so simply to a reproducible composition by other alloying methods.



3,566,464

APPARATUS AND METHOD FOR MOUNTING WIRE WRAP PINS ON CIRCUIT BOARDS

Johannes C. W. Bakermans, New Cumberland, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.
Filed Dec. 5, 1968, Ser. No. 781,421
Int. Cl. H05k *3/00, 13/04*
U.S. Cl. 29—625 **20 Claims**

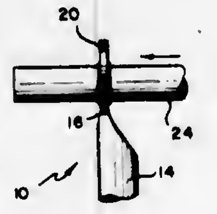


Apparatus and method for simultaneously mounting a number of wire wrap pins in a predetermined pattern on a circuit board. The pins are severed from a carrier strip and fall down guide tubes to a plate in which they are held in the desired pattern. The plate is then lowered and a circuit board is positioned on the plate with a pin-receiving hole located above each pin in the plate. The plate is then raised to move the circuit board up against a second fixed plate and drive the pins into their respective circuit board holes.

3,566,465

FORMING OF CONNECTOR ON A WIRE AND ASSEMBLY THEREWITH

Al Weiner, 2111 Regatta Ave., Sunset Island 4,
Miami Beach, Fla. 33140
Filed May 16, 1969, Ser. No. 825,332
Int. Cl. H01r *43/00.*
U.S. Cl. 29—628 **5 Claims**

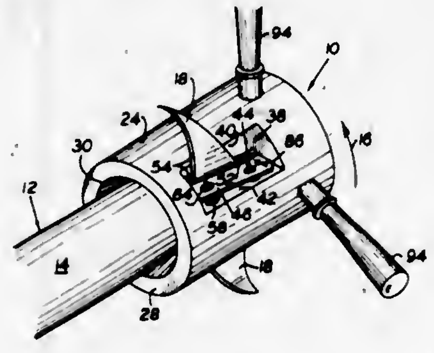


The end portion of a wire is flattened to produce a connector section which then has a hole made therethrough to accommodate a second wire which is secured thereto.

3,566,466

CABLE REDUCING TOOL

James J. Matthews, Hicksville, N.Y.
(Landing Hill Road, East Haddam, Conn. 06423)
Filed Apr. 17, 1969, Ser. No. 816,911
Int. Cl. B21f *13/00*
U.S. Cl. 30—90.1 **8 Claims**

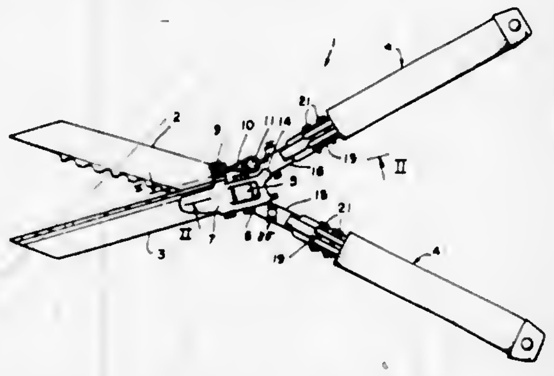


A cable reducing tool and a cutting implement for the same, the cutting implement having the trailing cutting end of its cutting edge in a clearance position such that the finish of the reduced cable is not marred, and the cable reducing tool may employ one or more of these noteworthy cutting implements to effectively produce the reduced cable not only with a substantially smooth finish but with minimum wear of the cutting implements.

3,566,467

HEDGE SHEARS

David H. Keiser, Jr., 53 Park Road,
Wyomissing Hills, Pa. 19610
Filed Apr. 30, 1968, Ser. No. 725,296
Int. Cl. B26b *13/00*
U.S. Cl. 30—257 **1 Claim**



Hedge shears in which one of the blades pivotally moves away from the plane of the other under the resistance of a spring as the blades are moved to the closed position in the cutting of a hedge. Adjustable handles are provided which allow adjustment of the length thereof as well as inclination with respect to the plane of the blade to facilitate cutting of the hedge.

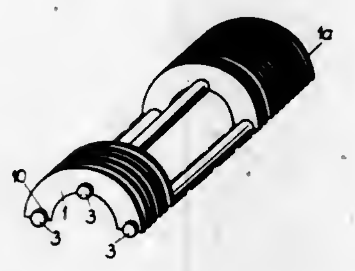
3,566,468

CUTTER FOR POWER-OPERATED SHAVERS AND METHOD OF MAKING THE SAME

Werner Messinger, Kronberg, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed May 27, 1968, Ser. No. 732,421
Claims priority, application Germany, May 31, 1967, P 15 53 658.0
Int. Cl. B26b *19/04*
U.S. Cl. 30—346.51 **13 Claims**

A mobile cutter for use in power-operated shavers is assembled by temporarily mounting and fixedly holding a set of parallel steel blades in a magazine and by forcibly introducing longitudinally spaced portions of solid or hollow supporting rods of aluminum into separate lines of recesses which are formed in the blades. The blades penetrate into aluminum during forcible introduction of

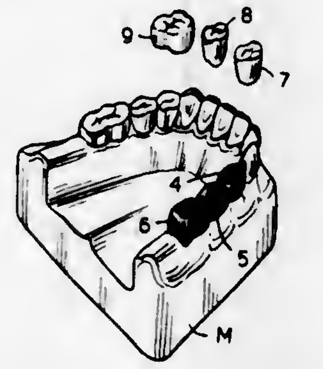
rods into the respective lines of recesses. The connections between the blades and the rods can be reinforced by a suitable adhesive. The planes of the blades and the axes of the rods can make an acute angle or a right angle.



3,566,469

METHOD OF OBTAINING DENTAL BRIDGE APPLIANCES BY MEANS OF PREFORMED CROWNS AND THE RELEVANT TOOTH SHAPING CROWNS

Ugo Pelizzari, Via C. Mameli 10, Busto Arsizio, Italy
Filed Feb. 6, 1969, Ser. No. 797,122
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **1 Claim**

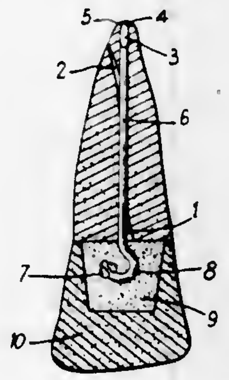


Manufacture of dental prosthetic appliances involves the placing of pieces of wax or the like having the rough shape of missing teeth into the gaps of these teeth in a plaster cast, then placing over these wax pieces caps having the shape of the missing teeth and removing excess wax.

3,566,470

IMPLANT METHOD FOR SECURING ARTIFICIAL TEETH

Jacques Scialom, 15 Ave. Francis Berthier,
94 Le Parc Saint-Maur, France
Continuation-in-part of application Ser. No. 253,113, Jan. 22, 1963. This application Feb. 16, 1968, Ser. No. 705,974
Claims priority, application France, Feb. 20, 1967, 95,581
The portion of the term of the patent subsequent to June 4, 1985, has been disclaimed
Int. Cl. A61c *13/00*
U.S. Cl. 32—10 **1 Claim**

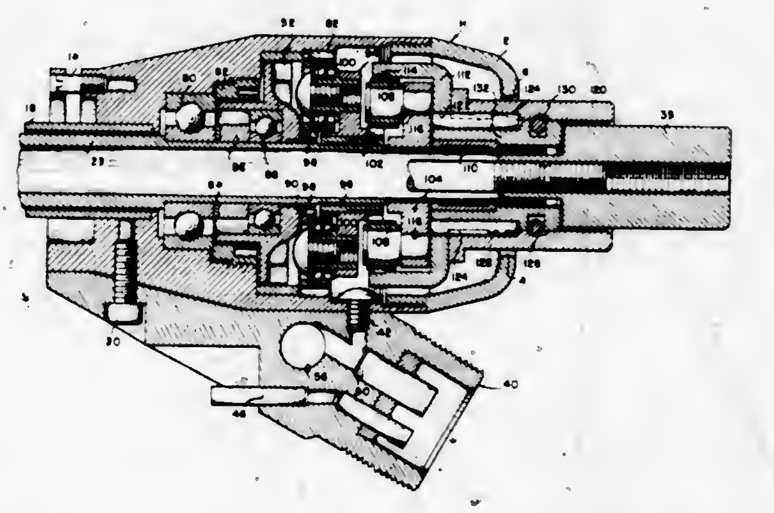


A self-drilling implant adapted to be drilled into the root of a tooth through an end of a reduced diameter while its outer end is bent to form a head over which is fitted an artificial tooth. The implant is made of a metal such as steel the Vickers hardness of which ranges between 300 and 500 and is preferably equal to above 350.

3,566,471

MULTISPEED DENTAL HANDPIECE AND DRIVE THEREFOR

Walter E. Bull, 555 Galena St.,
Aurora, Colo. 80010
Filed Apr. 1, 1968, Ser. No. 717,590
Int. Cl. A61c *1/05;* **F16h** *57/10*
U.S. Cl. 32—26 **10 Claims**

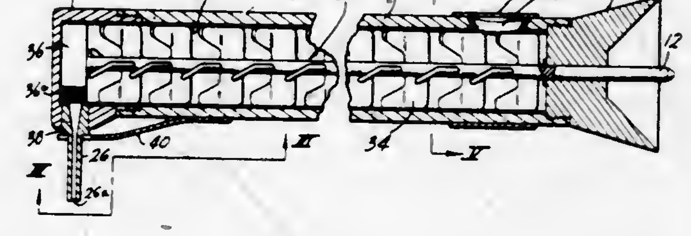


A multispeed drive for dental handpieces and the like comprising a first housing; a shaft in the housing; a first stage drive assembly in the housing having a first transmitting torque value; a second stage drive assembly in the housing connected to the first stage drive assembly and to the drive shaft and having a second transmitting torque value differing from the first transmitting torque value; means for driving the first stage drive assembly; and means for shorting out the second stage drive assembly having operative and non-operative positions; thereby to selectively drive the drive shaft at different speeds.

3,566,472

DENTAL CAVITY FILLING INSTRUMENT

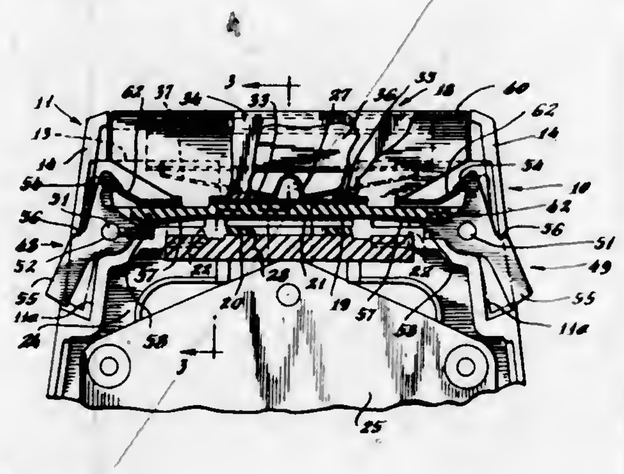
Harold J. Mohlman, 163 North Ave.,
Battle Creek, Mich. 49017
Filed Feb. 27, 1969, Ser. No. 802,770
Int. Cl. A61c *5/04*
U.S. Cl. 32—60 **4 Claims**



A device for dental use in the nature of a dentist's handpiece and attachable to the output of a dental power drilling unit, including a tubular body having an inlet near one end for receiving the constituents of dental filling material, an outlet nozzle at the other end for discharging such material, and an internal auger for intermixing the constituents while moving them from the inlet to the outlet and discharging the intermixed material directly into a prepared tooth cavity.

3,566,473
CUTTER HEAD ATTACHMENT MEANS

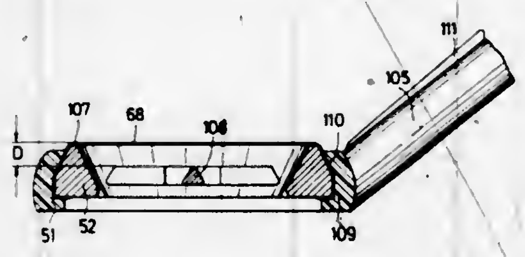
David R. Locke and John F. Daniels, Bridgeport, Conn., assignors to Sperry Rand Corporation, New York, N.Y.
Filed June 11, 1968, Ser. No. 736,126
U.S. Cl. 30—43.92 **5 Claims**



Attachment means for detachably mounting a cutter head assembly on an electric dry shaver casing. The attachment means comprising spaced lever means pivotally mounted on the casing and having portions biased into latching engagement with the cutter head assembly and which lever means are operable from without the casing to release the cutter head.

3,566,474
DENTIST'S MIRROR

Gerhard Zühlke, Geroldswil, and Paul Brandli and Max Spalti, Zurich, Switzerland, assignors to Zuhlke & Brandli A.G., Zurich, Switzerland
Original application Apr. 25, 1969, Ser. No. 819,404. Divided and this application July 14, 1969, Ser. No. 841,289
Claims priority, application Switzerland, Aug. 14, 1968, 12,230/68
Int. Cl. A61c *3/00*
U.S. Cl. 32—69 **13 Claims**

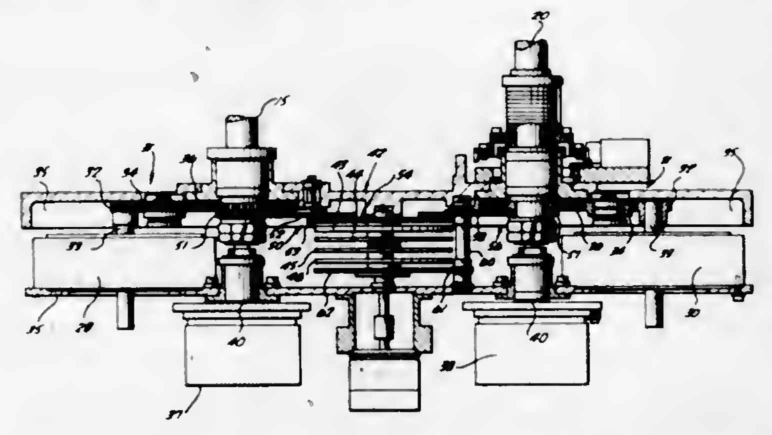


A mirror including an elongated handle, the mirror comprising a blank of strongly light-reflecting synthetic thermoplastic material clamped between annular male and female mirror frame portions. The blank comprises a marginal portion and the male mirror frame portion serves to move the marginal portion of the blank against the internal surface of the female mirror frame portion.

3,566,475
PRECISION PLOTTER

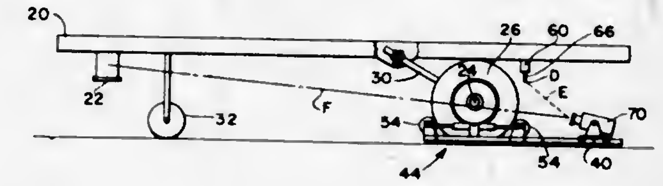
Stephen R. Seccombe, Northridge, Calif., assignor to Computer Industries, Inc., Sherman Oaks, Calif.
Filed Apr. 25, 1969, Ser. No. 819,325
Int. Cl. G01b *21/00*
U.S. Cl. 33—1 **26 Claims**

A precision plotter is disclosed having a movable arm extending over the plotting table, the arm is transversely driven along the X axis by a lead screw rotatably mounted along the one edge of the table. A pen carriage is slidably mounted on the movable arm and is driven by means of a drum and cable means. The drum is attached to the movable arm and is axially movable along a splined shaft to be rotatably driven thereby. The lead screw and splined shaft are rotatably driven by motor means located within a gear box assembly. The gear box assembly also includes a pair of encoders coupled to the lead screw and splined shaft for monitoring the angular rotation thereof. Cam actuated correcting means are also located within the gear box assembly to compensate for tolerances in the mechanical structure of the plotter.



3,566,476
METHOD OF AND APPARATUS FOR VEHICLE AXLE CORRECTION

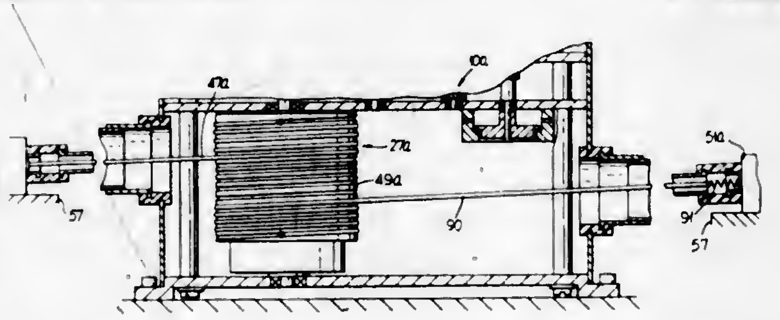
Fred Awbrey McWhorter, Davenport, Iowa, assignor to Bee Line Company, Davenport, Iowa
Filed June 11, 1968, Ser. No. 736,041
Int. Cl. G01c *15/12*
U.S. Cl. 33—46 **12 Claims**



A method of and apparatus for ascertaining and correcting perpendicularity of a vehicle axle to the fore-and-aft centerline of the vehicle frame or body by projecting a beam from a reference line parallel to the axle and correctively adjusting the reference line until the beam centers on a preselected reference point on the centerline so that the axle correctly tracks with the frame, especially in semi-trailers and the like.

3,566,477
MEASURING INSTRUMENT

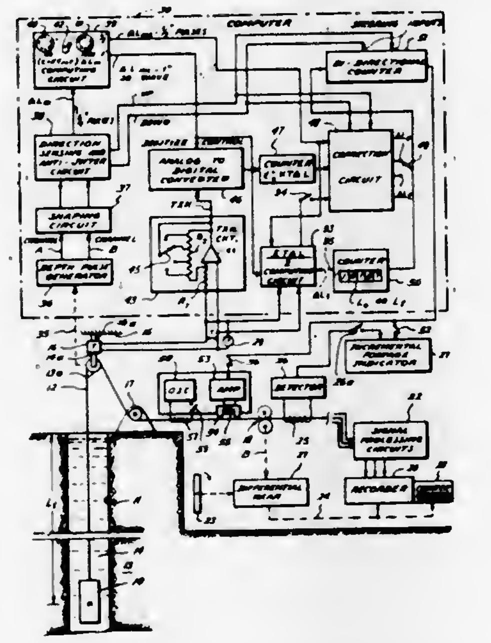
Kenneth James Williams, 31 Hillcrest Gardens, Hinchley Wood, Surrey, England
Filed Apr. 16, 1968, Ser. No. 721,866
Claims priority, application Great Britain, Apr. 19, 1967, 18,013/67; July 18, 1967, 32,904/67; Sept. 26, 1967, 43,793/67
Int. Cl. G01b *5/02*
U.S. Cl. 33—125 **6 Claims**



A measuring instrument comprising a drum and a wire or tape, one end of which is attached to the drum and the other end of which is attached to a member which is movable relative to the drum. The drum is spring urged to rotate the drum about its axis in a sense to wind the wire or tape on to the drum and rotation of the drum is indicated through a gear train on a series of dials. The wire or tape is wound on to a helical track on the surface of the drum, the angle of the wire to the horizontal is constant and equal to the track helix angle throughout winding of the wire or tape on and off the drum and the end of the wire fixed to the member moves in a fixed plane.

3,566,478
DEPTH CONTROL METHODS AND APPARATUS FOR BOREHOLES

F. David Hurlston, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed June 24, 1968, Ser. No. 739,330
Int. Cl. G01b *3/02*
U.S. Cl. 33—142 **18 Claims**

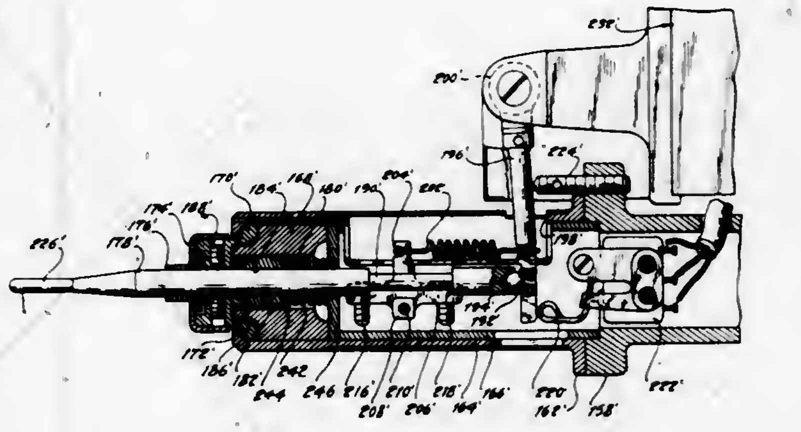


In accordance with an illustrative embodiment of the invention, methods and apparatus for accurately determining the true depth of a tool supported in a borehole by an elastic cable are described. To accomplish this, a sheave wheel at the surface of the earth measures cable movement and generates pulses representative of incremental cable movement. The tension on the cable at the surface of the earth is measured and used in combination with certain calibration corrections to generate correction pulses which are either added to or subtracted from the incremental cable movement pulses to produce corrected cable movement pulses. These corrected pulses can then be used to drive a suitable recording device as a function of true cable movement or to cause reference marks to be placed on the cable so that the cable can be later used for depth control purposes apart from the pulse correction computing system.

3,566,479
ELECTROMECHANICAL SURFACE SCANNER

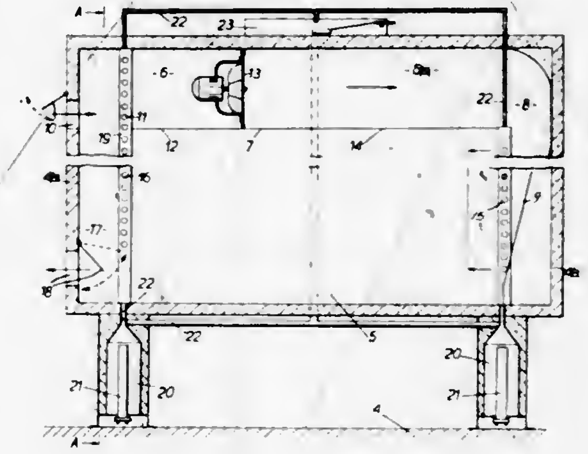
George Pascoe, Dearborn, and Earle H. Stevenson, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed May 15, 1967, Ser. No. 638,382
Int. Cl. G01b *13/08*
U.S. Cl. 33—174 **1 Claim**

This specification describes a scanner for measuring the coordinates of points on a three-dimensional surface. It includes a surface contacting probe and a closed-loop probe position control for adjusting the probe and for maintaining a predetermined pressure on the probe while recording the coordinate data. Universal movement of the probe permits a proper control response regardless of the direction of the normal to the surface at the point being measured.



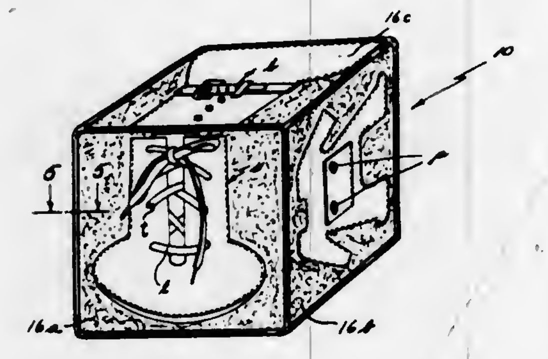
3,566,480
KILNS

Frederick Noel Hope Johnstone, St. Anne's Lodge, St. Anne's Road, Avondale, Salisbury, Rhodesia
Filed Apr. 26, 1968, Ser. No. 724,456
Claims priority, application Rhodesia, May 1, 1967, 178/67
Int. Cl. F26b *19/00*
U.S. Cl. 34—219 **2 Claims**



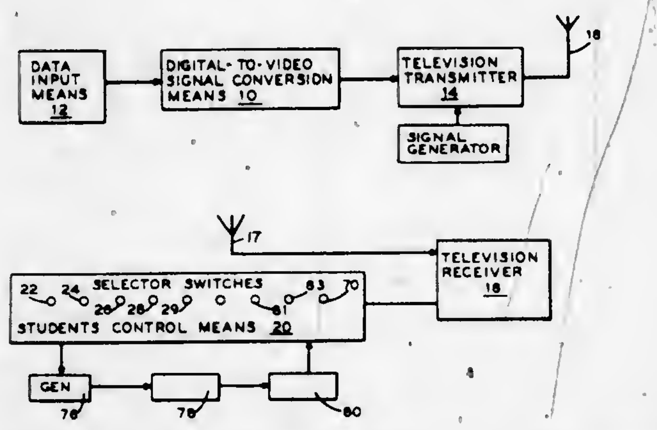
A portable kiln having a self-contained heat source and heating chamber with a generally aligned first and second portions. The first portion has an inlet port for ambient air and an outlet. A first heat exchanger element is adjacent the inlet with a duct enclosing the first heater element and leading from the inlet to the outlet. A fan is in the duct. The second portion has an inlet for the heated air from the fan. A drying chamber below the first and second portions has a second heat exchanger element adjacent thereto and a half-venturi type duct leading from the fan to the second heat exchange element so that heated air from the fan passes over the second heat exchanger element to produce a constant velocity airstream in the drying chamber. An adjustable outlet damper is provided adjacent the drying chamber and a duct connecting the drying chamber with the inlet of the first portion of the heating chambers, as well as with the exterior of the kiln, to selectively adjust the amount of air being recirculated and exhausted.

3,566,481
CHILD'S EDUCATIONAL TOY
Wanda K. Causer, 35387 Grover Road,
Eastlake, Ohio 44094
Filed June 6, 1968, Ser. No. 735,158
Int. Cl. G09b *1/16*
U.S. Cl. 35—8 **3 Claims**



An educational toy to teach a child the manipulation of various articles of clothing required to enable the child to learn how to clothe himself. The toy is pillow-like in construction and sufficiently small in size to be easily carried and manipulated by a young child, as for example three years of age. The pillow partakes of any number of geometric shapes such as cubic, pyramidal, prismatic or the like, and has a plurality of faces or sides. A simulated article of clothing is attached to the faces or sides of the pillow, each article requiring the child to perform a dressing and/or undressing task such as operate a zipper; button and unbutton a shirt; buckle and unbuckle a belt; tie, untie and thread a shoelace; open and close snap-type fasteners and put on a pair of gloves.

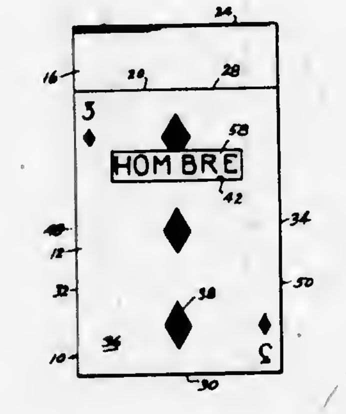
3,566,482
EDUCATIONAL DEVICE
Charles A. Morchand, New York, N.Y., assignor to Data-Plex Systems, Inc., New York, N.Y.
Filed Oct. 24, 1968, Ser. No. 770,275
Int. Cl. G09b *7/08*
U.S. Cl. 35—9 **5 Claims**


DATA INPUT MEANS 12
DIGITAL-TO-VIDEO SIGNAL CONVERSION MEANS 10
TELEVISION TRANSMITTER 14
SIGNAL GENERATOR
TELEVISION RECEIVER 18
SELECTOR SWITCHES
STUDENTS CONTROL MEANS 20
GEN

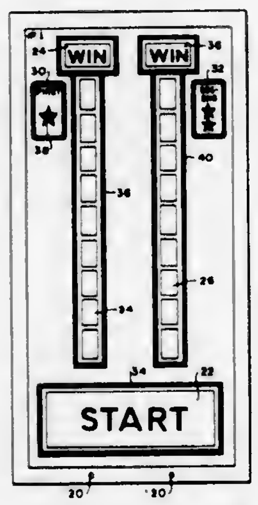
The device generates a group of signals representing a plurality of items of information arranged to form a composite picture on the cathode ray tube of a remote receiver. The receiver includes switches for selecting portions of the composite picture for display.

3,566,483
EDUCATIONAL APPARATUS
Solomon Axelrod, New York, N.Y.
(28 Metropolitan Oval, Parkchester, Bronx, N.Y. 10462)
Filed Jan. 23, 1969, Ser. No. 793,402
Int. Cl. G09b *19/08*
U.S. Cl. 35—35 **4 Claims**

Educational apparatus in the form of a card having a front element with a viewing opening and a rear element having first and second indicia spaced from each other a predetermined distance, said front and rear elements being interconnected for relative movement to a first position in which the first indicia is exposed through the viewing opening and to a second position in which the second indicia is exposed through the viewing opening.



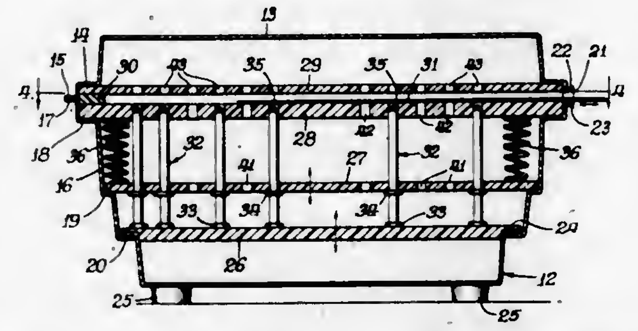
3,566,484
CHILDREN'S GAME APPARATUS
Nancy L. Sonnabend, 24 Green Hill Road,
Brookline, Mass. 02146
Filed Feb. 23, 1968, Ser. No. 707,681
Int. Cl. G09b *1/00*
U.S. Cl. 35—8 **8 Claims**



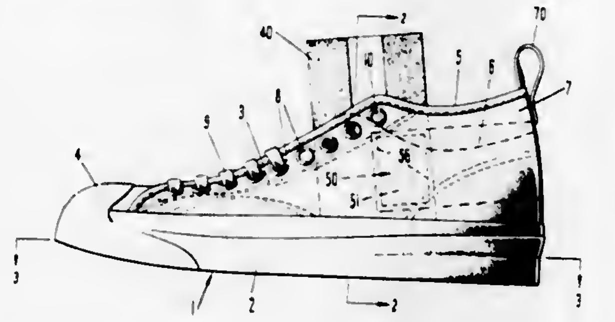
This invention relates to apparatus for playing an instructional series of games. The apparatus is constructed and arranged to enable a very young chlid to learn, by playing the games in sequence, the necessary abstract concepts required to play conventional board games. The preferred embodiment of the invention includes a game board having printed thereon three different playing surfaces, two sets of counters, each of a different color, and a container therefor cards to provide random counts for the players and to determine the order of play, a card holder, counters for counting the number of times a path has been traversed and a holder therefor. By learning to play each of the three games in sequence a young child will readily learn to play conventional board games.

3,566,485
EXAMINATION PAPER GRADER
Kenneth G. Zietlow, 1050 Flake Drive,
Palatine, Ill. 60067
Filed Oct. 1, 1969, Ser. No. 862,746
Int. Cl. G09b *3/00*
U.S. Cl. 35—488 **10 Claims**

An examination paper grader in which completed preprinted examination papers are inserted into a box and by applying a pressure downwardly on the top of the box a plurality of prearranged punches cause holes to be punched in the preprinted examination papers adjacent each correst answer.

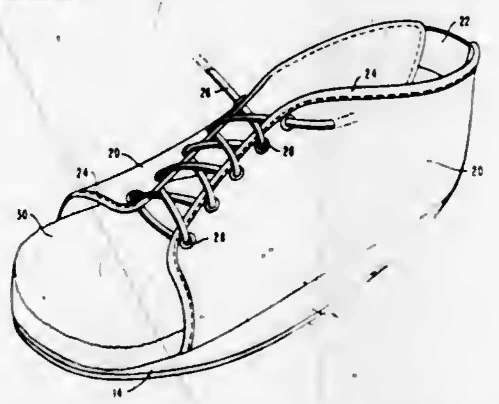


3,566,486
SNEAKER
David H. Conway, 368 S. Goodman St.,
Rochester, N.Y. 14607
Continuation-in-part of application Ser. No. 608,096, Jan. 9, 1967, now Patent No. 3,464,125. This application Aug. 12, 1969, Ser. No. 849,803
Int. Cl. A43b *13/42;* **A61f** *5/00*
U.S. Cl. 36—2.5 **3 Claims**



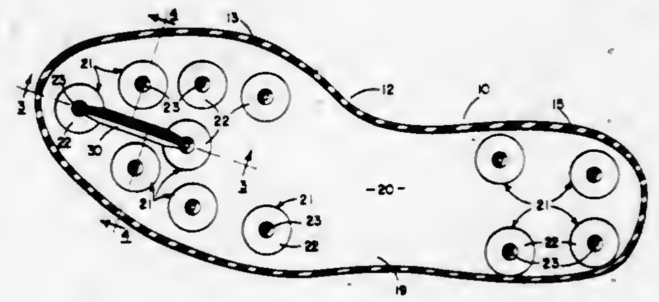
An athletic sneaker having a wedge extending from the heel to just behind the metatarsal heads. An inner heel pad positioned over the wedge extends one half its length on its inner border and is slightly less than one half its width. An outside pad extends ⅜ the length of the wedge and is centered with a transverse line aligned with the end of the inner heel pad.

3,566,487
CAST SHOE
Leroy E. Beightol, 7290 W. 90th St.,
Los Angeles, Calif. 90045
Filed Nov. 12, 1969, Ser. No. 875,828
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 **6 Claims**



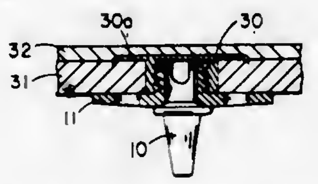
This patent describes a novel shoe intended to be worn over or in conjunction with an orthopedic cast comprising a full, rigid platform which is thicker at the center than at the heel and toe to form a curved rocker-like lower surface, a thin resilient sole covering said lower surface, and a soft flexible upper, said upper preferably is opentoed and has two side flap portions connected to the sides of said platform and being adapted to be secured to each other over the arch of the foot, the inside surface of said platform carrying a layer of resilient flexible material.

3,566,488
CLEAT GUARD
Anthony J. Pilarski, 534 Newton St.,
San Fernando, Calif. 91349
Filed May 5, 1969, Ser. No. 821,573
Int. Cl. A43b *3/16*
U.S. Cl. 36—7.5 **7 Claims**



This invention provides a shoe cleat protective device that includes a sole portion of flexible material including in its upper surface a plurality of spaced recesses in the pattern of the cleats of a shoe and dimensioned to substantially complementarily receive the cleats, with a longitudinal groove extending rearwardly from the forwardmost recess to allow the forward cleat to enter the forward recess by sliding motion, and an upper extending from the sole portion to engage the upper of the shoe. A layer of harder material may be included beneath the recesses to prevent the points of the cleats from punching through.

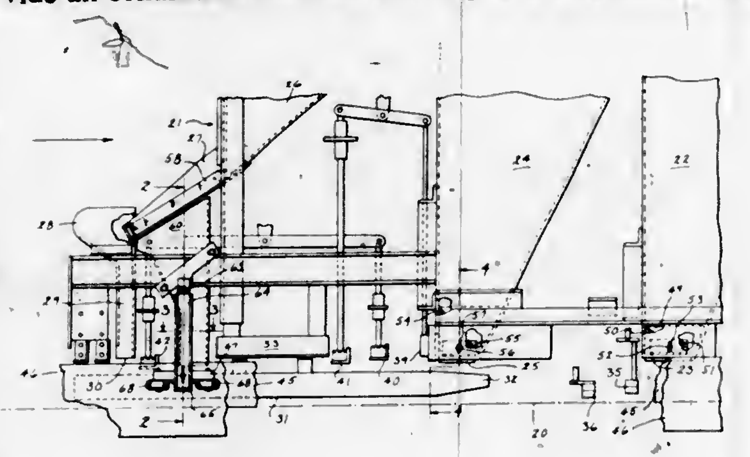
3,566,489
REPLACEABLE SPIKE FOR SHOES
Robert C. Morley, 55 Chicago Ave.,
Columbus, Ohio 43222
Continuation-in-part of application Ser. No. 767,212, Oct. 14, 1968. This application July 29, 1969, Ser. No. 859,224
Int. Cl. A43c *15/00*
U.S. Cl. 36—67 **4 Claims**



An assembly is described for ready replacement of a shoe spike. The assembly comprises a one or two piece anchor extending through the outer sole and having a flange on the outer sole and a replaceable spike member locked into the retainer member by terminal split finger protuberances.

3,566,490
APPARATUS FOR LAYING CONCRETE PLANKS WITH EXPOSED AGGREGATE TOP AND EDGE SURFACES
Robert H. Nagy, 1720 Arrowhead Court,
Brookfield, Wis. 53005
Filed June 10, 1968, Ser. No. 735,899
Int. Cl. B28b *7/00*
U.S. Cl. 25—41 **10 Claims**

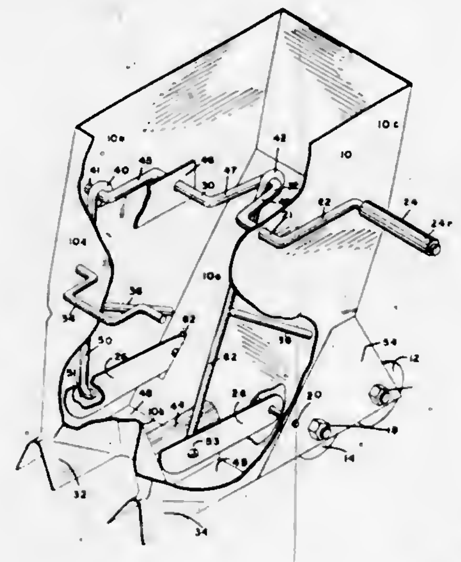
A movable frame equipped for travel lengthwise of a concrete plank being formed, and having hoppers for discharge of concrete in layers, one over the other, with the top layer being formed of exposed aggregate to provide an ornamental surface effect, there being baffling means for keeping a narrow, longitudinally-extending zone adjacent one longitudinal edge of the plank free of the lower layers of concrete, and there being means for thereafter diverting some of the aggregate material into said longitudinal zone to fill the latter so as to also provide an ornamental surface effect upon a longitudinal edge



of the plank, and there being a vibrator for acting on the material in said narrow zone.

3,566,491
MORTAR SPREADING MACHINE

Albert M. Bukey, Rte. 1, Alexandria, Ohio 43001
Filed June 21, 1968, Ser. No. 740,825
Int. Cl. B28b *19/00*
U.S. Cl. 25—118 **7 Claims**

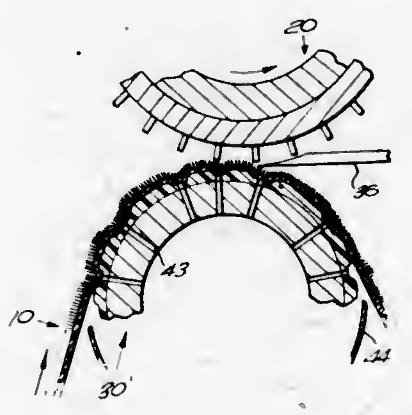


This invention relates to a machine for the spreading of mortar on masonary building material such as concrete blocks, brick, stone and the like. Specifically, the mortar spreader machine encompasses rollers adapted to be rolled on a first row of masonry material. The rollers in turn are secured to a hopper that includes a fore and aft spreader and means for advancing and feeding the mortar from the hopper to the spreader. The machine in operation is pushed (rolled) along the row of masonry material with one hand and the mortar fed to the block by the action of the other hand. As the machine is pushed, the mortar is evenly and uniformly spread on the masonry material.

3,566,492
PATTERN SHEARING APPARATUS

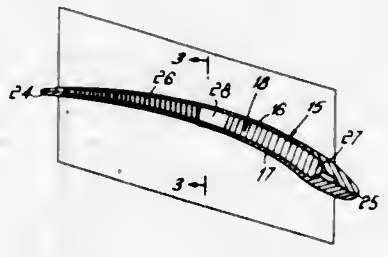
Wilfred N. Hadley and William J. Holm, Springfield, Vt., assignors to Riggs & Lombard, Inc., Lowell, Mass.
Filed June 20, 1968, Ser. No. 738,674
Int. Cl. B06c *23/02*
U.S. Cl. 26—16 **1 Claim**

Pile type fabrics, such as corduroys and the like, are provided with embossed patterns formed in the pile surface. The material is fed through a shearing machine which is provided with an embossed roller in place of the conventional cloth rest. The material is held tightly against the embossed roller surface so that some portions of the cloth pile are shorn to heights different from other portions to produce a pattern over the fabric surface corresponding to the design on the roller. The roller comprises a core over which is mounted a replaceable plastic sleeve on the outer surface of which is embossed the design.



3,566,493
METHOD OF MAKING AN AEROFOIL-SHAPED BLADE FOR A FLUID FLOW MACHINE

Michael Poucher and James A. Petrie, Derby, England, assignors to Rolls-Royce Limited, Derby, England
Filed Apr. 2, 1968, Ser. No. 718,125
Claims priority, application Great Britain, May 5, 1967, 21,077/67
Int. Cl. B23p *15/02, 15/04*
U.S. Cl. 29—156.8 **19 Claims**

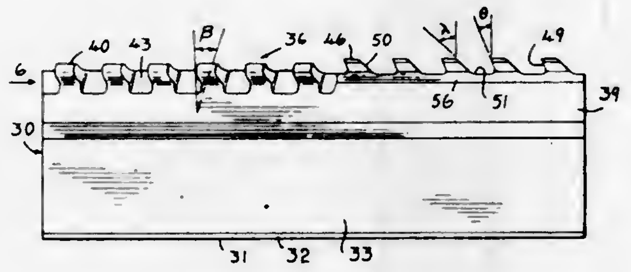


A method of making a gas turbine engine blade comprises forming the blade of two wall members which are bonded to each other and to honeycomb structure disposed between the wall members. Different portions of the honeycomb structure may have different densities.

3,566,494
BROACHING TOOL INSERT

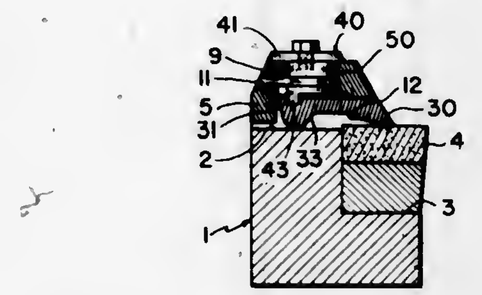
George William Robinson, Rexdale, Ontario, Canada, assignor to Orenda Limited, Toronto, Ontario, Canada
Filed Aug. 6, 1968, Ser. No. 750,705
Claims priority, application Great Britain, Mar. 4, 1968, 10,476/68
Int. Cl. B23p *15/42;* **B26d** *1/04*
U.S. Cl. 29—95.1 **7 Claims**

Broaching machine finishing tool insert, particularly for internal broaching of curvilinear forms in hard-to-machine materials wherein a very high standard of dimensional accuracy and surface finish is required, is formed with a plurality of groups of cutting teeth which finish cut selected portions of the surface sequentially instead of taking a full-form cut on each tooth as in normal practice.



3,566,495
ADJUSTABLE CLAMPING DEVICE FOR TOOL HOLDERS

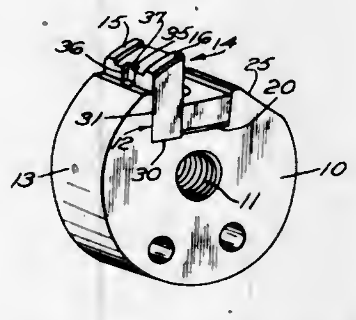
Marcel Delattre and Gerard Romagnolo, Echirolles, and Georges Notari, Monte Carlo, Monaco, assignors to Ugine-Carbone, Paris, France
Filed Nov. 14, 1968, Ser. No. 775,833
Claims priority, application France, Nov. 15, 1967, 128,292
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 **5 Claims**



An adjustable clamping device for securing cutting tools or tips to the shank of a tool holder comprising a clamping member and a chip breaker positioned within a guideway provided therefor in the clamping member. The chip breaker can be positioned within the guideway by turning a cam journaled in the clamping member and engaged in the chip breaker.

3,566,496
FORM TOOL

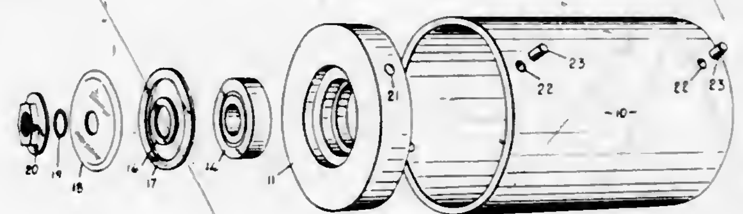
Mitchell Kezirian, Cranston, R.I., assignor to Precision Industries, Inc.
Filed June 3, 1968, Ser. No. 734,000
Int. Cl. B23g *5/00, 5/18;* **B26d** *1/12, 1/00*
U.S. Cl. 29—102 **4 Claims**



A form tool having an interchangeable insert with a means for accurately aligning the insert in the block and holding it in inserted position.

3,566,497
CONVEYOR ROLLER

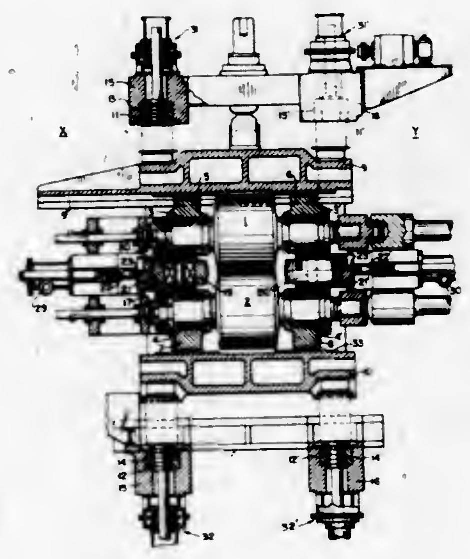
Edmund Lorne Hamlen, 39 Lawrence Ave. E., Toronto 12, Ontario, Canada
Filed Aug. 19, 1968, Ser. No. 753,613
Int. Cl. B60b *7/04*
U.S. Cl. 29—123 **1 Claim**



A roller for a belt type conveyor having a corrosion resistant non-magnetic tubular member of fibres bonded with a resin, the tubular member being enclosed by resinous end caps. The roller is rotatably mounted on a shaft supported on a support bracket.

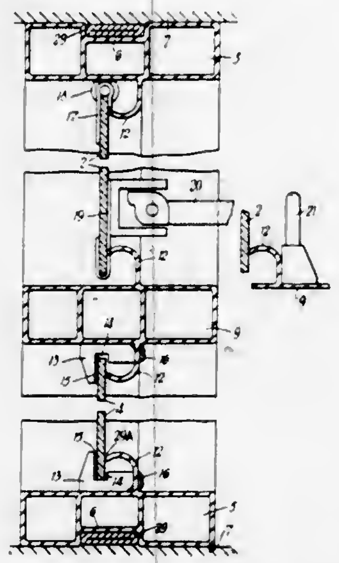
3,566,498
METHOD FOR CHANGING THE ROLLS OF A ROLLING MILL AND APPARATUS FOR APPLYING THE METHOD

Eiichi Kato and Yukio Ohno, Yokohama-shi, Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Jan. 14, 1969, Ser. No. 791,029
Claims priority, application Japan, July 8, 1968, 43/48,009
Int. Cl. B23p *11/00, 19/00*
U.S. Cl. 29—148.4 **2 Claims**



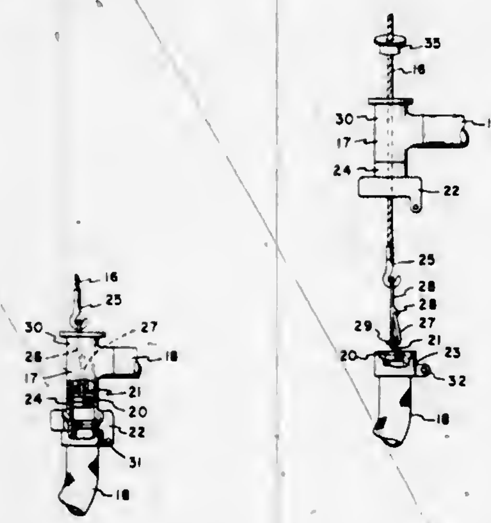
The roll replacement of the rolling mill is made in the following manner: There is attached a cross beam provided with a rail on the upper side as well as on the lower side of the roll stand and each cross beam can move up and down. Horizontal rolls are supported on each of the cross beams. At the time of the roll replacing, the upper cross beam is raised and the lower cross beam is pulled down by means of the screw adjusting device so that the roll replacement can be made with ease in the roll stand. When the vertical rolls are to be replaced at the same time with the horizontal rolls, the vertical rolls are suspended on the chock of the upper horizontal roll or placed on the lower horizontal roll, and a device for pushing in and drawing out is made to engage with the chock for the upper and lower horizontal rolls, and then sets of all rolls can be changed at the same time.

3,566,499
METHOD OF MOUNTING SHEET MATERIAL
Peter Henry James, 9 Adamsrill Road,
London, SE. 26, England
Filed Aug. 6, 1968, Ser. No. 750,520
Claims priority, application Great Britain, Aug. 15, 1967,
37,560/67; Nov. 15, 1967, 52,088/67
Int. Cl. B23p *17/00, 11/02, 19/00*
U.S. Cl. 29—155 **11 Claims**



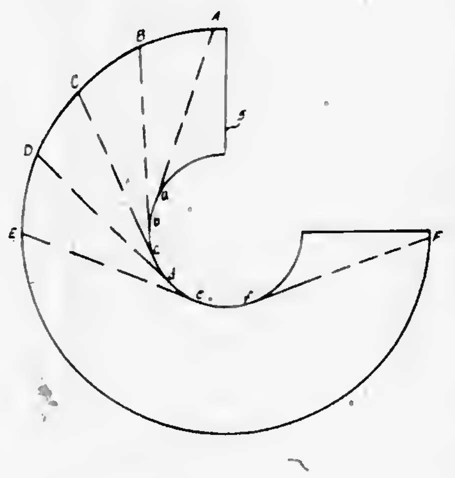
A method of glazing, or mounting other sheet materials, which employs a substantially rigid polyvinyl chloride frame having a projecting resilient rib. The glass or other sheet material is assembled to a coupling member and mechanically pressed or clamped against the free edge of the rib with the aid of the clamping member, the clamping member being secured to the other end of the rib by a bolt. A narrow free edge region of the glass or other sheet material projects beyond the rib.

3,566,500
METHOD OF CONNECTING A HOSE BETWEEN STATIONS
Theodore A. Simon, Houston, Tex., assignor to
Shell Oil Company, New York, N.Y.
Filed Jan. 31, 1969, Ser. No. 795,489
Int. Cl. B21d *53/00;* **B21k** *29/00;* **B23p** *15/26*
U.S. Cl. 29—157 **6 Claims**



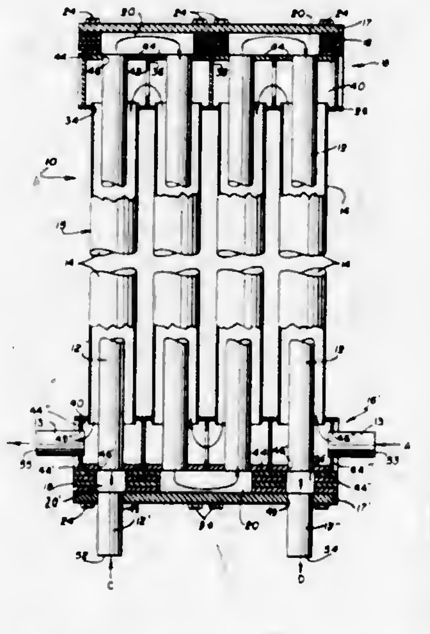
A method of connecting a hose between a pair of stations wherein at least one of the stations is erratically movable with respect to the other and at least one of the stations has a pipe terminating in a pipe T coupled thereto and the other of the stations is connected to the hose. A drawline is extended through the run of the pipe T. One end of the drawline is connected to the free end of the hose and the drawline is pulled through the run of the pipe T to thereby draw the hose into mating contact with the adjacent end of the pipe T. The hose is connected to the adjacent end in a fluid-tight relationship and the drawline is disconnected from the hose. Finally, the drawline is removed from the pipe T and the other end of the run of the pipe T is closed whereby the pipe T establishes fluid communication between the hose and the pipe.

3,566,501
METHOD OF MAKING SPIRAL CHUTE
Donald M. Winchester, 11709 Sahara Way,
Dallas, Tex. 75218
Continuation-in-part of application Ser. No. 520,615, Jan. 14, 1966. This application June 3, 1969, Ser. No. 830,084
Int. Cl. B21d *53/00;* **B21k** *29/00*
U.S. Cl. 29—157.3 **4 Claims**



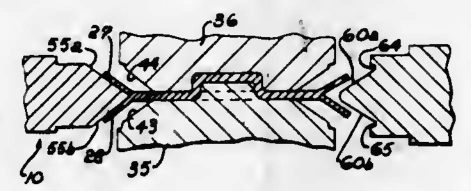
A method of manufacturing a spiral chute slide in which the slide is cut from a flat sheet which is then bent around straight lines tangential to the inner edge contour.

3,566,502
METHOD OF MAKING COUNTERFLOW FLUID CONDENSERS
Piero Pasqualini, Via Antonini 26, Milan, Italy
Filed Feb. 23, 1968, Ser. No. 707,587
Claims priority, application Italy, Mar. 4, 1967,
13,351/67
Int. Cl. B21d *53/02;* **B21k** *29/00*
U.S. Cl. 29—157.3 **10 Claims**



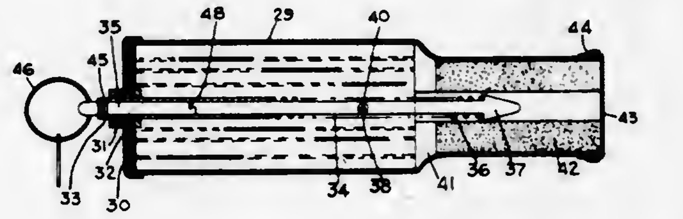
A counterflow fluid condenser which includes a pair of opposite chambered manifold heads and a plurality of telescopically associated pipe pairs connected between said heads to the respective chambers thereof, there being defined one independent path with appropriate inlet and outlet for condensate and another independent path with appropriate inlet and outlet for coolant; the manifold heads each being formed as elongate U-shaped housing divided into a plurality of chambers by spaced cross-baffles seated therein and supported by respective parallel spaced rib pairs formed along the inner surface of the floor and sides of said housing, a plurality of bridging plates seated on respective ones of bridging ribs likewise formed on the inner surface of the side walls of said housing, the floor of said housing being provided with first perforations of size and configuration to receive therethrough the outer one of said pipe pairs and the bridging plates each being provided with a second perforation for receiving therethrough the inner one of said pipe pairs; said bridging baffles also having means for receiving stud fasteners and suitable washer and cover means being secured to the bridging plates utilizing said stud fasteners; the coolant path traversing said chambers and the condensate path being non-communicating with said chambers. The novel method of making the condenser being characterized by the steps of forming a manifold head sub-assembly by impressing a plurality of grooves in one face of a sheet metal blank at predetermined locations thereon simultaneously forming ribs on the opposite face thereof, bending said grooved blank to an inwardly ribbed, U-shaped configuration to define a floor having sections defined between the rib pairs and opposite equal side walls with the grooves on the exterior thereof, perforating said floor within each section, assembling cross-baffles and bridging plates utilizing said ribs as support therefor so as to define the plurality of manifold chambers, one chamber for each section, engaging respective ones of said pipe pairs through respective ones of said perforations, installing the stud fasteners on the bridging plates and thereafter copper-brazing the thus constructed subassembly in an oven and thereafter applying and securing suitable washers and covers to opposite manifold heads thereafter to complete the counterflow condenser; the coolant and condensate inlets and outlets being provided in one of said manifold heads.

3,566,503
METHOD AND APPARATUS FOR MAKING GROOVED WHEELS
Matthew Pacak, Solon, Ohio, assignor to Eaton
Yale & Towne Inc., Cleveland, Ohio
Continuation-in-part of application Ser. No. 538,853, Mar. 30, 1966. This application May 2, 1966, Ser. No. 546,707
Int. Cl. B21d *53/26;* **B21k** *1/28, 1/42*
U.S. Cl. 29—159 **9 Claims**



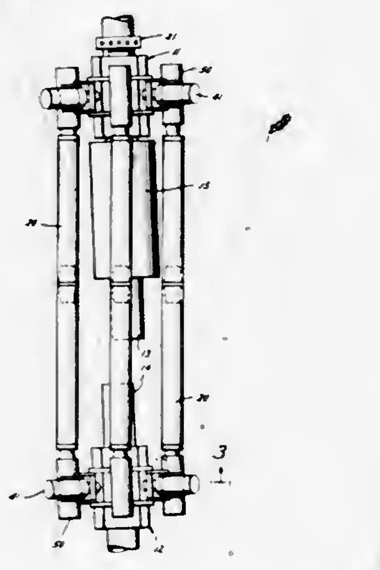
A method and apparatus for fabricating a grooved member from a disc-shaped metal blank. The method includes rotating the blank, splitting and separating the edge portion of the blank by means of a splitting tool so as to form a pair of flanges separated by a groove, and shaping the groove by means of a groove-forming tool whereby the force applied to the blank by operation of the splitting tool serves to counteract the force applied by operation of the forming tool. The apparatus includes a spindle means for rotating the blank, a splitting tool which operates to split the edge portion of the blank into a pair of flanges and to spread the flanges in order to define a groove, a groove-forming tool which operates to shape the groove, and means whereby the force applied to the blank and spindle means by the forming tool is counteracted by the force applied to the blank by the splitting tool.

3,566,504
METHOD OF MAKING WIRE GUN
Andrew Grandy, Jr., 2707 Grant Ave.,
North Hills, Pa. 19038
Original application Mar. 15, 1962, Ser. No. 180,058, now Patent No. 3,470,861, dated Oct. 7, 1969. Divided and this application Mar. 28, 1969, Ser. No. 823,232
Int. Cl. B21f *35/00;* **B23p** *13/00*
U.S. Cl. 29—173 **6 Claims**



Hand held gun from which wire is ejected for entanglement of enemy personnel, laying communication wires over inaccessible terrain, and the like. The wire is initially twisted in one direction to place a torsional stress thereon. It is then heated and quenched to provide a permanent set to the wire which is then twisted in an opposite direction to place another torsional stress thereon which supplies the force necessary for ejecting it from the gun.

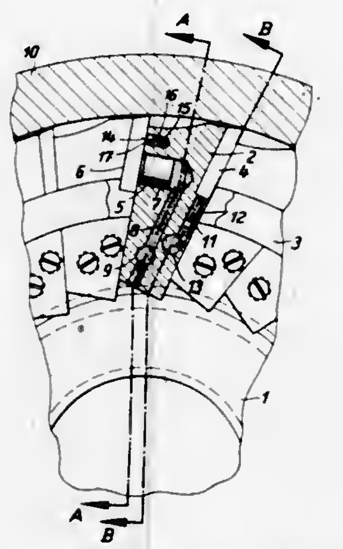
3,566,505
APPARATUS FOR ALIGNING TWO SECTIONS OF PIPE
Charles F. Martin, Houston, Tex., assignor to
HydroTech Services, Inc., Houston, Tex.
Filed June 9, 1969, Ser. No. 831,576
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 **17 Claims**



An apparatus for axially aligning two sections of pipe, as for example two sections of a severed pipeline located at a remote location, such as under water. It includes a pair of axially spaced apart clamps, each of which is arranged for clamping about a length of one of the sections of pipe. It includes a plurality of connecting members connected between the clamps. Abutment means are interposed between the ends of the connecting members and the clamps for holding the clamps and members in predetermined relationships wherein the clamps are axially aligned. It also includes means for moving the connecting members to said relationships whereby the sections of pipe are thereby axially aligned. The apparatus may also be used to hold two sections of pipe during the joinder thereof as by welding.

3,566,506
CUTTER-EQUIPPED MILLING TOOL AND DEVICE FOR ADJUSTING AND TENSIONING THE CUTTERS OF MILLING TOOLS

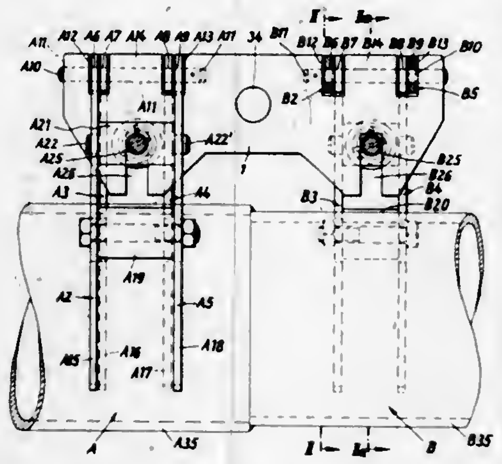
Adolf Wolf, Jes-Juhl-Weg 9, Hamburg 52, Germany
Filed Jan. 24, 1968, Ser. No. 700,109
Int. Cl. B23p *19/00;* **B26d** *1/12*
U.S. Cl. 29—200 **11 Claims**



A system for manufacturing and assembling milling tools wherein the tool includes a base member having a plurality of individual cutting elements mounted thereon. The cutting elements are both radially adjusted, and clamped to the base member by hydraulic fluid pressure devices, and, during assembling of the cutters to the base member, a centering ring is mounted upon the base member in a concentric manner wherein the radial adjustment of the cutters is determined by engagement with the centering ring. In an embodiment of the invention communication exists between each of the radially adjusting and clamping elements, respectively, whereby simultaneous operation thereof may be produced.

3,566,507
EXTERNAL ALIGNING TOOL FOR PIPES OR THE LIKE

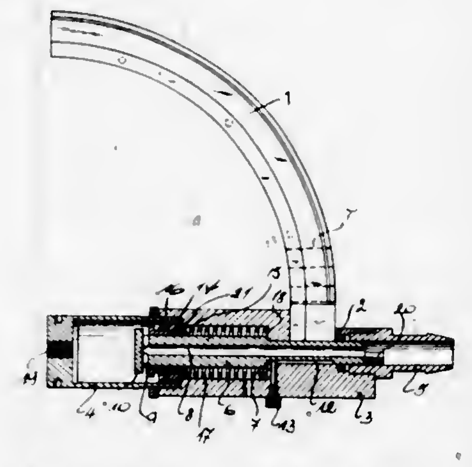
Helmuth H. Jacobsen, 53 Bonn 1, P.O. Box 88, Post Luftelberg, Germany
Filed July 10, 1968, Ser. No. 743,656
Claims priority, application Germany, July 11, 1967, R 46,449; May 17, 1968, P 17 52 385.2
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 **30 Claims**



An external aligning tool for tubes, rods or like workpieces comprises a rigid or deformable carrier which supports several clamping units each of which comprises one or more pairs of arms movable toward and away from each other about a pivot axis defined by the carrier. The arms have beaked clamping portions movable into or away from engagement with a workpiece which is placed between the arms of the respective clamping unit. The drive means for pivoting the arms can include a separate drive for each pair of arms or a single drive which can move all of the arms simultaneously or seriatim. The carrier can comprise two pivotally and longitudinally adjustably connected portions each of which carries a clamping unit.

3,566,508
DEVICE FOR APPLYING PLUGS, BUTTONS OR THE LIKE TO VALVES FOR AEROSOL CONTAINERS

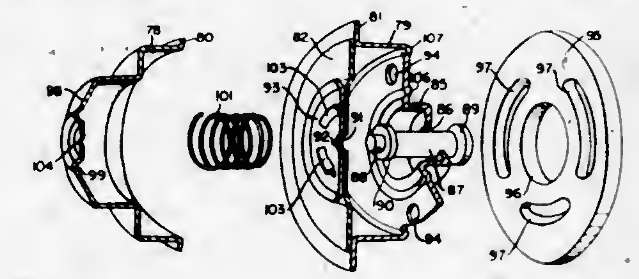
Tomaso Ruscitti, 11 Via Amedeo d'Aosta, Milan, Italy
Filed July 30, 1968, Ser. No. 748,708
Claims priority, application Italy, Aug. 31, 1967, 19,995/67
Int. Cl. B23p *19/04;* **B23g** *7/10*
U.S. Cl. 29—208 **7 Claims**



A device for applying plugs, buttons and the like to valves of aerosol containers. A pneumatically operated unit feeds the buttons one at a time to a centering head which is also pneumatically operated. A conveyor system feeds the aerosol containers successively to a location beneath the pneumatically operated centering head. In response to location of an aerosol container beneath the centering head, the structure automatically delivers a button to the centering head which then pneumatically assembles the button with the valve of the aerosol container. The thus-treated container is then moved away from the centering head, and the next container is situated therebeneath to have the next button assembled with the valve thereof.

3,566,509
METHOD OF ADJUSTING A PRESSURE REGULATOR CONSTRUCTION

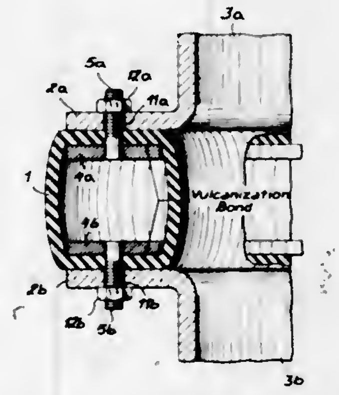
Michael John Caparone, Arcadia, and Theodore John Dykzeul, Rolling Hills, Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Application Oct. 22, 1965, Ser. No. 509,675, now Patent No. 3,441,049, dated Apr. 29, 1969, which is a division of application Ser. No. 214,903, Aug. 6, 1962. Divided and this application Jan. 2, 1969, Ser. No. 800,318
Int. Cl. B23q *17/00*
U.S. Cl. 29—407 **6 Claims**



This disclosure relates to a self-contained pressure regulator that can be readily disposed in a housing means against a surface thereof having an inlet and an outlet respectively disposed in fluid communication with an inlet means and an outlet means of a pressure regulator, the pressure regulator comprising a cup-shaped casing having its closed end provided with its inlet means and outlet means and having its opened end turned over to secure a flexible diaphragm thereto that cooperates with the casing to define a chamber that is in fluid communication with the inlet means and outlet means thereof while carrying a valve member that controls the inlet means thereof.

3,566,510
METHOD OF MAKING EXPANSION JOINT FOR FLUID CONDUITS

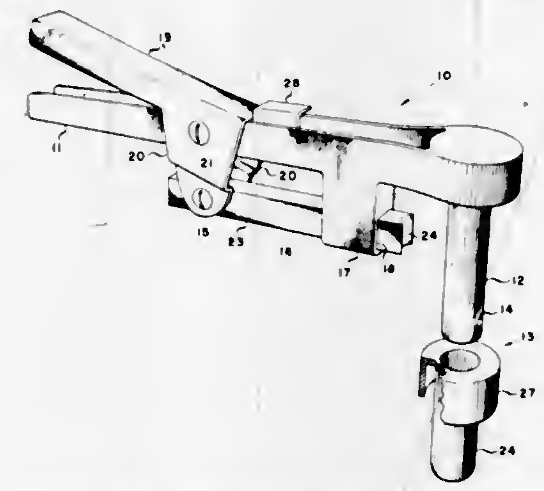
Alfred Wendt, Oberhausen, Germany, assignor to Kempchen & Co. G.m.b.H., Oberhausen Rhineland, Germany
Filed Jan. 29, 1969, Ser. No. 794,852
Claims priority, application Germany, Feb. 1, 1968, P 16 75 329.0
Int. Cl. B23p *17/00*
U.S. Cl. 29—423 **5 Claims**



An expansion joint interconnecting a pair of flanged pipes comprises a toroidal compensator tube of fluid-impermeable elastic material enclosing two metallic rings which are substantially coextensive with the adjoining pipe flanges and are fastened thereto in a fluidtight manner by screws traversing the tube wall. To dispose the two metal rings inside the compensator tube, the rings are coaxially placed on opposite sides of a toroidal body of sand or other flowable bulk material held in position by a tubular liner of fabric or the like which is then enshrouded in a sheath of elastomeric material molded thereabound; holes are thereafter formed in the elastomeric sheath and the liner to accommodate fastening screws engaging the rings, whereupon the bulk material is discharged from the interior of the compensator tube through some of these holes prior to insertion of the screws. The rings are advantageously bonded, preferably by vulcanization, to the inner tube wall.

3,566,511
ELECTRICAL WRENCH

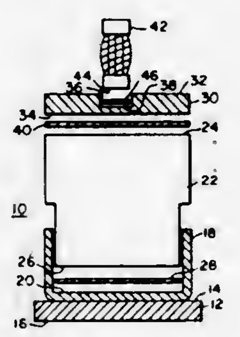
Harold J. Wilson, 14–10 141st St., Whitestone, N.Y. 11357
Filed Mar. 17, 1969, Ser. No. 818,164
Int. Cl. B25b *7/04, 7/12*
U.S. Cl. 29—428 **11 Claims**



An electrical wrench for tightening nuts, having peripheral ribs, within a switch box. The wrench is adapted to fit within the switch box and has a lever actuated pawl for engaging the ribs of the nut. A ratchet-like motion within a limited arc will cause the pawl to alternately contact the ribs and thereby cause the nut to be tightened. An interchanegable socket is utilized to position the wrench and the pawl relative to the nut.

3,566,512
THERMOELECTRIC DEVICES

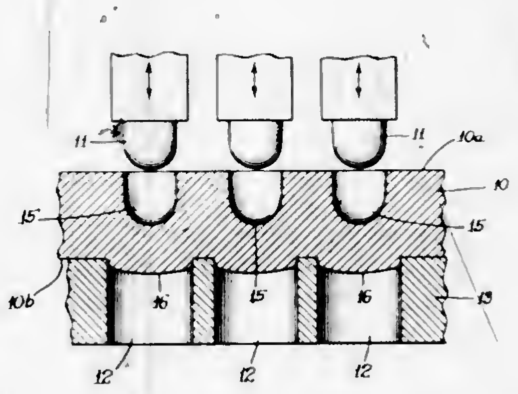
Donald H. Lane, Menlo Park, Calif., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Original application Aug. 9, 1965, Ser. No. 478,274, now Patent No. 3,481,795, dated Dec. 2, 1969. Divided and this application Apr. 25, 1968, Ser. No. 724,018
Int. Cl. B23k *31/02*
U.S. Cl. 29—472.1 **16 Claims**



A self-spacing solder is employed to facilitate the formation of a sound solder joint between electrical contacts and electrical leads affixed to bodies of thermoelectric material. A preferred self-spacing solder comprises a tin-phosphorus alloy having insoluble iron particles admixed therein.

3,566,513
METAL PUNCHING

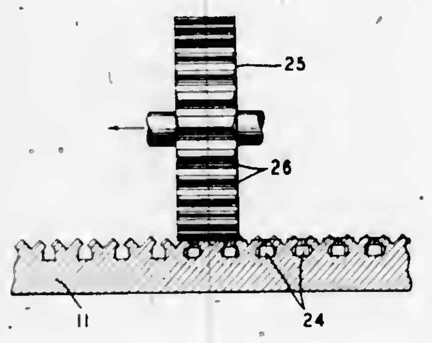
Judson E. Fuller, River Forest, Ill., assignor to The Harrington & King Perforating Co., Inc., Chicago, Ill.
Filed Mar. 5, 1969, Ser. No. 804,390
Int. Cl. B23p *13/04*
U.S. Cl. 29—557 **4 Claims**



A punch produces an indentation in the metal with some of the metal being displaced outwardly on the opposite side. This displaced metal is removed and a punch is inserted into the indentation and forced through the metal.

3,566,514
MANUFACTURING METHOD FOR BOILING SURFACES

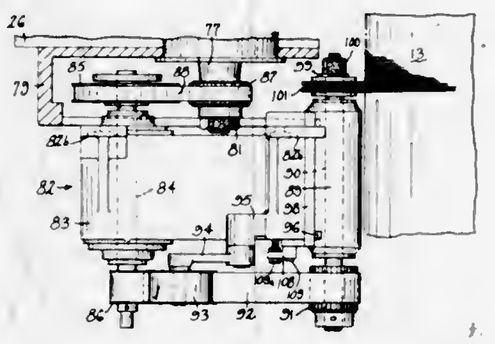
Edward T. Szumigala, Cheektowaga, N.Y., assignor to Union Carbide Corporation
Filed May 1, 1968, Ser. No. 725,789
Int. Cl. B23p *13/04*
U.S. Cl. 29—558 **8 Claims**



A boiling surface layer is formed from a thermally conductive wall by first cutting deep parallel grooves with metal removal, then cutting shallower grooves parallel to and between the first grooves, and then knurling to provide subsurface cavities with restricted openings to the outer surface.

3,566,515
ROLL GRINDING MACHINE

Gunnar V. Hultgren, Milford, Alvin J. Zikaras, Trumbull, and Donald J. Costello, Seymour, Conn., assignors to Farrel Corporation, Ansonia, Conn.
Filed Mar. 8, 1968, Ser. No. 711,591
Int. Cl. B26d *3/06;* **B24b** *5/06*
U.S. Cl. 29—560 **6 Claims**

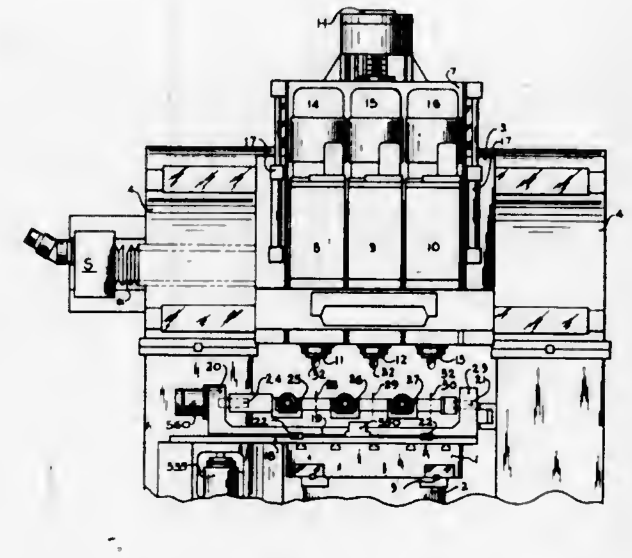


A grinding machine provided with a detachable assembly for substituting a grooving cutter for a grinding wheel and driving the cutter from the grinding wheel spindle. Drive means are also provided for synchronizing movement of the grinding wheel carriage with rotation of the roll to be grooved.

3,566,516
MULTIPLE SPINDLE TOOL CHANGER

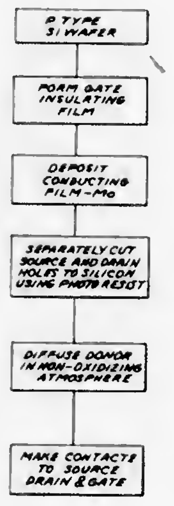
Wallace E. Brainard, New Berlin, and Erich F. Drechsler, Milwaukee, Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.
Filed Apr. 23, 1968, Ser. No. 723,372
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 **8 Claims**

The disclosure relates to a multiple spindle profiler for producing a plurality of milling operations simultaneously on the same or identical workpieces and includes keylock mechanisms for a positive drive between the cutters and the spindles with orienting mechanism to stop the spindles in a particular position to cooperate with tools brought to the spindles by a tool change mechanism. The tool change mechanism is adapted to change the tools that have been used for tools that are going to be used, and the machine as a whole as well as the tool changing operation, are all automatically carried out under the control of a tape.



3,566,517
SELF-REGISTERED IG-FET DEVICES AND METHOD OF MAKING SAME

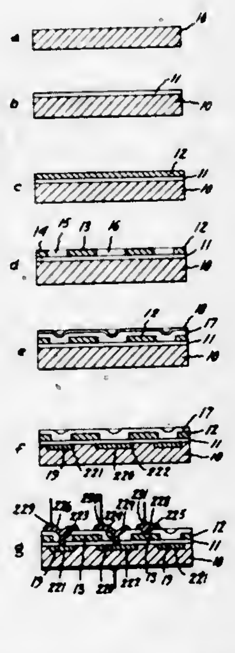
Dale M. Brown, Schenectady, and William E. Engeler, Peter V. Gray, and Marvin Garfinkel, Scotia, N.Y., assignors to General Electric Company
Filed Oct. 13, 1967, Ser. No. 675,228
Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 **11 Claims**


P TYPE SI WAFER
FORM GATE INSULATING FILM
DEPOSIT CONDUCTING FILM-Mo
SEPARATELY CUT SOURCE AND DRAIN HOLES TO SILICON USING PHOTO RESIST
DIFFUSE DONOR IN NON-OXIDIZING ATMOSPHERE
MAKE CONTACTS TO SOURCE DRAIN & GATE

Self-registered field-effect transistors are built by forming the gate thereof at the same time the channel-adjacent portion of the source and drain regions are defined. In one embodiment a refractory metallic film is deposited over an insulating film and etched to form the gate. Subsequently, the metallic film may serve as a diffusion mask, although this is not essential. The metallic film is patterned by photoresist masking and etching. The portion of the metallic film overlying the channel region of the semiconductor body thereof is used as a gate. As a result of simultaneous definition of the channel-adjacent portions of source and drain regions and patterning of the channel-aligned portions of the gate, when source and drain regions are formed by diffusion of activators into the silicon wafer, automatic registration of the gate-adjacent portions of the source and drain junctions beneath the gate is achieved.

3,566,518
METHOD FOR FABRICATING FIELD-EFFECT TRANSISTOR DEVICES AND INTEGRATED CIRCUIT MODULES CONTAINING THE SAME BY SELECTIVE DIFFUSION OF ACTIVATOR IMPURITIES THROUGH PRESELECTED PORTIONS OF PASSIVATING-INSULATING FILMS

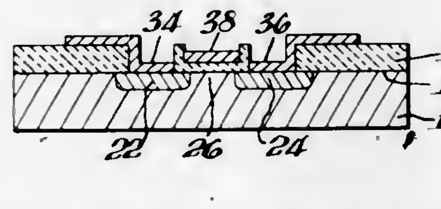
Dale M. Brown, Schenectady, and William E. Engeler, Scotia, N.Y., assignors to General Electric Company
Filed Oct. 13, 1967, Ser. No. 679,957
Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 **18 Claims**



Improved semiconductor field-effect transistors have self-registration and electrical insulation. Conductivity-modified, surface-adjacent source and drain regions are formed by diffusing dopants through gate-oxide layer. One embodiment features a conducting gate electrode which is formed from a thin deposited film. In this embodiment a large region of opposite-conductivity-type semiconductor is formed by diffusion through both conducting and oxide films. Complementary "N-channel" and "P-channel" devices may be formed on the same substrate by combining two separate embodiments. In such devices the original conductivity-type semiconductor is the base for one FET, while the large conductivity-modified type region is the base for the other FET. Such modules may be interconnected to form integrated circuits capable of performing a variety of logical functions.

3,566,519
METHOD OF MAKING FIELD EFFECT TRANSISTOR DEVICE

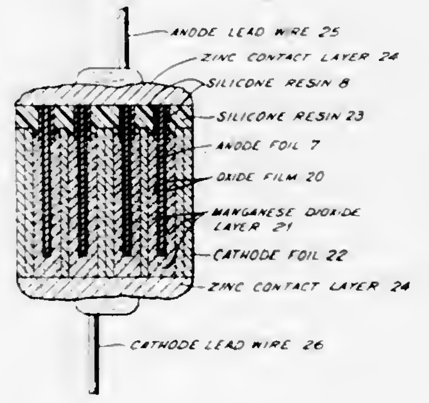
Jerome F. Lapham, Jr., Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Filed Apr. 1, 1968, Ser. No. 717,493
Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 **7 Claims**



A high purity coating of dielectric material is first formed over a major surface of a semiconductive body of one conductivity type. The coating is then purified by removal of a thin layer of its outer surface, and spaced apart regions of the other conductivity type are diffused within the body adjacent its major surface. The coating is again purified by removal of a thin outer layer, and the thickness of coating is reduced in an area overlying the channel formed by the separation between regions so as to provide a gate insulation of high purity without exposure of junctions.

3,566,520
METHOD OF MANUFACTURING SOLID ELECTROLYTIC CAPACITORS

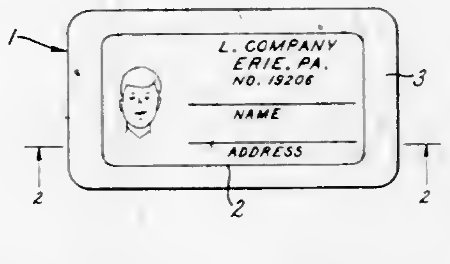
Takeshi Namikata and Katsutoshi Yamaguchi, Kawasaki-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed May 2, 1968, Ser. No. 726,123
Int. Cl. B01j *17/00;* **H01g** *9/00*
U.S. Cl. 29—570 **7 Claims**



A solid electrolytic capacitor is manufactured by coating a longitudinally extending area at one edge of an aluminum anode foil on both surfaces thereof with heat-resistant electrically insulating material of silicone resin. Both surfaces of an aluminum cathode foil are coated with a lacquer of cellulose derivative. The anode foil and the cathode foil are overlapped with part of the coated area of the anode foil extending beyond the edge of the cathode foil and the foils of the body are wound. The wound body is reformed and the lacquer is decomposed and removed from the cathode foil. The end faces of the wound body are covered with heat-resistant insulation of silicone resin. Lead wires are affixed to the end faces of the wound body by removing the insulation covering such faces, applying zinc to such faces and soldering the lead wires to the zinc.

3,566,521
TAMPER PROOF INFORMATION BEARING CARD

Lawrence A. Conner, 137 Skyline Drive, Glen Mills, Pa. 19342
Filed Sept. 29, 1967, Ser. No. 671,867
Int. Cl. G09f *3/02*
U.S. Cl. 40—2.2 **4 Claims**

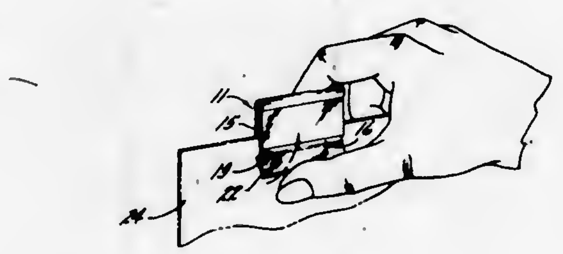


This invention relates to the protection against unwanted or unauthorized alterations of information by the utilization of photography. Particularly, this invention utilizes a photographic transparency in a heat-and-pressure laminated structure, which transparency is designed to become defaced if the lamination is opened in any way.

3,566,522

INDEX TABS

Thomas A. Leach, Mount Prospect, Joseph E. Kohnke, Arlington Heights, and Vernon J. Wiberg, Des Plaines, Ill., assignors to G. J. Aigner Company, Chicago, Ill.
Filed Jan. 28, 1969, Ser. No. 794,620
Int. Cl. G09f *3/16*
U.S. Cl. 40—23 **7 Claims**

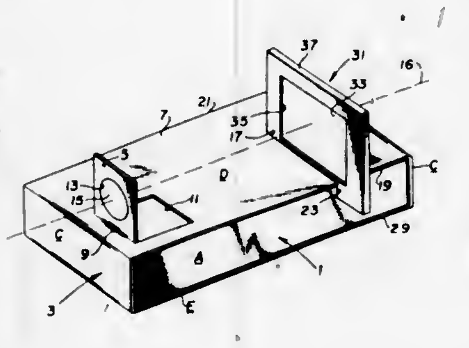


An index tab is made of transparent plastic and can be positioned accurately at the edge of a sheet before adhesive of the tab is exposed to the sheet. Conventional use of moisturizing adhesives is eliminated by substituting a pressure sensitive adhesive and cooperating adherent protective strips. The strips are removed after the tab has been located in position.

3,566,523

COMBINATION PHOTOGRAPHIC IMAGE CONTAINER AND VIEWER

George R. Bower, Holley, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 29, 1968, Ser. No. 748,439
Int. Cl. G09f *11/30*
U.S. Cl. 40—63 **5 Claims**



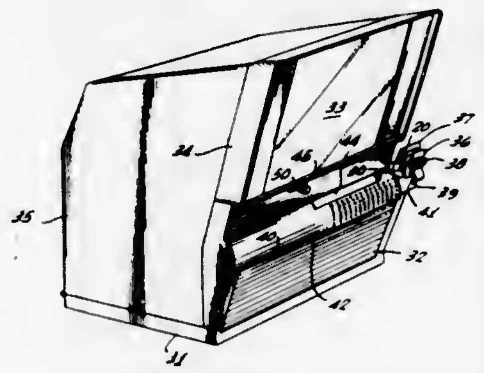
A mailing and storage container for use by film processors for delivering photographic images to customers has a lens and a slot which adapt the container for use as a viewer of the images. A photographic image is supported in the slot and then viewed through the lens.

3,566,524

SEARCH AND RETRIEVAL DEVICE FOR CARD-TYPE ITEMS

Eugene H. Irasek, Palos Verdes Peninsula, Calif., assignor to HF Image Systems, Inc., Culver City, Calif.
Filed June 5, 1969, Ser. No. 830,771
Int. Cl. G09f *11/30*
U.S. Cl. 40—78.05 **33 Claims**

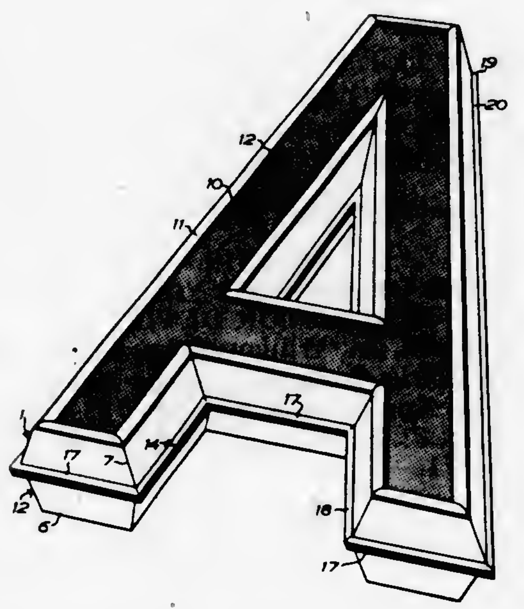
A search, retrieval and display device for card-type items such as microfiche located in a horizontal stack magazine. The magazine with the items therein is moved through the device with an air blast directed side to side through the items to separate them individually. A riffling member rotates at right angles to the items and has spaced peripheral gate notches therein receiving the upper edges of the cards to separate them individually by a substantial space therebetween. The desired card in the magazine may be identified optically by indicia or other identification, and carrier means is provided for entering the magazine stack, picking up a desired microfiche or other card, and moving it in X and Y directions into an optical path which displays the desired image on the item onto a screen. After viewing, the item is returned to the same place within the magazine and is automatically disengaged from the carrier, and the device is set up for again riffling the magazine stack to identify another item desired for retrieval and display. Riffling and magazine movement are effected in both directions depending upon the direction of rotation of the operating mechanism.



3,566,525

ADVERTISING SIGN

Bertil P. Nassil, Johannesgatan 22, Stockholm, Sweden, and Bror A. Hakansson, Ankdammsgatan 28, Solna, Sweden
Continuation of application Ser. No. 618,401, Feb. 24, 1967. This application Dec. 1, 1969, Ser. No. 876,213
Claims priority, application Sweden, Feb. 28, 1966, 2,615/66
Int. Cl. G09f *13/06*
U.S. Cl. 40—130 **6 Claims**

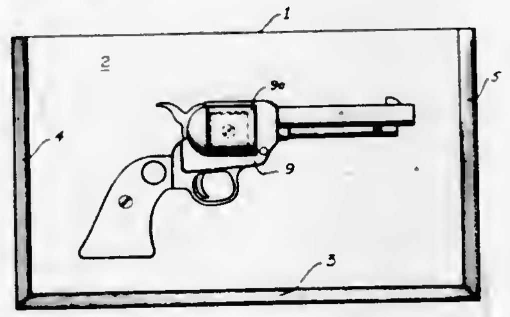


A sign, preferably for advertising purposes, having an opaque box-shaped hollow body, a source of light mounted therein, and at least on one face to be viewed transparent portions to be penetrated by light from the source of light in the form of projections, beads or ribs arranged so as to make the contours or boundaries of the advertised object stand out from the surrounding sign surface and shine in the dark.

3,566,526

DISPLAY CASE WITH MAGNETIC HOLDING MEANS

Paul A. La Violette, North Haven, Conn., assignor to Colt's Inc., Hartford, Conn.
Filed Jan. 6, 1969, Ser. No. 789,135
Int. Cl. G09f *1/12*
U.S. Cl. 40—160 **6 Claims**

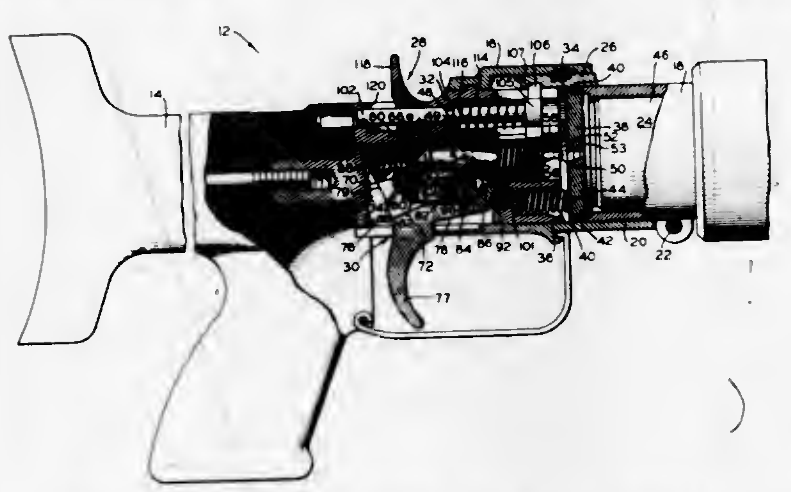


A device, including a box-like structure, for displaying a variety of objects, either singly or plurally, said device having a support or backboard member to which is attached a magnetic member contoured to receive a selective portion of the item or items to be displayed to magnetically support each item in a spaced apart relation to the face of the support or backboard member to thereby create the illusion of an item suspended in space without visible means of support.

3,566,527

EMERGENCY FIREARM FIRING MECHANISM FOR HIGH VELOCITY GRENADE ROUNDS

Stanley D. Silsby, Granby, Mass., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 6, 1968, Ser. No. 781,738
Int. Cl. F41c *11/00, 11/02*
U.S. Cl. 42—41 **7 Claims**



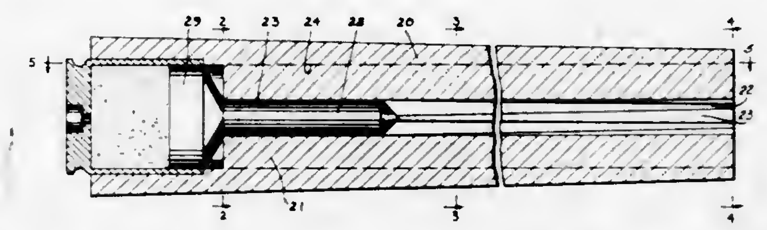
For firearms having a hinged barrel, a firing mechanism including a pressure plate actuatable by the cartridge case set back for automatically cocking the firing pin by cartridge discharge and a barrel latching device engageable with the firing pin for retraction thereof to assure cocking when the barrel is unlatched for loading.

3,566,528

GUN BARREL

C Walton Musser, Beverly, Mass., assignor to the United States of America as represented by the Secretary of the Army
Filed Apr. 23, 1958, Ser. No. 731,078
Int. Cl. F41c *21/00;* **F42b** *11/00, 15/00*
U.S. Cl. 42—78 **3 Claims**

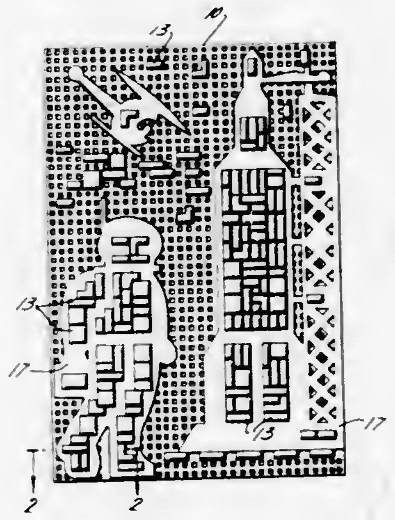
1. In a gun barrel of the type having a chamber for receiving a projectile having a body portion and an enlarged somewhat conical base, lands and grooves in the gun barrel extending from said chamber for receiving said enlarged base to the muzzle of said gun barrel, and the grooves being tapered in width from a maximum width at said chamber for said conical base to a minimum width adjacent said muzzle whereby said enlarged base of a projectile may be formed into upstanding fins as said projectile is moved through said gun barrel toward the muzzle, the combination therewith of the improvement to reduce balloting or wobble of the projectile in the gun barrel and enhance accuracy in its flight after leaving the gun barrel, said improvement including the said body portion being cylindrical in front of said fins and said lands extending inwardly transversely of the gun to contact and guide the cylindrical body portion of a projectile during substantially its entire movement within the gun barrel.



3,566,529

MOSAIC PLUG-IN TOY AND PICTURE PATTERNS

Albert Kner, Chicago, Ill., Roland T. Schorer, Smoke Rise, N.J., and James B. Swett, Barrington, R.I., assignors to Rexall Drug and Chemical Company, Los Angeles, Calif.
Filed Aug. 12, 1968, Ser. No. 751,814
Int. Cl. A63h *33/08*
U.S. Cl. 46—17 **2 Claims**



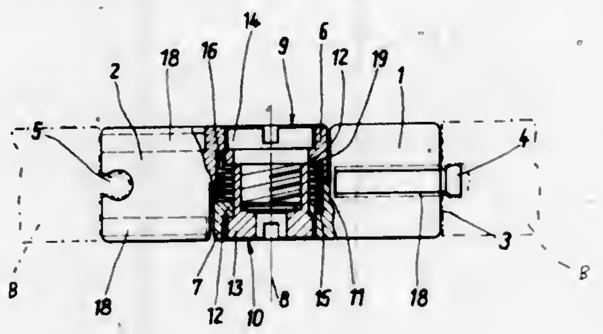
A mosaic plug-in toy having a grid type base member and a plurality of mosaic tiles adapted to be plugged into the base member, and having a sheet of material adapted to form outlines on the grid portion which forms, with the individual tile units, the completed design. The outline sheet is held to the grid by the tiles. The package for the toy is provided by a box having a base member which serves as a decorative picture frame for the completed mosaic design.

3,566,530

TOY BUILDING KIT WITH ANGULARLY DISPLACEABLE COUPLING MEANS WITH RESTORING MEANS

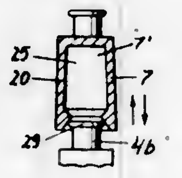
Artur Fischer, Gruenmettstetterstr. 133, Tumlingen, Germany
Filed Sept. 30, 1968, Ser. No. 763,551
Claims priority, application Germany, Sept. 30, 1967, F 53,639
Int. Cl. A63h *33/08*
U.S. Cl. 46—23 **9 Claims**

A toy building kit includes at least two building blocks each of which is provided with at least one undercut connecting portion. A coupling arrangement is provided for coupling the toy building blocks to one another with freedom of relative angular displacement. It includes two coupling sections, each of which is provided with at least one connecting portion which can mate with an undercut connecting portion of one of the toy building blocks and a joint which joins the coupling sections to one another so that they have freedom of relative angular displacement from a rest position to a displaced position whereby building blocks connected to the respective sections are similarly angularly displaced. Displacing means is associated with the sections and is operative for restoring the same to the aforementioned rest position when they undergo angular displacement from the rest position to a displaced position and the force effecting such angular displacement is terminated.



3,566,531
MATING BLOCKS HAVING BEADED STUDS AND RESILIENT SIDEWALLS

Heinz Hasel, Industrie-Strasse, 6921 Reichartshausen, Baden, Germany, and Otto Wolf, 23 Lange Morgen, 7312 Kirchheim, Teck, Germany
Continuation-in-part of applications Ser. No. 284,992, June 3, 1963, Ser. No. 404,009, Oct. 15, 1964, and Ser. No. 557,850, May 13, 1966. This application Feb. 15, 1968, Ser. No. 742,986
Claims priority, application Germany, June 9, 1962, P 12 02 694.7–15; Mar. 25, 1964, H 52,160
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 14 Claims

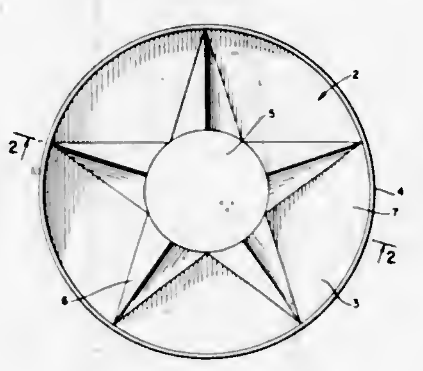


Hollow, box-like toy blocks open on the lower side and having studs on the upper side to mate with the open side. The studs may have beads and there are resilient side walls forming the opening, the edges of which may have notches to receive the beads. Sawtooth projections may be provided on said edges, to be cammed aside by the beaded studs. The blocks may have interior partition walls and different walls of a block may vary in flexibility. The studs may be hollow and the walls apertured to allow other elements to pass into the block interior.

3,566,532
FLYING SAUCER TYPE TOY

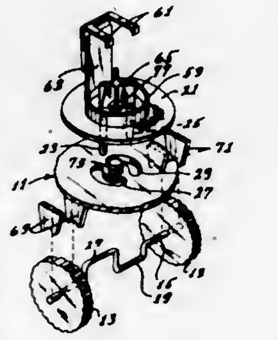
Henry Allen Wilson, 4630 Leona St., Tampa, Fla. 33609
Filed Nov. 8, 1967, Ser. No. 681,429
Int. Cl. A63k *27/12*
U.S. Cl. 46—74 5 Claims

A two sided flying saucer toy which is preferably made of a moldable synthetic plastic material, the toy being constructed with a relatively thin walled central hollow body portion from which hollow design forming wall portions radiate to the handle-like rim of the saucer. The web portions of the disc-like saucer intermediate the hollow radial design forming portions being functionally integral and relatively thickened to provide sufficient transverse strength to allow repeated use of the device with the light weight relatively large design forming wall portions. The handle rim is of cylindrical hoop-shape and extends in opposite directions from the central disc portion of the toy out and beyond the raised design carried thereon so as to protect the same when thrown and on alighting and to provide a hand gripping rim to permit an average child to obtain a good throwing grip from any peripheral point thereon to spin and hurl the disc in a straight line with improved throwing accuracy.



3,566,533
WHEELED TOY

Ralph Dunn, Manhattan Beach, Armando P. Villasana, Los Angeles, and Stephen W. Plurkowsky, Torrance, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 23, 1969, Ser. No. 793,251
Int. Cl. A63h *11/10*
U.S. Cl. 46—107 5 Claims

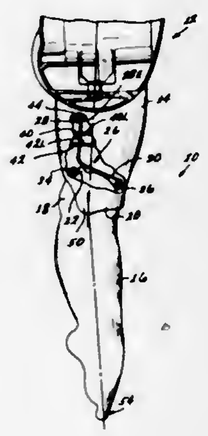


This is a toy vehicle that has a pivotally mounted platform that may support a toy figure or doll. The toy includes traction wheels connected to an axle having a pair of oppositely disposed crank portions that alternately move different ones of two depending members attached to the platform to cause the platform and any doll that it supports to turn from side to side as the vehicle is moved over a surface.

3,566,534
PIVOTABLE DOLL LEG

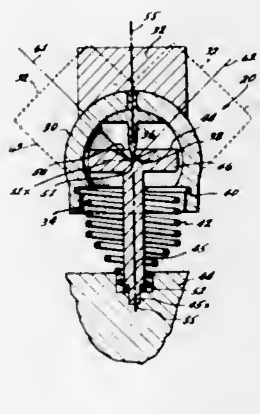
Gunter E. Becker, 17213 Yukon Ave., Apt. H, Torrence, Calif. 90503
Filed July 31, 1969, Ser. No. 846,462
Int. Cl. A63h *3/46*
U.S. Cl. 46—163 9 Claims

A doll leg which pivots at the knee between two orientations, and which retains either of the orientations. The leg includes an upper leg member, a lower leg member pivotally joined to the upper member, a protuberance at the top of the lower member, and a leaf spring having an inner end mounted on the upper leg member and an outer end portion extending tangential to the path taken by the protuberance as it moves when the lower leg member pivots.



3,566,535
LOOK-ALIVE DOLL PIVOT JOINT

Elliot Handler and John W. Ryan, Los Angeles, Jurgis Sapkus, Manhattan Beach, and Wallace H. Shapero, Torrance, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Oct. 3, 1968, Ser. No. 764,669
Int. Cl. A63h *3/20*
U.S. Cl. 46—161 13 Claims

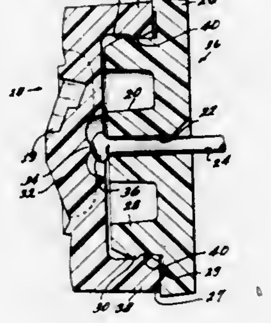


A pin point joint for an articulated toy to join two body members, including a pin with a sharpened tip rigidly supported by one body member, and a disc, defining a cone-shaped cavity, supported by the other body member. A torsion spring, connected to the two body members, spring biases the pin into the cavity with the pin's tip in engagement with the cone's vertex. The torsion spring is used to provide pivotal and/or rotational restoring forces to the first member, to reposition it in its quiescent position, after its position is disturbed by force applied by a playing child.

3,566,536
TOY VEHICLE WHEELS

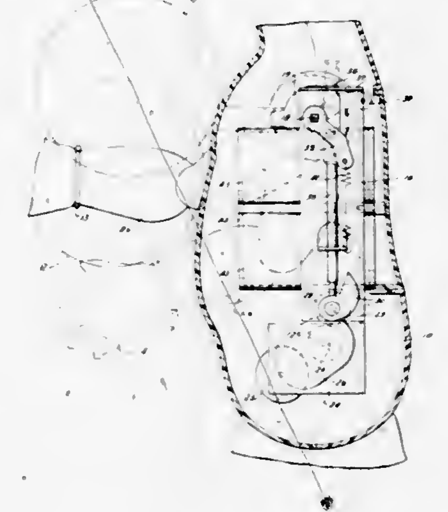
William R. Baynes, Palos Verdes Peninsula, and Keith M. Johnson, South Laguna, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed July 9, 1969, Ser. No. 840,206
Int. Cl. A63h *17/26*
U.S. Cl. 46—221 10 Claims

A wheel assembly for a toy vehicle comprising inner and outer wheel elements that can be snapped together over the end of an axle. The inner wheel element includes a bearing hole at the center for receiving the axle, an axially-extending flange near the rim, and a tread portion at the rim for rollably supporting the vehicle on a track. The outer wheel element has a flange that snaps over the flange of the inner wheel element to hold them together.



3,566,537
MISSILE-TOSSING TOY

Sidney Tepper, Millburn, and Thomas J. Fauls, West Orange, N.J., assignors to Topper Corporation
Filed Aug. 15, 1969, Ser. No. 850,401
Int. Cl. A63h *33/26*
U.S. Cl. 46—247 10 Claims

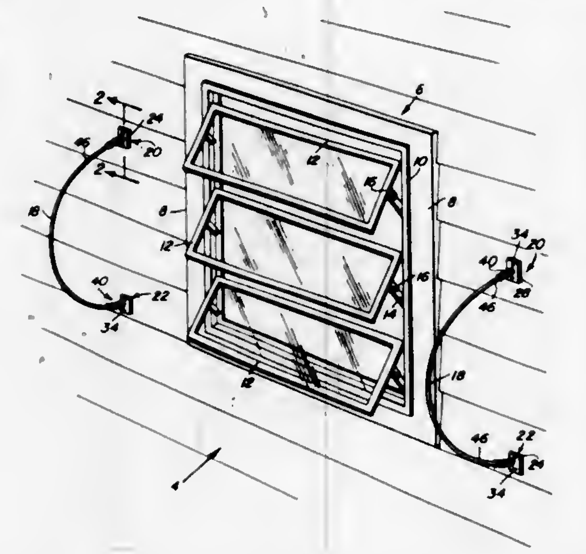


The toy includes a body carrying a pair of appendages and a switch. The switch may comprise an electrical contact member carried by each appendage. A missile thrown to the toy closes the switch, e.g., the missile may be electrically conductive to bridge the contact members, thereby completing an electrical circuit which moves the appendages from their initial position to an intermediate position. A spring is tensioned during this movement, the tension being released suddenly causing the appendages to snap back to their initial position and toss the missile.

3,566,538
WINDOW SAFETY GUARD

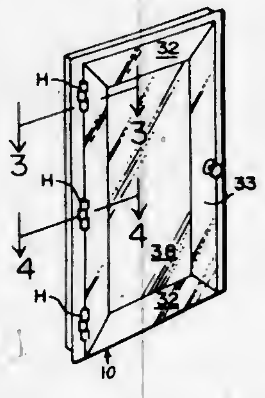
Joseph S. McCallum, Venice, Fla. (1736 Southpointe Drive, Sarasota, Fla. 33581)
Filed Apr. 25, 1969, Ser. No. 819,277
Int. Cl. E06b *9/00*
U.S. Cl. 49—50 6 Claims

For use adjacent to and parallel with the vertical members of a built-in awning-type window structure, a pair of safety-promoting accident minimizing pedestrian wall supported warning guards. These guards lend themselves to injury preventing use when properly paired and mounted. They project beyond the wall and partially bridge the path of approach when the windows are open. They are yieldingly mounted and warn passers-by and minimize the likelihood of colliding with dangerously projecting windows.



3,566,539
PREHUNG DOOR STRUCTURE

Herb B. Ridgley, 6500 SW. 111th St.,
Miami, Fla. 33156
Filed July 7, 1969, Ser. No. 839,601
Int. Cl. E06b *3/32*
U.S. Cl. 49—380 **1 Claim**

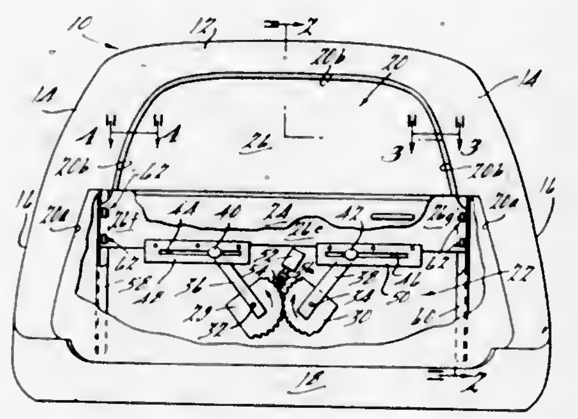


A prehung door structure having a wall frame, a door frame and hinges mounting the door frame to the wall frame, the door frame, wall frames and the hinges being extruded. The wall frame having a plurality of openings for receiving the leg portion of wall hinge sections and fastening the leg portions to the inner surface of the wall frame, while the door frame and door hinge sections are provided with interlocking members permitting the sliding of the door hinge sections and fastened into position.

3,566,540
VEHICULAR DOOR GLASS STABILIZING MECHANISM

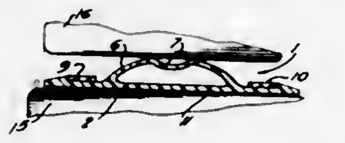
Keith A. Hewitt, Highland, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Aug. 15, 1969, Ser. No. 850,428
Int. Cl. E05d *15/16*
U.S. Cl. 49—417 **17 Claims**

A stabilizer mechanism for the tailgate window glass of a station wagon type motor vehicle wherein the side edges of the glass are slideably received in channel members positioned vertically within the door and coacting wedge assemblies positioned in the lateral spaces between the window glass and the channel members, are arranged to be expanded by a spring to a thickness to fill these lateral spaces in any static position of the door and to undergo a contraction in their thickness in response to movement of the glass in either direction to thereby ease the glass movement; each wedge assembly comprises a first wedge piece secured to the glass and a second wedge piece mounted on the first piece for limited vertically sliding movement on that piece to selectively increase or decrease the combined thickness of the two pieces and thereby either stabilize or free up the glass.



3,566,541
PROTECTIVE BARRIER FOR PRODUCTS OF COMBUSTION

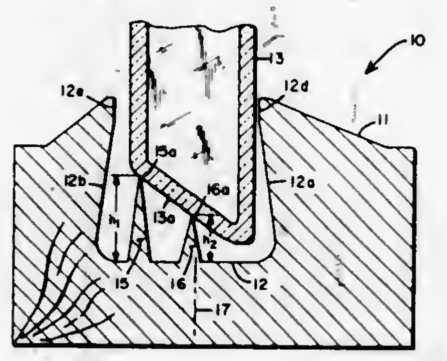
Gordon L. Coulter, Arlington Heights, Ill., assignor to Rixson, Inc., Franklin Park, Ill.
Filed Mar. 6, 1969, Ser. No. 804,816
Int. Cl. E06b *7/23*
U.S. Cl. 49—475 **26 Claims**



A protective barrier for the products of combustion adapted for installation in any structural environment having an air gap, or in which an air gap will be readily created in response to fire. The barrier features in combination a mechanical smoke seal, such as a soft compressible neoprene gasket, and a closely associated strip or mass of intumescent fire retardant coating. This barrier may be applied to a door, door frame and threshold, windows, louvers, transoms, dampers, containers, and smoke hatch covers, for example, to prevent the ready passage of the products of combustion, particularly smoke, through any structural gaps.

3,566,542
WINDOW ASSEMBLY

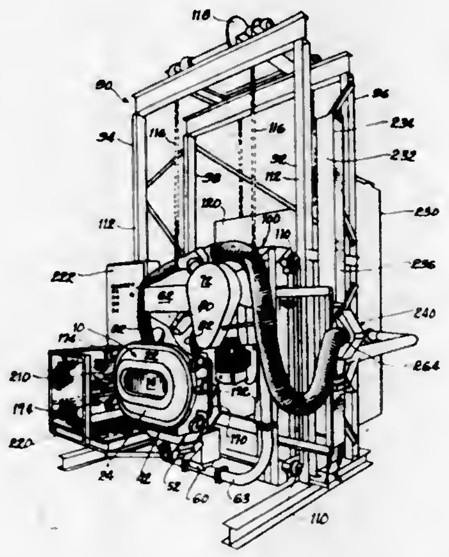
Theodore M. Gillen, Stillwater, and Albert O. Dahl, Bayport, Minn., assignors to Andersen Corporation, Bayport, Minn.
Filed Apr. 2, 1969, Ser. No. 822,795
Int. Cl. E06b *7/16*
U.S. Cl. 49—504 **11 Claims**



A window assembly having deformable means for aligning and supporting a window having an inclined marginal edge.

3,566,543
MACHINE FOR TREATMENT OF LARGE VERTICAL SURFACES

James W. Fogle, Walkerton, Ind., assignor to The Wheelabrator Corporation, Mishawaka, Ind.
Filed Feb. 6, 1968, Ser. No. 703,397
Int. Cl. B24c *3/00*
U.S. Cl. 51—9 **18 Claims**

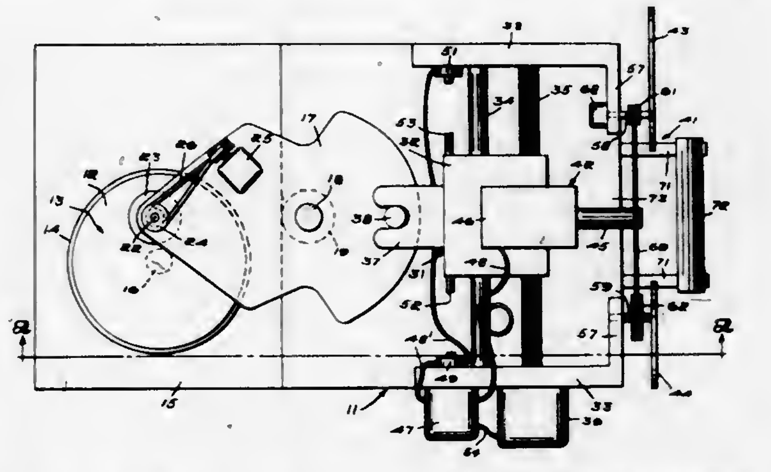


A machine and method for treatment of vertically disposed surfaces of large dimension with dry particulate material comprising means for throwing the dry particulate material at high velocity in the direction toward said surface, a housing enclosing said throwing means having an opening through which the particulate material is thrown against said surface, means for establishing a sealing relationship about said opening between the housing and said surface to confine the particulate material, dirt and dusts within the sealed space, means for collecting the spent particulate material at the bottom portion of the housing and for introducing air into the housing for air washing the spent particulate material to remove dirt and dusts, recycling the washed particulate material for feed to the throwing means, a dust collector for receiving the dirt and dust from within the housing for separation thereof and means for maintaining subatmospheric conditions within the housing to guide the air flow through the housing and about said sealing means to minimize the exhaust of dirt and dust into the atmosphere and in which the support means for said housing includes means for movement of the housing in the vertical direction, means for movement of the housing in the horizontal direction and means for movement of the housing in the direction toward and away from the surface and means for mounting the housing for rocking movement about its pitch and yaw axes to adjust the housing with change in contour of the surface, and sensing means about the opening automatically to adjust the housing for change in contour about the pitch axis and/or the yaw axis and for movement of the housing in the direction toward and away from the surface and for shutting off the feed of particulate material in the absence of a sealing relationship between the housing and surface.

3,566,544
OPTICAL SURFACE GENERATING METHOD AND APPARATUS

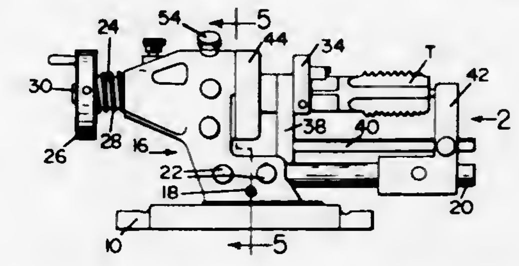
Ronald Aspden, Bedford, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Apr. 25, 1968, Ser. No. 724,082
Int. Cl. B24b *7/24, 1/00*
U.S. Cl. 51—55 **33 Claims**

A surface generating system wherein an optical lap is moved over the surface of an optical blank in a path having both circumferential and oscillating radial components. Continuous and selective variations in the amplitude of the radial component produces a desired radially symmetrical contour on the work surface.



3,566,545
TAP GRINDER

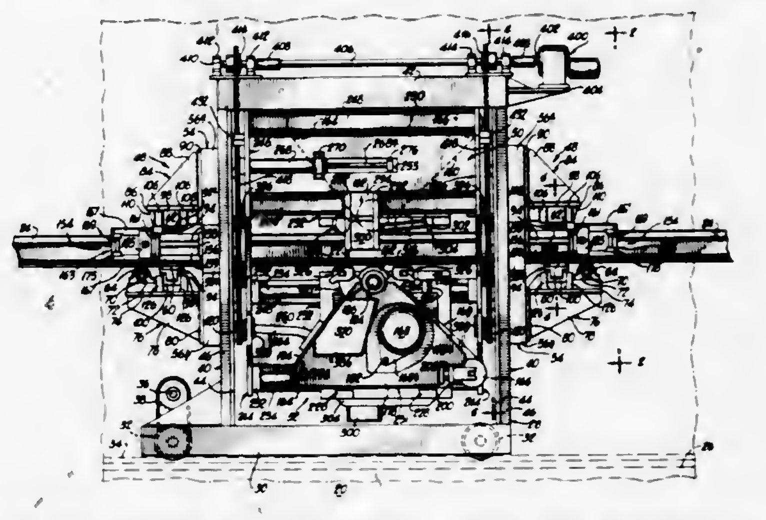
Charles F. Gasek, North Grafton, Mass., assignor to R & A Machine Co., Inc., Worcester, Mass.
Filed Dec. 23, 1968, Ser. No. 786,295
Int. Cl. B24b *3/18, 47/02*
U.S. Cl. 51—123 **3 Claims**



Tap grinder comprising a collet for small taps and centers for larger taps, means to rotate the tap at an angle to a wheel, and adjustable means to automatically advance the tap to be ground and retract the tap during non-grinding periods as the tap is rotated.

3,566,546
APPARATUS FOR GRINDING WELDED RAIL

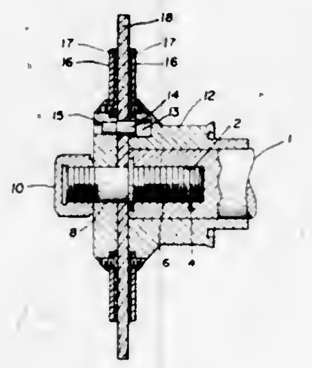
Karl L. Lindmark, Rockford, Ill., assignor to Chemetron Corporation, Chicago, Ill.
Original application Nov. 21, 1966, Ser. No. 595,738, now Patent No. 3,509,667, dated May 5, 1970. Divided and this application Apr. 24, 1969, Ser. No. 852,128
Int. Cl. B24b *21/16, 23/06*
U.S. Cl. 51—140 **31 Claims**



Apparatus for grinding welds formed by welding rail sections in end to end relation to form a continuous rail. A pair of belt type grinding heads simultaneously grind the rail head running surface and the rail base with only minimal areas adjacent the upset or weld areas being engaged by the belts. The rail is held in stationary position during the grinding and one of the heads is turned around the rail head to effect curvilinear or arcuate grinding while the other head grinds the underside of the rail base. The heads are moved longitudinally across the weld and are simultaneously moved transversely into and out of grinding engagement with the weld during each longitudinal pass so that each belt follows a curved path lying tangent to the rail at the upset, whereby maximum grinding occurs at the upset and depth of the grind feathers out as each head moves beyond the upset.

3,566,547
GRINDING WHEEL SPINDLE ASSEMBLY

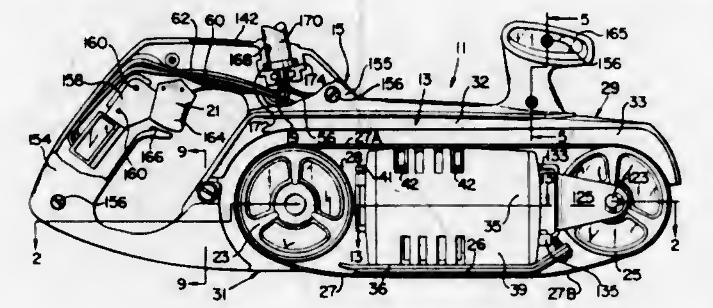
Robert F. Lonaberger and Charles W. Stickler, Jr., Reading, Pa., assignors to Gray Tech Industries, Inc., Mohnton, Pa.
Filed Nov. 28, 1967, Ser. No. 686,022
Int. Cl. B24b *45/00*
U.S. Cl. 51—168 **3 Claims**



Spindle stub for grinding wheel machines, particularly cut-off machines, to eliminate the necessity of replacement of the spindle, also separate flanges to increase the spindle diameter and resist end thrust, as well as to permit reversal of the flanges to extend the life of the spindle, also the inclusion of multi-layer cushioning rings between the grinding wheel and flanges to further reduce wear of the flange faces and to reduce vibration.

3,566,548
DUST REMOVAL CONSTRUCTION FOR A BELT-TYPE SANDER

Jacobus J. Beckering, Greenville, S.C., and Allen G. Beares, Towson, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.
Original application Jan. 18, 1967, Ser. No. 610,191, now Patent No. 3,474,575, dated Oct. 28, 1969. Divided and this application July 10, 1969, Ser. No. 840,773
Int. Cl. B24b *23/00, 55/06*
U.S. Cl. 51—170 **19 Claims**

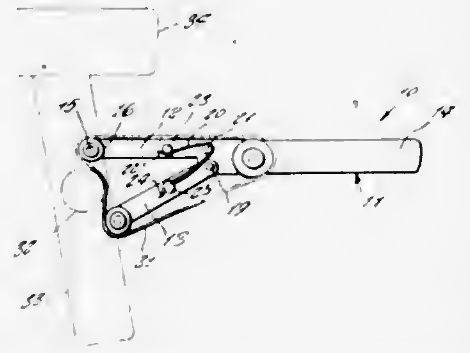


This invention relates generally to portable, power driven tools, and particularly to an improved, portable, belt-type sanding, polishing or burnishing device and housing and handle construction therefor. More specifically, the disclosure to follow describes a portable, power driven sanding, burnishing or polishing device of the type having a housing and spaced drive and idler pulleys rotatably supported on the housing for rotation about parallel axes.

An electric motor supported upon the housing drives the drive pulley and an endless belt entrained over the drive and idler pulleys. The belt is suitably formed for sanding, burnishing or polishing and the bottom of the housing is open so that the working surface of the belt is exposed at this area. The housing described, as well as a handle detachably secured thereto, are of clam-shell like construction serving to trap various components of the device in place. In addition, the handle, the housing, and a detachable cover provide a passageway through which dust may be removed under the action of a suction fan. A detachable dust bag may be provided to collect the dust.

3,566,549
FLEXIBLE ALL PURPOSE DRILL ATTACHMENT

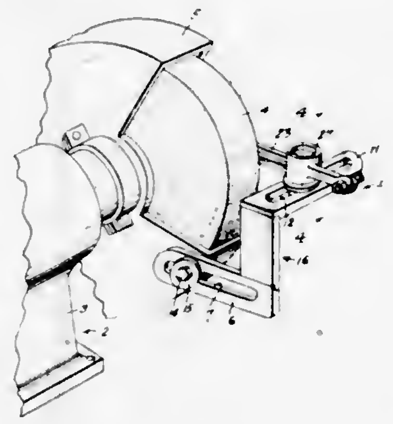
James A. Britton, Whitesburg, Tenn. 37891
Filed Jan. 21, 1969, Ser. No. 792,631
Int. Cl. B24b *23/00*
U.S. Cl. 51—170 **1 Claim**



A sanding machine for the purpose of sanding cylindrical surfaces, the device comprising an endless sandpaper belt mounted around three rollers, one of which is power driven by a portable drill or the like, the work to be sanded being positioned adjacent the sandpaper belt at a location between the two other rollers whereby the sandpaper belt will be deflected into an arcuate configuration at this point so as to extend over a relatively large portion of the cylindrical surface being sanded.

3,566,550
ROCKER ARM GRINDING ATTACHMENT

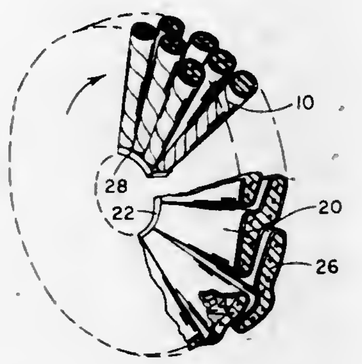
Joseph Piccinino, 322 Center Deen Ave., Aberdeen, Md. 21001
Filed Oct. 14, 1968, Ser. No. 767,200
Int. Cl. B24b *9/00, 41/06*
U.S. Cl. 51—216 **1 Claim**



A rocker arm grinding attachment for use with a bench grinder or like grinder consisting of a bracket which is adapted for adjustable attachment to the guard of a grinding wheel. The upper arm of the bracket is provided with an elongated slot to slidably receive an arbor and which may be set at a desired position along the slot. The rocker arm is placed on the arbor and rotated manually to bring its lip to bear against the side of the grinding wheel.

3,566,551
SHAPED ABRASIVE

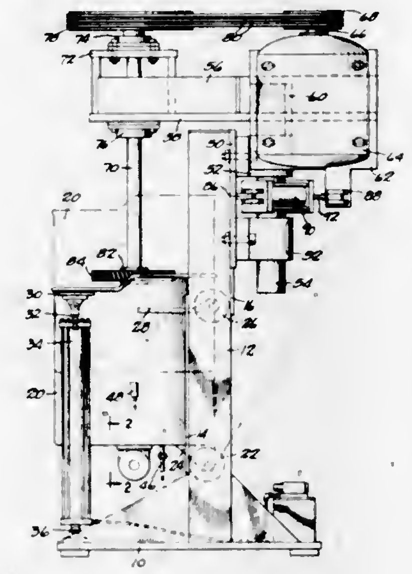
Elisha Winthrop Hall, Jr., Greenbush, Mass., assignor to F. L. & J. C. Codman Company, Rockland, Mass.
Filed Oct. 20, 1967, Ser. No. 676,895
Int. Cl. B24d *9/02, 15/00*
U.S. Cl. 51—336 **13 Claims**



An abrasive member comprising a shell of sheet or fibrous material intimately surrounding a filler of abrasive grains and a resilient bonding agent, the shell having one or more openings exposing the filler; the shell material shown is destructible with wearing down of the abrasive surface; shown also are the filler of polyurethane foams; twisting or tight folding for compressing the matrix prior to cure and to form strong cord like elements; wetting of the shell for adding moisture for the cure; and rotary abrasive members with radial elements formed by this technique.

3,566,552
METHOD OF SURFACE FINISHING A WORKPIECE

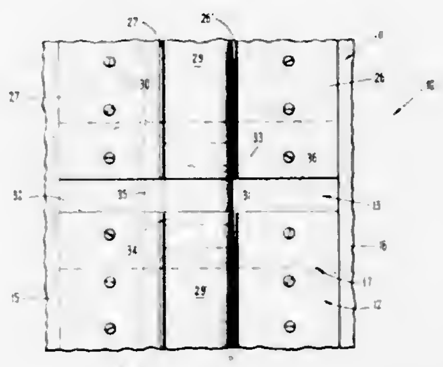
Duane E. Hambright, Colon, Mich., assignor to Sutton Tool Company, Sturgis, Mich.
Original application May 18, 1967, Ser. No. 639,507, now Patent No. 3,516,203, dated June 23, 1970. Divided and this application July 7, 1969, Ser. No. 851,530
Int. Cl. B24b *1/00*
U.S. Cl. 51—317 **7 Claims**



A method and means for surface finishing a workpiece. The method involves rotation of a workpiece immersed in a bed of finishing media of fluidized character and simultaneously effecting relative bodily movement of the workpiece and the bed in one or more directions. The means utilized to practice the method fluidizes the bed of media, swings the workpiece laterally in the bed or varies the depth of immersion in the bed, or both, and may periodically reverse the direction of rotation of the workpiece.

3,566,553
DRY JOINT SPLICE

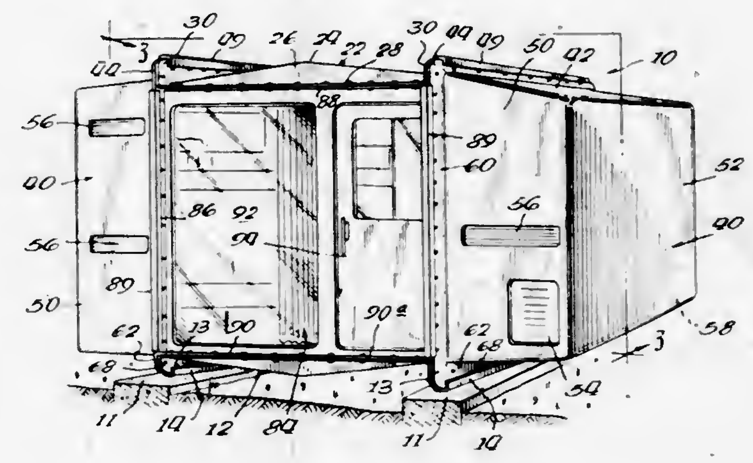
Irving H. Kellman, Springvale, Maine, assignor to Sandell Manufacturing Company, Inc., Cambridge, Mass.
Filed Mar. 19, 1969, Ser. No. 808,507
Int. Cl. E04d *1/36, 3/38*
U.S. Cl. 52—57 **6 Claims**



A dry splice means for an expansion joint construction interconnects expansion joint members as in a roof expansion joint construction. The dry splice has a resilient, flexible weatherproof sheet operatively associated with spring means for urging the sheet to close a space between joint members with the sheet being constantly urged against the members substantially at opposed ends of the sheet. The splice means preferably comprises the resilient, flexible sheet with two opposed leaf springs attached to one surface of the sheet so that when the sheet is flexed, the springs are biased to urge the sheet into sealing engagement.

3,566,554
PREFABRICATED BUILDING

Martin B. Schaffer, Homewood, and Steven D. Kimmell, Skokie, Ill., assignors to Martin B. Schaffer and Joseph P. Baker
Filed Sept. 26, 1968, Ser. No. 762,915
Int. Cl. E04b *1/34;* **E04h** *1/12*
U.S. Cl. 52—64 **6 Claims**



A prefabricated building, either erected or knocked down for shipment in the form of a package kit, which includes a rigid central bottom wall, a rigid roof, and at least one rigid end shell. In a typical embodiment, there are two rigid end shells. In such an embodiment, each end of the roof has an attaching surface, and the inner top wall of each of the end shells has an attaching surface, with means being supplied to tightly secure the attaching surface at each end of the roof to the attaching surface at the top inner edge of the corresponding end shell. The attaching surfaces may be provided by vertically extending flanges. Means are also provided to tightly secure each end of the central bottom wall to the bottom inner edge of the corresponding end shell. Each end shell has a rigid top and bottom wall and at least one vertical outer load-bearing wall. Support means are provided to hold the central bottom wall above ground level, and the bottom of each end shell unsupported and spaced above ground level when the building is installed in place at the building site. In one embodiment, reentrant flanges are used at the outer ends of the central bottom wall and the roof, with corresponding flanges on the end shells fitting into the channels of each reentrant flange. The simplest combination of the structural members just described involves a rigid roof having a rigid end shell at only one end of the roof, with means provided at the other end of the roof to support it in spaced relation above the central bottom wall.

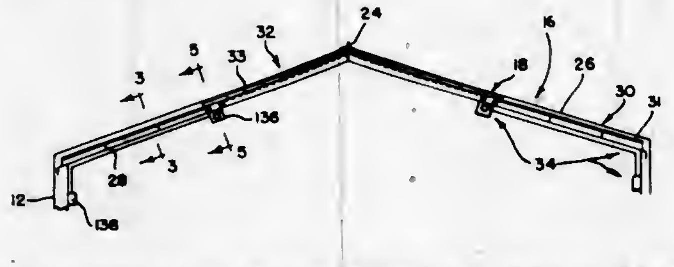
3,566,555
ROOF STRUCTURE

Hans F. Schultz, Park Ridge, and Carl Radtke, Chicago, Ill., assignors to Ickes-Braun Glasshouses, Inc., Chicago, Ill.

Continuation of application Ser. No. 709,586, Feb. 27, 1968. This application Aug. 22, 1969, Ser. No. 853,613

Int. Cl. E04b *7/16*

U.S. Cl. 52—64 **2 Claims**



An improved roof structure having a plurality of parallel elongated framework members including guide channels for a movable roof covering panel which can be moved longitudinally along the roof to open or close the roof. The movable and fixed roof panels overlap to facilitate drainage. The movable panel is moved as desired in the guide channels by operation of a motor which is effective to prevent movement of the panels when it is not in operation.

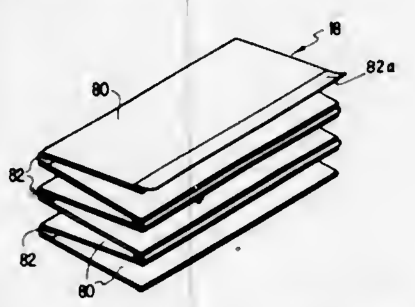
3,566,556
BUILDING PANELS

Walter B. Nichols, 77 Lounsbury Road, Trumbull, Conn. 06611

Original application Apr. 18, 1967, Ser. No. 631,799. Divided and this application Aug. 6, 1969, Ser. No. 847,954

Int. Cl. E04b *1/343;* **E04c** *2/40*

U.S. Cl. 52—71 **6 Claims**



A panel unit comprising a plurality of rectangular panels interconnected by elongated flexible hinges which also act as seals between the panels. The outer panels in the unit have hook pile material adjacent their outer edges for purposes of connecting the unit to adjacent panel units of similar construction. The panels are made from plywood with an epoxy coating on their outer surfaces while the sealing strips are made from cross woven nylon with a vinyl coating and are bonded to the panels by an adhesive.

3,566,557
PREFABRICATED TRELLIS FOR THE EXECUTION WITHOUT TEMPORARY SUPPORTS OF FLOORING FOR CIVIL AND INDUSTRIAL STRUCTURES

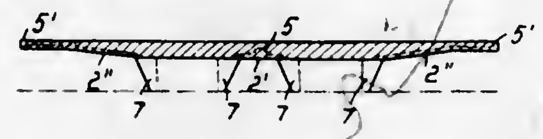
Rino Comolli, Via Canova 31/A, Milan, Italy

Filed July 22, 1968, Ser. No. 746,473

Claims priority, application Italy, July 28, 1967, 18,933/67

Int. Cl. E04b *1/34, 1/20*

U.S. Cl. 52—73 **2 Claims**



Bridge structure with an assembly of prefabricated supporting structural units made of reinforced or prestressed concrete allowing the execution without temporary supports of bridge floors where the flooring is supported between the lateral boundaries thereof at an intermediate portion thereof on two spaced beam structures and having laterally overhanging portions projecting outwardly at both sides from said beams, said floors comprising a plurality of said structural units arranged side by side transverse to the longitudinal extension of the bridge and covered by a cast-in-situ concrete layer.

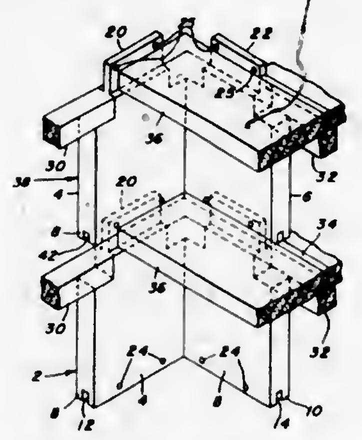
3,566,558
APARTMENT BUILDINGS AND THE LIKE

Joseph V. Fisher, Ridge Road, R.D. 1, Valencia, Pa. 16059

Filed Oct. 3, 1968, Ser. No. 764,822

Int. Cl. E04b *1/34;* **E04c** *1/10;* **E04f** *11/14*

U.S. Cl. 52—73 **3 Claims**



This patent discloses an apartment building that can be erected as rapidly as there can be erected its central core, which, as herein taught, comprises precast members of concrete, preferably but not necessarily reinforced with steel bars, comprising a straircase made in two pieces, such that the pieces may be readily extracted from the molds in which they are cast. The central core further comprises elevator-shaft space. The building is supported by internal segments, each of precast concrete, preferably but not necessarily internally reinforced wtih steel bars, with the segments being of such shape that one may readily be securely joined to another of similar shape and immediately above it, the segments having an angular shape, so that in a free-standing structure there is obtained superior resistance to shear stresses, the expense of ordinarily incident to the securing in place of internal segments, as by riveting, bolting, grouting or the like all being avoided.

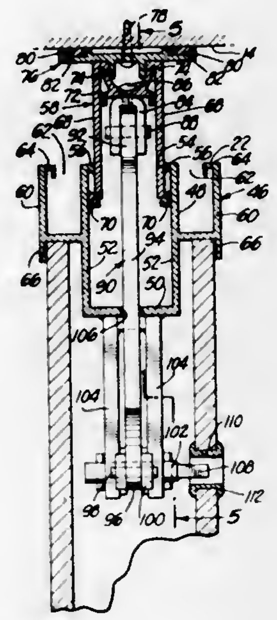
3,566,559
DEMOUNTABLE WALL STRUCTURE

Wesley B. Dickson, Orange, Calif., assignor to Advanced Equipment Corporation, Anaheim, Calif.

Filed Dec. 23, 1968, Ser. No. 786,327

Int. Cl. E04b *2/18, 2/78*

U.S. Cl. 52—122 **1 Claim**



Demountable wall panels are disclosed which include centrally located panel sections, ceiling clamps mounted on the tops of these panels, spring means biasing these ceiling clamps away from the sections on which they are located, toggle means connecting the ceiling clamps on these sections and means for moving the toggle means so that the ceiling clamps are in either an extended position or retracted position in which they extend generally along the tops of the panel sections. These panels preferably also include inner engaging means located along their side edges and an adjustable bottom plate located along their bottoms.

3,566,560
PRE-CAST CONCRETE PANELS

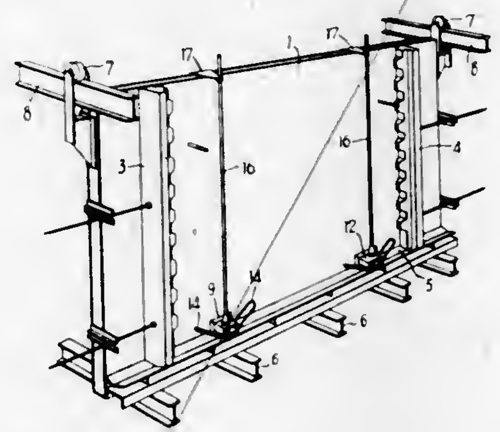
Norman Edward Wakefield, Leatherhead, Stuart John Alexander, London, James Francis Morrish, Gerrards Cross, William Beck, Warlingham, Raymond Sturgis Groves, Fetcham, and Michael James Harvey, Orpington, England, assignors to Wates Limited, London, England

Filed Feb. 14, 1969, Ser. No. 799,164

Claims priority, application Great Britain, Jan. 20, 1969, 3,247/69

Int. Cl. E04b *1/41, 1/48*

U.S. Cl. 52—127 **10 Claims**



Two similar, rectangular, pre-cast, concrete, vertical wall panels disposed one above the other are joined together by a joint including a horizontal plate and a vertical attachment bar. The plate is the bottom wall of a short tube extending widthwise of the lower horizontal edge of the upper panel and is anchored in this panel by means of two oblique anchoring members fixed to the plate and embedded in the panel. The bar is embedded in the lower panel and its upper end zone projects through a central aperture in the plate. A nut screwed on this zone bears downwardly on the plate via a radially slotted washer.

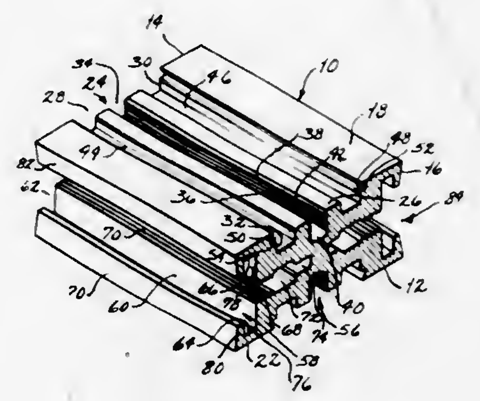
3,566,561
CHANNELLED STRUCTURAL ELEMENTS

Francis P. Tozer, 1601 S. Hanley Road, St. Louis, Mo. 63144

Filed Oct. 8, 1968, Ser. No. 765,781

Int. Cl. E04c *3/32*

U.S. Cl. 52—127 **10 Claims**



A structural element is comprised of an elongated body member having a channel extending along one of its sides, the channel having in cross-section an open mouth and a channel floor between two lateral channel walls. A threaded slot extends along the length of the channel floor and is substantially U-shaped in cross-section, having threads running longitudinally along its slot walls. First and second channel-wall grooves are positioned opposite each other in the two lateral channel walls and extend longitudinally along the length thereof. The structural element may include brackets secured in the channel by bolts threadably engaging the threaded slot, sheet members enclosed within frames formed by a plurality of body members, sheet members slidably inserted within the channel-wall grooves and held therein by a spring element between the channel floor and the sheet member, and cross-shaped brackets for securing two body members together by bolt means threadably engaging the threaded slots of the respective body members. A modification of this structural element includes apertures extending through the body elements transverse to the longitudinal axis of the channel and a second aperture extending inwardly from the end of the body member in communication with the first-mentioned aperture.

3,566,562
PACKING ARRANGEMENTS FOR ROOFING ELEMENTS AND PROCESS

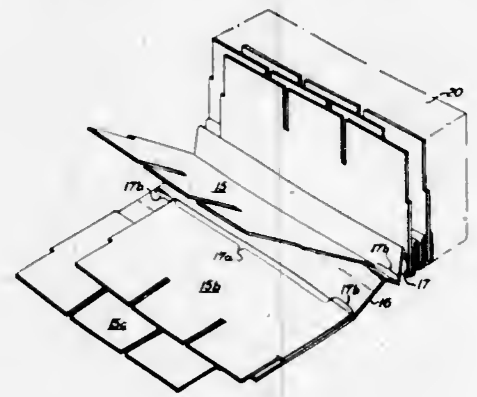
Boyce Robert White, 908 E. Washington St., Orlando, Fla. 32801

Filed Sept. 19, 1968, Ser. No. 760,765

Int. Cl. E04d *1/28, 3/365*

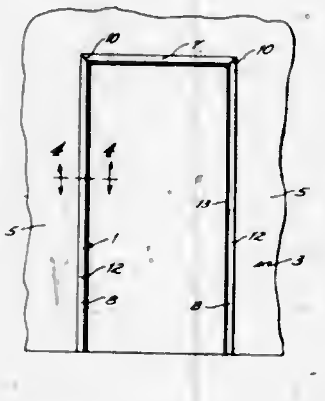
U.S. Cl. 52—173 **24 Claims**

A packaging arrangement for shingles to be applied to a sloping roof or the like wherein the shingle elements are secured together in their upper portions, relative to the slope of the roof, by pleated connections which can be opened in an accordion fashion and, as connected, packaged and transported to the roof deck to be shingled. There, the leading shingle member is connected to the roof's ridge and the trailing shingle member is pulled down the slope of the roof deck to the eaves with the pleated connections thereby being opened and drawn to lie flat against the roof deck, the intermediate shingles overlapping each other in a conventional manner. Several arrays of such shingle members are packaged together with laterally extending overlapping portions of adjacent arrays interwoven, the interwoven arrays being transported as a unit and placed on the roof simultaneously where, if not previously aligned, they are straightened out along the roof ridge, still however, interwoven. Then, after the leading shingles are secured, the entire unit of arrays is pulled down the roof deck. The pleated connecting member is made of a material suitable for the intermediate layer between the roof deck and the shingles—a function conventionally provided by a felt layer. A laterally extending portion from the connecting member can be provided for each array so that there is a substantial overlapping of such intermediate layers of adjacent arrays. Instead of a pleated connecting member, other suitable folding members may be provided between adjacent shingle members and such folding members may also provide for a lateral displacement of every other shingle member when the folding members are aligned by pulling the array down the roof deck.



3,566,563
FILLER STRIP FOR DOOR FRAMES

Robert O. Ruff, Cincinnati, Ohio, assignor to Steelcraft Manufacturing Company, Cincinnati, Ohio
Filed Nov. 12, 1968, Ser. No. 774,877
Int. Cl. E06b *1/20*
U.S. Cl. 52—211 **2 Claims**

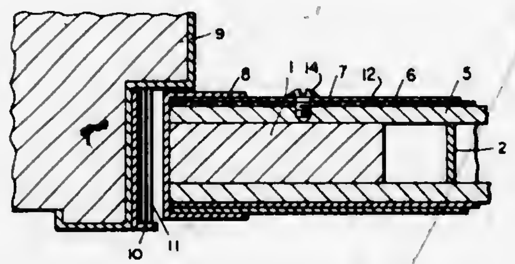


This disclosure relates to filler strips which are applied to the free edges of sheet metal door frames in order to compensate for disparate wall thicknesses about a door opening. The typical sheet metal frame for which the filler strip is intended, comprises a pair of vertical jamb members and the horizontal header, the members being generally of U-shape configuration, having slightly yieldable limbs. The free edges of the limbs each include an inturned flange extending toward one another, with a right angular lip extending from the inner edge of each flange.

The filler strip is generally U-shaped in cross section and nests snugly about the inturned flange and angular lip of the door frame members so as to delineate a throat opening corresponding to the wall thickness about the marginal portion of the door opening. The filler strips are furnished in various thicknesses and are selectively mounted upon the frame members to compensate for variations in wall thicknesses, the filler strips being selectively applied according to disparate wall thickness as encountered in the field at installation of the door frame members.

3,566,564
FIRE RESISTING DOORS HAVING METALLIC OUTER LAYERS

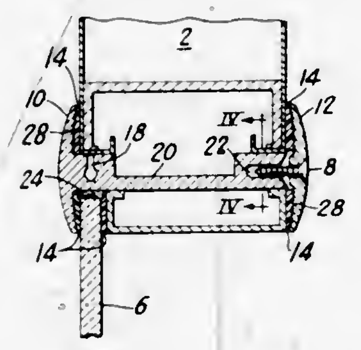
Rudolf Gaeth, Limburgerhof, Fritz Stastny, Ludwigshafen, Bernhard Schmitt, Heidelberg, Rudolf Breu, Lambsheim, and Friedhelm Gaertner, Schauernheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Dec. 20, 1968, Ser. No. 785,703
Claims priority, application Germany, Dec. 20, 1967, P 16 59 608.0
Int. Cl. E04c *2/24;* **E06b** *3/70*
U.S. Cl. 52—232 **6 Claims**



A fire-resisting door having stiffening members inside a door frame. Both the frame and the stiffening members are covered with an insulating layer and a metallic outer layer, the layers being joined in such a way that the union is destroyed by the action of heat.

3,566,565
ADJUSTABLE WINDOW FRAME

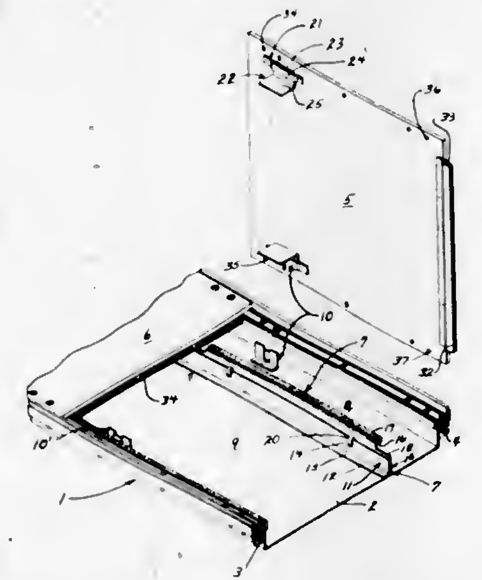
Robert W. Pond, Bethel Park, Pa., assignor to American Air Filter Company, Inc.
Filed Dec. 4, 1968, Ser. No. 781,052
Int. Cl. E06b *1/20, 3/64*
U.S. Cl. 52—208 **4 Claims**



The invention is an adjustable window frame which is easily and effectively weather-stripped. The adjustable feature is contained in pairs of spaced opposed stop strips comprising portions of the frame, one of which stop strips of a pair being adjustably mounted relative the other stop strip of the pair. Both stop strips can be arcuate in cross section and are serrated on opposed surfaces. When the frame is positioned through the wall and window panes are inserted into the frame, the opposed adjustable stop strips engage the surrounding wall and the surrounding panes of glass at a slight angle leaving a small crevice which is filled between the walls and the strips and between the pane of glass and the strips with caulking and glazing material prior to frame installation. On securing the window frame the adjustable stop strip is forced inward causing both it and the other permanently fixed stop strip to move from a converging to a parallel path which in turn compresses the sealing material against the window pane and the wall giving an excellent gripping, securing and sealing operation.

3,566,566
FRICTIONALLY SECURED TRENCH DUCT COVER AND PARTITION

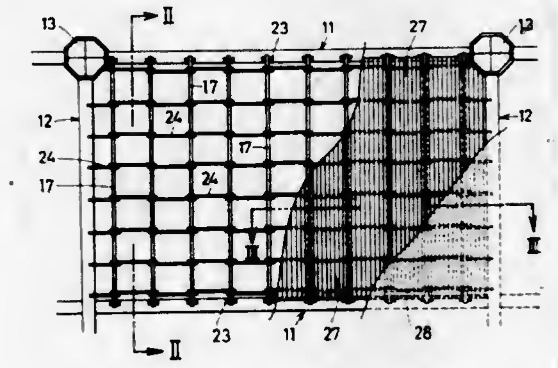
Stephen M. Janic, Parkersburg, W. Va., assignor to Textron Inc., Providence, R.I.
Filed Aug. 14, 1969, Ser. No. 850,032
Int. Cl. E04f *19/08*
U.S. Cl. 52—221 **3 Claims**



Means adaptable for use in holding down trench duct covers and for partitioning the trench into compartments including two L-shaped pieces to extend between the cover and the bottom of the trench, one of the pieces having a yielding arm which envelopes and grips the other so that the two pieces are held in fairly tight frictional engagement either for holding the cover or forming a partition.

3,566,567
CONCRETE LOAD SUPPORTING STRUCTURE

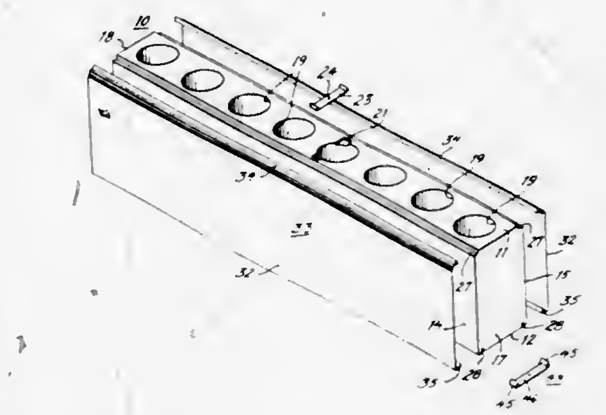
Yoshiro Watanabe, 8–20–604 2-chome, Mita, Minato-ku, Tokyo, Japan
Filed July 25, 1969, Ser. No. 844,944
Claims priority, application Japan, Apr. 24, 1969, 44/31,872
Int. Cl. E04b *1/16, 5/29*
U.S. Cl. 52—250 **3 Claims**



A concrete load supporting structure of the type which comprises a plurality of relatively slender beams supported on girders, these beams being spaced and held in place by spacer strips whereby the beams are protected from becoming buckled under the influence of a concrete load.

3,566,568
CELLULAR BLOCKS WITH COVER OF SHEET MATERIAL

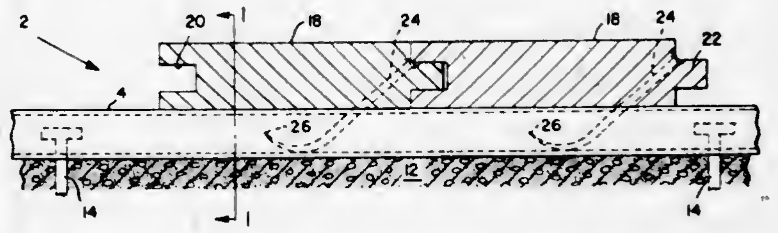
Joseph Slobodian, Malvern, Pa. (% Phoenixville Lumber Co., 405 Bridge St., Phoenixville, Pa. 19460)
Filed Apr. 28, 1969, Ser. No. 819,571
Int. Cl. E04b *2/46, 2/48;* **E04c** *2/10*
U.S. Cl. 52—309 **11 Claims**



A building construction is shown having blocks for vertical assembly to provide a wall, the blocks having facings or covers held onto the blocks by flanges engaged in longitudinal grooves in the top and bottom of the blocks and with keys engaging the flanges. The blocks are of light weight synthetic plastic material and the facings or covers are of synthetic plastic sheet material. The blocks have communicating openings for insertion of reinforcing rods and for the pouring of concrete therein to strengthen and retain the blocks in assembled relation.

3,566,569
FLOORING STRUCTURE

Harry E. Coke, Southhaven, Miss., and Jack R. Pfeiffer, Memphis, Tenn., assignors to E. L. Bruce Co. (Incorporated), Memphis, Tenn.
Filed Apr. 4, 1969, Ser. No. 813,483
Int. Cl. E04b *5/00*
U.S. Cl. 52—376 **6 Claims**

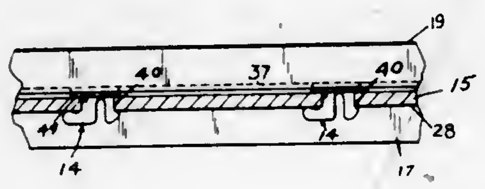


A flooring structure has a plurality of spaced parallel metal channels in each of which is secured a nailing strip. Floorboards are supported on the strip-channel assemblies and secured thereto by nails which pass through the floorboards and nailing strips and are clinched to the bottoms of the nailing strips. The strip-channel assemblies are secured to a foundation.

3,566,570
FASTENER FOR WINDOW MOLDINGS

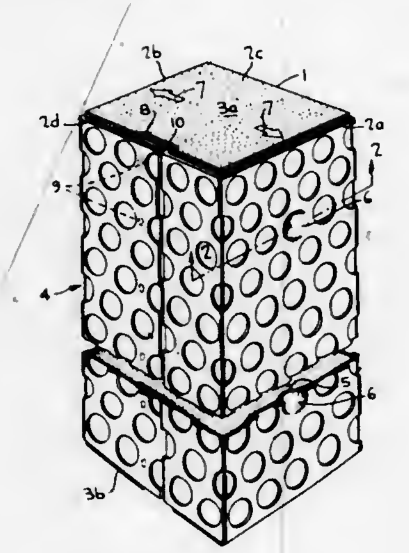
Lyon D. Evans, Lakewood, N.Y., assignor to Hope's Windows, Inc., Jamestown, N.Y.
Continuation of application Ser. No. 672,553, Oct. 3, 1967. This application Nov. 13, 1969, Ser. No. 871,626
Int. Cl. E04f *19/02;* **E06b** *3/54*
U.S. Cl. 52—498 **7 Claims**

This disclosure relates to windows and more particularly, to an improved means of glazing windows. The improved means compensates a clip having a plate-like body member, a first locking blade, a second locking blade and a glazing bead retention means. The locking blades extend through an opening in a support member and a glazing bead for the window is attached to the retention means.



3,566,571
REFRACTORY BRICK

Joseph L. Stein, Cherry Hill, N.J., assignor to General Refractories Company, Philadelphia, Pa.
Filed Aug. 1, 1968, Ser. No. 749,468
Int. Cl. F23m *5/02*
U.S. Cl. 52—598 **2 Claims**

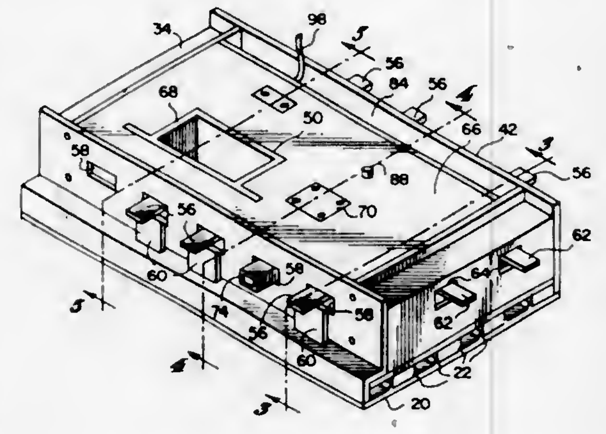


A refractory brick adapted for use in furnace roof construction and having side faces and end faces and a casing sheet of oxidizable metal carried on at least one of the side faces, the casing including a sheet characterized by a plurality of spacing portions projecting from one surface and a plurality of recesses disposed in the other surface thereof in alignment with the spacing portions, individual spacing portions and recesses being discontinuous with respect to a straight line disposed in the plane of the sheet. Preferably, the spacing portions are disposed in surface engagement with the brick side face and function to space the one surface of the sheet therefrom. The relative size, configuration and positioning of the spacing portions and recesses of the sheet permits substantially complete oxidation thereof during use without resulting in growth in overall sheet thickness, prevents interlocking of like sheets carried on adjacent bricks during installation thereof in a furnace roof, and maintains uniform bearing stress conditions in furnace roof brick joints.

3,566,572
PREFABRICATED WALL STRUCTURE

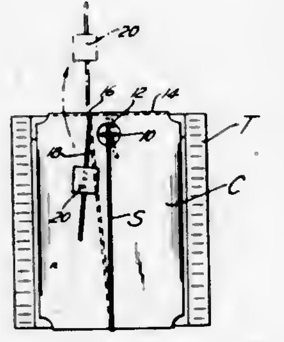
Rudolph Purifoy Wilkinson, 623 Frensley, Ardmore, Okla. 73401
Filed Sept. 6, 1968, Ser. No. 758,164
Int. Cl. E04b *2/30;* **E04c** *2/06, 2/52*
U.S. Cl. 52—745 **9 Claims**

A preformed, hollow wall unit which can be used as a structural form member in a completed building, and a process for making such a wall unit. The wall unit is constructed, for example, of concrete and can be formed, pre-wired, pre-plumbed and brick veneered in a horizontal position prior to being raised into the vertical position.



3,566,573
METHOD AND APPARATUS FOR MAKING COMPRESSIBLE INFUSION PACKAGE

Hans O. Irmscher, Malverne, N.Y., assignor to National Tea Packing Co., Inc., Long Island City, N.Y.
Filed Dec. 3, 1968, Ser. No. 780,757
Int. Cl. B65b *29/04*
U.S. Cl. 53—14 **16 Claims**

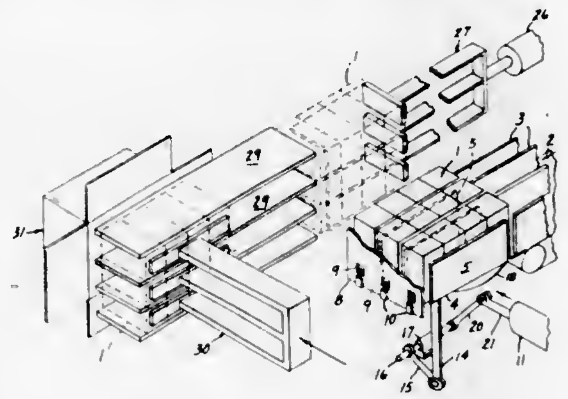


An improved method and machine for making an infusion such as a tea bag package, the package comprising the assembly of an infusion bag and a wrapper-cover folded over one end of and over the faces of the bag, the suspending string of the bag being wound about the assembly and the free end of the string being detachably anchored in a slit formed in the fold of the wrapper-cover, the method and machine improvements centering about the precreasing of the cover member to produce a defined fold line therein, the drawing of the free end of the string after the winding operation to string-cut the slit in the wrapper-cover fold and the tensioning control of the string through all the operations and steps of the machine and method.

3,566,574
CASE PACKING METHOD AND APPARATUS

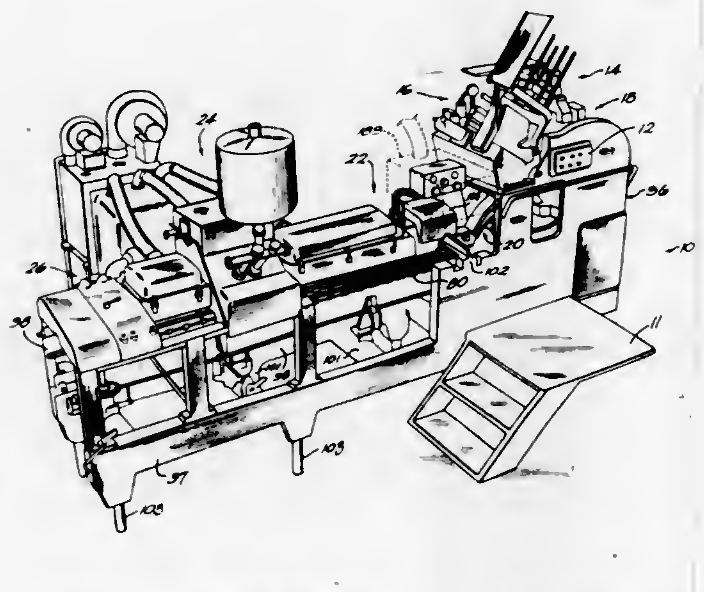
Melvin Salwasser, P.O. Box 548, Reedley, Calif. 93654
Filed Mar. 3, 1969, Ser. No. 803,727
Int. Cl. B65b *35/40, 35/56*
U.S. Cl. 53—26 **6 Claims**

Apparatus and method for arranging a case load of packages and other articles and for inserting such load into a case. The invention is particularly applicable to the filling of a top loading case wherein the articles are vertically disposed when being transported to the casing operation and wherein the case is loaded when the same is disposed with its top directed horizontally outwardly. The invention provides for the swinging of the entire load through 90 degrees in order to accommodate it to the most effective type of top loading apparatus.



3,566,575
ASEPTIC PACKAGING MACHINE

Robert E. Lisiecki, Orchard Lake, Mich., assignor to Ex-Cell-O Corporation
Filed Feb. 26, 1968, Ser. No. 708,337
Int. Cl. B65b *3/04*
U.S. Cl. 53—37 **9 Claims**

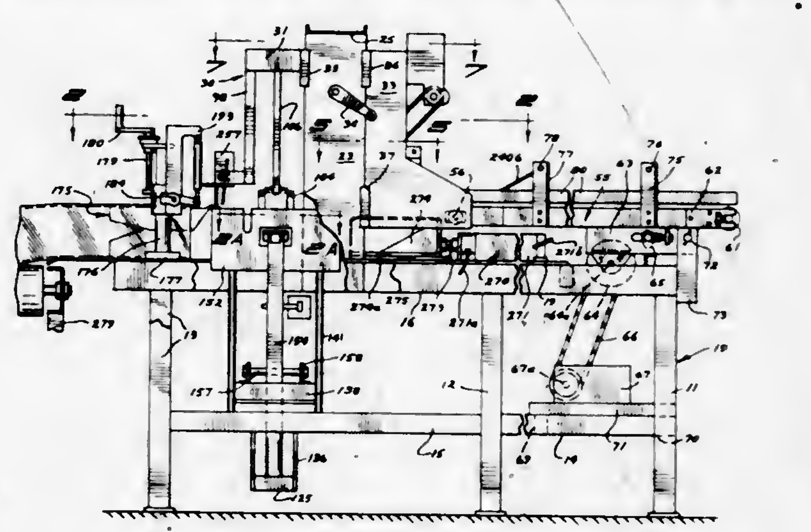


An aseptic packaging machine for forming, aseptically treating, filling and sealing containers while protecting them with a clear air atmosphere after they have been aseptically treated by a bactericide. The aseptic treatment is accomplished by a fogging system to provide for total contact by the bactericide with the internal surfaces of the container and includes ease of removal of the residual bactericide after the treatment.

3,566,576
BALER LOADER APPARATUS

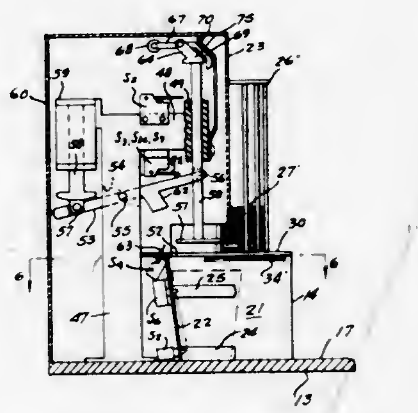
Richard H. Ayres and Jack D. Layer, Minneapolis, Minn., assignors to Bemis Company, Inc., Minneapolis, Minn.
Filed Mar. 17, 1969, Ser. No. 807,787
Int. Cl. B65b *35/50, 57/10*
U.S. Cl. 53—61 **44 Claims**

Baler loader apparatus having a vertically adjustable carrier assembly mounted on a frame, product containing bag transfer and blocking mechanism on the carrier assembly for transferring bags from the respective lane of the conveyor that is in part supported by said assembly to the collector plates and alternately blocking such transfer, and means on said assembly to translate the collector plates to a spread apart condition to deposit a layer of arranged product receiving bags on the stacking platform therebeneath. The stacking platform is lowered with each new layer of bags deposited thereon until obtaining the desired number of layers and thence a ram is automatically operated to push the stacked layers through a spout into a baler bag.



3,566,577
MULTIPLE PAPER CUP CAPPER

Anthony C. Occhipinti, 219 Carondelet St., New Orleans, La. 70130
Filed July 15, 1969, Ser. No. 841,778
Int. Cl. B65b *57/02, 7/28*
U.S. Cl. 53—67 **14 Claims**

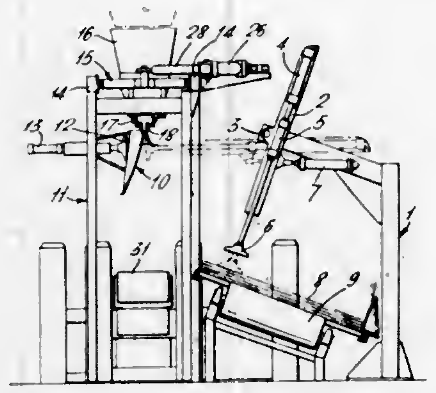


A device for dispensing and installing cover caps on paper cups containing beverage. The device senses whether a cup therein is large or small and selects and installs the appropriate size cover cap.

3,566,578
SACK FILLING APPARATUS

John C. Thorne, Maidstone, John L. Maddams, Rochester, John H. Fisher, Maidstone, Philip M. Hargrave, Rochester, and Frank R. Newnham and Donald F. Filmer, Maidstone, England, assignors to Reed Paper Group Limited, London, England
Filed June 3, 1968, Ser. No. 734,068
Claims priority, application Great Britain, June 9, 1967, 26,846/67
Int. Cl. B65b *43/30*
U.S. Cl. 53—126 **20 Claims**

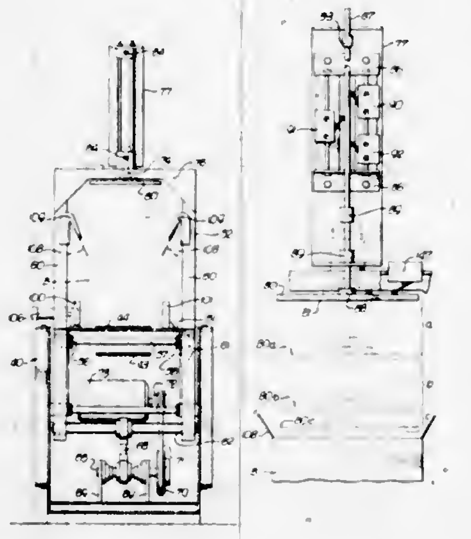
Apparatus for the automatic filling and sealing of sacks, including suction pick-up means for lifting the sacks one by one from a stack, further suction means cooperable with the pick-up means to open the sack mouth with the sack held at its top corners by grippers mounted on a horizontally movable carriage, a filling spout mounted on the carriage and lowerable into the open mouth of the sack, means for traversing the carriage carrying the sack to a filling station where the filling spout is aligned with the outlet from a hopper, a vibratory posser platform for agitating the sack whilst it is being filled, and cooperating pairs of chain drives for gripping the closed mouth



of the filled sack and traversing it on a conveyor to a mouth sealing station.

3,566,579
APPARATUS AND METHOD FOR PACKAGING CITRUS FRUIT

Kenneth F. Russell, deceased, late of Claremont, Calif., by Marie D. Russell, Claremont, Thomas L. Russell, San Rafael, and Douglas O. Russell, Los Angeles, Calif., heirs, assignors to Brogdex Company, Pomona, Calif.
Filed Nov. 18, 1968, Ser. No. 779,300
Int. Cl. B65b *1/22, 25/04, 43/54*
U.S. Cl. 53—24 **16 Claims**



A vibrating means having a station at which a box loosely and randomly containing a preselected number of fruit is positioned and firmly held while the box is subjected to vertical vibrations for a selected period of time. The vibratory apparatus includes a descending platen which moves into covering relation with the open top of the box to confine fruit in the box and to superimpose a descending planar surface, which is vibrating with the same amplitude, frequency and phase as the box, into close proximity with the fruit so as to facilitate movement of the preselected number of fruit into a desirable tightly packed pattern or arrangement.

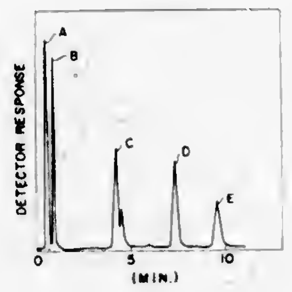
3,566,580
MEMBRANE SEPARATION

Norman N. Li, Edison, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed Nov. 27, 1968, Ser. No. 779,650
Int. Cl. B01d *59/12*
U.S. Cl. 55—16 **15 Claims**

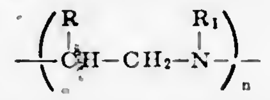
The separation of mixtures; in which the various elements have different degrees of solubility in a liquid is enhanced by cocurrently permeating vapor from said liquid and the mixture through a semi-permeable membrane; the membrane must have an attraction for said liquid.

3,566,581
GAS CHROMATOGRAPHY METHOD

Masaya Yanagita, Kaoru Tsuboyama, Sei Tsuboyama, and Nobuo Ikekawa, Tokyo, Japan, assignors to Kaken Kagaku Kabushiki Kaisha, Tokyo, and Rikagaku Kenkyusho, Yamato-machi, Japan
Filed June 2, 1969, Ser. No. 829,336
Claims priority, application Japan, June 4, 1968, 43/38,221
Int. Cl. B01d *15/08*
U.S. Cl. 55—67 **5 Claims**



Gas chromatography using a polymer having the following general formula:

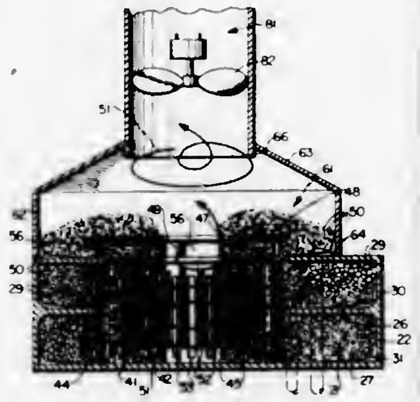


$$-\left(\overset{\displaystyle R}{\overset{|}{C}}H-CH_2-\overset{\displaystyle R_1}{\overset{|}{N}}-\right)_n-$$

wherein R represents alkyl or aryl group and R_1 represents a member selected from hydrogen, alkyl and aryl groups, as liquid phase of the column. According to the present invention any mixture of amines and other organic compounds can be more easily isolated and the thermal stability of the column can be excellently improved.

3,566,582
MASS CONTACT BETWEEN MEDIA OF DIFFERENT DENSITIES

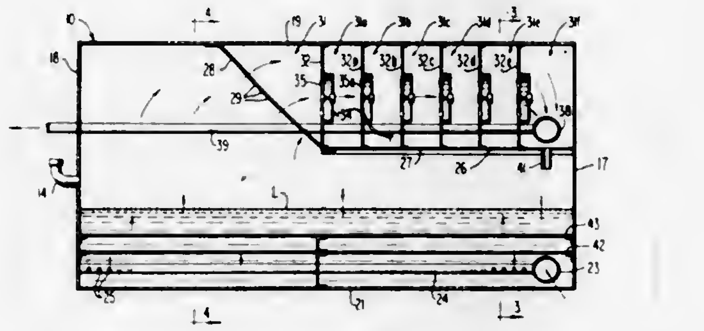
Eugene S. Yankura, Branford, Conn., assignor to Entoleter, Inc., New Haven, Conn.
Filed Apr. 4, 1969, Ser. No. 813,634
Int. Cl. B01d *47/00*
U.S. Cl. 55—92 **35 Claims**



A method and apparatus for effecting efficient mass contact between two media of different densities is disclosed. The one of said media that is of lesser density is caused to obtain a vortical flow pattern, by means of a circular vaned chamber. The second medium, the one having the greater density, is entrained in said flow pattern in particulate form, and is thereby caused to form a dense cloud of particles within said vortical flow. An upper limit on particle size within the cloud is established by the diameter of the chamber, and by an apertured wall construction therefor, whereby oversize particles are caused to migrate outwardly from the chamber under the influence of centrifugal force.

3,566,583
APPARATUS FOR PURIFYING EXHAUST FUMES

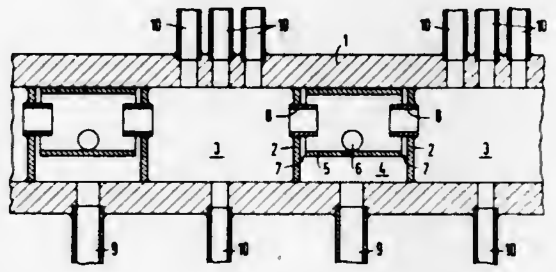
John W. Ashmore, 13431 Budlong, Gardena, Calif. 90249
Filed Jan. 29, 1969, Ser. No. 794,907
Int. Cl. B01d *47/02*
U.S. Cl. 55—255 **5 Claims**



An apparatus for removing impurities from the exhaust of internal combustion engines wherein the exhaust gas is fed directly into a liquid solution after which water vapor carried by the cleaned exhaust gas is extracted before discharge thereby avoiding any substantial reduction of liquid supply within the apparatus. Complete water vapor extraction is insured by passing the cleaned exhaust fumes sequentially through a series of condensation chambers.

3,566,584
APPARATUS FOR CENTRIFUGAL AND GRAVITATIONAL SEPARATION OF LIQUID FROM GAS, PARTICULARLY WATER FROM STEAM

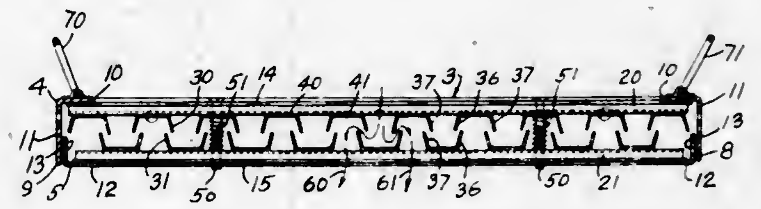
Klaus Ruthrof, Erlangen, and Erwin Kramer, Furth, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Nov. 12, 1968, Ser. No. 774,999
Claims priority, application Germany, Nov. 21, 1967, P 15 76 878.2; Dec. 28, 1967, P 15 76 884.0
Int. Cl. B01d *45/12*
U.S. Cl. 55—345 **10 Claims**



An apparatus for separating two-phase mixtures and preferably for separating water from steam at the end of the evaporator heating surfaces in a forced-flow boiler. The horizontally elongated vessel, such as the collector of the boiler system, is provided with rotationally symmetrical inserts which form respective separator chamber structures and are mutually spaced axially from each other so as to form gas chambers between each other. The two-phase mixture is tangentially supplied to each separator structure wherein it becomes centrifugally and gravitationally separated into steam and water. The steam passes through coaxial stub tubes in the axial ends of each separator chamber into the adjacent gas chambers, whereas the separated water drains through outlet openings. In one preferred form of the apparatus, the end covers of the individual separator chambers form partitions which transversely subdivide the interior of the collector vessel. In another form of the apparatus, the separator chambers are radially spaced from the interior wall surface of the collector vessel and radial partitions are mounted in the interspace so as to subdivide it into three plenum spaces for mixture, steam and water respectively. These plenum spaces communicate with the separator chambers, the gas chambers and the water outlets respectively, and the plenum spaces are also in communication with external conduits or pipelines for supplying the mixture and for withdrawing the steam and draining the water respectively.

3,566,585
GREASE-EXTRACTING APPARATUS

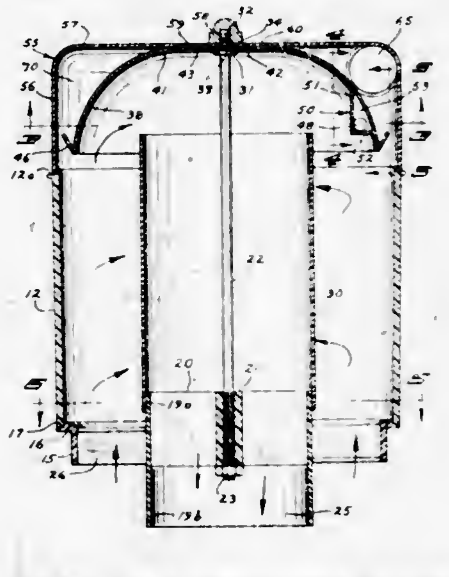
Mona A. Voloshen, 600 South St. 91202, and Danny B. Deaver, 1541 E. Colorado Blvd. 92015, both of Glendale, Calif.
Filed July 7, 1969, Ser. No. 847,483
Int. Cl. B01d *45/06*
U.S. Cl. 55—435 **2 Claims**



The filter of the invention has two frames in adjustable telescopic relationship to control the volume of air flow therethrough. Each frame carries an aligned row of spaced apart baffle members with the row of one frame in staggered or offset relationship with the row of the other frame, whereby hot organic laden air drawn through the filter circulates between the rows in a devious path in its passage to a vent duct. The baffle members are coated with a non-adherent material such as a fluorocarbon resin, whereby the hot organic material which normally would adhere to the baffle members will drip or flow therefrom under gravity into a trough for disposal.

3,566,586
AIR CLEANER FOR INTERNAL COMBUSTION ENGINE

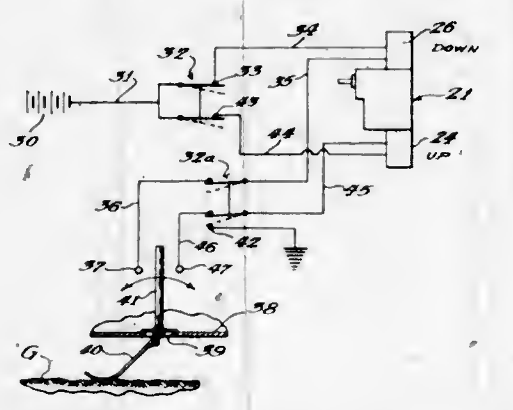
P[illegible]rden S. Langness, Fargo, N. Dak., assignor to Dustmaster Corporation, Harvey, N. Dak.
Filed June 9. 1969, Ser. No. 831,444
Int. Cl. B01d *45/12*
U.S. Cl. 55—451 **1 Claim**



An air cleaner for a motor vehicle comprising a cylindrical housing having an annular louvered inlet passage and a central passage, a deflector plate overlying said central passage, a tangential outlet passage through said deflector plate adjacent its periphery, and an outlet passage in said housing cooperative with said last mentioned passage whereby contaminants in the air stream entering the annular passage are centrifuged and exhausted through said outlet passages with a result that substantially clean air is drawn through said central passage into the carburetion system of the vehicle.

3,566,587
HEADER CONTROL SYSTEM FOR MECHANICAL COTTON PICKING MACHINE

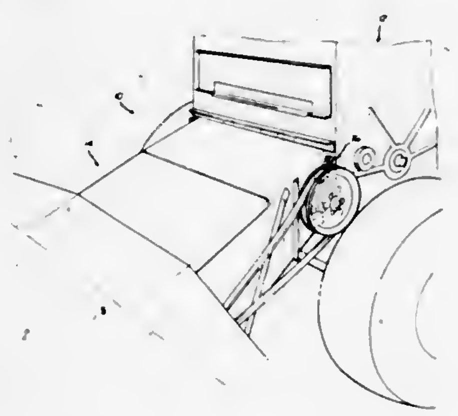
Donald D. Janssen, Sac City, Iowa, assignor to Noble Manufacturing Company
Filed Oct. 9, 1968, Ser. No. 766,068
Int. Cl. A01d *67/00*
U.S. Cl. 56—11 **5 Claims**



A control system for hydraulically raising and lowering cotton picking machine headers involving an electrical-hydraulic circuitry supplemental to the hydraulic power system of the machine and in which ground level is sensed mechanically to operate electrical circuitry feeding signal to hydraulic power to the raising and lowering mechanism in parallel with the hydraulic circuitry on the machine.

3,566,588
MOUNTING MECHANISM FOR HARVESTING ATTACHMENT

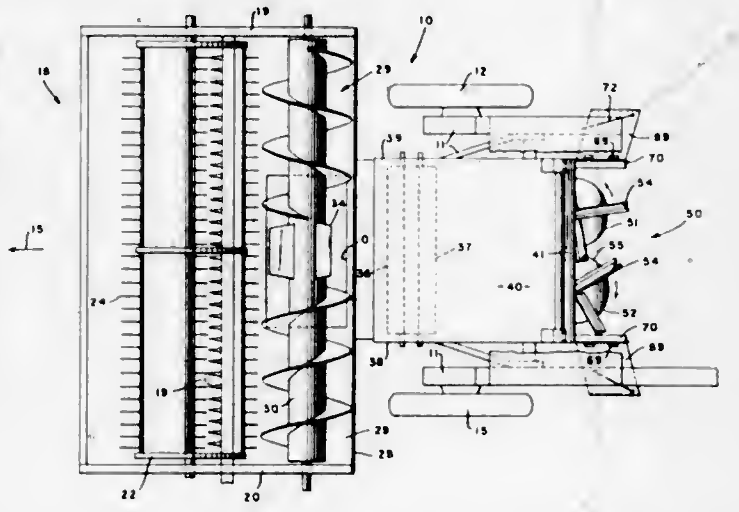
Robert L. Dahlquist, Rock Island, Ill., assignor to J. I. Case Company, Racine, Wis.
Filed Dec. 6, 1968, Ser. No. 781,724
Int. Cl. A01d *41/02, 41/04, 41/10*
U.S. Cl. 56—20 **7 Claims**



A device for releasably retaining a harvesting attachment on a supporting mechanism. The device includes a first member connected to the mechanism and having a retaining portion and inclined surfaces for guiding a lug on a second member carried by the attachment into the retaining portion with locking means for securing the members to each other.

3,566,589
HARVESTING MACHINE

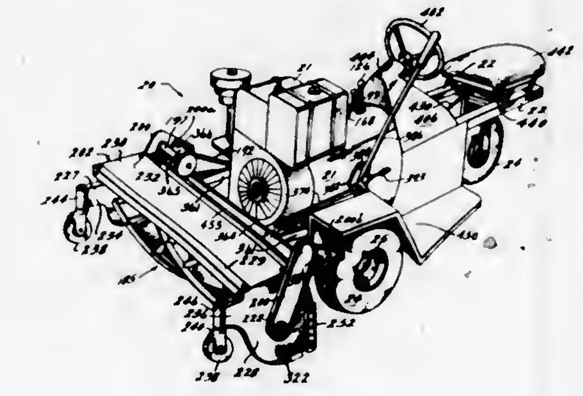
Edmund O. Howell and John K. Hale, New Holland, and Horace G. McCarty, Leola, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Sept. 27, 1968, Ser. No. 763,149
Int. Cl. A01d *43/00*
U.S. Cl. 56—23 **18 Claims**



A harvesting machine in which a given width of crop material is cut and laterally consolidated into a narrow mass and then deposited in a rearwardly located mechanism which scatters the material laterally for deposit on the ground in a swath wider than the narrow mass.

3,566,590
MACHINE FOR PROPELLING A WORK IMPLEMENT

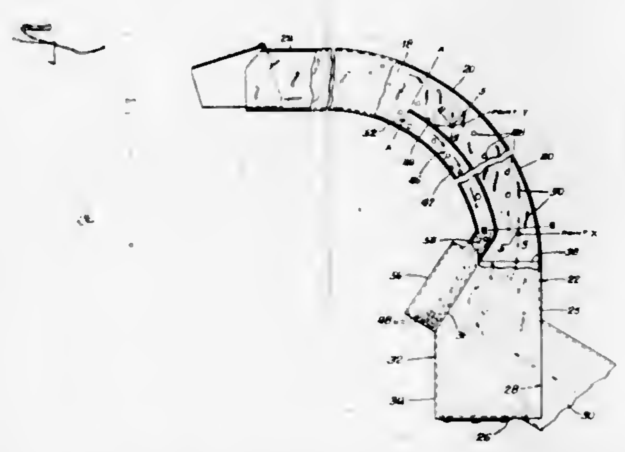
Carl Van Ausdall, Box 178, Bradenton, Fla. 33506
Original application Oct. 24, 1965, Ser. No. 504,792, now Patent No. 3,461,656, dated Aug. 19, 1969. Divided and this application Aug. 11, 1969, Ser. No. 848,908
Int. Cl. A01d *35/24*
U.S. Cl. 56—26 **6 Claims**



A machine for propelling a work implement or the like, comprising a frame, an engine mounted thereon, a transmission for the engine, a three-point-to-ground suspension for the machine, the engine being disposed above an axle carrying a pair of tires, and a single rotatably mounted tire disposed rearwardly. A first power train connects together the transmission and axle for providing motive power to the machine. Steering means for the operator is connected to the rear tire. A pair of bracket means including trunnion mountings depends from a cross-bar forwardly of the machine, for supporting the work implement. A pair of levers is pivotally attached to the frame and to which the cross-bar is secured, for swivelling the work implement independently of movement of the machine, thereby providing for floating movement of the work implement. A second power train means is connected to a secondary power output shaft of the transmission, extending to a trunnion mounting in one of the bracket means and provides for actuation of the work implement.

3,566,591
COTTON HARVESTER WITH PNEUMATIC GREEN BOLL SEPARATOR

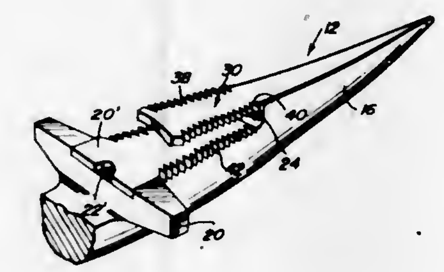
Albert G. Blanton and Wyatt T. Gable, Jr., Memphis, Tenn., assignors to International Harvester Company, Chicago, Ill.
Filed Mar. 21, 1968, Ser. No. 714,822
Int. Cl. A01d *45/20*
U.S. Cl. 56—30 **8 Claims**



Cotton harvester incorporating a staged separator which includes a pneumatic delivery conduit having a curved segment or elbow through which an air stream is blown, and having a chute on the inside turn of the elbow which effectively reduces the cross-sectional area in that portion of the conduit producing a venturi effect, the attendant air stream charatceristics thereby conducing separation of the heavy green bolls which drop out of the main air stream and roll down the chute which segregates them.

3,566,592
MOWER GUARD

Emil A. Jerman and Frank E. Marshall, both of Verdigre, Nebr. 68783
Continuation-in-part of application Ser. No. 665,358, Sept. 5, 1967. This application Aug. 13, 1969, Ser. No. 849,797
Int. Cl. A01d *55/10*
U.S. Cl. 56—311 **14 Claims**

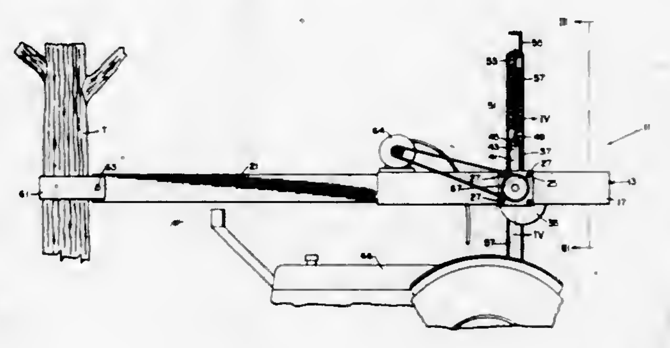


A finger guard for the reciprocating sickle bar of a mower having an upper lip spaced from a lower ledger plate to form a converging slot through which the sickle bar extends. Teeth cut directly onto the side edges of the upper lip trap stalks to facilitate cutting thereof by the triangular blade sections of the sickle bar.

3,566,593
VIBRATOR MEANS

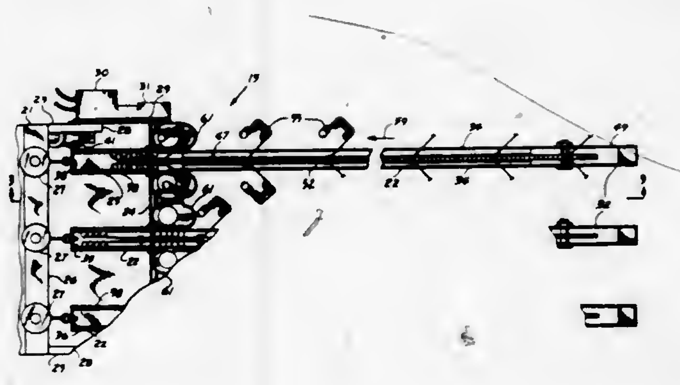
Paul M. Whitfield, Rte. 2, Box 320, Jackson, Miss. 39209
Filed Sept. 27, 1968, Ser. No. 763,064
Int. Cl. A01g *19/00*
U.S. Cl. 56—328 **15 Claims**

An apparatus for transmitting vibratory forces along an elongated boom, having a pivot at one of its ends and a single driven eccentric rotor adjacent the opposite end thereof. The rotary motion of the rotor is utilized for transmitting reciprocating vibrating forces through the boom and a pivot into a tree trunk, tree limb, or object as desired.



3,566,594
TREE FRUIT HARVESTER AND PICKING DEVICES

Charles R. Ellis, Highlands City, Fla., assignor to Citrus Industries Co., Lakeland, Fla.
Continuation-in-part of application Ser. No. 653,791, July 17, 1967. This application Aug. 12, 1969, Ser. No. 849,414
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 **26 Claims**

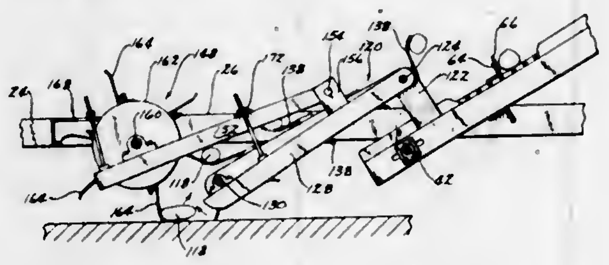


A fruit picking device has an elongated implement which is provided with a yieldable hook forming portion that includes a stem straddling assembly which is provided with pivotally biased joints and an interconnecting slender element. The element is so arranged as to cause bending of the stem at the calyx of an attached fruit body while the yieldable nature of the hook portion provided by the biased joints causes the suspended fruit body to be twisted in the picking process. The joints serve as fruit body contact components and are made of fitted semispherical or semiellipsoidal elements that provide a hollow housing for the biasing means, although solid resilient cylindrical joint forming members are shown in a modified form. A preferred form of a picking device embodies a plurality of the picking implements in an arrangement where they cooperate in seizing and retaining the suspended fruit body during the picking process. A mobile harvester equipped with the preferred form of picking device has a turntable carrying lift on which a picker head is mounted. The head has a bank of picker mechanisms which have elongated endless driven carriers in the form of endless chain and on which the devices are mounted and biased in a trailing attitude. At the proximal ends of the mechanisms, provisions are made for dislodging fruit grasped by the devices, and a structure is provided along the return path for the devices and which maintains the yieldable hook portions in straightened positions so as to avoid branch and foliage damage.

3,566,595

APPARATUS FOR PICKING EARS OF CORN FROM THE GROUND

Raymond Milbrandt and Clarence Milbrandt, both of Buffalo Center, Iowa 50424
Filed Nov. 12, 1968, Ser. No. 774,978
Int. Cl. A01d *87/04*
U.S. Cl. 56—345 **5 Claims**

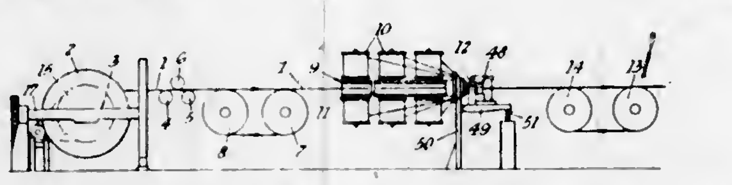


An apparatus for picking ears of corn from the ground including a wheeled frame means adapted to be pulled by a prime mover such as a tractor or the like. A pickup means is mounted on the forward end of the frame means and is adapted to pick the ears of corn from the ground and deposit the same on a rearwardly extending conveyor. The conveyor is adapted to convey the ears to a hopper or other suitable receptacle at the rearward end of the frame means. A blower means is mounted on the frame means below the conveyor and is adapted to force air upwardly through the ears of corn on the conveyor to blow any debris, such as cornstalks, trash, etc., therefrom. A deflecting shield is mounted over the conveyor and is adapted to deflect the debris being blown from the conveyor rearwardly from the apparatus.

3,566,596

MANUFACTURE OF WIRE ROPES OR STRANDS

Kenneth Pennycuick, Northill Grange, near Biggleswade, and Philip Christian, Balby, Doncaster, England, assignors to British Ropes Limited, Doncaster, England
Filed Aug. 12, 1968, Ser. No. 751,918
Int. Cl. D07b *3/06, 7/10*
U.S. Cl. 57—6 **11 Claims**



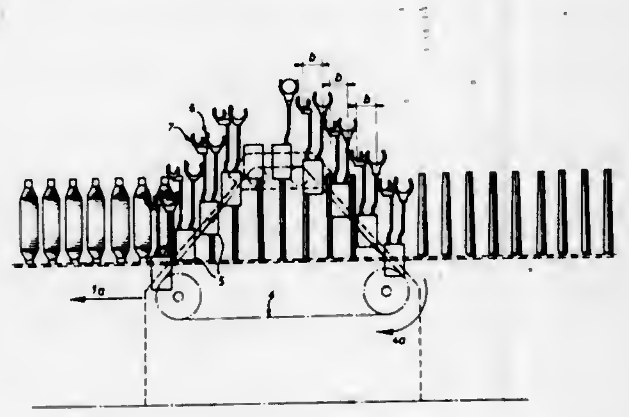
In the manufacture of wire ropes, particularly locked coil ropes, wherein a layer of wires or strands is twisted onto a core, which may be constituted by an inner core covered with one or more previous layers of wires in strands, the improvement is made of continuously measuring the back tension and torque in the core immediately ahead of the twisting step. Continuous quality control is thus obtained and if the values deviate unduly, connections may be applied, either automatically or manually. The invention comprises both apparatus and method.

3,566,597

DEVICE FOR AUTOMATICALLY SUBSTITUTING EMPTY BOBBIN TUBES FOR CHARGED BOBBINS IN RING SPINNING AND TWISTING MACHINES

Francesco Foglio Para, Trivero Ponzone, Italy, assignor to Soc. per Az. Cit Carrelli Industriali Fessili, Milan, Italy
Filed Dec. 5, 1968, Ser. No. 781,323
Claims priority, application Italy, Jan. 26, 1968, 50,289/68, Patent 825,727
Int. Cl. D01h *9/10*
U.S. Cl. 57—53 **18 Claims**

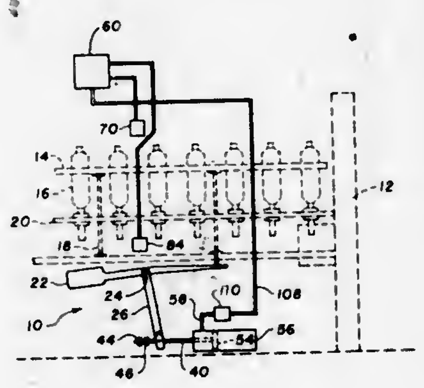
Charged bobbins on a row of spindles in a spinning machine are automatically replaced in succession by empty bobbin tubes by means of a device which is moved progressively along the front of the row of spindles. Carriages are moved on the device around a closed vertical path in the form of an isosceles trapezium with its shorter base uppermost, each carriage having a pair of pivoted arms which respectively remove charged bobbins and fit empty bobbin tubes on respective said spindles as the carriages ascend and descend respectively. The movement of the carriages around the path is synchronised with the movement of the device as a whole, the length of the upper horizontal run of the path being such that the respective arms are aligned during operation with the respective spindles.



3,566,598

AUTOMATIC RING-RAIL DOWNING SYSTEM

Paul C. Godfrey, Enoree, S.C., assignor to Byars Machine Company, Laurens, S.C.
Filed Oct. 30, 1968, Ser. No. 771,870
Int. Cl. D01h *9/14;* **B65h** *51/16, 54/28*
U.S. Cl. 57—54 **8 Claims**



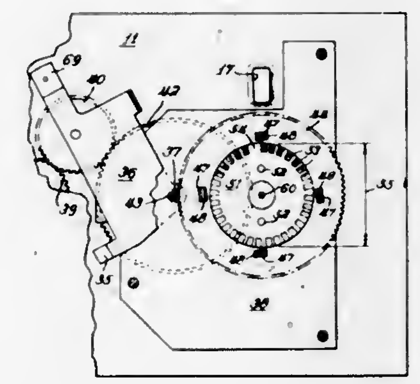
The instant invention utilizes a pneumatic mechanism having an air cylinder connected with a lever fixedly attached to the cross-shaft of a conventional spinning frame. Alternatively, the air cylinder may be connected with the traverse rod by a chain. A plurality of pneumatic switches and valves are located to permit control, by the reciprocating ring-rail, of a pneumatic system contained in a control box positioned near the spinning frame.

3,566,599

DIGITAL INTERVAL TIMER WITH INTERVAL END SIGNAL

Ronald M. Bassett, Chicago, Ill., assignor to International Register Company, Chicago, Ill.
Filed July 8, 1969, Ser. No. 839,979
Int. Cl. G04f *3/04*
U.S. Cl. 58—21.14 **15 Claims**

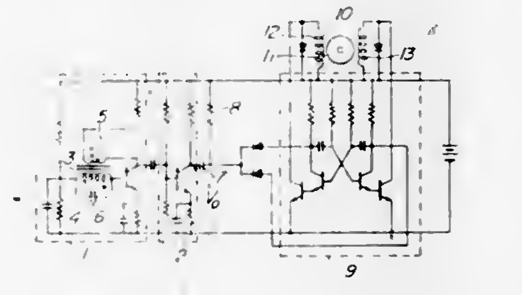
A synchronous motor operates a ratchet mechanism which permits a spring to drive an interval dial in a stepwise fashion to cause the interval time remaining to appear as an integer in registry with a viewing window. Ratchet teeth rotatable with the interval dial are periodically lifted to move an extension of one of the teeth out of engagement with stationary ratchet teeth and allow the interval dial to shift to display the next lower time integer. A cam follower cooperates with a cam rotatable with the interval dial to maintain the driving connection to the synchronous motor during the interval, to disengage the connection at the end of the interval, and to shift a buzzer arm into operative relation to the magnetic field of the motor to signal the end of the interval. The interval dial then is manually rotated to the "off" position and the buzzer arm ceases to operate.



3,566,600

ELECTRIC TIME-PIECE

Koichi Yoshimura, Kadoma-shi, and Masahiko Shiota, Kirakata-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 21, 1968, Ser. No. 738,877
Claims priority, application Japan, July 24, 1967, 42/48,039, 42/48,040, 42/64,589, 42/64,590, 42/64,591, 42/64,593; July 28, 1967, 42/65,761; Aug. 9, 1967, 42/51,605
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **11 Claims**



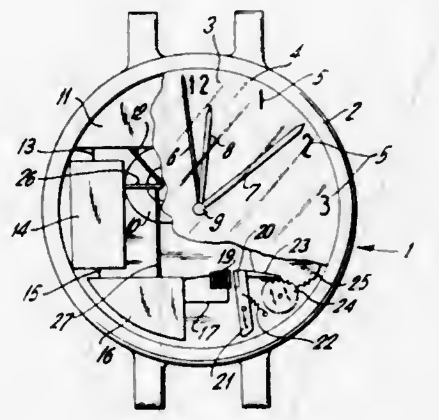
An electric time-piece, wherein a magnetic or electric induction field of the commercial or line frequency which is leaked into the surrounding space is detected by commercial frequency detecting means, and a synchronous motor is driven in synchronism with signals resulting from the detection to thereby drive the time-piece mechanism connected with the synchronous motor.

3,566,601

CRYSTAL OSCILLATOR WATCH

Lewis B. Shrady, Irvington, N.Y., assignor to Timex Corporation
Filed Jan. 30, 1969, Ser. No. 795,242
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **2 Claims**

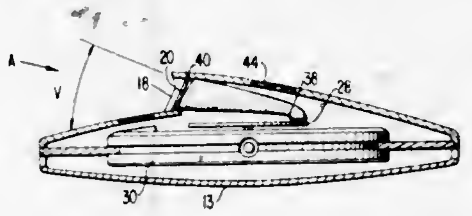
An electronic watch includes a power source, a time base, a drive circuit and time indicating means. The time base is a piezoelectric crystal oscillator, specifically an astable multivibrator having a low duty cycle which pulses the crystal at the fundamental or a subharmonic of its natural frequency.



3,566,602

OPTICAL DISPLAY DIGITAL WATCH

John M. Bergey, Lancaster, and Kenneth W. Derr, Quarryville, Pa., assignors to Hamilton Watch Company
Filed June 25, 1968, Ser. No. 739,877
Int. Cl. G04b *19/30*
U.S. Cl. 58—50 **24 Claims**



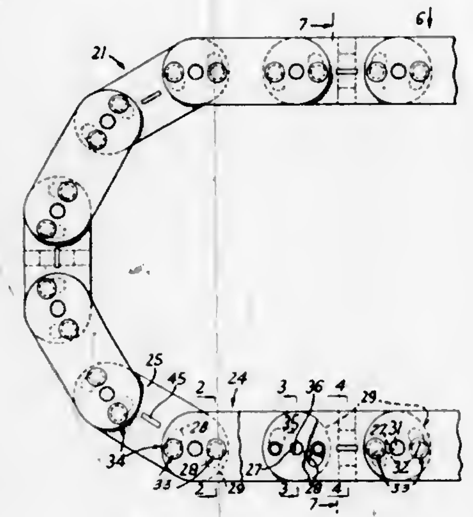
The watch has hour and minute wheels driven by a movement, the wheels carrying respective hour and minute information on annular areas thereabout. A display window is provided through the upper face of the watch at an angle to the plane of the watch. Curved, fuse-tapered, fiber optical bundles are provided for transmitting light carrying the time information on the wheels to an image surface adjacent the display window whereby, as the wheels rotate, a digital time readout is displayed in the window. In one form, the wheels are provided with luminous time indicia. In another form, a radioactive light source is carried within the watch casing to illuminate the time information on the wheels for digital time display under dark or semidark conditions. In a further embodiment, an optical bar segment in the general shape of a squared figure 8 and coded time indicia on the wheels cooperate to provide a digital time readout.

3,566,603

CABLE DRAG CHAINS

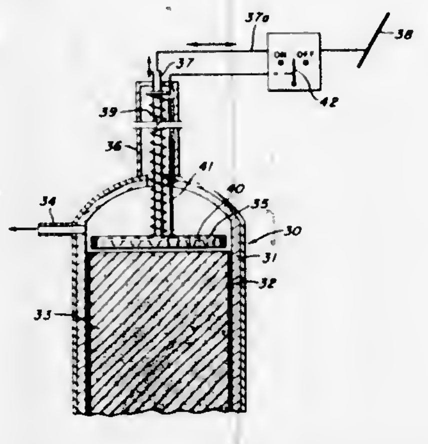
Everard Hamilton Chadwick, Arnold, England, assignor to Cable Equipments Limited, Nottingham, England
Filed July 2, 1968, Ser. No. 741,977
Int. Cl. F16g *13/16*
U.S. Cl. 59—78.1 **13 Claims**

This disclosure relates to drag chains for guiding cables from a fixed supply point to a movable point of utilization. The drag chain comprises alternate pairs of link plates and single link plates which are pivoted together. The link plates are pivotable about a ball-bearing. Stop pins held by the pair of link plates are slidable in arcuate slots in the single link plates and limit the angle through which the links can pivot relative to one another. A nylon anti-friction pressure pad is provided between facing surfaces of the link plates.



3,566,604
APPARATUS FOR CATALYTICALLY CONTROLLING DECOMPOSITION OF A SOLID GAS PRODUCING BODY

Wayne A. Proell, Seymour, Ind., assignor to Standard Oil Company, Chicago, Ill.
Original application Apr. 7, 1967, Ser. No. 629,294. Divided and this application Oct. 15, 1968, Ser. No. 788,975
Int. Cl. F02k *9/00*
U.S. Cl. 60—200 **8 Claims**

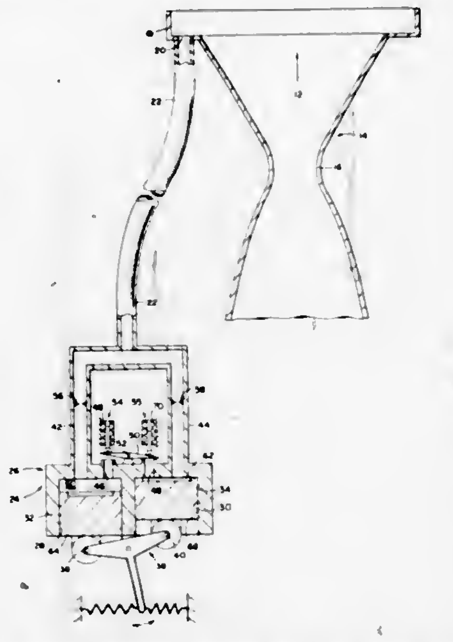


Apparatus and process for controlled decomposition of gas forming body by contacting the body, which is incapable of controlled, sustained decomposition, with movable catalyst effective to cause decomposition, and heating the catalyst.

3,566,605
ROCKET NOZZLE POWER CONVERTER

J. C. Dunaway, Falkville, Ala., assignor to the United States of America as represented by the Secretary of the Army
Filed June 3, 1969, Ser. No. 830,070
Int. Cl. F02k *11/00*
U.S. Cl. 60—200 **10 Claims**

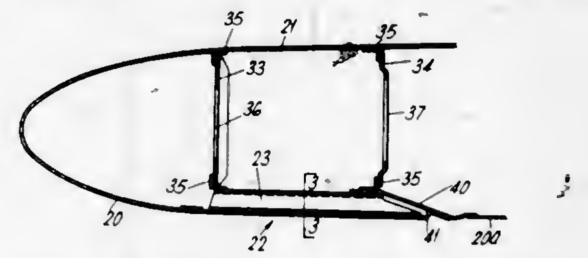
Mechanism for converting the power from a rocket nozzle without a reduction in thrust. The rocket nozzle is provided with indentations or undercuts near its exit and as thrust producing gases flow by the undercuts to the atmosphere, air is entrained from a conduit means connected to the nozzle at the position of the indentations or undercutting. The conduit means connects to a bell crank mechanism or other force transmitting members.



An upstream fixed orifice provided in the conduit and a downstream variable orifice provides a means for varying the pressure obtained from the rocket nozzle.

3,566,606
GAS TURBINE DUCTED FAN ENGINE

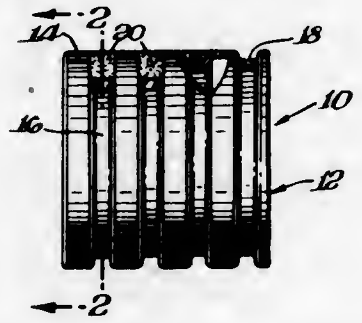
James Oswald Mortlock, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed May 16, 1969, Ser. No. 825,308
Claims priority, application Great Britain, May 28, 1968, 25,484/68
Int. Cl. F02k *3/04;* **F04d** *29/58*
U.S. Cl. 60—226 **10 Claims**



A gas turbine ducted fan engine has a fan housed in a fan duct. A portion of the fan duct is constituted by two spaced apart walls, one wall consisting of members each of which has a flange which extends to the other wall and is attached thereto.

3,566,607
CORRUGATED DRAINAGE TUBES

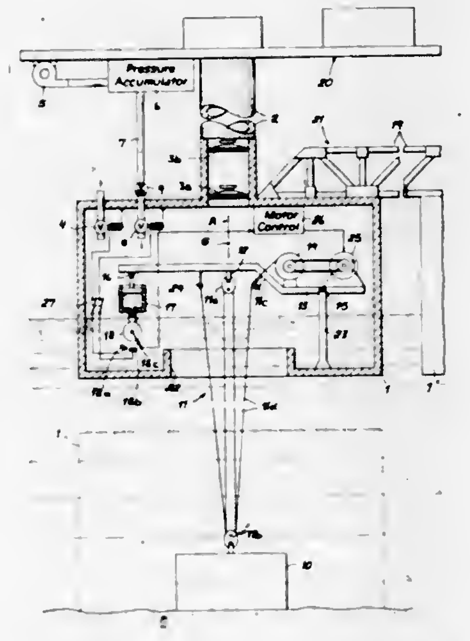
Marty E. Sixt, Newark, Del., assignor to Advanced Drainage Systems, Inc., Middletown, Del.
Continuation-in-part of application Ser. No. 663,051, Aug. 24, 1967. This application Feb. 14, 1968, Ser. No. 705,482
Int. Cl. E02b *11/00;* **F16l** *11/12*
U.S. Cl. 61—11 **2 Claims**



A flexible corrugated drainage tube having alternating annular peaks and valleys and a plurality of openings arranged transversely to the longitudinal axis of the tube. Filter media covers the slotted openings so that liquid draining through the openings into the interior of the tube initially passes through the filter media.

3,566,608
SUPPORT FOR TRANSPORTABLE OFF-SHORE ISLAND

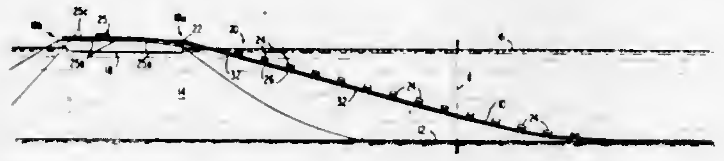
Hubertus Ramme, 25 Graf-Adolf-Strasse, 5758 Frondenberg, Germany
Filed Feb. 24, 1969, Ser. No. 801,472
Claims priority, application Germany, Feb. 22, 1968, P 17 08 547.1
Int. Cl. B63b *35/44, 43/06*
U.S. Cl. 61—46.5 **3 Claims**



A leg supporting a maritime platform comprises a buoyant base held submerged by a weight resting on the sea bottom, the weight being tied to the base by a hoisting cable whose tension controls a pair of valves for partly flooding or venting the base to reduce or increase its buoyancy in a manner compensating for changes in the load of the platform.

3,566,609
METHOD AND APPARATUS FOR LAYING PIPELINES

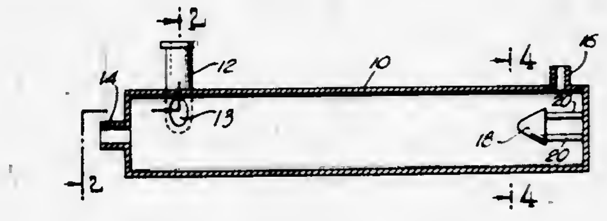
Leif H. Smith, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.
Filed May 15, 1969, Ser. No. 824,893
Int. Cl. B63b *35/04;* **F16l** *1/00*
U.S. Cl. 61—72.3 **26 Claims**



A method and apparatus for laying pipelines or other elongate flexible means on a submerged surface using a variable buoyancy, articulated ramp, pivotally connected to a floating vessel means. The articulated ramp is formed by a string of buoys pivotally interconnected by flexible or rigid spacers. The pivotal connections may provide for horizontal, vertical, or universal movement of the buoys. Each of the buoys is provided with a depending cradle for slidably supporting the pipeline. The buoys are at least partially flooded in response to "stripping-out" of the pipeline from the cradles so that the buoyancy of the ramp is adjusted in response to changes in the supported pipe weight, whereby desirable stress conditions on the pipeline leaving the ramp are maintained.

3,566,610
METHOD AND APPARATUS FOR SEPARATING FLUIDS

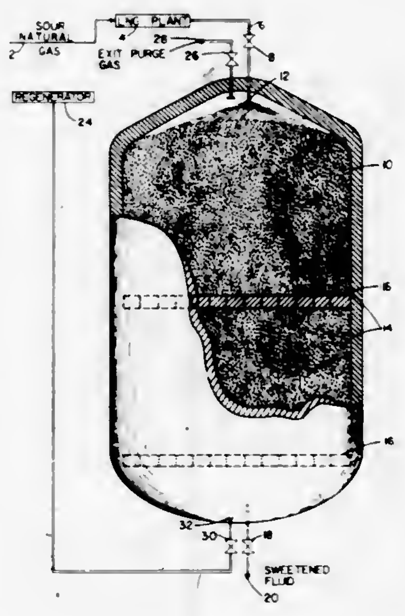
Cosmo Dominic Fiore, 59—25 155th St., Flushing, N.Y. 11355
Filed Sept. 23, 1968, Ser. No. 761,588
Int. Cl. F25b *9/02*
U.S. Cl. 62—5 **26 Claims**



A method and apparatus for separating a fluid into at least a more dense and less dense effluent stream which is effected by introducing the fluid tangentially into a near end of a cylindrical chamber through an inlet therein. The less dense portion is removed through a necked down, axially aligned, first exhaust port in the near end of the cylindrical chamber and the more dense portion is removed at the far end through a second exhaust port in the periphery thereof. The radii of a circular body in the cylindrical chamber upstream and adjacent the second exhaust port and of the cylindrical chamber adjacent the inlet, determine the density value about which the separation takes place for a specific flow rate.

3,566,611
LIQUID PHASE LOW TEMPERATURE SWEETENING LNG

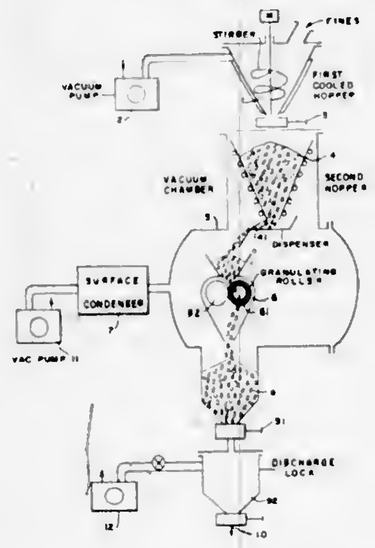
Eugene L. Sterrett, Hacienda Heights, Calif., assignor to Marathon Oil Company, Findlay, Ohio
Filed May 9, 1968, Ser. No. 727,933
Int. Cl. F25j *3/00, 3/08*
U.S. Cl. 62—18 **10 Claims**



This process involves the liquid phase sweetening of natural gas comprising first liquefying the natural gas containing dissolved sulfur-containing compounds followed by removal of the sulfur-containing compounds from the liquefied natural gas effluent by adsorbing them on a molecular sieve. Substantially all of such impurities as hydrogen sulfide, organic sulfur compounds such as mercaptans, and non-organic compounds such as carbon dioxide are substantially removed by liquid phase adsorption on the molecular sieve.

3,566,612
METHOD OF AGGLOMERATING FROZEN PARTICLES

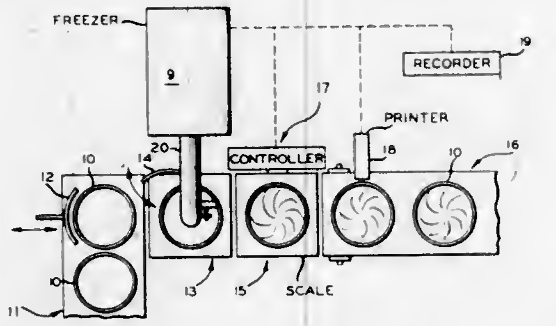
Hanns Eilenberg, Rosrath, and Franz-Josef Schmitz, Weiden, Germany, assignors to Leybold-Heraeus-Verwaltung GmbH, Cologne-Bayental, Germany
Filed Apr. 25, 1969, Ser. No. 819,306
Claims priority, application Germany, Apr. 25, 1968, P 17 67 307.3
Int. Cl. C09c *1/60;* **F26b** *13/30*
U.S. Cl. 62—62 **4 Claims**



A frozen product is formed into particles of a desired size by passing it through apparatus which forms particles of the desired size while it is at a subatmospheric pressure which corresponds to the particular agglomeration temperature of the product being processed.

3,566,613
MAINTAINING VOLUME-WEIGHT RELATIONSHIP IN PACKAGING

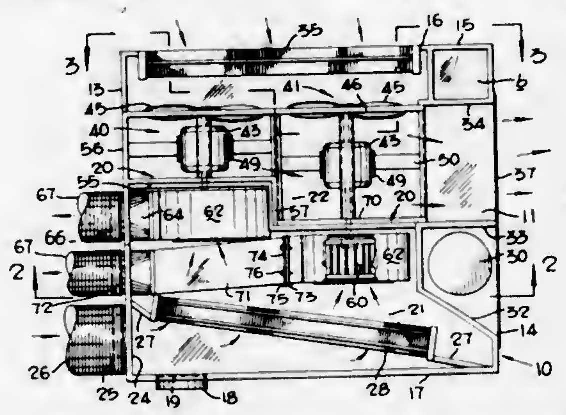
Alfred W. Kinney, Parkville, Mo., assignor to Phillips Petroleum Company
Filed Feb. 27, 1969, Ser. No. 802,929
Int. Cl. F25c *7/14*
U.S. Cl. 62—130 **3 Claims**



A constant volume of ice cream or similar material is positioned in each of a series of containers. The filled containers are weighed, and a signal is established which is representative of the weight of each container. In response to this signal the density of the product is adjusted so that a predetermined volume-weight relationship is maintained. This can be accomplished by adjusting air introduction to the ice cream freezer, for example.

3,566,614
AIR CONDITIONING UNIT HAVING PLURALITY OF FAN-AND-BLOWER UNITS

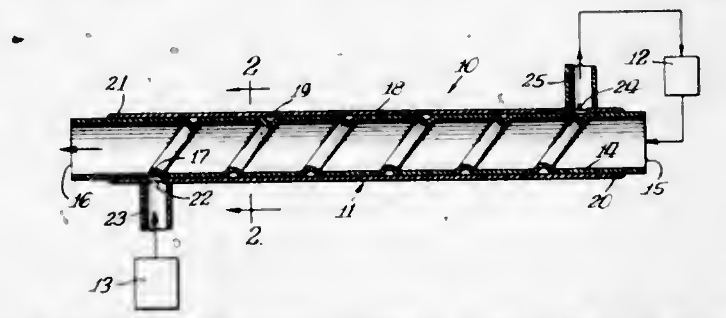
Sadik S. Imral, University City, Mo., assignor to Intertherm, Inc., St. Louis, Mo.
Filed Mar. 28, 1969, Ser. No. 811,407
Int. Cl. F25d *23/12*
U.S. Cl. 62—262 **4 Claims**



A low profile air conditioner unit is slidable under a mobile home, which it serves through flexible ducts. For minimum height, two fan-and-blower units are used, the blowers being staggered in plan form. Each unit is removable vertically, separately from the other, for ease in servicing.

3,566,615
HEAT EXCHANGER WITH ROLLED-IN CAPILLARY FOR REFRIGERATION APPARATUS

John Roeder, Jr., Benton Harbor, Mich., assignor to Whirlpool Corporation
Filed Apr. 3, 1969, Ser. No. 813,187
Int. Cl. F25b *41/06*
U.S. Cl. 62—511 **10 Claims**

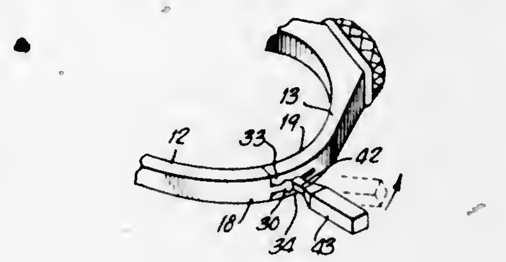


A fluid flow structure wherein a first fluid flow duct is provided with an external, outwardly opening groove. The groove is covered by an outer element which, in the illustrated embodiment, comprises an outer tube. The groove is made to be small in cross-section so as to define a capillary restrictor relative to fluid flow therethrough. The restriction of flow is adjusted by suitably deforming the outer tube overlying the groove so as to adjustably decrease the cross-section of the capillary restrictor passage. The fluid flow structure may be used in a refrigeration system for providing heat exchange between refrigerant fluid delivered from the evaporator through the first tube and refrigerant fluid delivered from a condenser to the evaporator through the capillary passage.

3,566,616
ORNAMENTAL FINGER RING HAVING A SEPARABLE CONNECTION IN ITS BAND

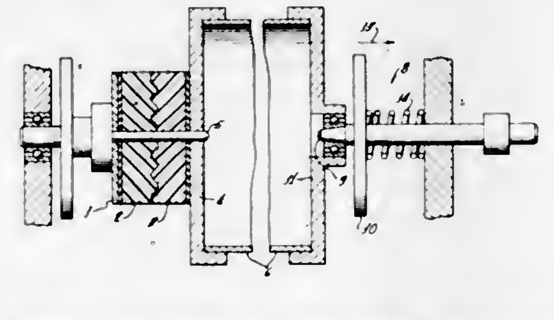
Robert A. Benedict, Jr., Norwalk, Conn. (R.F.D. 4, Waldoboro, Maine 04572)
Continuation-in-part of application Ser. No. 525,973, Feb. 8, 1966. This application Feb. 14, 1969, Ser. No. 799,482
Int. Cl. A44c *9/00*
U.S. Cl. 63—15.7 **3 Claims**

A finger ring which can be opened to facilitate placement upon and removal from a finger is constituted by hinged arcuate parts respectively carrying a plug and socket, the latter being shaped to grip the head and reduced neck of the plug and being slotted into the arcuate part for resiliently holding the plug. The cavity is most advantageously open at inside and outside faces of the ring and the plug is shaped to extend laterally to said faces, filling them when inserted in the cavity. Effective special provision is made for ready opening of the ring by manipulation, with a simple insertable element.



3,566,617
PLOTTER DRUM MOUNTING APPARATUS

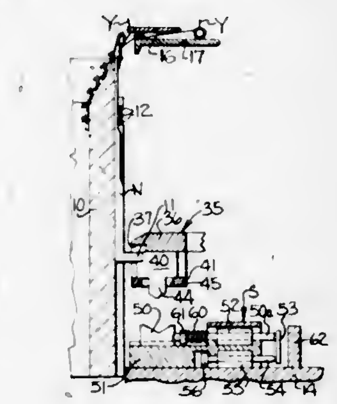
Joseph Robin Read, La Mirada, Calif., assignor to California Computer Products, Inc., Anaheim, Calif.
Filed May 1, 1969, Ser. No. 820,914
Int. Cl. F16d *3/64*
U.S. Cl. 64—14 **1 Claim**



Complementary grooved resistent surfaces may be used to effect quiet non-backlash torque between a drum and drive assembly. The contact pressure between the surfaces may be maintained by a spring which may be compressed to facilitate the drum removal or installation.

3,566,618
INDIVIDUAL NEEDLE CONTROL MEANS FOR CIRCULAR WARP KNITTING MACHINES

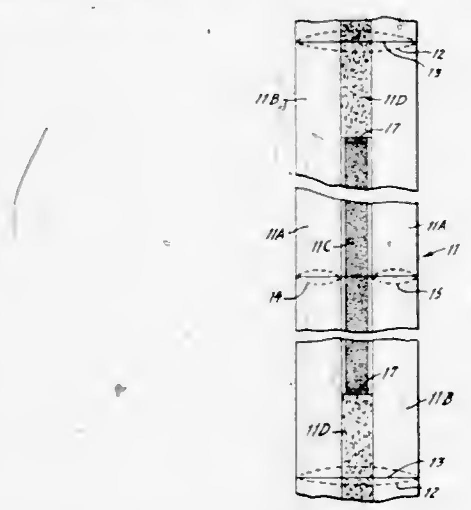
Robert E. Merritt, Mount Airy, N.C., assignor to Renfro Hosiery Mills Company, Mount Airy, N.C.
Filed Oct. 13, 1969, Ser. No. 865,703
Int. Cl. D04b *25/02*
U.S. Cl. 66—8 **8 Claims**



The needles are selectively positioned at knit, tuck or float levels in accordance with a predetermined pattern to provide various patterns in the knit fabric. The control means is operable upon the butts of the needles to selectively vary the height to which individual needles are raised by a needle actuating ring surrounding the needle cylinder. The control means includes stepped slides supported for radial movement in the needle operating ring and beneath the butts of the needles. Cam slides are positioned beneath and in alignment with the stepped slides for properly positioning the stepped slides when the needle actuating ring is lowered.

3,566,619
MACHINE KNITTING

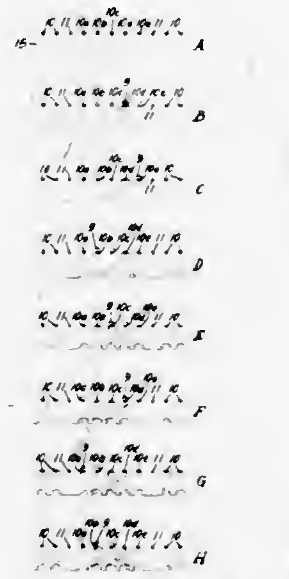
Seymour C. Titone, Birchrunville, Pa., assignor to Titone Research & Development Corporation, Burlington, N.J.
Filed Feb. 14, 1968, Ser. No. 705,377
Int. Cl. D04b *23/02*
U.S. Cl. 66—87 **7 Claims**



Tubular fabric is warp-knitted to have a plurality of narrow tubular portions located side-by-side but spaced apart and joined endwise to a single wide tubular portion. Knit articles so formed, comprising a pair of spaced narrow tubes joined endwise to a wide tube, are useful for garments in which the wide tubular portion surrounds the trunk or body, and the narrow tubular portions surround the limbs, e.g., panty hose and panty girdles.

3,566,620
METHOD OF FORMING KNITTED FABRIC

Herbert E. Haehnel, Reading, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 552,334, May 23, 1966. This application July 22, 1966, Ser. No. 567,128
Int. Cl. D04b *15/04*
U.S. Cl. 66—96 **9 Claims**

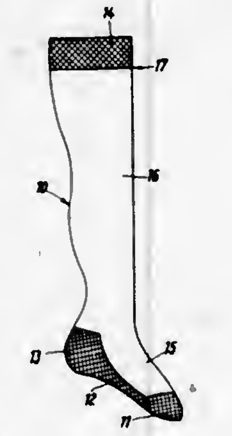


Method of forming design stitches in courses of a flat knitted fabric by individually transferring the stitches in groups of wales in opposite directions from the wales in which the stitches are originally formed to other wales in the groups.

3,566,621

ARRANGEMENT FOR POSITIVE YARN TENSION CONTROL ON DOUBLE ROW WARP KNITTING MACHINE

Marius Antoine Perrier, Lyon, France, assignor to Somarco S.A., Fribourg, Switzerland
Filed July 14, 1969, Ser. No. 841,192
Claims priority, application Germany, July 13, 1968, P 17 60 879.6
Int. Cl. D04b *23/02*
U.S. Cl. 66—87 **5 Claims**

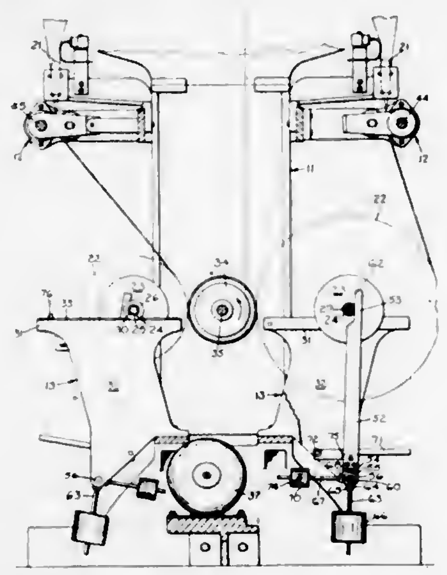


The present arrangement is particularly adapted for varying the feed of selected sets or groups of warp yarns during the knitting of tubular fabric on a double row warp knitting machine. The selected variation in the feed rate of the warp yarns is particularly adapted for knitting tubular hosiery blanks wherein a different stitch pattern is employed in knitting the reinforced and plain knit sections of the hosiery blank.

3,566,622

APPARATUS FOR FORMING A ROLL OF FABRIC CONTINUOUSLY WITH THE KNITTING THEREOF

Vincent A. Iannucci, Lincoln Park, and Ronald S. Schartel, Whitfield, Pa., assignors to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Dec. 16, 1968, Ser. No. 783,992
Int. Cl. D04b *15/88*
U.S. Cl. 66—151 **5 Claims**

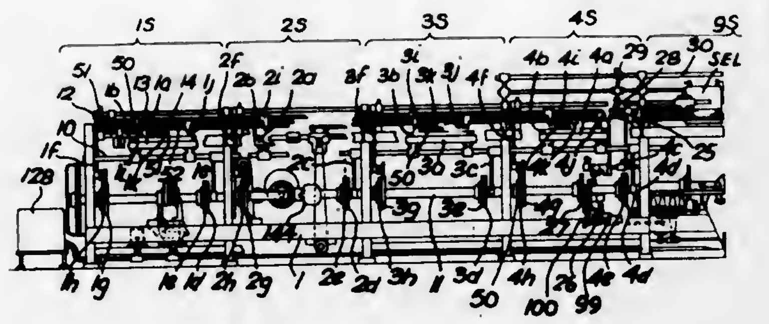


Mechanism for winding a flattened knitted tube, as it is delivered by the knitting machine, into a roll of substantially uniform density, the mechanism including a driving roll, a shafted core on which the fabric is wound, rollers mounted for rotation on the ends of the core shaft, substantially horizontal rails for supporting the rollers for movement therealong and means to maintain a surface layer of fabric on the core against the driving roll with a substantially uniform pressure as the layers of fabric build up on the core.

3,566,623

PROGRAMMING CONTROL SYSTEM FOR STRAIGHT BAR AND FLAT BED KNITTING MACHINES

Raymond Blood, Shepshed, Loughborough, and Rae Lawrence Duthie, Kirby Muxloe, Leicester, England, assignors to William Cotton Limited
Filed July 22, 1968, Ser. No. 746,381
Claims priority, application Great Britain, July 25, 1967, 34,109/67
Int. Cl. D04b *15/66*
U.S. Cl. 66—154 **9 Claims**

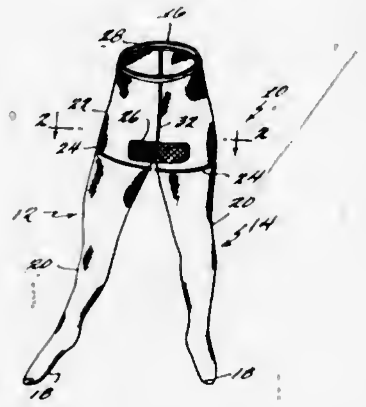


In a straight bar or flat bed knitting machine adapted for programme control of selvedge fashioning by use of a main punched chart programming means such as disclosed in U.S. Pat. No. 3,141,316 and not including in this means control means for loop transfer patterning, the combination with said main programming means of auxiliary programme means for control of loop transfer patterning by use of an auxiliary punched chart which is started by a signal from the main punched chart, relevant parts of the main programming means, including a course counting break switch, a speed control, and a main cam shaft shogging solenoid, being connected by relay and switch control circuits, to a solenoid for propping out selvege racking mechanism when patterning is required, pattern selection control mechanism, and solenoids for control of racking of an auxiliary or pattern punched chart which operates the pattern selection control mechanism for patterning and which is self-stopping, so that patterning can be changed without changing fashioning and vice versa.

3,566,624

PANTY HOSE WITH LOOSENED STITCH CROTCH AREA

Aaron Burleson, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.
Filed Aug. 2, 1968, Ser. No. 749,866
Int. Cl. D04b *9/02*
U.S. Cl. 66—177 **10 Claims**

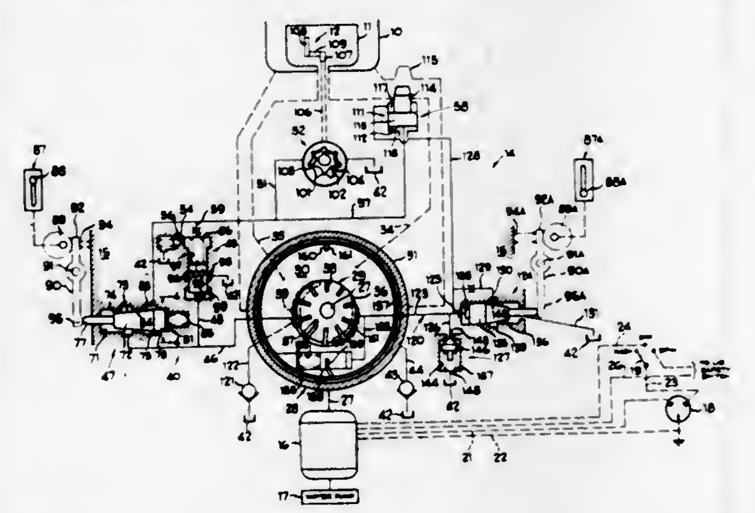


A panty hose garment construction of the type wherein a pair of circularly knit stocking tubes, each having a foot, leg and upper portion with the upper portion longitudinally slit intermediate the front and rear portions thereof are seamed together along the slits with the latter face open and facing each other to provide a panty hose garment. A loosened stitch area is knitted in each stocking part during its formation and is contained within a predetermined multiplicity of courses extending above and below the lower end of the slit and a predetermined multiplicity of wales extending to the rear and to the front of the slit, so as to provide adequate fit characteristics with no substantial concentration of strain at the seam to cause premature failure at the point thereon securing the lower ends of the slits together.

3,566,625

FABRIC TREATING MACHINE WITH ROTARY AGITATOR AND HYDRAULIC TRANSMISSION

Herbert A. McAninch, Auburn, Ind., and Herbert N. Underwood, Chicago, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,804
Int. Cl. D06f *29/00;* **F16d** *33/00*
U.S. Cl. 68—23.7 **21 Claims**

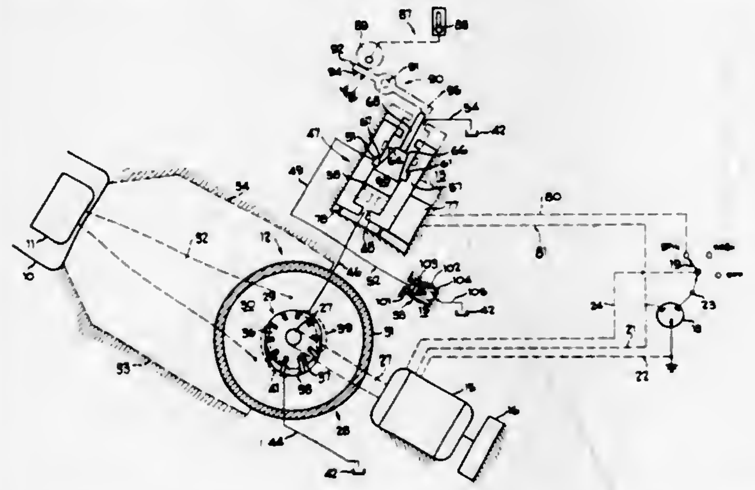


A fabric treating machine having a tub, a rotatable fabric container and a rotary agitator such as, for example, of the off-set shaft or bent shaft type and a hydraulic transmission for rotating the agitator for a washing operation and for rotating the container for an extract-spin operation.

3,566,626

HYDRAULIC TRANSMISSION FOR TUMBLE-TYPE FABRIC-TREATING MACHINES

Herbert A. McAninch, Auburn, Ind., and Herbert N. Underwood, Chicago, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,821
Int. Cl. D06f *29/02;* **F16d** *31/08*
U.S. Cl. 68—23.7 **7 Claims**

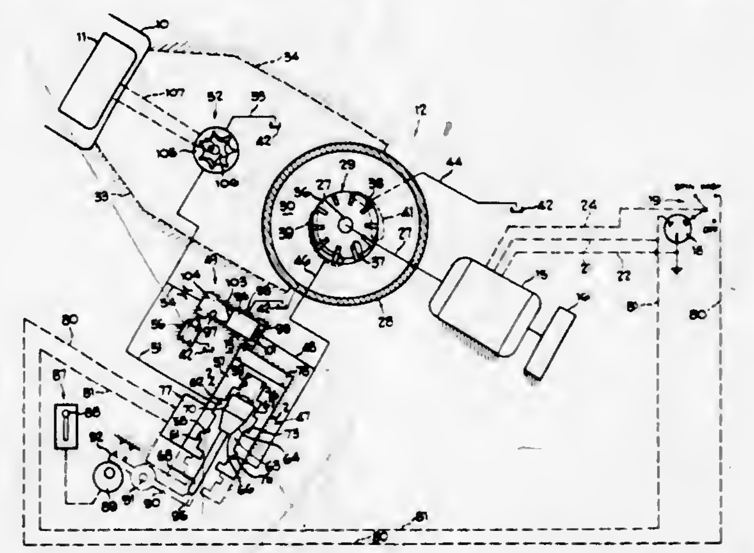


A fabric treating machine of the tumble-type, including a fabric container disposed at an angle to the vertical and a hydraulic transmission for driving the fabric container. The fabric container is connected to the pump housing element and dual range flow restricting means restrict the pump output in either a low speed or high speed setting to induce rotation of the pump housing element and the clothes container attached thereto. Speed control means are incorporated in the transmission and operate to selectively vary the container speed within predetermined limits for both low and high speed settings.

3,566,627

HYDRAULIC TRANSMISSION FOR TUMBLE-TYPE FABRIC TREATING MACHINES

Herbert A. McAninch, Auburn, Ind., and Herbert N. Underwood, Chicago, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,702
Int. Cl. D06f *21/10, 37/36*
U.S. Cl. 68—24 **4 Claims**

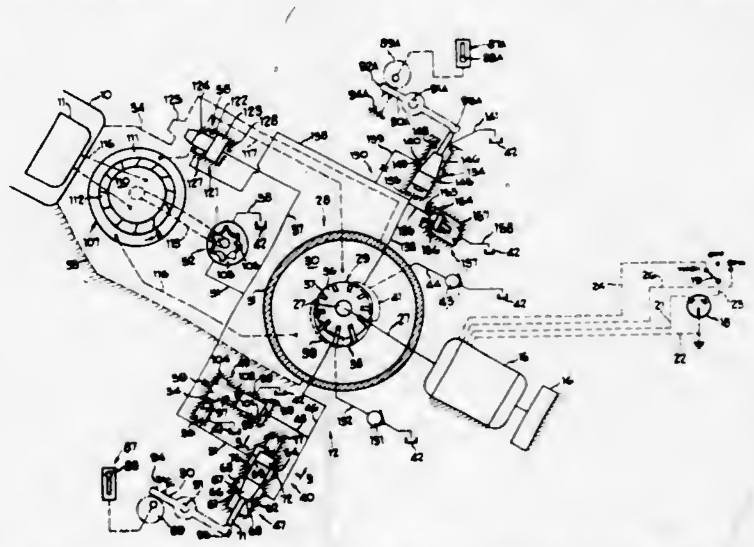


A fabric treating machine of the tumble-type, including a fabric container disposed at an angle to the vertical and a hydraulic transmission drivingly connected to the fabric container. Speed control means and dual range flow control means are incorporated in the transmission and operate to selectively vary the container speed within predetermined settings for both a low speed "tumble" range of operation and high speed centrifugal-extraction range of operation.

3,566,628

HYDRAULIC TRANSMISSION FOR TUMBLE-TYPE FABRIC-TREATING MACHINE

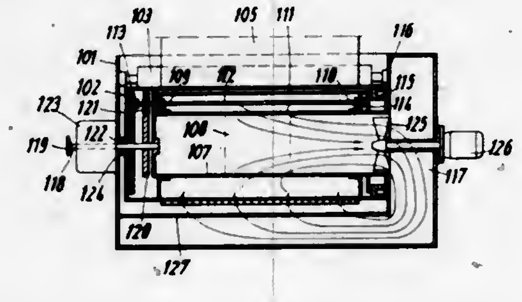
Herbert A. McAninch, Auburn, Ind., and Herbert N. Underwood, Chicago, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,805
Int. Cl. D06f *23/06;* **F16d** *31/06*
U.S. Cl. 68—24 **8 Claims**



A fabric-treating machine of the tumble-type including a fabric container disposed at an angle to the vertical and a hydraulic transmission for driving the fabric container. The hydraulic transmission includes a reversible positive displacement hydraulic pump operable in one direction of rotation to drive a hydraulic motor which in turn rotates the fabric container for a relatively low speed tumble or washing operation, the pump being operative in another direction of rotation to rotate the fabric container through the pump housing element for a relatively high speed centrifugal extraction operation.

3,566,629
APPARATUS FOR THE TREATMENT OF PERMEABLE MATERIAL

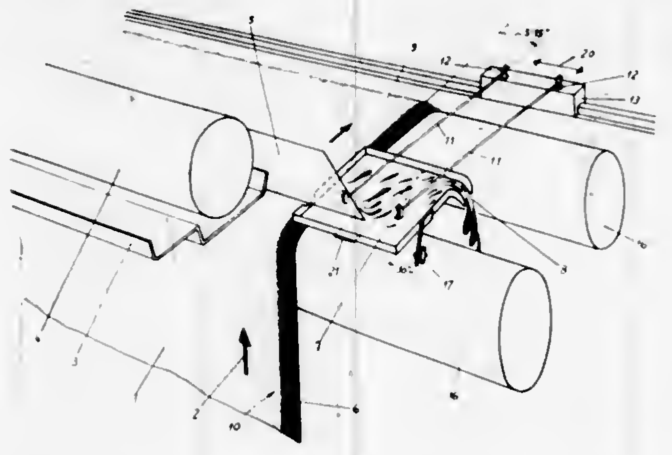
Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to Vepa AG, Basel, Switzerland
Filed Feb. 10, 1969, Ser. No. 798,073
Claims priority, application Germany, Jan. 7, 1969, P 19 00 496.7; Feb. 10, 1968, P 17 10 480.2
Int. Cl. D06c *1/06;* **D06f** *17/02*
U.S. Cl. 68—158 13 Claims



The present disclosure is directed to an apparatus for treating textile materials with a treatment medium wherein the surface of the conveying means can be adapted to efficiently treat different widths of said textile materials. The present apparatus is effective for both liquid and gas treatment mediums.

3,566,630
CONTINUOUS CARPET DYEING DEVICE

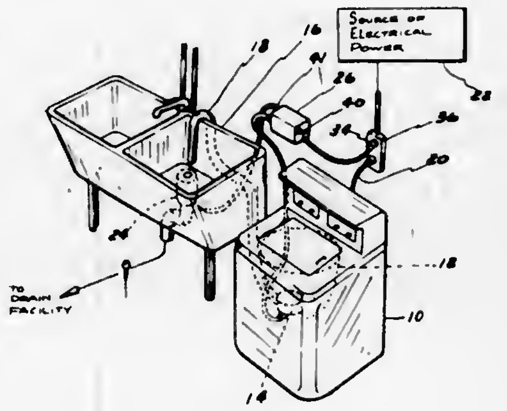
Valentin Appenzeller, Am Hagelkreuz 13, Kempen, Germany
Filed Dec. 19, 1968, Ser. No. 785,203
Claims priority, application Germany, Dec. 23, 1967, P 16 35 013.3
Int. Cl. B05b *13/02;* **D06f** *35/00*
U.S. Cl. 68—205 4 Claims



A trough or pan has a side positioned laterally against the upstanding pile edge of continuously traveling carpet to prevent liquid dye falling on the pile from also falling on the backing that extends laterally beyond the pile. This permits the manufacture of carpet having a pile dyed in a continuous manner after the pile is attached to the backing, without the backing being dyed inadvertently where it extends laterally beyond the pile.

3,566,631
WASHING MACHINE WITH SUMP PUMP CONNECTION

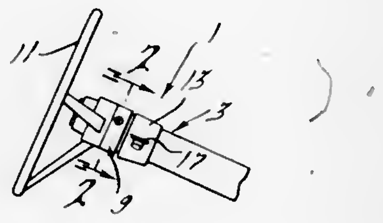
Eugene A. Willis, 5832 Lobdell Road, Mayville, Mich. 48744
Filed Nov. 14, 1968, Ser. No. 775,611
Int. Cl. D06f *39/00*
U.S. Cl. 68—208 6 Claims



A laundry washing machine having a drain pump for transferring waste water from its washing chamber to a laundry tub, a sump pump for removing the water from the tub, and an electrical connection between the washing machine and the sump pump for automatically energizing the sump pump whenever water is being transferred by the drain pump.

3,566,632
STEERING COLUMN AND TRANSMISSION CONTROL LOCK

Thomas J. Wall, Southfield, and Harry E. Wilcox, Livonia, Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed May 17, 1968, Ser. No. 729,965
Int. Cl. B60r *25/02, 25/06;* **F05b**
U.S. Cl. 70—248 7 Claims

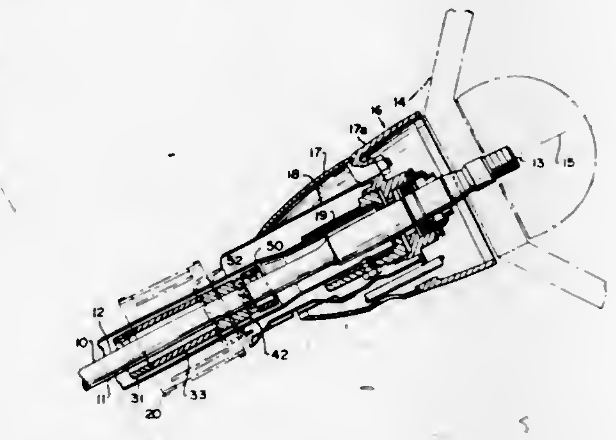


Improved steering, transmission and ignition lock apparatus for an automotive vehicle steering column including two locking pins movable in opposite directions and keeper plates located, respectively, on the steering shaft and the shift tube. A single control mechanism operates the movements of both locking pins as well as an ignition switch. The three locking components are all located within a housing on the steering column.

3,566,633
STEERING COLUMN LOCK

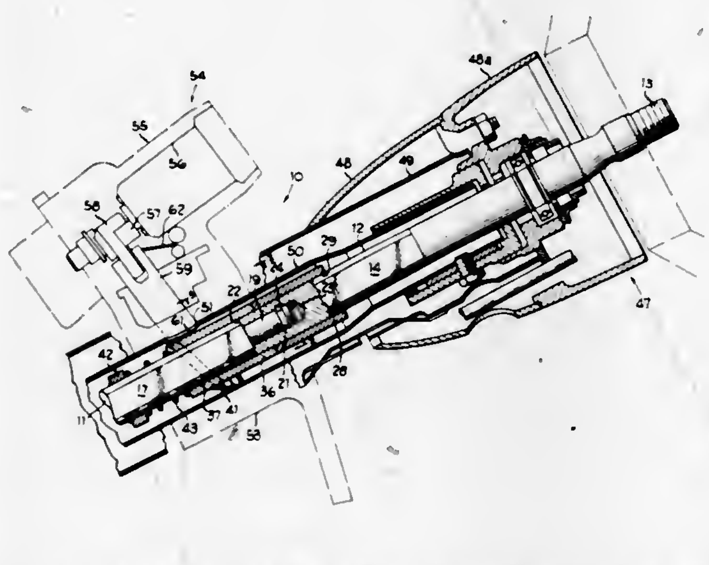
Howard O. Borck, Detroit, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Nov. 7, 1968, Ser. No. 774,005
Int. Cl. B60r *25/02, 25/06;* **E05b** *65/12*
U.S. Cl. 70—252 28 Claims

A lock for steering columns of motor vehicles associated with an ignition switch which lock engages a torque limiting clutch providing a strong torque resistance to turning the steering wheel. When a predetermined value of torque has been exceeded the elements of the torque limiting clutch will dissociate allowing rotation of the steering wheel through a predetermined arc at which point said clutch will re-engage to again resist rotation of the steering wheel.



3,566,634
STEERING COLUMN LOCK—FREE WHEELING

Howard O. Borck, Detroit, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Nov. 7, 1968, Ser. No. 774,157
Int. Cl. B60r *25/02, 25/06;* **E05b** *65/12*
U.S. Cl. 70—252 17 Claims

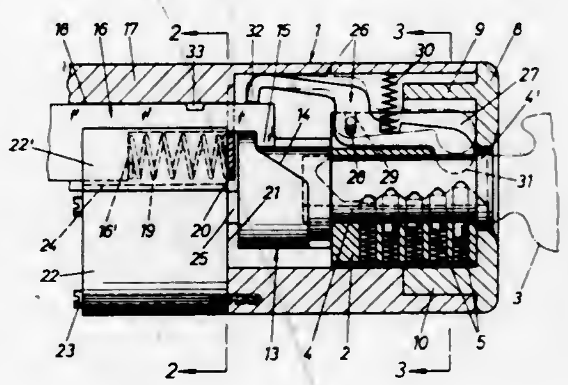


An anti-theft device for motor vehicles associated with the steering column and the ignition switch such that by placing the ignition switch in a predetermined inoperative position, subsequent rotation of the steering wheel and the steering shaft associated with it will cause a cessation of driving engagement between an upper steering shaft and a lower steering shaft allowing the upper shaft and the steering wheel connected to it to freewheel with respect to the lower shaft and the steering linkage connected thereto.

3,566,635
STEERING WHEEL SPINDLE CLOSURE

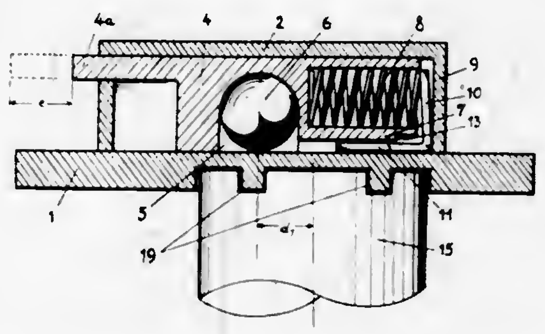
Heinz Wolter, Cologne-Lindenthal, Germany, assignor to Josef Vose KG, Cologne, Germany
Filed Aug. 14, 1969, Ser. No. 850,053
Claims priority, application Germany, Aug. 17, 1968, P 17 80 228.7
Int. Cl. E05b *65/12;* **B60r** *25/02*
U.S. Cl. 70—252 5 Claims

A steering wheel spindle lock equipped with a lock cylinder and a key operated switch, particularly for automotive vehicles, which comprises a cartridge-shaped housing and a lock cylinder. A locking bolt is displaceable in axial direction of the housing and both, the lock cylinder and the locking bolt, are disposed in the housing. The latter has a rearward projection of segment-shape in cross-section and a guide groove for the locking bolt. A switching housing is likewise a segment-shape in cross-section, and the switching housing and the rearward projection complement each other to a cartridge shape.



3,566,636
MAGNETICALLY OPERABLE LOCKING DEVICE

Hans Rudolf, 11 August-Lammle-Str., 7057 Leutenbach, Germany, and Gerhard Riegraf, 59 Winnender Str., 7150 Affalterbach, Germany
Filed Dec. 9, 1968, Ser. No. 782,037
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 9 Claims

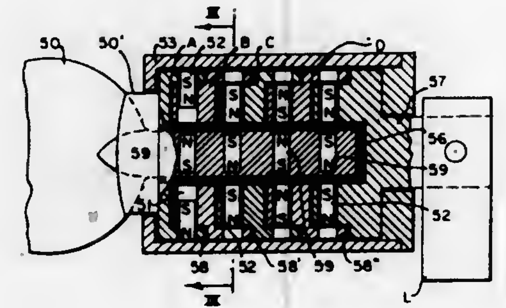


A magnetically operable locking device having latching means in a housing, a spring loaded detent means of magnetically influenced material and magnetic means for releasing the detent. The magnetic means exerts a magnetic field force large enough to include a magnetizable roller, the length of the force being only slightly larger than the distance required to move the latch to an unlocked position.

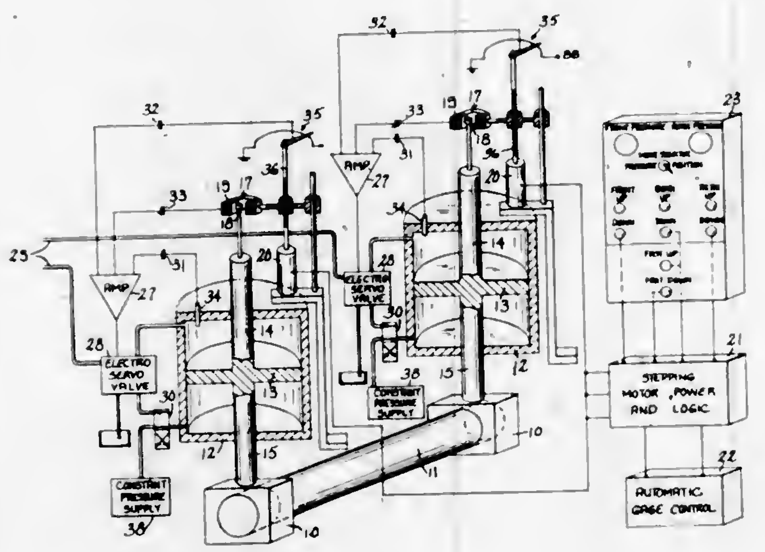
3,566,637
MAGNETIC LOCK

Hermann Hallmann, Ruppichteroth, Germany, assignor to Huwil-Werke, Hugo Willach & Sohne, Ruppichteroth, Germany
Original application Aug. 1, 1966, Ser. No. 569,212, now Patent No. 3,495,425. Divided and this application Oct. 17, 1969, Ser. No. 867,186
Claims priority, application Germany, July 31, 1965, H 56,738; Feb. 3, 1966, H 58,460
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 20 Claims

A housing retains a coupling cylinder, to which a bail or locking element is attached, and a key cylinder, the key cylinder being freely movable within the coupling cylinder in the absence of a key. The key and coupling cylinders are formed with at least a pair of matching chambers receiving magnetic elements, one of the chambers being large enough to wholly accommodate the magnetic element so that the key cylinder may spin freely when the key is absent, or of the wrong combination. The magnetic properties of the proper key cause the elements to move for example by repulsion, into a position spanning the chambers of key cylinder and coupling cylinder to couple the key through the coupling cylinder to the locking element so that operating forces can be transmitted from key to locking element only upon presence of the proper key.



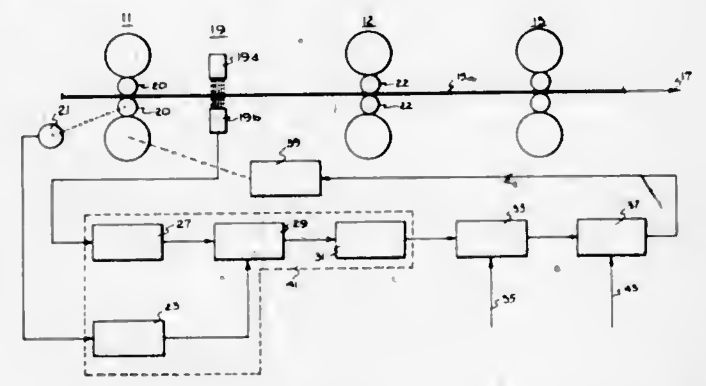
3,566,638
SCREWDOWN SYSTEM FOR A ROLLING MILL
Robert Herbst, Cheshire, Conn., assignor to Textron, Inc., Providence, R.I.
Filed May 29, 1968, Ser. No. 732,999
Int. Cl. B21b *37/08, 37/12*
U.S. Cl. 72—8 **6 Claims**



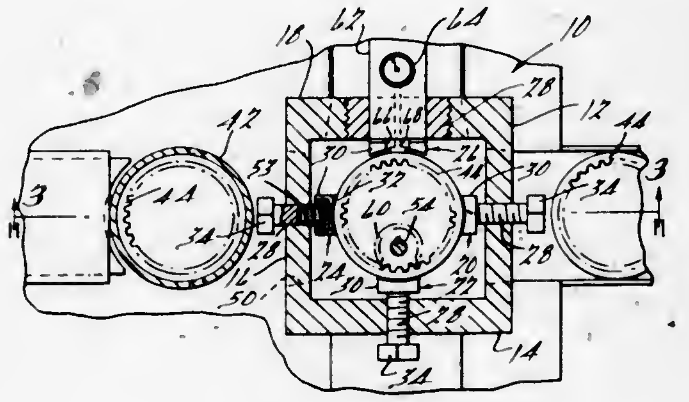
A hydraulic screwdown system for a rolling mill. In particular, there is provided a double-acting hydraulic cylinder having its piston position to effect mill adjustment in accordance with a control signal. In one embodiment a displacement transducer is utilized to generate the control signal and in another of the embodiments, a pressure transducer is utilized in generating control signals.

3,566,639
GAGE CONTROL FOR MULTISTAND ROLLING MILL
Paul E. Dornbusch, Roanoke, Va., assignor to General Electric Company
Filed Nov. 21, 1968, Ser. No. 777,569
Int. Cl. B21b *37/02*
U.S. Cl. 72—8 **4 Claims**

An apparatus for controlling the gage of a metal strip from one stand of a multistand rolling mill having at least two stands by controlling the speed of one of the stands in response to a signal from an X-ray gage, positioned between these stands, which represents deviation from expected gage, delayed for a period of time equal to the transport time for that portion of strip containing the deviation to move from the X-ray gage to the roll bite of the successive stand, less the response time of the speed regulator of the controlled stand. The gage deviation signal is advanced through a shift register circuit such that the deviation information is stored while the strip travels from the X-ray gage to the roll bite of the stand. A tachometer provides a voltage which controls the pulse rate of the shifting pulses such that the pulse rate is proportional to the output of the tachometer, or speed of the strip. The gage deviation signal after having been delayed is divided by the gage reference, or expected gage, signal for producing a current signal which is proportional to the unit deviation. This signal is then multiplied by the speed reference signal to produce a voltage signal proportional to the absolute speed change used for altering the tension in the strip, the reduction of the strip being corrected so that the delivered gage of the strip remains constant.

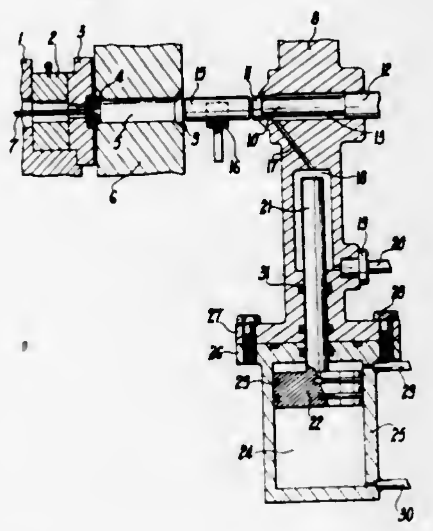


3,566,640
INSPECTION AND CORRECTION APPARATUS
Jerry E. Harrington, Center Line, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Aug. 26, 1968, Ser. No. 755,355
Int. Cl. B21b *37/00*
U.S. Cl. 72—10 **7 Claims**



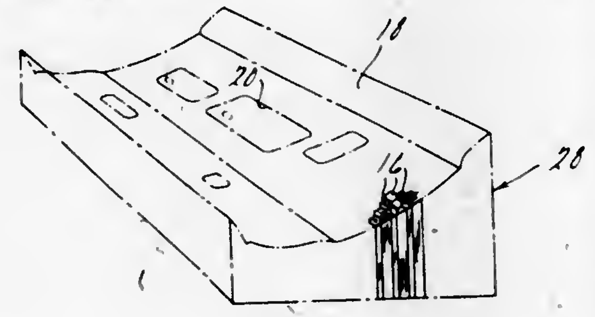
A machine for detecting and correcting dimensional irregularities of curved surfaces such as piston rings, gears, bearings and the like. The workpiece being inspected is rotated within a set of jaws and a sensor is positioned adjacent the workpiece which is capable of generating an output signal in response to an out of round condition. This signal results in the actuation of one of the jaw members which is capable of compressing the workpiece to thereby eliminate the high point.

3,566,641
PLUGGING DEVICE FOR EXTRUSION CONTAINER
Charles Sauve, 9 Bis Avenue Jean Jaures, Versailles, Yvelines, France
Filed Feb. 10, 1969, Ser. No. 798,001
Claims priority, application France, Feb. 22, 1968, 140,940
Int. Cl. B21b *45/02*
U.S. Cl. 72—43 **4 Claims**



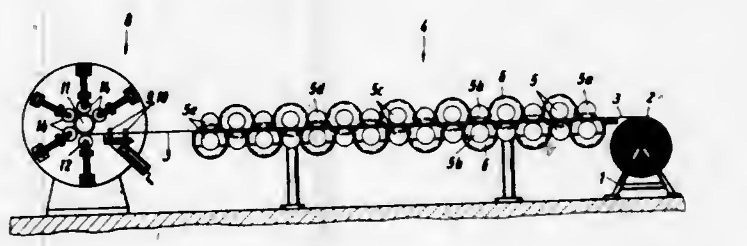
A device for plugging extrusion containers and comprising a die, a cylindrical die cavity containing the billet to be extruded and an extrusion ram associated with a slidable plugging block which is adapted to close off the rear end of the extrusion container as considered in the direction of extrusion. The relative motion of the ram rod and the plugging block causes the lubricant to be injected into the extrusion container under very high pressure, the lubricant being maintained preferably in the plastic state and at a suitable temperature inside an annular feed reservoir which is formed between the ram rod and the plugging block. Essentially, said annular reservoir communicates through the plugging block with a compression chamber which is filled with lubricant and into which the rod of a piston is adapted to penetrate in leak-tight manner, said piston being in turn intended to carry out a movement of displacement within a separate cylinder under the action of an auxiliary driving fluid.

3,566,642
HEXAGONAL ROD DIE CONSTRUCTION HAVING AN INHERENT DIE SURFACE LUBRICATION SYSTEM
Foster E. Whitacre, Farmington, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Sept. 18, 1968, Ser. No. 760,642
Int. Cl. B21d *37/18*
U.S. Cl. 72—44 **5 Claims**



A die construction comprising incremental rods arranged in registry, the ends of the rods forming incremental die surface areas, said rods being machined individually prior to assembly with a predetermined length and with end surfaces having surface normals situated in precalibrated directions, the machining procedure including the removal of metal from selected rods to provide fluid flow passages which communicate either with a lubrication supply manifold whereby lubricant is selectively distributed to selected regions of the die surface or with an air vent space whereby air entrapped by the workpiece may be vented.

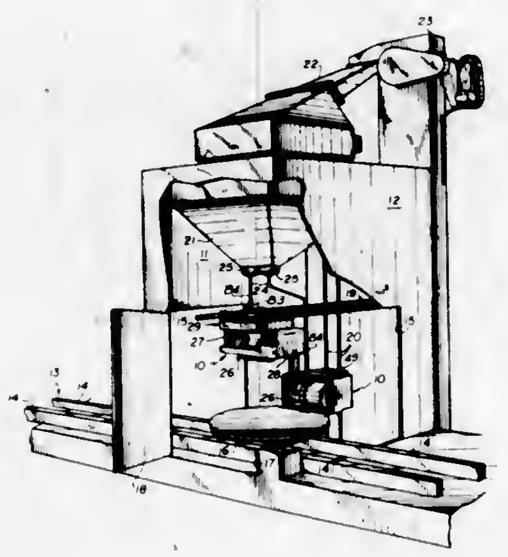
3,566,643
APPARATUS FOR THE MANUFACTURE OF HELICALLY COILED PIPES OF THIN SHEET METAL
Lorenz Westerbarkey, Zum Stillen Frieden, Guetersloh, Germany
Continuation-in-part of application Ser. No. 573,110, Aug. 17, 1966. This application Apr. 9, 1969, Ser. No. 814,695
Int. Cl. B21c *37/12*
U.S. Cl. 72—49 **11 Claims**



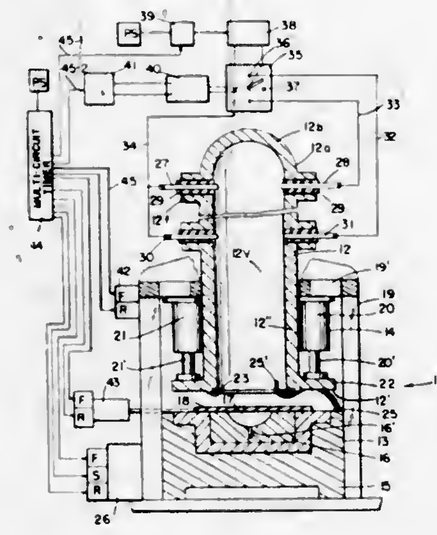
An apparatus for the manufacture of corrugated, helically coiled and wound pipes of thin sheet metal or metal foil includes a multi-roll machine in which a strip of sheet metal is corrugated and a coiling machine in which the corrugated strip is coiled helically into a pipe. The multi-roll machine has corrugated roll pairs which are provided with corrugating grooves which progressively and gradually narrow and deepen in the direction of travel of the strip through the machine so that the strip during the formation of corrugations is deformed only by bending and does not undergo compression or stretching. The coiling machine is provided with entry guide rolls which prepare the edges of the corrugated strip by slightly bending the edge corrugations without compression or stretching deformation. Thus while the corrugated strip is being coiled on a coiling mandrel of the coiling machine, the downwardly open corrugation at the edge of the uppermost convolution of the strip engages in the upwardly open corrugation of the adjacent lowermost convolution of the strip. These interengaging corrugations are held together by compression by rolls on the coiling machine acting against the mandrel to form a joint. The joint is subjected to pressure by an additional roll located beyond the mandrel in the direction of movement of the strip to lock the corrugations securely together.

3,566,644
APPARATUS FOR SURFACE TREATING WORK PIECES
Ralph W. Moore, Hagerstown, Md., assignor to Metal Improvement Company (N.J.)
Filed Feb. 6, 1969, Ser. No. 797,090
Int. Cl. C21d *7/06*
U.S. Cl. 72—53 **20 Claims**

The apparatus for the surface treating of work pieces comprises a motor and a centrifugal throwing wheel connected for rotation to the motor, the throwing wheel having an axially arranged feed inlet for receiving peening particles to be projected into impingement with the work piece to be treated. A frame is provided to pivotally support the motor and throwing wheel about a first axis which is substantially coincident with the axis of rotation of the throwing wheel. A base member is pivotally connected to the frame for supporting the latter for movement about a second axis substantially normal to the axis of the throwing wheel. A peening particle supply conduit is disposed to communicate with a supply of peening particles and the feed inlet for delivering peening particles to the throwing wheel. The supply conduit is constructed and arranged so that portions of its longitudinal axie lie coincident with said first and second axes. A remote controlled indexing means is connected to coact with the frame, throwing wheel and motor to rotate the motor and throwing wheel about the first and second axes to thereby effect adjustment of the throwing wheel in a multiplicity of positions relative to the work piece to be treated.

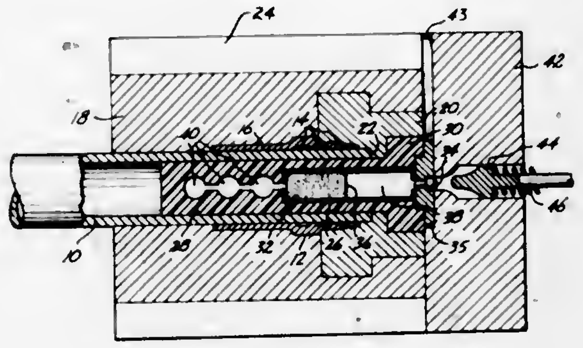


3,566,645
METHOD AND APPARATUS FOR PRESSURE WORKING MATERIALS
Jerome H. Lemelson, 85 Rector St.,
Metuchen, N.J. 08840
Continuation-in-part of applications Ser. No. 668,561, June 27, 1957, and Ser. No. 501,395, Oct. 22, 1965, now Patent No. 3,371,404. This application Mar. 5, 1968, Ser. No. 710,518
Int. Cl. B21d *26/06*
U.S. Cl. 72—56 **9 Claims**



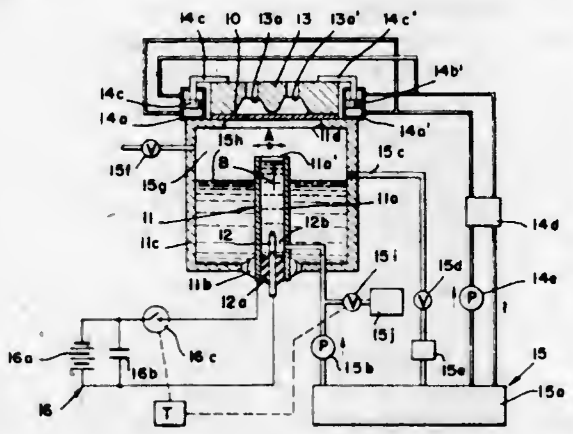
A method and apparatus are provided for forming material such as sheets and plates by means of intense pressure developed in a working fluid. A die and pressure chamber are brought together with the work disposed between the two and restrained from movement by clamping engagement during the movement of the die and chamber. Thereafter, one or more intense pressure waves such as shock waves are generated in the working fluid in the chamber and are operative to cause the work to predeterminately deform against the die. The work may be deformed as the result of a single pulse of intense pressure within the working fluid or by generating a plurality of pulses, one after the other, such that each pulse causes an incremental deformation in the work the sum of which deformations involves predeterminately shaping the work to conform to the surface of the die in a progressive manner.

3,566,646
EXPLOSIVE ATTACHMENT APPARATUS
Richard W. Walkup, 14108 Bingham Ave. E.,
Tacoma, Wash. 98446
Filed Apr. 18, 1968, Ser. No. 722,310
Int. Cl. B21d *25/02*
U.S. Cl. 72—56 **1 Claim**



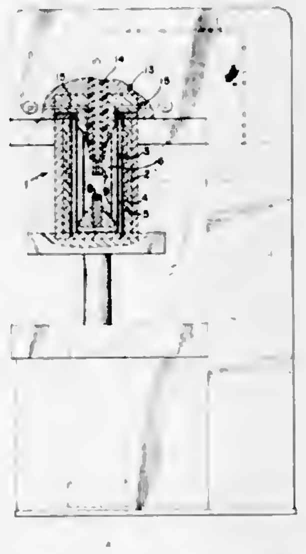
An apparatus for swaging a metal tube to a fitting by explosive attachment comprising an elastomeric member containing an explosive charge which is inserted into the tube. Upon detonation of the explosive charge, shock forces are transferred by the elastomer to the tube wall, swaging the tube to the fitting. An interior cavity in the elastomeric member relieves peak shock forces and entraps contaminants from the detonation.

3,566,647
HYDROIMPACT, HIGH ENERGY-RATE FORMING OF PLASTICALLY DEFORMABLE BODIES
Kiyoshi Inoue, Tokyo, Japan
(100 Sakato, Kawasaki, Kanagawa, Japan)
Continuation-in-part of application Ser. No. 574,056, Aug. 22, 1966, which is a continuation-in-part of application Ser. No. 311,061, Sept. 24, 1963, now Patent No. 3,276,558, and application Ser. No. 508,487, Nov. 18, 1965, now Patent No. 3,512,384, the latter being a continuation-in-part of application Ser. No. 41,080, July 6, 1960, now Patent No. 3,232,085, and also a continuation-in-part of applications Ser. No. 629,633, Apr. 10, 1967, now Patent No. 3,461,268, and Ser. No. 696,757, Jan. 10, 1968. This application June 10, 1968, Ser. No. 735,760
Claims priority, application Japan, Aug. 28, 1967, 42/55,102; Nov. 9, 1967, 42/72,156; Nov. 10, 1967, 42/72,315
Int. Cl. B21d *26/14*
U.S. Cl. 72—56 **18 Claims**



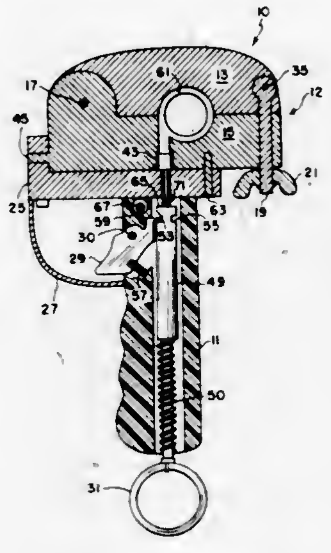
A hydroimpact-forming system in which a column of liquid in a barrel of a shock-forming gun is trained upon the workpiece and electric discharge is effected in the column to propel the column against the workpiece and produce a shock wave superimposed on the gross movement of the liquid to shape the workpiece. The liquid is preferably directed at the workpiece in a jet with a velocity of 100–10,000 m./second with the discharge being superimposed impulsively on this jet.

3,566,648
PULSED LIQUID WIRE-ELECTROHYDRAULIC SYSTEM
Robert W. Norin, Country Club Hills, and Donald J. Roth, Chicago, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Sept. 25, 1968, Ser. No. 762,457
Int. Cl. B21d *26/08*
U.S. Cl. 72—56 **19 Claims**



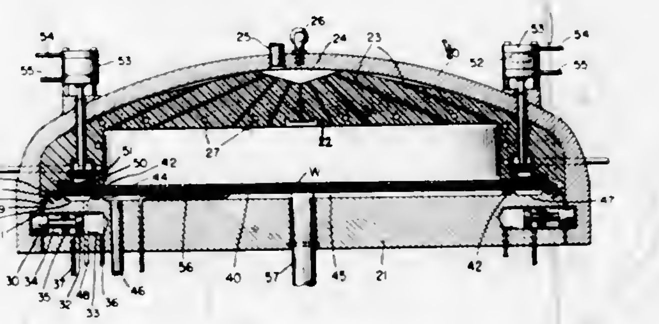
An electrohydraulic container forming device wherein a thin stream of conductive fluid constitutes a bridge between one electrode and the other of the shock producing electrodes. The conductive liquid is pressurized to a higher value than the internal pressure of the container. In operation the conductive liquid is emitted under pressure from one electrode by a timing circuit driving a shear type solenoid valve. A second timing circuit synchronizes the electrical discharge with the establishment of a preferentially conductive bridge across the electrode gap. A sharp jet pulse is given off from the arc thus established and this develops pressure inside the rubber diaphragm to press it against the container which is then pressed into the interstices of the die to give a fully stylized container.

3,566,649
EXPLOSIVE SWAGE DEVICE FOR TUBING
Dwight G. McSmith, Hampton, Va., assignor to Ideas, Incorporated, Newport News, Va.
Filed Jan. 6, 1969, Ser. No. 789,268
Int. Cl. B21d *26/08*
U.S. Cl. 72—56 **6 Claims**



A hand tool for explosively connecting telescoped tubular members wherein the telescoped members are positioned within a supporting structure having an annular passageway therein surrounding and in fluid connection with the telescoped tubular members and means for applying pressurized forces in the annular passageway of an extent sufficient to induce an annular pressure-weld between the telescoped tubular members.

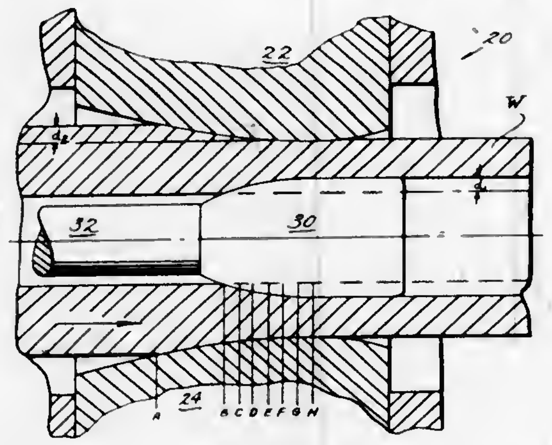
3,566,650
DIAPHRAGM-TYPE SHEET FORMING METHOD
Herbert G. Johnson, Havertown, Pa., assignor to Shell Oil Company, New York, N.Y.
Continuation-in-part of application Ser. No. 660,491, Aug. 14, 1967. This application Apr. 10, 1969, Ser. No. 815,127
Int. Cl. B21d *22/12*
U.S. Cl. 72—63 **8 Claims**



This application discloses diaphragm-type sheet forming apparatus and method for forming sheet blank workpiece material, especially plastic material, by such apparatus. The apparatus comprises a rigid die and an elastomeric diaphragm which is forced by fluid pressure into the die against a sheet workpiece blank to force the blank against the die to form a shaped article.

3,566,651
METHOD AND APPARATUS FOR FORMING INTERNALLY PROFILED TUBULAR PARTS BY MATERIAL DISPLACEMENT
Erich Tlaker, Springfield, Vt., assignor to Fellows Gear Shaper Company, Springfield, Vt.
Filed Oct. 3, 1968, Ser. No. 764,896
Int. Cl. B21c *37/20*
U.S. Cl. 72—76 **7 Claims**

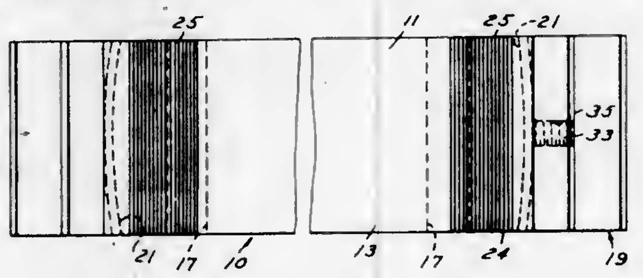
A method and device for forming tubular parts by material displacement wherein a hollow workpiece blank is fed past a tapered mandrel positioned within the blank and intermediate the deforming areas of dies. The mandrel is tapered from its trailing to its leading end and the mandrel's largest cross sectional dimensions are greater than the internal cross sectional dimensions of the workpiece blank whereby the deformation of the workpiece blank about the mandrel by the dies gradually reduces the exterior dimensions and gradually increases the interior dimensions of the workpiece blank until the internal cross sectional dimensions of the workpiece blank con-



form to the exterior cross sectional dimensions of the mandrel at the trailing end of the mandrel.

3,566,652
METHOD AND APPARATUS FOR PROVIDING A TOOTHED-FORMING RACK

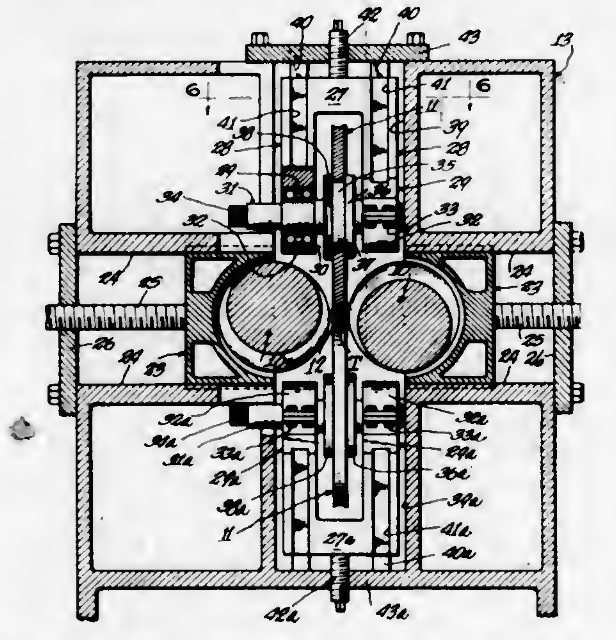
Willard B. McCardell, Royal Oak, Mich., assignor to Michigan Tool Company, Detroit, Mich.
Filed Aug. 23, 1968, Ser. No. 754,880
Int. Cl. B21h *3/06*
U.S. Cl. 72—88 **1 Claim**



A means for assembling and retaining a toothed forming rack on a basemember.

3,566,653
TUBE REDUCING AND ELONGATING APPARATUS

Ernest G. Unrath, Pittsburgh, Pa., assignor to Wean Industries, Inc., Youngstown, Ohio
Filed Nov. 15, 1968, Ser. No. 776,124
Int. Cl. B21b *19/06, 31/12*
U.S. Cl. 72—96 **11 Claims**

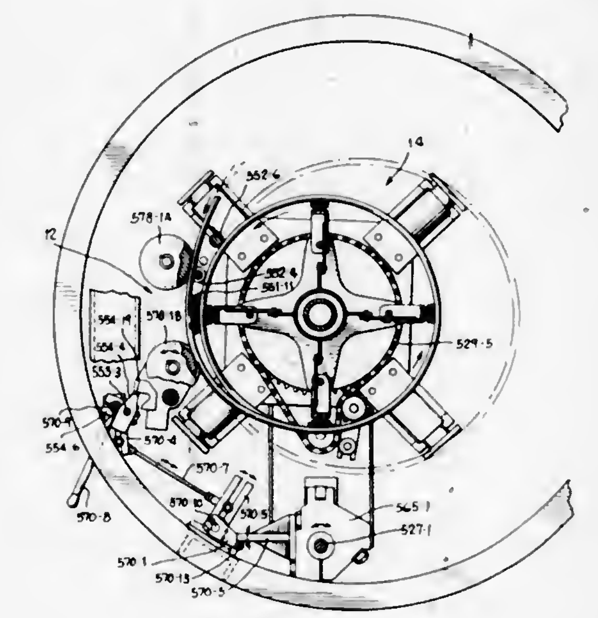


Tube reducing and elongating apparatus of the "Diescher" type having a main frame rotatably supporting opposed, barrel-shaped, tube working rolls which form a pass for the tube and having opposed, tube-confining disks at the working roll pass rotatably mounted in respective sub-frames which are easily removable from the main frame for ready repair or replacement of the disks.

In addition, the mandrel normally disposed within the tube being elongated is rotated therewith at the same speed and in the same direction as the theoretical rotational speed imparted to the tube by the working rolls and the mandrel is simultaneously advanced with the tube at the same speed at which it exits from the pass formed by the working rolls and the disks.

3,566,654
COILING APPARATUS

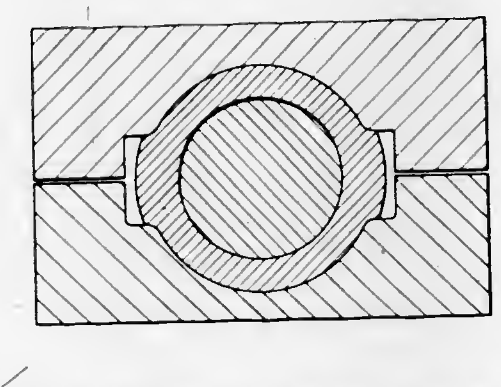
Albert C. Adams, Flushing, John J. Crosby, Cambria Heights, and George W. Graf, Springfield Gardens, N.Y., assignors to Republic Steel Corporation, Cleveland, Ohio
Filed Feb. 20, 1968, Ser. No. 706,850
Int. Cl. B21d *11/06*
U.S. Cl. 72—135 **21 Claims**



Apparatus for forming a uniform coil of strip material such as tubing. A bending station bends the strip (supplied continuously thereto) to a desired radius. A plurality of relatively small diameter bending rolls are employed midway between and on the opposite side of the strip from two bending rolls of larger diameter. The strip passes from the bending rolls to a spool which is reciprocated past the plane of the bending station to wrap successive turns and layers of a coil on the spool as the spool is rotated. The reciprocating movement of the spool may be intermittent, i.e., in discrete steps, and may be given a measured delay at the top and bottom positions of the spool to position the turns of each layer opposite the adjacent turns of the next inside layer on the coil. The axis of the spool is movable toward and away from the bending station, and one of the bending rolls is adjustable in accordance with the movement of the spool axis away from the bending station as a coil is built up on the spool so as to automatically increase the radius of bending as the coil diameter increases. An hydraulic valving mechanism is employed having concentric sleeves which include passages therein which when aligned pass fluid therethrough to communicate the cylinder with a fluid supply and discharge system. One of the sleeves is actuated as the strip is coiled on the spool, while the other sleeve is actuated by the reciprocating movement of the spool. The passages in the sleeves are thus intermittently aligned and then nonaligned so as to provide for the intermittent communication of the cylinder through the sleeves with the fluid supply and discharge system. Guide rolls may be employed to support the strip, including rolls adjacent the spool to contain the coil formed on the spool. Of these latter guide rolls, the upper ones may be made pivotable to swing inside the coil to permit the coil to be easily removed from the spool.

3,566,655
METHOD AND ROLL PASS ARRANGEMENT FOR ROLLING SEAMLESS TUBES WITH EXTERNAL FINS

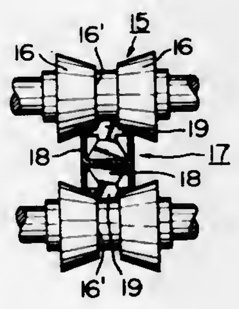
Karl Ernst Scholten, Witten-Bommern, and Kurt Sonnabend, Witten (Ruhr), Germany, assignors to Mannesmann A.G., Dusseldorf, Germany
Filed Aug. 5, 1968, Ser. No. 750,239
Claims priority, application Germany, Aug. 3, 1967, M 75,032; Aug. 11, 1967, M 75,115
Int. Cl. B21b *17/10*
U.S. Cl. 72—209 **3 Claims**



A seamless finned tube is produced from a bloom by cold pilger rolling in two successive roll groove sections; in the first section the tube is rolled down to final wall thickness, and in the second the fins are rolled to final size. The lengths of the unrolled two section grooves have a ratio of 3:1.

3,566,656
DEVICE FOR SHAPING EDGES OF SHAPE STEEL

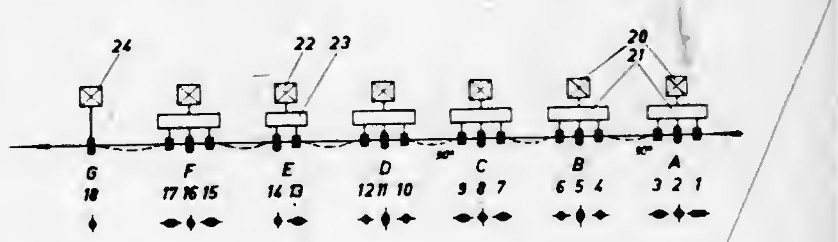
Tomomi Matsumuro, Kobe, Japan, assignor to Kawasaki Steel Corporation, Kobe, Japan
Filed Sept. 23, 1968, Ser. No. 761,411
Claims priority, application Japan, Oct. 16, 1967, 42/66,179
Int. Cl. B21b *39/16*
U.S. Cl. 72—227 **6 Claims**



A device for edging shape steel having a web and flanges, comprising a pair of rolls, a guide member means, and a fixed supporting means for the guide member means. The guide member means has a cross section at a plane passing the axes of the rolls, and the configuration of the cross section of the guide member means is complementary with the shape of the inner peripheral surface of each shape steel being edged. By changing the guide member means, different shape steels, such as H-shape, I-shape, and channel steels, of various dimensions can be easily edged.

3,566,657
CONTINUOUS ROLLING MILL TRAIN FOR ROLLING BAR STOCK

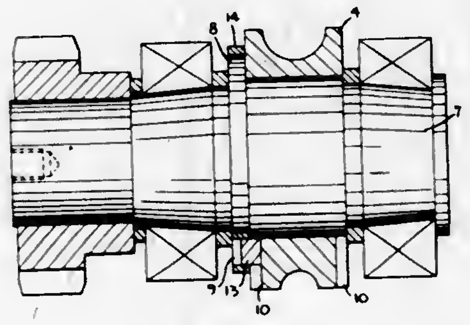
Franz Blinn, St. Ingbert (Saar), Germany, assignor to Verwaltungsgesellschaft Moeller und Neumann Offense Handelsgesellschaft, St. Ingbert (Saar), Germany
Filed Nov. 22, 1968, Ser. No. 778,068
Claims priority, application Germany, Nov. 30, 1967, P 16 02 220.1
Int. Cl. B21b *13/08*
U.S. Cl. 72—234 **5 Claims**



In a continuous rolling mill train for bar stock each three successive rolling mill stands are provided with a common drive. The central stand of each set of three stands is a vertical stand so that inside the three stand set the rolled product is not twisted.

3,566,658
COLD ROLLING MILL WITH ROLL PASS RING

Fritz Zeunert, Rheydt, Germany, assignor to Mannesmann-Meer Aktiengesellschaft, Monchen-Gladbach, Germany
Continuation of application Ser. No. 582,288, Sept. 27, 1966. This application Oct. 20, 1969, Ser. No. 867,960
Claims priority, application Germany, Oct. 26, 1965, M 67,061
Int. Cl. B21b *31/08*
U.S. Cl. 72—238 **1 Claim**

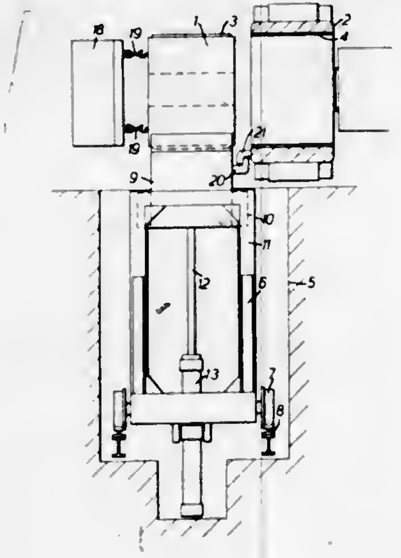


A cold rolling mill of the step-back type has a rotatable shaft and a roll pass ring heat shrunk thereon sufficiently intensively for the slip-free carrying out of high-speed step-back rolling.

3,566,659
HORIZONTAL EXTRUSION PRESSES

Ian Lewis Cameron, Blandford Forum, England, assignor to Fielding Plant Design Limited, Bournemouth, England
Filed Nov. 29, 1968, Ser. No. 779,897
Claims priority, application Great Britain, Dec. 1, 1967, 54,861/67
Int. Cl. B21c *23/00*
U.S. Cl. 72—263 **8 Claims**

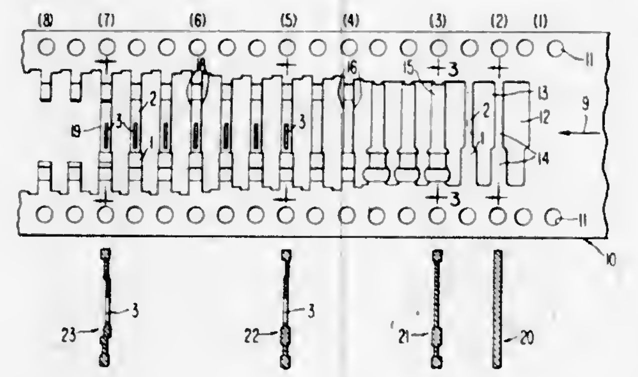
A horizontal extrusion press including a transfer arrangement for the rapid and convenient removal of a press container and its replacement by another without recourse to the use of an overhead crane, the said transfer arrangement being brought into accurate location at the centreline of the press and the container being axially slidably removed from its holder on to the transfer arrangement where it is supported. After removal from the holder, the



container is next moved downwards below the press columns and then away from the press to an outside station.

3,566,660
MANUFACTURING METHOD TO PRODUCE PRINTING TYPE

Frank Dedek, Westland, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Continuation of application Ser. No. 683,524, Nov. 16 1967. This application Feb. 28, 1968, Ser. No. 708,892
Int. Cl. B21d *28/00, 31/00, 31/06*
U.S. Cl. 72—339 **15 Claims**

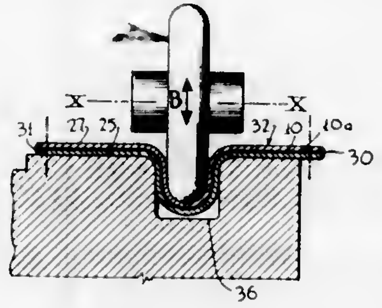


A method of forming printing type from a sheet metal strip which is passed through a progressive die, the method including the steps of indexing the metal strip through the die, producing printing type blanks with integrally connected head and hardened shank portions by punching and swaging operations and later severing each completed type blank from the strip. The head portion of the several type blank then is subjected to a character forming operation while the shank portion is firmly clamped in a holding fixture.

3,566,661
METAL FORMING

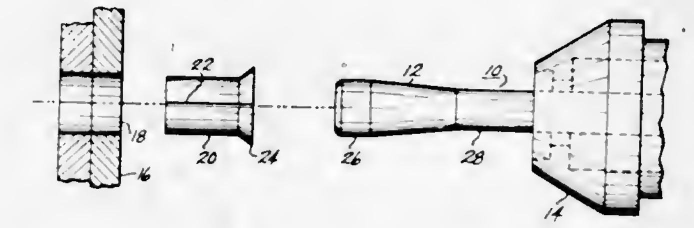
Gerald P. McCafferty, Churchville, Pa., Frederick Rudolph, Jr., Cherry Hill, N.J., and Harry P. Schane, Lafayette Hill, Pa., assignors to The Budd Company, Philadelphia, Pa.
Filed July 29, 1968, Ser. No. 748,444
Int. Cl. B21b *1/00;* **B21c** *37/02;* **B23p** *17/00*
U.S. Cl. 72—365 **3 Claims**

A method of metal forming, as by rolling, a thin sheet metal part such as titanium in pack fashion whereby the part to be formed is sandwiched between inner and outer cover sheets of sufficient strength to provide support for the thin part. The cover sheets are mechanically restrained from slippage by edge welding.



3,566,662
COLDWORKING METHOD AND APPARATUS

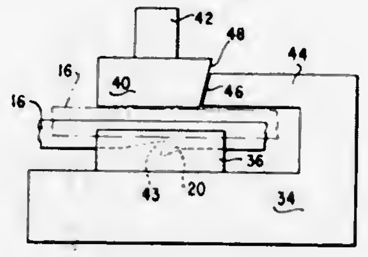
Louis A. Champoux, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Apr. 28, 1969, Ser. No. 819,896
Int. Cl. B21d *39/06*
U.S. Cl. 72—370 **13 Claims**



A method and apparatus using disposable sleeves for coldworking of holes. The apparatus uses a tapered oversized plug element with a thereon positioned thin-walled split sleeve. The plug element is inserted with the sleeve into a hole. When the plug element is pulled back through the hole, the sleeve is kept in the hole by the apparatus so that radially outwards directed forces are exerted by the plug on the sleeve, which in turn transmits the coldworking forces to the wall of the hole. After the plug is pulled out of the hole, the sleeve is removed from the hole and discarded.

3,566,663
FELTING NEEDLE

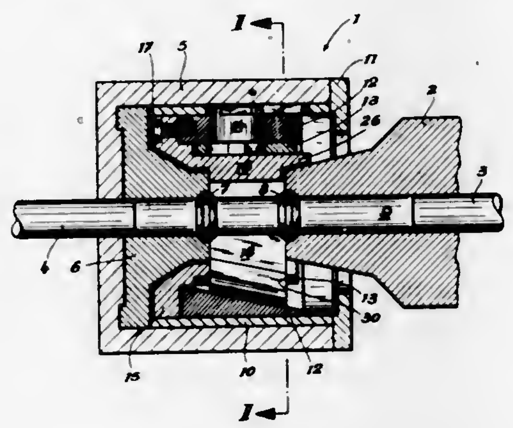
Josef Zocher, Haaren, Achen, Germany, assignor to The Singer Company, New York, N.Y.
Original application June 1, 1967, Ser. No. 642,753, now Patent No. 3,464,097, dated Sept. 2, 1969. Divided and this application Jan. 9, 1969, Ser. No. 803,515
Int. Cl. B21q *1/06*
U.S. Cl. 72—376 **3 Claims**



This disclosure relates to the needle art and in particular to felting needles and methods of making the same. Felting needles are of the general type which have barbs or other irregularities on their surfaces for engaging the loose fibers presented in a batt of loose fibers and for compacting the fibers into a relatively dense matt of fiber material. The present disclosure deals with improvements in needles of this type and in methods of making the same with the result being an overall improvement in the felting process.

3,566,664
APPARATUS FOR COLD AND WARM PRESSING OF UNDERCUT PREPRESSED BODIES

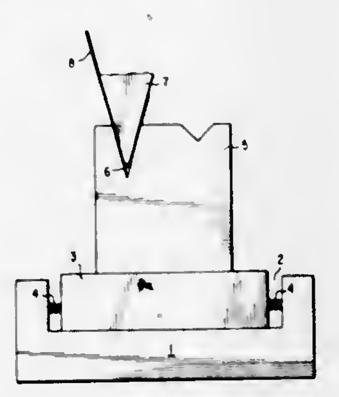
Herbert Schweizer, Kandern, Germany, assignor to F. B. Hatebur Aktiengesellschaft, Basel, Switzerland
Filed June 18, 1968, Ser. No. 737,873
Claims priority, application Germany, June 20, 1967, H 63,056
Int. Cl. B21d *41/00*
U.S. Cl. 72—402 6 Claims



Device for press forming workpieces to form protuberances thereon in which an anvil body has a matrix member fixed in one end and a moveable matrix member axially moveable into the body at the other end. Radially moveable jaws in the body are actuated radially inwardly by axial movement of the moveable matrix member into the body so as to embrace a rod-like workpiece which has one end disposed in a hole in each matrix member. Further axial movement of the moveable matrix takes place together with the jaws so the workpiece is caused to change shape only in the unsupported region thereof between the fixed matrix member and the jaws.

3,566,665
SHEET METAL FORMING PRESS FOR FORMING FLATTENED HORNS ON THE EDGES OF SHEET METAL BLANKS

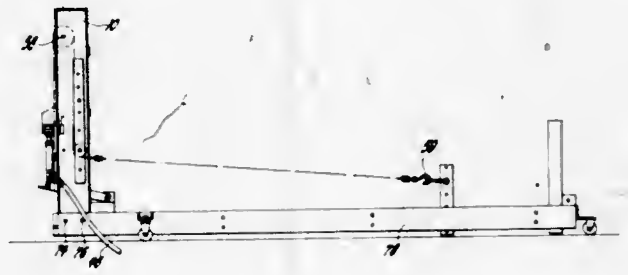
Joseph Birrer, Zofingen, Switzerland, assignor to Hammerle A.G., Zofingen, Switzerland
Filed Apr. 15, 1968, Ser. No. 721,467
Claims priority, application Austria, Apr. 21, 1967, A 3,776/67
Int. Cl. B21j *13/02*
U.S. Cl. 72—404 **2 Claims**



The disclosure provides a sheet metal forming press for forming flattened horns on the edges of sheet metal blanks which comprises a bolster mounted between centering springs permitting the bolster to yield in a direction normal to the direction of pressing; a vertically movable die adapted to be lifted off and lowered onto said bolster, and a vertically movable forming punch cooperating with said die, the arrangement being such that the sheet metal blank is optionally interposable between the forming punch and the die or between the underside of the die and the bolster.

3,566,666
CONTINUOUS TENSION TOWER

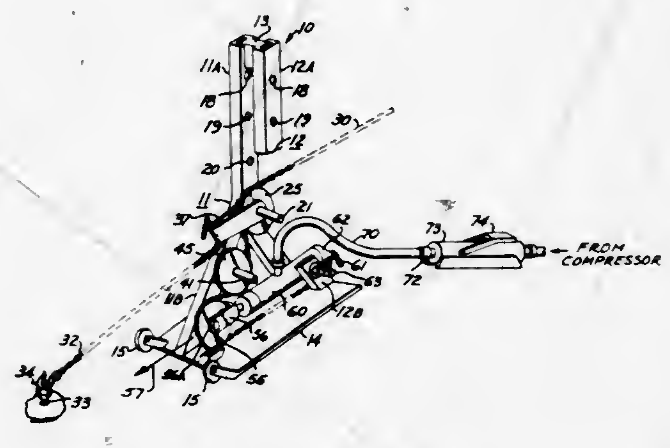
Harry J. Berendt, 9251 Rockland, Detroit, Mich. 48239, and Robert R. Ramsay, 18101 Magnolia Parkway, Southfield, Mich. 48075
Filed Aug. 20, 1968, Ser. No. 753,950
Int. Cl. B21d *11/00;* **B21j** *7/46, 13/00*
U.S. Cl. 72—444 **3 Claims**



A continuous tension tower is shown wherein a tension applying member, such as a chain, is routed, over two or more sheaves mounted on a tower, between a workpiece and a lever. A tension force is applied to the chain by a limited stroke force applying expansible fluid motor which acts on the lever. The lever is adapted to provide a variable lever arm ratio between the motor and the chain. A tension retaining member is also located on the tower to maintain the tension on the chain when the force on the motor is released.

3,566,667
MULTIDIRECTION POWER ACTUATED FORCE UNIT

William Kenneth Hagerty, 605 E. Norwood Place, Alhambra, Calif. 91803
Filed Oct. 28, 1968, Ser. No. 771,094
Int. Cl. B21j *7/46*
U.S. Cl. 72—444 **26 Claims**

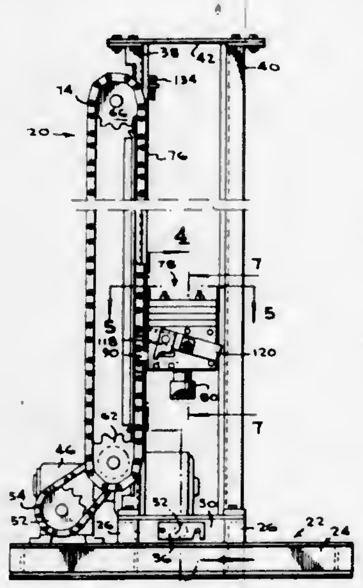


The disclosed invention provides combination pulls through a power actuated ram mounted on a force unit. The unit includes a pair of parallel upstanding posts which are each mounted on inverted-V legs. The pair of inverted-V legs are, in turn, mounted on a base. A power actuated ram is positioned between the leg pair with a mounting end secured between two legs of the inverted-V's by a pin passing through an opening in the legs and in the mounting end of the ram. The other end of the ram is free to travel parallel to the base. The traveling end of the ram is adapted to receive a chain which is threaded through a pulley combination. One end of the chain is secured to the unit at a point on or near the mounting end of the ram. The other end of the chain is passed over a fulcrum pulley on the upstanding post and is secured to a workpiece. The pulls may be readily varied in travel amount and force by different pulley sizes and/or ram mounting arrangements.

3,566,668
IMPACT TEST MACHINE

James E. Browning and David Hull Youngblood, San Antonio, Tex., assignors to Southern Steel Company, San Antonio, Tex.

Filed July 30, 1969, Ser. No. 846,004
Int. Cl. G01n *3/34*
U.S. Cl. 73—12 **5 Claims**



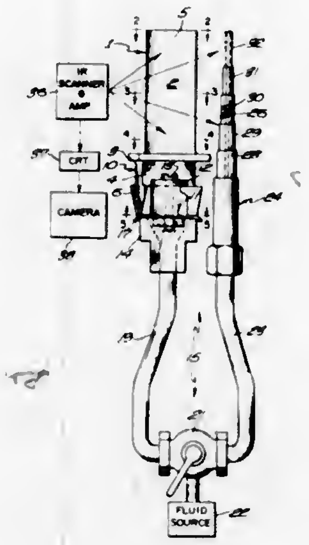
An impact test machine for impacting a test member a plurality of times with an impact tool mounted on a carriage for vertical movement along a pair of guide channel members with a vertically rising chain flight adjacent the guide channel members and a latch bar engageable with the rising chain flight to lift the carriage to an upper position and a pivot plate engaging the latch bar and pivoted by a stop on the top of one of the guide channels for moving the latch to a retracted position for retention by detent means so that the carriage and impact tool fall under the influence of gravity to impact against a test member with the pivot plate including an inertia arm activated by the impact with the test member for permitting return of the latch bar into engagement with the rising chain flight so that the carriage will be lifted upwardly to initiate repetition of the cycle of operation.

3,566,669
METHOD AND APPARATUS FOR THERMALLY EXAMINING FLUID PASSAGES IN A BODY

Willis Thompson Lawrence, Winchester, Domenico S. Sarcia, Saugus, and David B. Spaulding, Carlisle, Mass., assignors to Harry Parker, West Hartford, Conn.

Filed Sept. 4, 1968, Ser. No. 757,435
Int. Cl. G01n *25/00*
U.S. Cl. 73—15 **12 Claims**

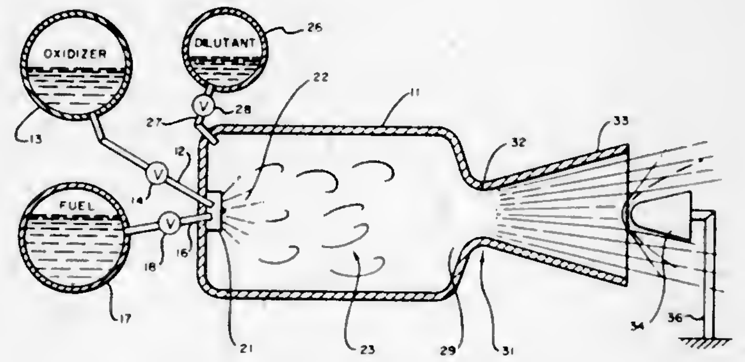
The thickness of walls around cooling passages through a turbine blade is detected by passing a heated or cooled fluid through the passages and sensing the resulting temperature pattern on the exterior of the walls. The temperature pattern may be compared with the pattern on a standard body having known graduated wall thicknesses and simultaneously supplied with the same fluid. Or an obstruction in a passage may be detected by comparison of temperatures at adjacent exterior areas of the body.



3,566,670
REENTRY VEHICLE HEAT SHIELD TESTING APPARATUS AND METHOD

Roald Arne Rindal, Sunnyvale, Calif., assignor to Aerotherm Corporation, Palo Alto, Calif.

Filed June 26, 1967, Ser. No. 648,792
Int. Cl. G01n *3/60*
U.S. Cl. 73—15.4 **3 Claims**



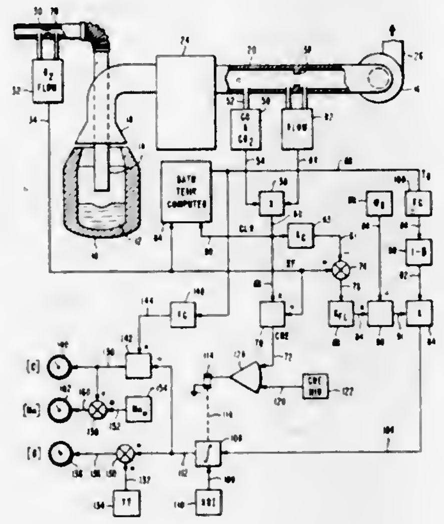
An apparatus and method for testing reentry vehicle heat shields which utilizes a high pressure hot gas generator which operates on the chemical-to-thermal energy conversion principle with an oxidizer-fuel combination which yields combustion products simulating heat shield degradation phenomena of a selected planetary atmosphere.

3,566,671
PROCESS MEASUREMENTS IN OXYGEN BLOWN STEEL REFINING FURNACES DURING THE FINISH BLOW PHASE

Bernard Blum, Philadelphia, and John W. Schwartzenberg, Maple Glen, Pa., assignors to Leeds and Northrup Company, Philadelphia, Pa.

Filed June 2, 1967, Ser. No. 643,226
The portion of the term of the patent subsequent to Oct. 28, 1986, has been disclaimed
Int. Cl. G01n *33/20*
U.S. Cl. 73—23 **14 Claims**

During the finish blow phase of a B.O.F. heat the dissolved oxygen, the carbon concentration and the manganese concentration of the bath are determined by carrying out a continuous oxygen balance from a starting point when the carbon concentration is sufficiently high to be determined with adequate accuracy by other means (for example, .20%). The oxygen balance is carried out by subtracting from a signal representative of the total oxygen flow to the furnace, a signal representing the oxygen lost in carbonatious gases and modifying the resulting signal which is representative of the total FeO in the slag and in the bath in accordance with a factor indicative of the relative distribution of FeO in the bath and the slag to thereby obtain a measurement of the FeO and hence the dissolved oxygen in the bath alone.

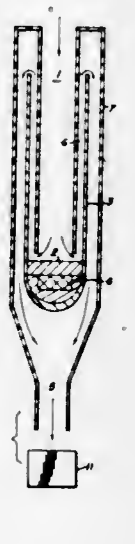


The carbon concentration in the bath is determined from the known relationship between the dissolved oxygen in the bath and the carbon concentration at low carbon values. The manganese concentration is also determined in accordance with the fixed relationship it has with the dissolved oxygen and the carbon concentration in the bath.

3,566,672
HEATED CHEMICAL CONVERSION FILTER ASSEMBLY FOR AEROSOL ANALYSIS

Hugh R. Carlon, Edgewood, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed June 15, 1967, Ser. No. 646,801
Int. Cl. G01n *31/10*
U.S. Cl. 73—23 **2 Claims**

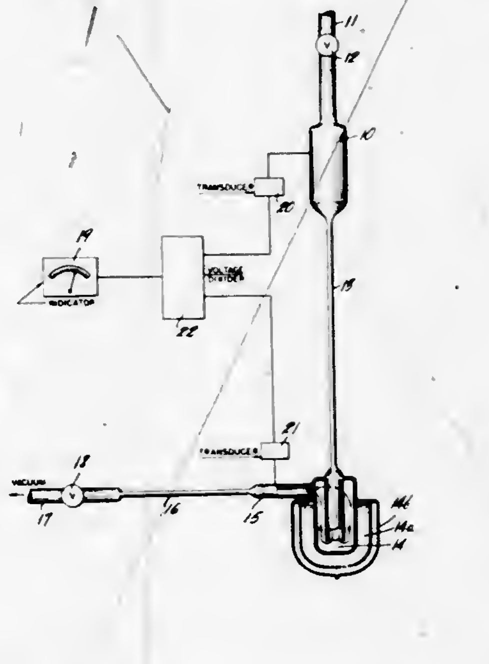


Improved heater means-prefilter assembly and method for utilization in nerve gas detection devices, whereby air containing aerosol is sampled, the air sample is passed over a prefilter element to wet the prefilter element surfaces with aerosol, and the surface of the prefilter element is heated by an isolated heater means from the nonactive side to convert the aerosol particles on the prefilter active surface to vapor analog to pass to a vapor detecting means.

3,566,673
METHOD AND APPARATUS FOR MEASUREMENT OF CONCENTRATION OF A GAS IN A GAS MIXTURE

Abraham Kogan, 35a Trumpelder Ave., Neve Shaanan, Haifa, Israel

Filed Feb. 28, 1968, Ser. No. 709,119
Int. Cl. G01n *31/06*
U.S. Cl. 73—23 **13 Claims**

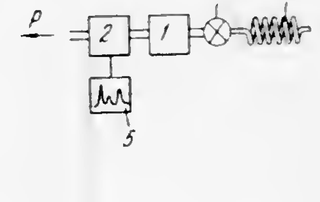


A method and apparatus for determining the concentration of a gas component in a gas mixture which includes discharging the gas mixture from a first chamber through a restricted passage under choked flow conditions, separating the gas which is to be measured as to its concentration in the mixture, introducing the separated gas into a second chamber and discharging it from the second chamber through a restricted passage under choked flow conditions, and measuring the ratio of the pressure of the second chamber to the pressure of the first chamber.

3,566,674
DEVICE FOR ANALYZING GAS MIXTURES BY A COMBINATION OF A CHROMATOGRAPHIC COLUMN AND A MASS SPECTROMETER

Viktor Lvovich Talroze, Vorobievskoe Shosse 11, kv. 21, and Vladimir Dmitrievich Grishin, Leninsky prospekt 57, kv. 161, both of Moscow, U.S.S.R.

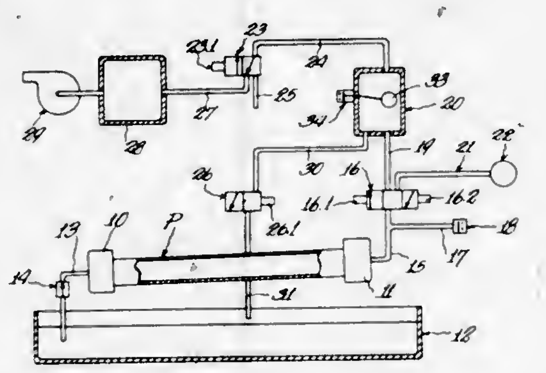
Filed Nov. 29, 1967, Ser. No. 686,547
Int. Cl. G01n *31/08;* H01j *39/34*
U.S. Cl. 73—23.1 **3 Claims**



A device for analysis of gas mixtures comprises a chromatographic column connected to an effusion cell for determining the molecular weight of the mixture components, the effusion cell in turn being connected to a mass spectrometer with recording instruments, a valve being provided between the column and the cell for periodically closing communication therebetween during analysis. The output of the mass spectrometer during the periods of valve closure is integrated to provide data for the molecular weight determination.

3,566,675
METHOD OF AND APPARATUS FOR PRESSURE TESTING HOLLOW BODIES

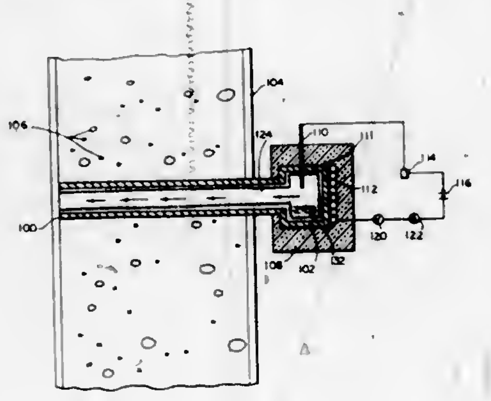
Harry C. Ledebur, Canfield, Ohio, assignor to Wean Industries, Inc., Youngstown, Ohio
Filed Feb. 6, 1969, Ser. No. 796,996
Int. Cl. G01m *3/64;* **G01n** *3/12*
U.S. Cl. 73—49.5 7 Claims



Method of and apparatus for testing a length of pipe by first filling the pipe with a test liquid by drawing the latter into the pipe by vacuum until a predetermined quantity of test liquid emerges from the pipe thereby assuring complete filling thereof, and introducing sufficient additional test liquid into the filled pipe from a high pressure source until the desired test pressure has been developed within the pipe,

3,566,676
FLUID PHASE ANALYZER

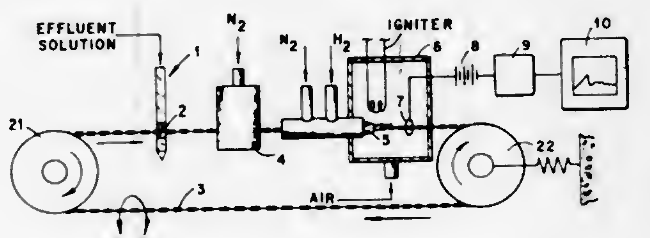
Lance G. Hays, Pasadena, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 17, 1969, Ser. No. 816,988
Int. Cl. G01n *25/00*
U.S. Cl. 73—61 15 Claims



An analyzer for determining the relative amount of liquid and vapor in a mixed phase body of fluid. A hollow closed-end gage containing a heat transport fluid and having its walls lined with a capillary wick is partially inserted into contact with both phases of the body. Heat is exchanged with the body and heat is transferred from the portion immersed in the body to an external portion of the gage. In one embodiment a thermocouple attached to the external portion measures a parameter related to the heat transferred and therefore the phase distribution. In another embodiment, the thermocouple is utilized to maintain the wall temperature at a fixed temperature and energy input to a heater associated with the external portion provides the desired parameter.

3,566,677
METHOD AND APPARATUS FOR MONITORING CONTENT OF FLOWING STREAMS

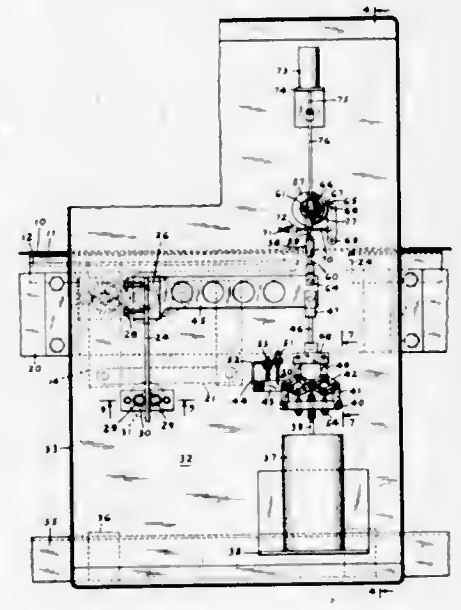
Benjamin T. Cole, Columbus, S.C., and Richard H. Stevens, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed June 26, 1969, Ser. No. 836,729
Int. Cl. G01n *31/08*
U.S. Cl. 73—61.3 10 Claims



An improved method and apparatus for monitoring a liquid stream for high-boiling components dissolved or suspended therein. The stream is directed across a space defined by parallel horizontal extending surfaces to bridge the surfaces as a dynamic, flat-faced drop held therebetween by surface tension. Outflow from the drop is directed as a film down a drainage member to drip from its tip. A conveyor comprising spaced-apart groups of interconnected loops is passed through the drop to capture samples thereof in the conveyor loops, after which the loaded conveyor is passed through a heated zone to remove the liquid and any low-boiling components therein. The conveyor then is passed through a second heated zone to gasify any residue on the conveyor. The gasified residue is monitored with a gas chromatography mass detector.

3,566,678
MASS MEASURING SYSTEM

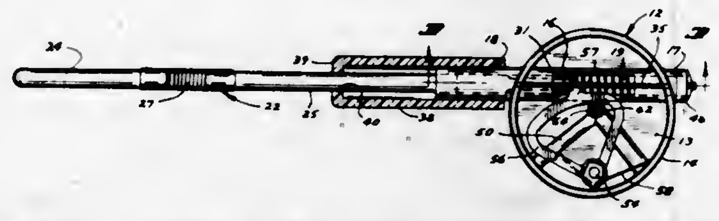
John L. Christmann, Passaic, N.J., assignor to Merrick Scale Mfg. Company, Passaic, N.J.
Filed Apr. 24, 1968, Ser. No. 723,834
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.2 8 Claims



The present invention comprises an elastic member deflected and oscillated by a load, electromagnetic means to excite and sustain the oscillation of the elastic member, a transformer actuated by the oscillation of the elastic member and electrically connected to the electromagnetic means, and means electrically connected to the electromagnetic means and the transformer to count the oscillations and including a differential pulse system.

3,566,679
LINEAR PRESSURE DEVICE

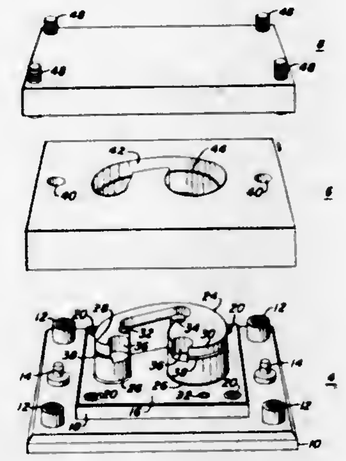
Irwing N. Toftness, 1425 2nd Ave., Cumberland, Wis. 54829
Filed Aug. 21, 1969, Ser. No. 851,953
Int. Cl. G01l *5/00;* **G01n** *3/40;* **A61b** *9/00*
U.S. Cl. 73—78 2 Claims



A device consisting of a spring pressed rod in connection with a gauge to apply a desired linear pressure by means of said rod against a given area and said rod includes an intermediate linkage portion which will yield and flex in a direction transversely of the axis of said rod to visually indicate that pressure other than linear pressure along the axis of said rod is being applied.

3,566,680
METHOD AND APPARATUS FOR DETERMINING THE FLANGEABILITY OF SHEET METAL

Joseph D. Dankoff, Derry Township, Westmoreland County, and Andrew Lesney, Frazer Township, Allegheny County, Pa., assignors to United States Steel Corporation
Filed Nov. 29, 1968, Ser. No. 780,090
Int. Cl. G01n *3/28*
U.S. Cl. 73—100 9 Claims

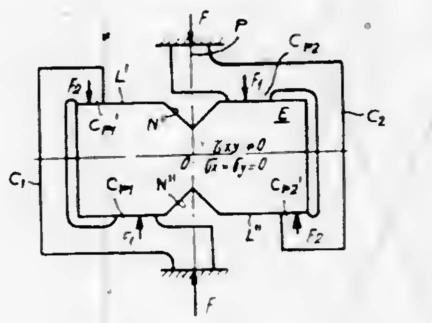


A sheet metal flangeability tester overflanges a sample around cylindrical dies having progressively changing radius. The maximum radius at which a fracture occurs in the flange is a measure of flangeability.

3,566,681
METHOD AND APPARATUS FOR PURE SHEAR TESTING OF ROCKS AND OTHER BUILDING MATERIALS

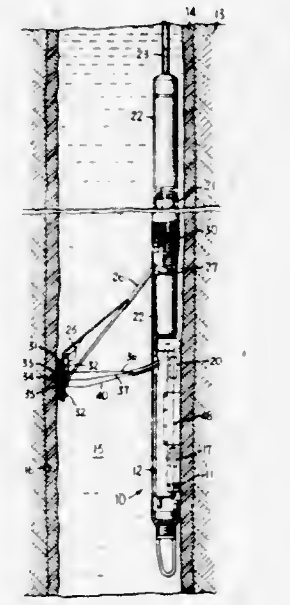
Nicolaie Iosipescu and Radu Matak, Bucharest, Rumania, assignors to Incerc Institutul de Cercetari in Constructii si Economia Constructilor, Bucharest, Rumania
Filed Dec. 20, 1968, Ser. No. 785,692
Int. Cl. G01n *3/24*
U.S. Cl. 73—101 11 Claims

A shear-testing system for specimens of rock, mineral and man-made construction materials, e.g. concrete, in which the fracture is caused solely by pure shear. The specimen is a rectangular parallelopiped which is formed with a pair of right-angled notches at opposite parallel longitudinal sides of the body to a depth of one quarter of the height between these faces and is provided along its lateral faces with a pair of channels bridging the notches and of a depth of one-third the thickness of the body, thereby forming a central shear section in a median plane of the body through the vertices of the right-angled notches. The specimen is clamped between a pair of relatively movable shear members of C-shaped configuration which are inversely positioned and have pressure pieces disposed relatively close to the notch on one side of the specimen and relatively close to the end of the body remote from the notch on the other side. The pressure members of each shear yoke or member which are proximal and distal from the notches, respectively, are located on opposite sides of the body and shear is generated by compressive or tractive stress applied to these members.



3,566,682
RADIOACTIVITY AND ELECTRICAL LOGGING TOOL COMBINATION

John H. Winkler, Jr., Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Jan. 22, 1969, Ser. No. 792,974
Int. Cl. E21b *49/00*
U.S. Cl. 73—152 5 Claims



An illustrative embodiment of the invention is directed to a combination sidewall redioactivity and electrical logging tool. One or more radiation detectors spaced from a source of radioactivity are housed within a skid that is urged against the borehole wall. A backup pad extending from the opposite side of the logging tool also is urged against the borehole wall. The working surface of the pad is formed of a tough electrical insulator that supports three vertically spaced electrodes. The electrodes are either flush with or recessed in the face of the insulator. This structural arrangement prevents the exposed electrodes from being short-circuited through the drilling mud or from being torn off the pad during operation.

3,566,683

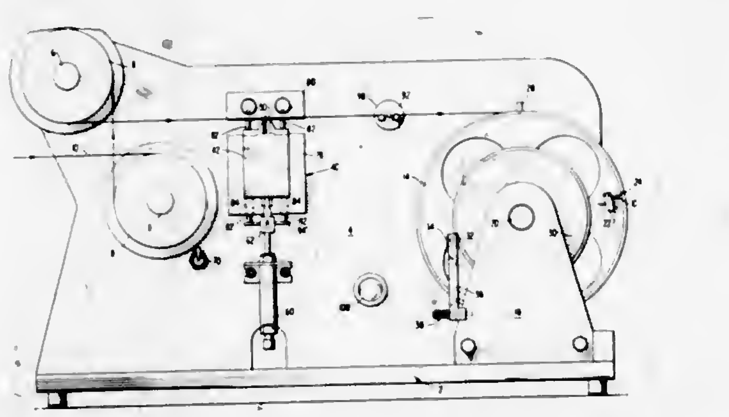
NEEDLE PULL TESTER

Jackie Neal Bulla, Peter Conrad, Billy Brown Fesperman, Robert Edwin Hinson, Jr., and Charles E. Holland, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,219

Int. Cl. G01l *5/06, 33/36*

U.S. Cl. 73—160 **5 Claims**



The degree of entanglement in a length of yarn is measured by arranging the yarn along a predetermined path with a needle positioned adjacent the yarn path. The yarn is spread laterally adjacent the needle at a predetermined tension and the yarn is then pierced by the needle. The yarn is moved relative to the needle along the yarn path and when an increase in tension in the yarn above a predetermined value is reached, the length of the relative movement of the yarn is a measure of the degree of entanglement of the yarn.

3,566,684

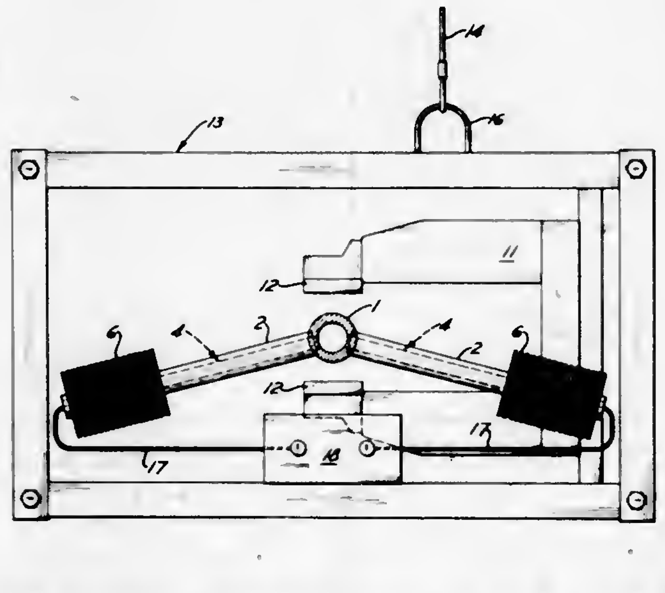
ELECTRODES FOR MOLTEN METAL ELECTROMAGNETIC FLOWMETERS AND THE LIKE

Earle C. King, Evans City, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed July 17, 1968, Ser. No. 745,545

Int. Cl. G01f *1/00*

U.S. Cl. 73—194 **10 Claims**



This invention relates to means for making electrical contact with a stream of molten metal flowing in an electrically non-conductive flow tube. Such means include a branch tube of electrically non-conductive material communicating with the interior of the flow tube and a metal electrode disposed in the branch tube. This electrode is characterized by being in part liquid and in part solid, the portion thereof adjacent the flow tube and in electrical contact with the stream of molten metal therein being in the molten state and the portion thereof remote from the flow tube being in the solid state, the branch tube being sealed by the solidified molten metal of the electrode. The invention is particularly useful in connection with molten metal electromagnetic flowmeters by providing electrodes that will conduct the electrical signal generated by molten metal flowing through an electrically non-conductive flow tube subjected to an externally applied magnetic field.

3,566,685

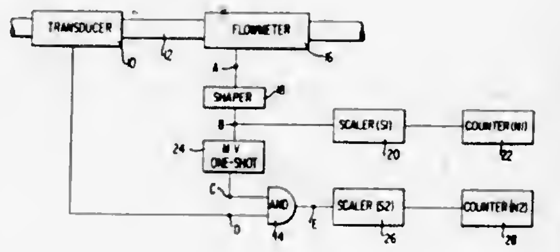
FLUID FLOW METERING METHOD AND SYSTEM

Carl W. Zimmerman and George V. Copland, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Continuation-in-part of application Ser. No. 704,403, Feb. 9, 1968. This application July 5, 1968, Ser. No. 750,675

Int. Cl. G01f *1/00*

U.S. Cl. 73—194 **29 Claims**



A fluid flow metering method and system using digital signals and logic for producing a compensated manifestation of fluid flow by the mathematical multiplication of two or more sensed parameters, one parameter being a fluid flow rate and the other one or more parameters being related to a condition of the fluid such as its constituency, pressure, density, dielectric constant, temperature or the like, where the parameters are represented by series of electrical pulses. The digital output signal pulses of the flowmeter are related to fluid flow, and are used to gate packets of high frequency pulses from a transducer. The duration of the pulse packet is designed to be less than spacing between two adjacent flow pulses at maximum flow rate, and the exact number of high frequency pulses in each packet is related to the condition of the fluid as sensed by the transducer.

3,566,686

ELECTROMAGNETIC FLOWMETER INCLUDING HUM COMPENSATION MEANS

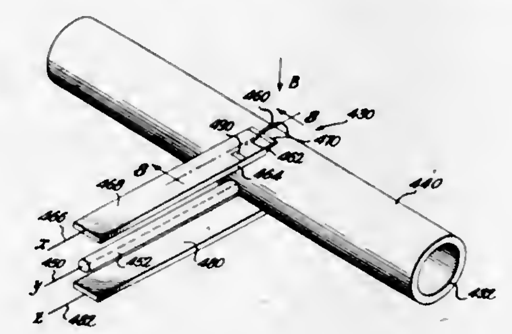
Vincent J. Cushing, 9804 Hillridge Drive, Kensington, Md. 20795

Division of application Ser. No. 717,063, Mar. 6, 1968, now Patent No. 3,479,871, which is a continuation-in-part of application Ser. No. 558,484, June 17, 1966, which in turn is a continuation-in-part of application Ser. No. 449,930, Apr. 14, 1965, now Patent No. 3,274,831. This application Dec. 12, 1968, Ser. No. 812,498

Int. Cl. G01p *5/08*

U.S. Cl. 73—194 **5 Claims**

Two detecting electrodes are disposed at opposite sides of a flow conduit, and a guard means including a third electrode is disposed adjacent to a high impedance electrode which is connected with a high impedance portion of the associated electrical network. An alternating magnetic field is produced within the flow conduit. In a first form of the invention, a first hum compensation voltage is impressed upon at least one of the electrodes and a second independent hum compensation voltage is impressed on another of said electrodes. In a second form of the invention, first, second and third lead means are connected with the high impedance detecting electrodes, the low impedance detecting electrode and the guard means respectively, and means is provided for adjusting the lead means to control the amount of net flux threading the circuit loops including said lead means so as to provide substantially no net flux.



3,566,687

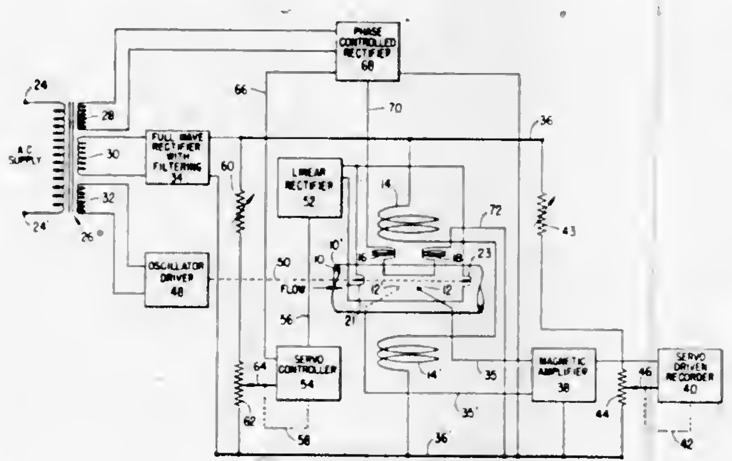
ELECTROMAGNETIC FLOWMETER FOR METALLIC FLUIDS

Eugene Mittelmann, Chicago, Ill., assignor to Bailey Meter Company

Filed Oct. 29, 1969, Ser. No. 872,001

Int. Cl. G01p *5/08*

U.S. Cl. 73—194 **13 Claims**



An apparatus for measuring the volumetric flow rate of metallic fluids in a conduit with a feedback compensating system which maintains the magnetic flux distribution in the conduit relatively constant. A device for the detection of D.C. magnetic fields and a pair of electromagnet coils, producing the magnetic flux field, are so positioned that the magnetic field detecting device generates a signal representative of any change in magnetic flux density in the conduit, near the termination of the magnetic field along the flow axis. This signal is then coupled to a servo-controller, and the servo-controller outputs an error control signal proportional to the magnetic field shift along the flow axis caused by magneto-hydrodynamic effects of the moving liquid metal. A pair of compensating coils, energized by the servo-controller and magnetically coupled to the field producing coils, are polarized so as to sustain the magnetic flux density near the termination of the magnetic field at substantially the same relative value, as for zero fluid motion, in order to provide a linear indication of flow independent of the electrical currents circulating in the moving metallic fluid.

3,566,688

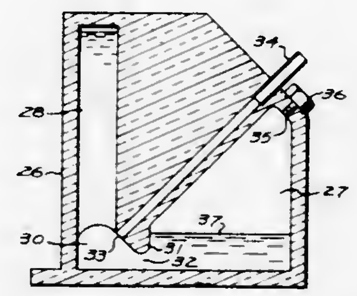
GAS VOLUME INDICATOR

Richard K. Hansen, Sacramento, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed Mar. 26, 1969, Ser. No. 810,637

Int. Cl. G01n *1/22*

U.S. Cl. 73—223 **10 Claims**



A gauge according to the present disclosure comprises a housing having a wall defining a displacement chamber and a resorvoir chamber in communication with each other at one end of the displacement chamber so that the displacement chamber can be filled with liquid by resting the gauge on its side. Inlet means for admitting gas is disposed below the displacement chamber. A displacement liquid is disposed within said housing so that gas admitted through the inlet displaces liquid from the displacement chamber, and the volume of gas can be measured. According to an optional feature of this disclosure, the inlet is at approximately the same elevation as the liquid level in the reservoir when the displacement chamber is filled so that virtually no pressure head is created above the inlet due to the liquid in the reservoir.

3,566,689

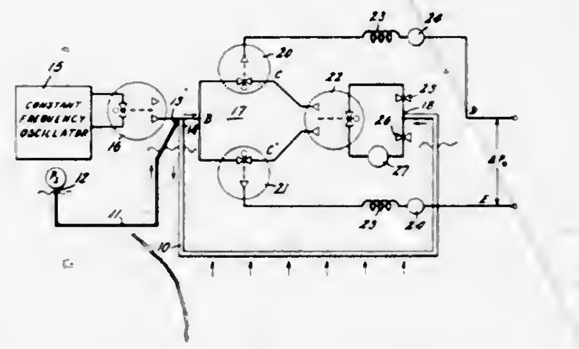
FLUIDIC TEMPERATURE SENSOR SYSTEM

Carl G. Ringwall, Scotia, and Lonny R. Kelley, Ballston Lake, N.Y., assignors to General Electric Company

Filed Oct. 17, 1968, Ser. No. 768,423

Int. Cl. G01k *1/16, 11/24*

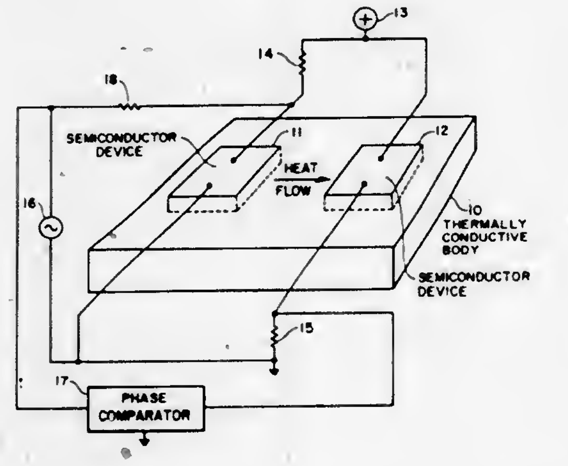
U.S. Cl. 73—339 **17 Claims**



A fluidic temperature sensing system adapted for measuring an average temperature in a relatively large region utilizes the phase shift characteristic of a long fluid transmission line. A temperature sensing tube and preheater tube are arranged in a region whose temperature is to be measured and a variably pressurized fluid is circulated through the sensor tube. The fluid at the input end of the sensor tube is excited by a constant frequency fluidic oscillator to provide the pressure variation, and a fluidic phase discriminator is connected across the tube for detecting a phase shift of the pressure wave in its transmission through the sensor tube. The phase shift across the sensor tube of fixed length is proportional to the absolute temperature of the fluid within the tube, and if the tube is exposed to varying temperature the phase shift represents an average temperature.

3,566,690
THERMAL DELAY SEMICONDUCTOR THERMOMETER

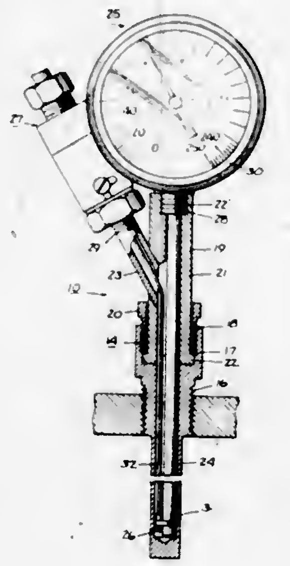
Jalal Ebrahimi, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Aug. 20, 1969, Ser. No. 851,688
Int. Cl. G01k *7/00;* **G01n** *25/20*
U.S. Cl. 73—339 **4 Claims**



A temperature measuring apparatus comprising two semiconductor devices (which may be resistors, diodes or transistors) embedded in a thermally conductive body and separated by a small distance. An A-C input signal is converted by one device into heat energy which flows through the body to the other device, generating an A-C output signal. The phase difference between the two signals is measured and, since the phase difference is temperature dependent, the temperature of the body may thus be determined.

3,566,691
DUAL ELEMENT WELL ASSEMBLY

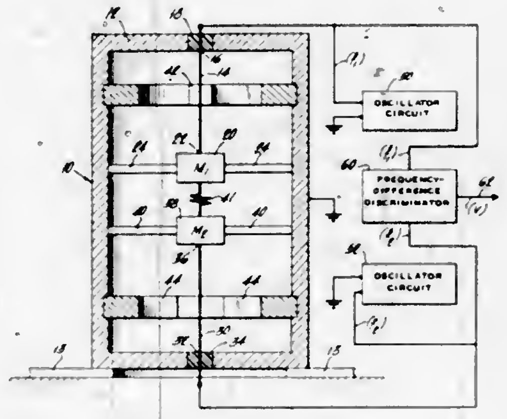
Walter J. Halpern, Forest Hills, and William Stoll, East Meadow, N.Y., assignors to Moeller Instrument Company Inc., Richmond Hill, N.Y.
Filed Apr. 10, 1969, Ser. No. 815,534
Int. Cl. G01k *5/32, 7/00*
U.S. Cl. 73—343 **15 Claims**



The thermometer and remote temperature detector are both mounted within a well assembly such as within a boiler or gear box structure with the detector secured by the retaining band to the base of the thermometer stem. The detector leads out to a remote indicator so that the temperature detected by the thermometer can be read at a remote point from the thermometer.

3,566,692
APPARATUS FOR MEASURING ACCELERATIONS, ESPECIALLY THE ACCELERATION OF GRAVITY

Robert O. Bock, Garden City, and Charles D. Bock, Plainview, N.Y., assignors to AMBAC Industries, Incorporated, Garden City, N.Y.
Filed Dec. 27, 1967, Ser. No. 693,837
Int. Cl. G01v *7/00*
U.S. Cl. 73—382 **5 Claims**



A vibrating-string type of gravimeter comprising a pair of proof-mass elements connected together by a spring, and a pair of vibrating strings each stretched between a different one of the proof-mass elements and the supporting frame. Preferably the two strings are identical, but the linearity of response of the gravimeter is improved by using values for the masses M_1 and M_2 of the two proof-mass elements which differ from each other, typically by several percent, substantially in accordance with the relationship:

$$M_1=\left[\frac{T_0+M_1g_0+K}{T_0-M_2g_0+K}\right]^{3/4}M_2$$

T_0=the tension in both of said strings in the absence of net acceleration acting along the direction of the length of said strings,
g_0=a fixed reference value of the acceleration of gravity,

and

$$K=\frac{EI}{l^2}, \text{ where}$$

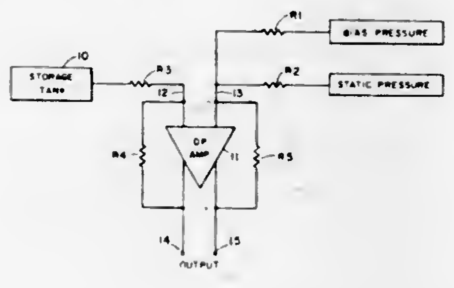
E=elastic constant of said strings,
I=section modules, and
l=length of each string.

3,566,693
FLUIDIC ALTITUDE SENSOR

Vernon H. Ayre, Falkville, Ala., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 3, 1969, Ser. No. 863,637
Int. Cl. G01l *7/00*
U.S. Cl. 73—384 **4 Claims**

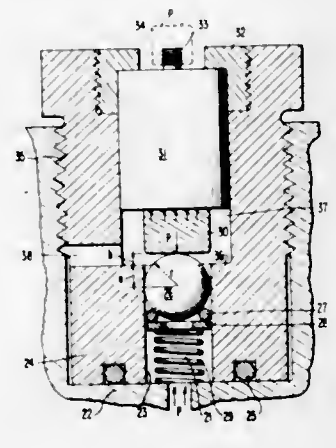
A fluidic system which has an output related to height above or below a given null altitude is shown. In one embodiment, a fluidic operational amplifier has an input related to the desired null altitude, and further inputs related to static pressure and fixed bias pressure. The inputs are applied through resistors, and feedback is taken through further resistors. Another embodiment is similar to the one described above, but with additional resistors,

one inserted between the bias input and its resistor and another between the one resistor and the null input. These resistors compensate for the nonlinear pressure gradient of the earth's atmosphere.



3,566,694
PRESSURE TRANSDUCER

Josef Vogel, Winterthur, and Hans C. Sonderegger, Neftenbach, Switzerland, assignors to Kistler Instruments AG, Winterthur, Switzerland
Filed Nov. 8, 1968, Ser. No. 774,359
Claims priority, application Switzerland, Nov. 8, 1967, 15,640/67
Int. Cl. G01l *9/00, 27/00*
U.S. Cl. 73—398 **4 Claims**

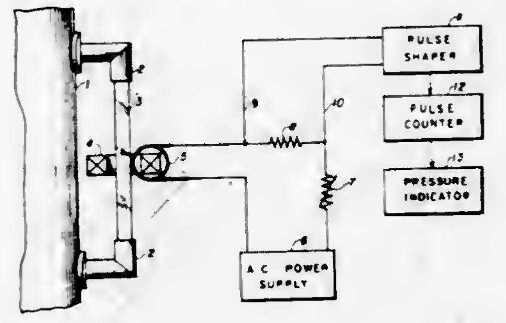


A pressure transducer for converting a pressure into a mechanical force consists of a bore in which an element with a ball-like surface is fitted with a very small clearance, with means to center this converter element with a sealing device and a force measuring platform with a hard and polished surface perpendicular to the axis of the bore. The pressure sending element is arranged in such a way that the ball-like element rests free and adjustable on the flat surface having practically no deflection when measuring a full range of pressures, which can exceed 100,000 p.s.i.

3,566,695
LIQUID METAL PRESSURE GAGE

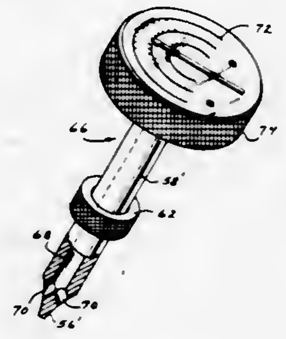
Charles A. Guderjahn, Northridge, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 9, 1969, Ser. No. 831,476
Int. Cl. G01l *9/00*
U.S. Cl. 73—398 **7 Claims**

A liquid metal gage is provided with a venturi type sampling tube, wherein an adjustable electrical current is passed through the portion of the sampling tube. At a predetermined current flow, the temperature of the sampled liquid metal increases until vaporization occurs to interrupt the current flow. The time period during which current flowed is a function of system pressure. A sampling and counting, up to the time of vaporization, of the current pulses over a period of time indicates the pressure within the system.



3,566,696
VALVE STEM

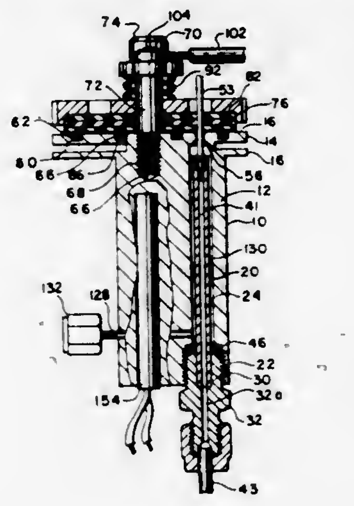
William D. Maddison, 112 E. Shore Road, Denville, N.J. 07834, and James J. De Lade, Butler, N.J. (195C Main St., Little Falls, N.J. 07424)
Filed Dec. 24, 1968, Ser. No. 786,560
Int. Cl. G01l *7/00*
U.S. Cl. 73—420 **7 Claims**



A valve stem operative of a valvular assembly which carries a fluid gauge on the "handle end" thereof. The stem is bored through to admit fluid therethrough for registration of the condition thereof on said gauge, and said gauge constitutes the manipulating handwheel as well.

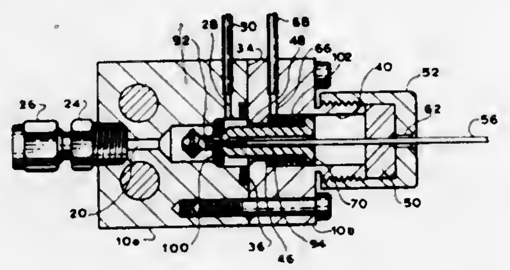
3,566,697
AUTOMATIC SEPTUM CHANGING INLET

Tom H. Vannus, Pomona, Calif., assignor to Hamilton Company, Whittier, Calif.
Filed July 28, 1969, Ser. No. 845,433
Int. Cl. G01n *1/00, 31/08*
U.S. Cl. 73—422 **17 Claims**



A septum changing inlet apparatus for chromatographs having a ported body and a septum disc carried by a rotatably mounted ratchet wheel having a plurality of annularly spaced outer ports which may be successively moved into alignment with the port of the body, there being means for successively rotating the ratchet wheel to move said outer ports thereof respectively into alignment with the port in the body.

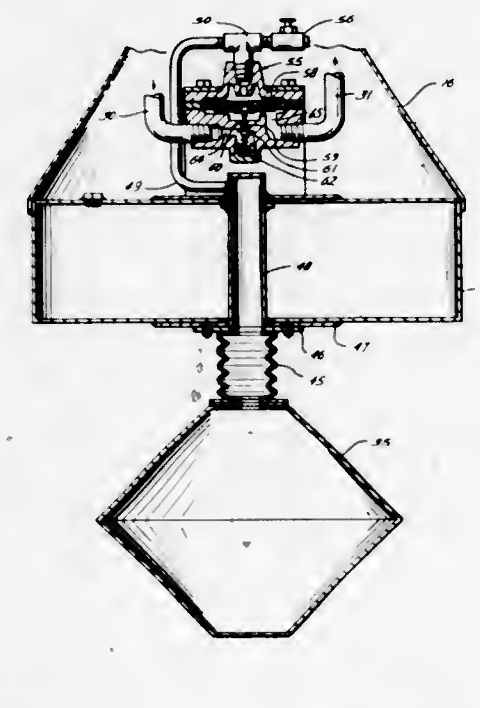
3,566,698
SEPTUMLESS INLET FOR CHROMATOGRAPHS
William M. Sheppard, Whittier, Calif., assignor to Hamilton Company, Whittier, Calif.
Filed Oct. 23, 1969, Ser. No. 868,691
Int. Cl. G01n *31/08, 1/00*
U.S. Cl. 73—422 **8 Claims**



An inlet apparatus for chromatographs, having a shuttle movable between a normal inoperative, retracted position and a second, operative position.

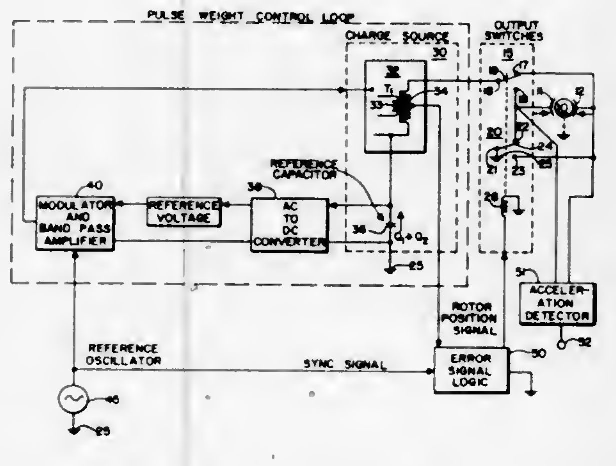
When the needle of a syringe or syringe apparatus is inserted into the inlet apparatus, the syringe apparatus seals with the bore of the shuttle and as the syringe is pushed further into the apparatus, the shuttle is moved to the second position so that when a side port in the syringe is opened, carrier gas enters the side opening and washed the sample from the syringe, through the shuttle bore and into the column of the chromatograph.

3,566,699
APPARATUS FOR MEASURING LIQUID DENSITY
Ethell J. Dower, Houston, Tex., assignor to Warren Automatic Tool Company, Houston, Tex.
Filed June 23, 1969, Ser. No. 835,433
Int. Cl. G01n *9/10*
U.S. Cl. 73—452 **10 Claims**



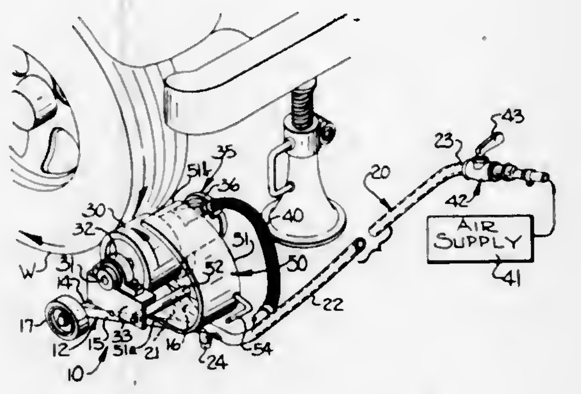
An apparatus for measuring the density of a liquid, as for example the density or mud weight of a drilling mud used for drilling oil wells and the like. It includes a first float arranged for floating in a liquid and a second float supported generally below the first float. Means are interposed between the two floats for sensing changes in the buoyancy force exerted by the second float relative to the first float caused by changes in density of the mud.

3,566,700
CONTROL APPARATUS
Robert C. Staats, Fridley, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 5, 1966, Ser. No. 599,213
Int. Cl. G01c *19/04*
U.S. Cl. 74—5 **4 Claims**



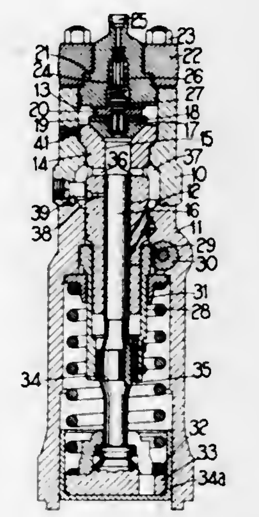
The present invention pertains to inertial instruments and more particularly to gyroscopes and accelerometers whose inertial members are suspended in electric fields between a plurality of electrodes. Specifically, the present invention provides an improved electric field suspension system based on digital techniques.

3,566,701
WHEEL SPINNING DEVICES
William E. Hampton, Charlotte, N.C., assignor to Commercial Equipment Company, Inc., Charlotte, N.C.
Filed Nov. 15, 1968, Ser. No. 776,048
Int. Cl. F16m *3/00*
U.S. Cl. 74—16 **2 Claims**



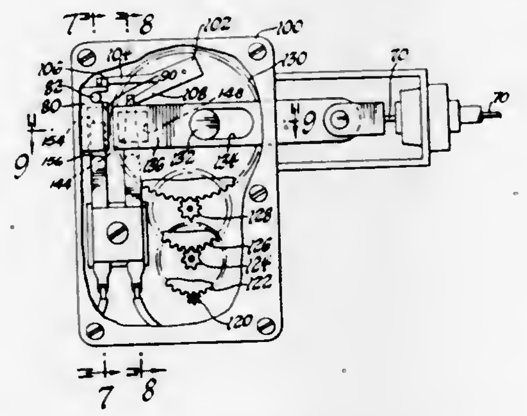
A wheel spinning device for rotating a relatively large and heavy vehicle wheel mounted in position on the vehicle including a rotatable member adapted to frictionally engage the peripheral surface of the vehicle wheel, and drive means for rotating the rotatable member and being capable of delivering torque when operating near a stalled condition at least substantially as great as that delivered when operating at normal speed to overcome the inertia of a heavy vehicle wheel in a rest condition and to bring the wheel up to a road speed condition without excessive strain on the drive means.

3,566,702
LIQUID FUEL INJECTION PUMPS
Peter F. Cornfoot, Hucclecote, England, assignor to Bryce Berger Limited, Hucclecote, England
Filed Feb. 27, 1969, Ser. No. 802,909
Claims priority, application Great Britain, Mar. 1, 1968, 10,080/68
Int. Cl. F16h *19/04;* **F02m** *15/00*
U.S. Cl. 74—29 **1 Claim**



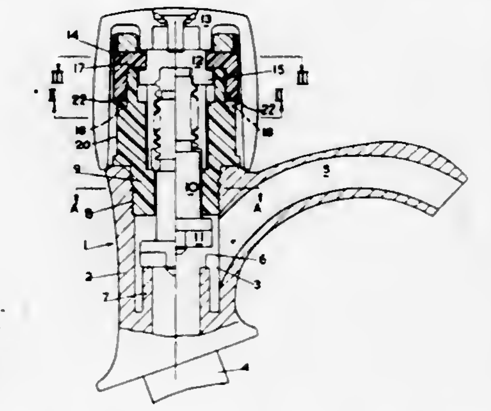
A liquid fuel injection pump including a toothed collar movable angularly to vary the quantity of fuel delivered by the injection pump, a rack bar having a toothed portion for engagement with the teeth of the collar and there is provided at the opposite ends respectively of the toothed portion of the rack bar, curved end forms which are shaped to engage with the crests of a plurality of the teeth of the pinion to limit the extent of axial movement of the rack bar.

3,566,703
LATCH RELEASE OPERATING MECHANISM
Andrew J. Van Noord, Grand Rapids, Mich., assignor to Kent Engineering, Grand Rapids, Mich.
Filed Mar. 28, 1968, Ser. No. 716,959
Int. Cl. B60r *25/02*
U.S. Cl. 74—50 **5 Claims**



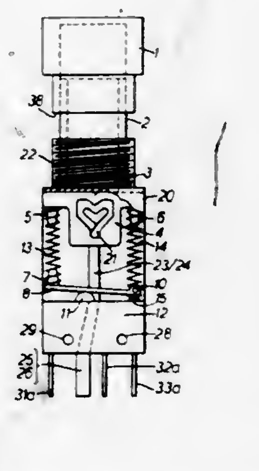
A small electric motor drives a gear train set having a latch retracting link connected to it by an eccentric in a lost-motion slot. The link opens the starting circuit in its retracted position, while a cam switch engaging one of the gears provides a holding circuit. An electrical brake and other interlocking circuit switches are also provided for a steering column latch actuator.

3,566,704
TAP CLOSURE MEMBER OPERATING MECHANISMS
Bernard Arthur Parsons, Walsall, England, assignor to IMI Developments Limited, Birmingham, England
Filed Mar. 20, 1969, Ser. No. 808,795
Claims priority, application Great Britain, Apr. 3, 1968, 16,021/68
Int. Cl. F16h *27/02*
U.S. Cl. 74—89.15 **2 Claims**



A tap closure member operating mechanism with a retaining nut and a head nut, one of which is made from plastics, each nut having a locking portion, the locking portions of the two nuts being in alignment in planes taken normal to the axes of the screw threads when the nuts are assembled together, and during unscrewing of the nuts, the locking portion of the plastics nut is resiliently compressed by the other locking portion so that the locking portions must pass one another and allow the unscrewing action.

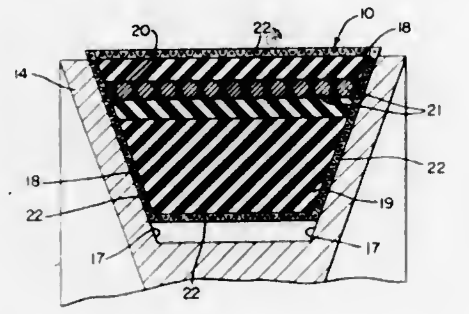
3,566,705
PUSH BUTTON KEYS
Emanuel Frydman, West Norwood, London, England, assignor to Telephone Manufacturing Company Limited
Filed Jan. 15, 1969, Ser. No. 791,402
Claims priority, application Great Britain, Feb. 14, 1968, 7,262/68
Int Cl. F16h *21/44, 21/54, 25/18*
U.S. Cl. 74—107 **2 Claims**



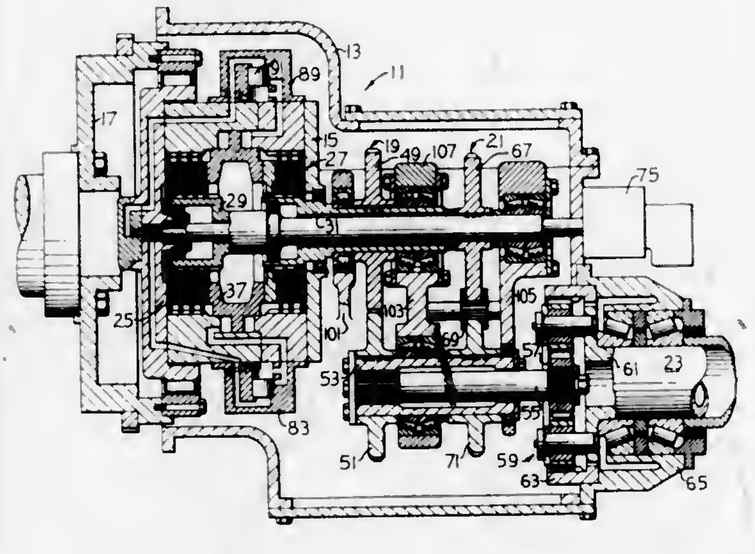
The improved construction of push button switch unit incorporating micro-switch units.

3,566,706
POWER TRANSMISSION BELT
Sidney R. Fix, 517 Jeffery Drive, Lincoln, Nebr. 68505
Filed June 25, 1968, Ser. No. 739,674
Int. Cl. F16g *5/16*
U.S. Cl. 74—233 **1 Claim**

An extensible belt, particularly a power transmission belt, containing a tension section of longitudinally extending individual textile cords which include synthetic thermoplastic filamentary material in their structure. The cords are simultaneously relaxed and heat-treated in the absence of applied tension and are thereby capable of an initial stretch or elongation within certain defined limits and a subsequent recovery of at least a substantial portion of the initial stretch. The cords are subsequently incorporated into the belt and the vulcanized belt is thereby made extensible within certain defined limits and capable of being stretched in order to be installed in a belt drive assembly. After the initial stretch, the belt subsequently retracts or recovers to the driving position with respect to the pulleys and retains sufficient tension to frictionally engage the pulley surfaces and perform its driving function. The self-tensioning belt of this invention eliminates the need for tensioning devices or means to adjust the drive to provide the proper tension required when conventional transmission belts are employed and is particularly useful in applications involving V-type transmission belts which are designed to operate with grooved pulleys or sheaves.

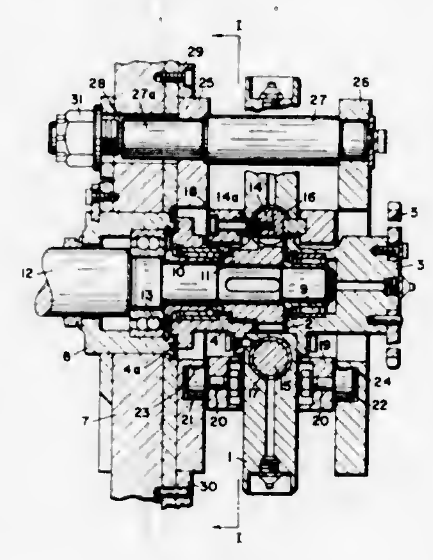


3,566,707
MARINE GEAR
Gunter W. Schulz, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Dec. 12, 1968, Ser. No. 783,358
Int. Cl. F16h *3/14;* **F16d** *25/10*
U.S. Cl. 74—377 **4 Claims**



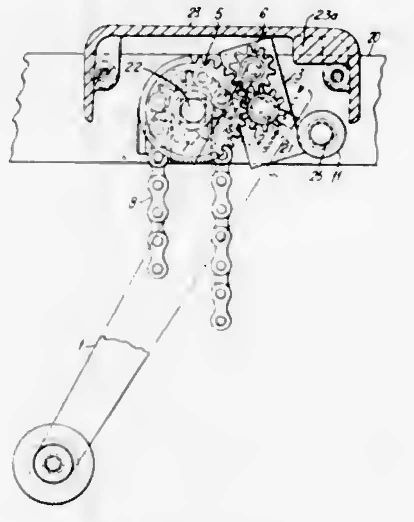
A marine gear having a clutch actuating piston-actuator which is free to rotate within the housing until complete engagement is achieved at which time the housing, piston, and engaged clutch all rotate as a unit. The various shaft bearing support members are secured to the housing of the marine gear so that the shafts may be easily removed with the gears contained thereon to convert the marine gear from one reduction ratio to another, as well as to convert the clutch packs to various torque requirements. A clutch dump valve is contained in a separate housing which is bolted to the clutch housing.

3,566,708
TRANSMISSION PERMITTING CHANGE OF INPUT/OUTPUT RATIO
Walter im Brahm, Mulheim (Ruhr), Germany, assignor to Walter H. Brahm, Mulheim (Ruhr), and Maschinen- und Werkzeugbau G.m.b.H., Dortmund-Hombruch, Germany
Filed Nov. 4, 1968, Ser. No. 773,087
Claims priority, application Germany, Nov. 2, 1967, P 16 50 781.6
Int. Cl. F16h *35/02*
U.S. Cl. 74—393 **13 Claims**



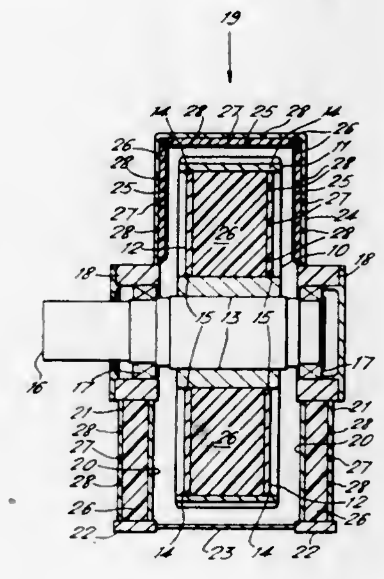
A transmission and, more particularly, a gear drive for changing the speed of rotary motion with or without changing its direction of rotation.

3,566,709
LIFTING MECHANISMS
John Edward Metcalf, 63a Victoria St., Windsor, Berkshire, England
Filed Apr. 28, 1969, Ser. No. 819,800
Int. Cl. B66d *1/76;* **F16d** *41/24;* **F16h** *57/10*
U.S. Cl. 74—411.5 **9 Claims**



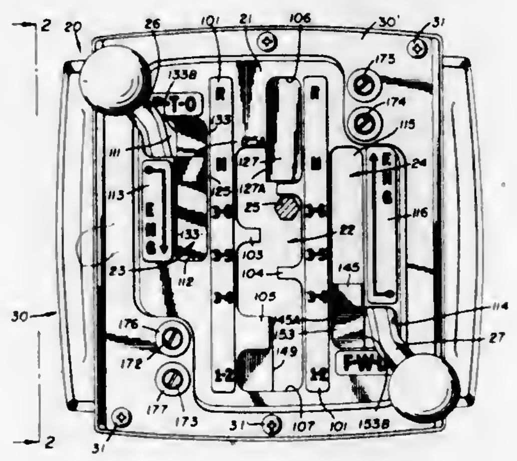
A lifting mechanism incorporating a positive brake means to prevent uncontrolled descent of the load when the lifting drive is discontinued. The mechanism includes a gear wheel connected to a rotary drive means and meshing with a second gear wheel connected to a rotary hoist member, and a locking member rotatably mounted coaxially with the first mentioned gear wheel and having a spragging gear permanently in mesh with the first mentioned gear wheel and movable with the rotary movement of the first mentioned gear wheel between a locking position when the spragging gear is in mesh with the second gear wheel and a further position in which the spragging gear is out of mesh with the second gear wheel, movement between the first and second positions taking place when the hoist is caused to rise and movement in the reverse direction taking place when the hoise commences to lower. Catch wheels are provided to maintain the locking member in its second position to allow uncontrolled lowering of the hoist through the rotary drive means. The drive means may be hand operated.

3,566,710
FABRICATED STRUCTURES
Richard A. K. Long, Huddersfield, England, assignor to David Brown Gear Industries Limited
Filed Apr. 1, 1969, Ser. No. 811,786
Claims priority, application Great Britain, Apr. 16, 1968, 17,925/68
Int. Cl. F16f *15/10;* **F16h** *55/14*
U.S. Cl. 74—443 **4 Claims**



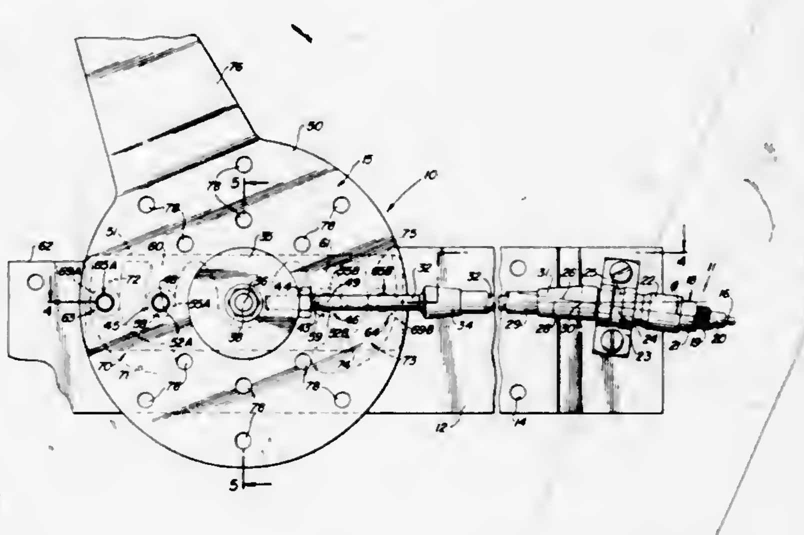
A load-bearing hollow fabricated structure, for example a hollow gear wheel or a cavity-walled gear case, having its interior filled with a rigid plastics material having damping properties. The damping material is bonded to the structure at a myriad of points and carries part of the load applied to the structure as well as reducing noise and vibration.

3,566,711
GATE PLATE INTERLOCK
Dale F. Leuenberger, Cuyahoga Falls, Ohio, assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed June 10, 1969, Ser. No. 831,916
Int. Cl. G05g *5/08*
U.S. Cl. 74—483 **8 Claims**



A device for assuring the fail-safe coordination of at least two control systems. A plurality of slidable locking plates are positioned with respect to the gate plate of a control box and are shaped so that effective operation can be achieved only through a selective and sequential movement of the two control levers which, in turn, provides selective and sequential movement of the locking plates.

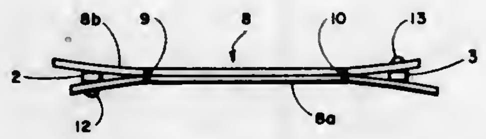
3,566,712
NONLINEAR CONTROL
Richard D. Houk, Stow, Ohio, assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Mar. 5, 1969, Ser. No. 804,468
Int. Cl. G05g *1/00*
U.S. Cl. 74—491 **19 Claim**



A control for inducing movement to a motion transmitting device as a nonlinear function of the movement applied to the control lever. The working element of a mechanical motion transmitting device is secured to a connector that is rotatably carried on a throw member. The throw member is, in turn, mounted on a frame for swinging movement about selective pivot axes located eccentrically of the axis about which the connector is rotatably carried on the throw member. These axes are parallel and lie within the same reference plane when the control lever, secured to the throw member, is in its neutral position. From this neutral position the control lever is movable through first and second operating ranges, and interlock means restrict the throw member to movement about the axis of one pivot means when the cotnrol lever is within the first operating range, and, similarly, to movement about the axis of the other pivot means when the control lever is within the second operating range. Movement of the throw member about these selective axes, displaced from the axis about which the working element of the motion transmitting device is connected to the throw member, effects transmission of motion by the motion transmitting device that is a nonlinear function of the movement applied to the control lever.

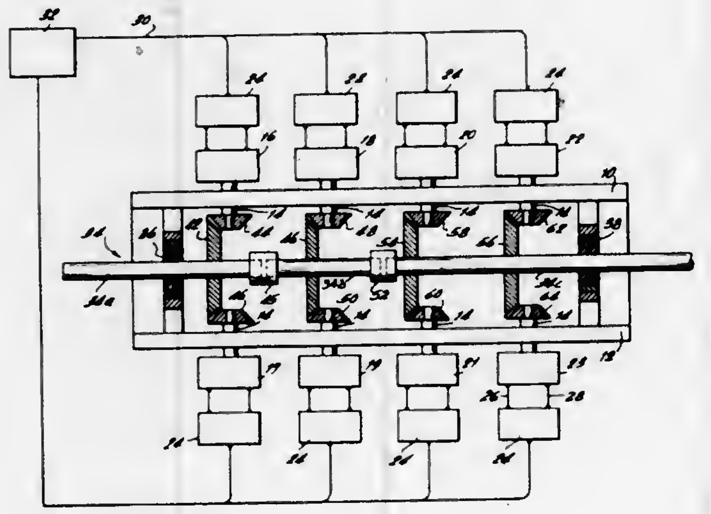
3,566,713
LINK FOR CONTROL LINKAGE
James L. McCarthy, Chili, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed July 16, 1969, Ser. No. 842,127
Int. Cl. G05g *1/24*
U.S. Cl. 74—588 **7 Claims**

A link consisting essentially of two identical elongated spring laminae, each having a hole therethrough, and sandwiched together along their lengths, overlapping each other and secured together at their intermediate portions, so that said link is longer than either lamina. Each lamina has its said hole in its overlapped end, such hole opening over the surface of the corresponding overlapping lamina end. Corresponding laminae ends are manually forcibly spread apart to receive between them another link having a ball or the like which protrudes into



the corresponding hole. The latter link is sandwiched between the said laminae when the laminae ends are released from manual force spreading them apart.

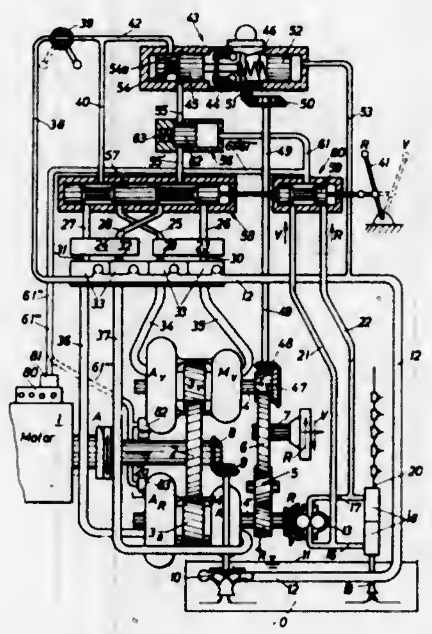
3,566,714
BATTERY-POWERED MOTOR ARRANGEMENT
Domenic Borello, 142 Nyac Ave., Pelham, N.Y. 10803
Filed June 20, 1969, Ser. No. 835,167
Int. Cl. F16h *37/06, 1/20*
U.S. Cl. 74—661 **4 Claims**



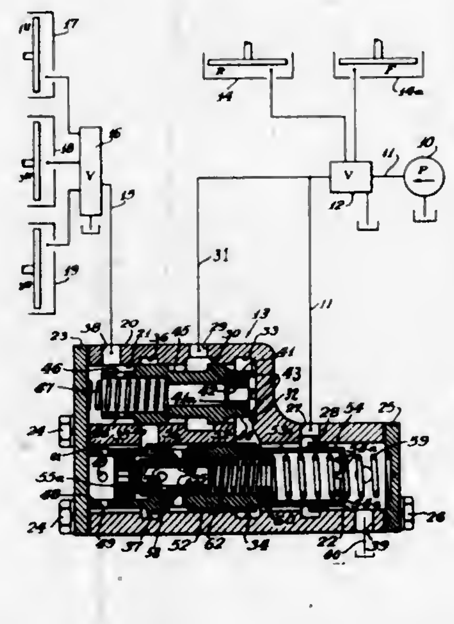
A motor arrangement for a car or other such vehicle which is characterized by the use of a plurality of motors, rather than a single motor, each of the motors being readily energized by a commercially available battery of a comparatively small voltage capacity rather than a single, specially built high voltage battery. The use of plural motors additionally enables the use of intermeshing gears of selective tooth ratios to progressively bring the power shaft of the vehicle up to the necessary speed for cruising operation of the vehicle while at the same time enabling each of the motors to operate at its optimum rate of speed. This arrangement, therefore, avoids excessive current drains on the batteries as occurs when a battery-powered motor is operated at other than its optimum or rated speed.

3,566,715
HYDRODYNAMIC TRANSMISSION FOR VEHICLES
Rolf Keller and Traugott Weber, Heidenheim, and Gustav Pistl, Nattheim, Germany, assignors to Voith Getriebe KG., Heidenheim, Germany
Filed Sept. 9, 1968, Ser. No. 767,576
Claims priority, application Germany, Sept. 15, 1967, P 15 80 952.6; July 10, 1968, P 17 55 916.9
Int. Cl. F16d *67/00;* **F16h** *47/00*
U.S. Cl. 74—731 **13 Claims**

The invention concerns a transmission having a unidirectional input shaft and a reversible output shaft and forward and reverse parallel drive trains interconnecting said shafts and each drive train comprising a higher ratio starting fluid flow converter and a lower ratio cruising fluid flow converter. The transmission is started by filling the starting converter of one of said drive trains to drive the output shaft in a respective direction. The transmission goes into cruising by emptying said starting converter and filling the cruising converter of said one drive train at a certain ratio of the speeds of said input and output shafts. A feature of the present invention is the manner of braking the transmission which is accomplished by emptying the one of the said starting and cruising converters of said one drive train which is filled while filling the starting converter of the other drive train, and preventing the filling of the cruising converter of said other drive train during braking.

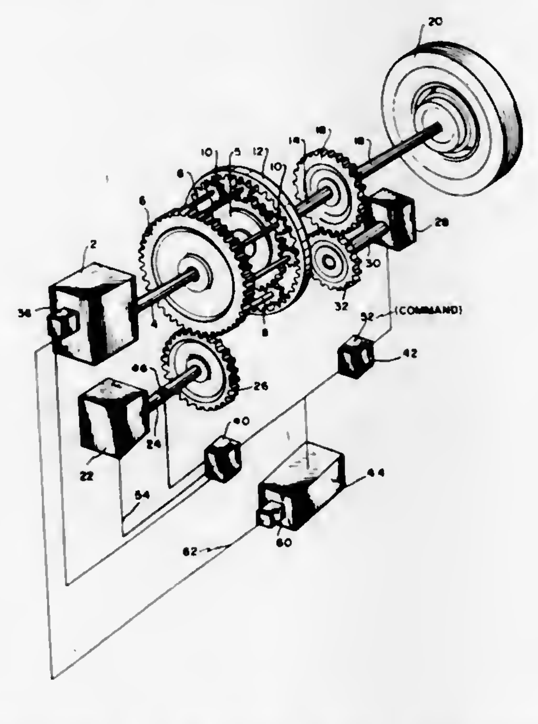


3,566,716
CLUTCH CYLINDER CIRCUIT AND CHARGING VALVE THEREFOR
Probir K. Chatterjea, Evanston, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed July 22, 1969, Ser. No. 843,362
Int. Cl. G05g *19/00;* **F01b** *21/00*
U.S. Cl. 74—856 **21 Claims**



Hydraulic mechanism in a transmission for engaging a clutch for forward or reverse before a clutch for first, second or third speed. Flow of pressure fluid to the latter clutch is by way of a quick-fill spool having a large orifice, a rate-of-rise spool, and a poppet therein having a small orifice. A restricted orifice of appreciable length is used in connection with the spools and the poppet in such a way that, after the power unit for the clutch for first, second or third speed is filled with fluid, pressure of the fluid in the power unit is slowly raised to its maximum.

3,566,717
POWER TRAIN USING MULTIPLE POWER SOURCES
Baruch Berman, Palos Verdes Peninsula, George Howard Gelb, Torrance, Neal Allen Richardson, Palos Verdes Peninsula, and Tsih C. Wang, Santa Monica, Calif.; said Wang assignor to TRW Inc., Redondo Beach, Calif.
Filed Mar. 17, 1969, Ser. No. 807,870
Int. Cl. B60k *1/04, 21/08;* **F16h** *37/00*
U.S. Cl. 74—859 **40 Claims**

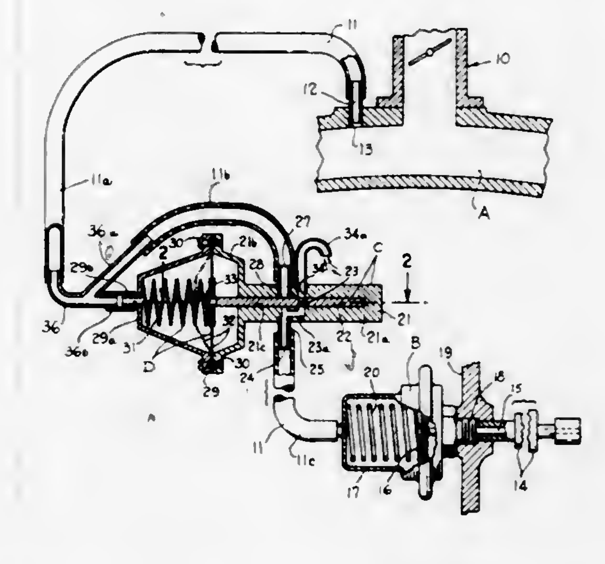


A power train is described which is comprised of a prime mover, two power converters, an epicyclic gear train, an energy storage device and associated control systems. In the preferred embodiment, the prime mover, an internal combustion engine, typically supplies power to the gear train which apportions mechanical power to one of the power converters—an electrical generator—or to the output shaft of the power train. Power from the generator is delivered to either or both the energy storage device, a battery, and the second power converter, an electrical motor-generator which is dynamically coupled to the output shaft.

The power train may be operated in one of two modes, in the first, the internal combustion engine runs at constant speed and relatively constant low power. Engine operation of this nature allows the use of small displacement engines burning lean fuel-air mixtures, thereby reducing engine exhaust emissions. Engine power output control in the first mode is accomplished by changing the loading of the generator on the engine in a feedback control manner. The motor-generator is controlled by the operator who uses a system which controls the flow of power from the generator and/or battery combination to the motor or the flow of power from the motor-generator to the battery. In the second mode of operation, all engine power is mechanically directed to the output shaft and the engine operates in a variable throttle manner. As in the first mode, output shaft peak power demands are satisfied by drawing power from the battery and therefore the engine throttle excursions are minimized. Excess engine power and regenerative power due to external forces acting on the output shaft can be transformed in the second power converter for storage in the energy storage device.

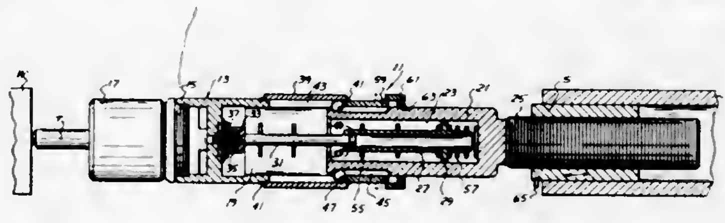
In either mode, it is possible to vary the power settings of the engine slowly to reflect the mean power demand on the power train. Typically the state of battery charge would be used as the control variable.

3,566,718
VEHICLE TRANSMISSION CONTROL MECHANISM
Julian H. Wightman, 1005 Pine Forest Drive, Greenwood, S.C. 29646
Filed Apr. 8, 1969, Ser. No. 814,378
Int. Cl. B60k *23/00*
U.S. Cl. 74—863 **4 Claims**



Control mechanism for a vehicle automatic transmission having a fluid pressure responsive modulator therefor includes, a valve having a movable element for opening a port for positively controlling pressure upon the modulator, moved responsive to variation in intake manifold pressure when engine operation calls for an up change.

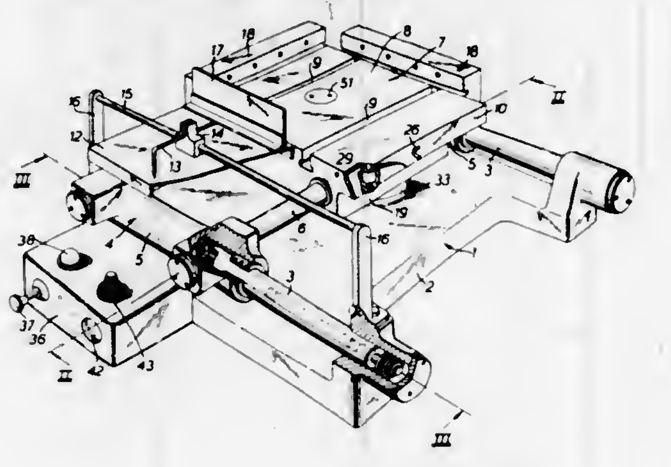
3,566,719
"NO TOOL" DETECTION SYSTEM AND METHOD
Theodore M. Smith, 14750 Puritan Ave., Detroit, Mich. 48227
Filed Nov. 5, 1968, Ser. No. 773,541
Int. Cl. B23b *47/00;* **B23q** *11/00*
U.S. Cl. 77—5 **10 Claims**



A "no tool," "broken tool" or "improperly set tool" detection device for use with taps, drills, reamers, boring tools, counter bores and milling cutters which includes a tool holder having assembled first and second parts normally biased outwardly of each other, with a radioactive element on one part and a shield upon the other part normally spaced from the radioactive element, and in conjunction with a radiation detection system whereby upon compressive engagement of the tool with a workpiece due to its longitudinal feed, there will be a relative movement of the tool holder parts such as will position said shield to protectively enclose said radiation element, said relative movement being prevented when there is "no tool," a "broken tool" or an "improperly set tool"; and the method of providing said detection system.

3,566,720
INDEXING MEANS

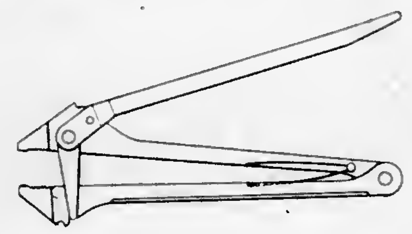
Ernest William Phillips, Coventry, England, assignor to Rutter Tools Limited, Coventry, England
Filed June 10, 1968, Ser. No. 735,855
Claims priority, application Great Britain, July 12, 1967, 31,976/67
Int. Cl. B23b *39/06*
U.S. Cl. 77—64 **9 Claims**



Means for indexing a machine table arranged for two-dimensional movement in its own plane, comprising detent means which are fixed in the sense that they do not move with the table and an index plate for attachment to the table. The plate is formed at specific positions for engagement by the detent means which thereby locate the plate and hence the table in any one of the corresponding index positions so that the table can be securely clamped or locked in position while so located. In a preferred construction of machine table employing the invention the index plate is attached beneath the table and has holes bored at the index positions which are selectively engageable by a pneumatically-operated plunger fixed to a base beneath the table and on which the latter is mounted.

3,566,721
GRIPPING TOOL

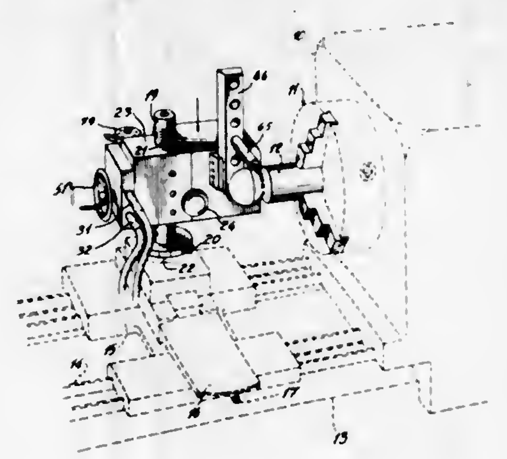
Raymond B. Nockleby, Rte. 1, Kalispell, Mont. 59901
Filed Jan. 13, 1969, Ser. No. 790,564
Int. Cl. B25b *7/04*
U.S. Cl. 81—384 **3 Claims**



A gripping tool has two jaw members formed with extended arms which overlap and are pivoted together at their ends remote from the jaw members. One of the areas has a post thereon near the pivotal connection of the arms. A spring is helically wrapped around the post and has its ends extending along the arms toward the jaw members and hooked over the arms to urge them apart. Each arm has widened tapered portions adjacent to the jaw members and provided with a plurality of seats in the outer edges. A yoke receives the tapered portions with its base seated in one of the seats in one portion and its sides being extended across both portions. A jaw closing lever is bifurcated to receive the free ends of the yoke and pivot lugs and sockets on the yoke and bifurcations pivot the yoke to the bifurcations. The lever carries a pivot pin which seats in the seats of one tapered portion when the base of the yoke seats in a seat of the other tapered portion.

3,566,722
TOOL HOLDING APPARATUS USED ON LATHES FOR CUTTING VARIOUS CURVED SHAPES

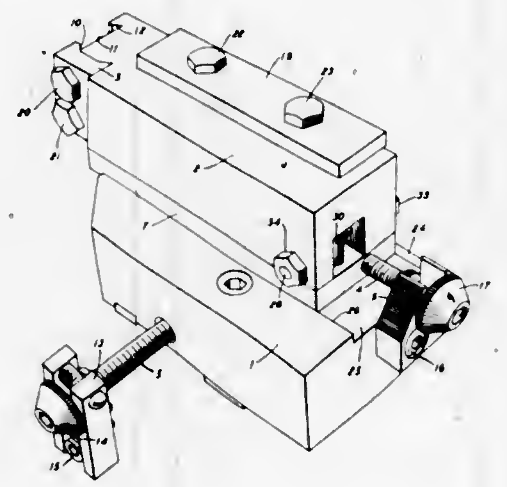
Jean Audet, 1555 Desnoyers St., Sherbrooke, Quebec, Canada
Filed Dec. 3, 1968, Ser. No. 780,822
Int. Cl. B23b *5/40*
U.S. Cl. 82—12 **11 Claims**



This invention relates to a tool holding apparatus used on lathes for cutting various curved shapes. The tool holding apparatus includes a casing mounted on the carriage of a lathe and enclosing a hydraulic motor coupled to a shaft. The shaft of the motor is coupled to an adjustable radius bar which is located outside the casing and adapted to oscillate a predetermined number of degrees depending on the amount of rotation of the motor in both directions. The shaft of the motor is also coupled to a swivel member located outside the casing and used to execute various curved shapes in the interior of a workpiece.

3,566,723
CUTTING TOOL HOLDER

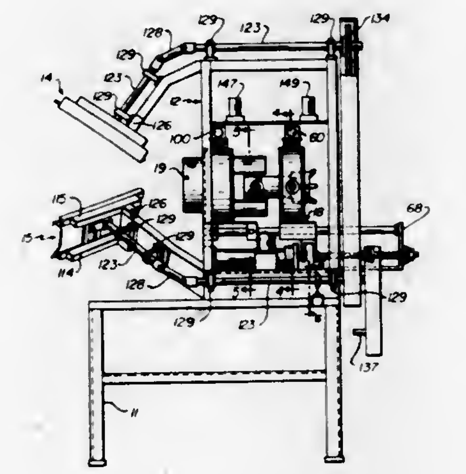
Alfred Carl Oborne, 84 Hopkinson Ave., Piscataway Township, Middlesex County, N.J. 08846
Filed Nov. 7, 1968, Ser. No. 774,093
Int. Cl. B23b *29/10*
U.S. Cl. 82—36 **4 Claims**



A tool holder is disclosed for positioning a cutting tool against a workpiece. The holder includes facilities for adjustment of the tool so that it may be raised or lowered, and moved laterally, longitudinally and angularly with respect to the workpiece.

3,566,724
APPARATUS FOR FORMING CORNER CUSHIONS

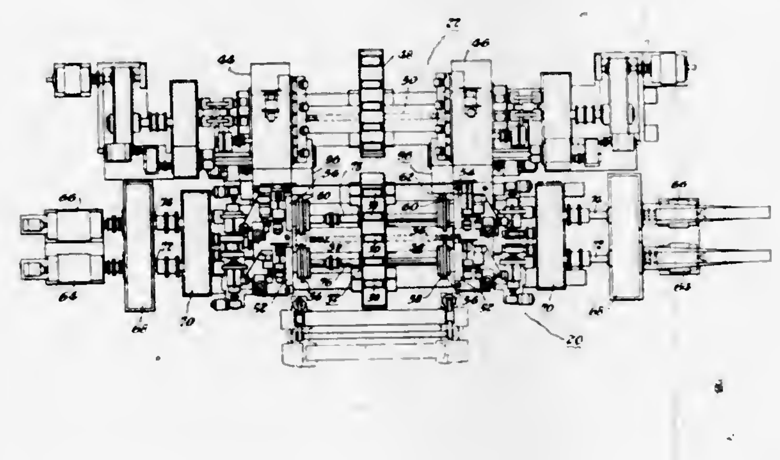
Phillip A. Templeton, Rte 2, Box 173, Beecher, and John M. Carmody, 12533 Harold Ave, Palos Heights, Ill. 60463
Continuation-in-part of application Ser. No. 770,460, Feb. 26, 1968. This application July 7, 1969, Ser. No. 839,424
Int. Cl. B26d *3/24*
U.S. Cl. 83—1 **13 Claims**



Apparatus for cutting corner cushions from a continuous length of material such that the cushions are not completely severed from the material. The material is cut on three faces which are disposed at substantially right angles to one another and are tapered so that the faces form a point substantially along the central axis of the material by means of three cutting blade assemblies, each of which includes a cutting blade having a generally pointed tip and which is disposed to cut one of said three faces in said material.

3,566,725
DUAL SHEARING MECHANISM AND METHOD

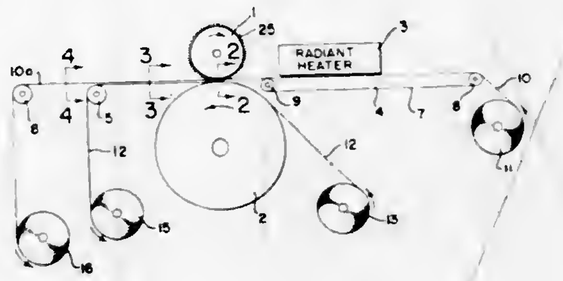
John J. Sutyak, Pittsburgh, Pa., assignor to Mesta Machine Co., Pittsburgh, Pa.
Filed July 24, 1968, Ser. No. 747,156
Int. Cl. B26d *1/24*
U.S. Cl. 83—7 **13 Claims**



Cutting apparatus including tandemly mounted first and second pairs of juxtaposed knives, each pair of said knives being disposed for passage therebetween of material to be cut, means for urging said first pair of knives against said material when disposed therebetween to score said material, means for mounting said second pair of knives in alignment with the scoring produced by said first pair of knives, and means for urging said second pair of knives toward one another for parting said material at said scoring when said material is disposed between said knives.

3,566,726
METHOD OF MAKING PERFORATED FILM

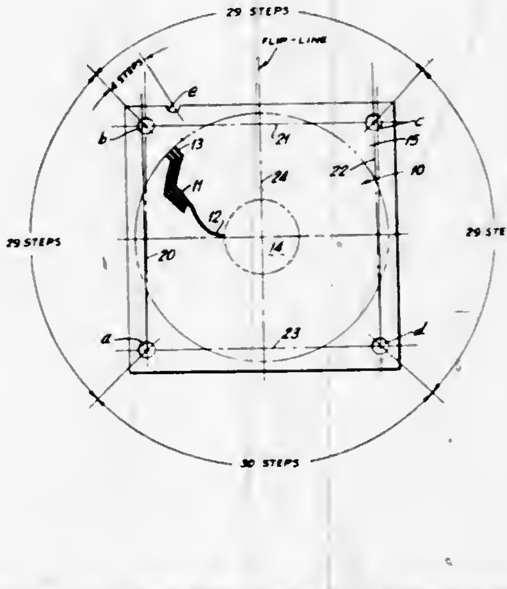
George A. Politis, Coatesville, Pa., assignor to The Pantasote Company of New York Inc., New York, N.Y.
Filed June 13, 1968, Ser. No. 736,805
Int. Cl. B26d *7/10*
U.S. Cl. 83—15 **7 Claims**



Unsupported thermoplastic films having elastic memory are perforated and/or embossed and perforated while heated to a plastic temperature by feeding the film, while heated to a temperature where it is plastic, together with a suitable web, such as a release paper, into the bite between a perforating (and/or perforating and embossing) roll and a backing roll, so that during the perforating the film is pressed against the web and the pins of the perforating roll enter at least partway into the web. After cooling the web is removed. The material from the perforations is caused to flow into the balance of the film, thickening and reinforcing the same instead of being punched out and lost as is the case when a cold nonplastic film is perforated.

3,566,727
METHOD AND APPARATUS FOR ELECTRIC MOTOR ARMATURES

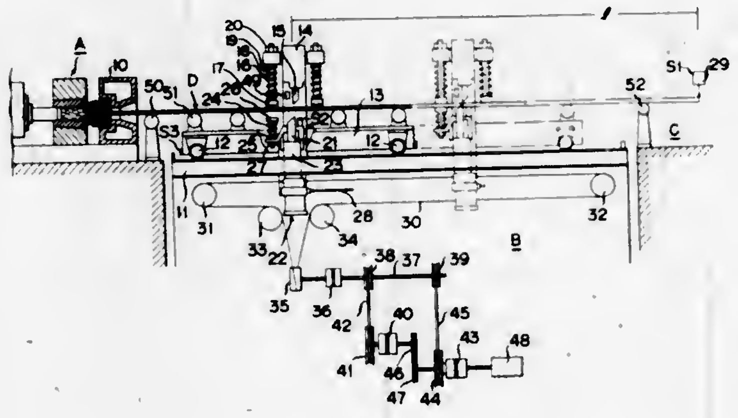
Bert Weiss, Northport, L. I., N.Y., and Ronald Morino, Glen Cove, N.Y., assignors to Photocircuits Corporation, Glen Cove, N.Y.
Original application Feb. 6, 1967, Ser. No. 614,201, now Patent No. 3,481,033, dated Dec. 2, 1969. Divided and this application July 18, 1969, Ser. No. 858,226
Int. Cl. B26f *1/04*
U.S. Cl. 83—50 **6 Claims**



The method of, and punching press for, forming conductor pattern stampings for electric motor armatures. Metal blanks are clamped to a drive shaft by a universal clamp which eliminates eccentricities in rotation. The blanks are indexed and punched at a succession of stamping positions to remove metal between adjacent conductor segments. Alignment holes are punched into the blank at selected stamping positions to establish a flip line used in subsequent assembly operations. The motor armatures are assembled using at least two identical stampings oriented by the alignment holes and the flip lines, bonding the aligned stampings to a dielectric disc, and welding aligned tabs of the stampings to form the armature interconnections.

3,566,728
TRAVELLING CUTTING MACHINE FOR USE WITH AN EXTRUSION PRESS

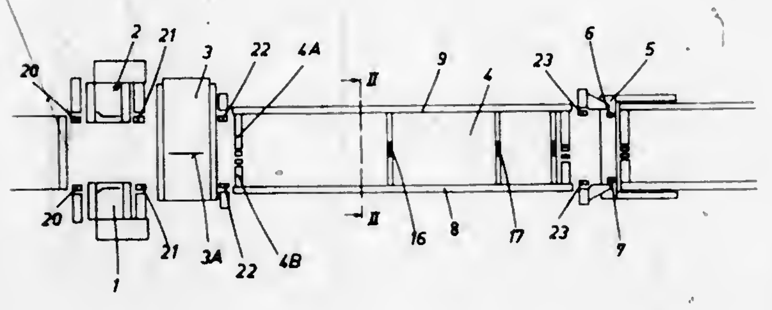
Atsushi Ohmasu, 1020 Sannoya, Isogo-cho, Isogo-ku, Yokohama-shi, Japan
Filed Dec. 2, 1968, Ser. No. 780,516
Claims priority, application Japan, Dec. 5, 1967, 42/102105
Int. Cl. B26d *1/56;* **B23d** *25/04*
U.S. Cl. 83—80 **3 Claims**



The travelling cutting machine for use with an extrusion press according to the present invention comprises a truck freely movable in the direction in which a continuously manufactured metal rod is carried, a cutter provided with blades for cutting the metal rod carried on the truck, a drive means for causing the truck to travel back and forth, a magnetic clutch or eddy-current coupling motor for coordinating the travelling velocity of the truck with that of the metal rod by connecting or disconnecting the truck with the drive means and a means for operating the truck and cutter by detecting the length of a metal rod continuously drawn out of a manufacturing apparatus, thereby to cut the metal rod by turns to a prescribed length at all times without causing the deformation of the rod.

3,566,729
SHEARING LINE FOR METAL SHEETS COMPRISING SLITTING SHEARS FOLLOWED BY CROSS-CUT SHEARS

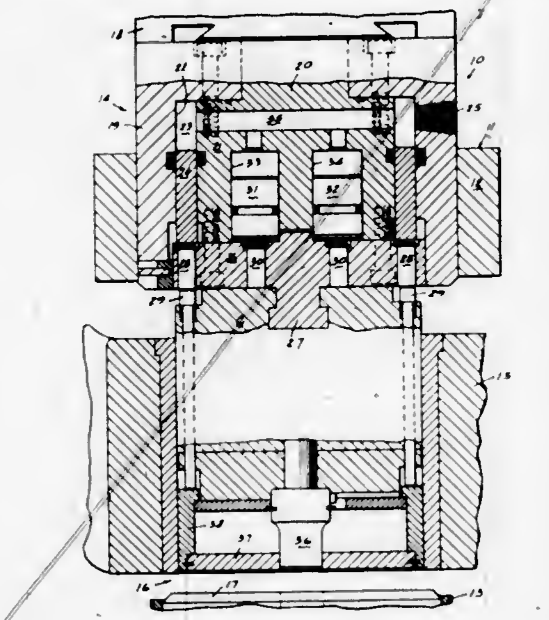
Karl Paul Menn, Ingbert-Saar, Germany, assignor to Moeller & Neuman G.m.b.H., Ingbert-Saar, Germany
Filed Sept. 18, 1968, Ser. No. 760,599
Claims priority, application Germany, Sept. 21, 1967, P 16 27 313.5
Int. Cl. B26d *7/06*
U.S. Cl. 83—105 **5 Claims**



In a shearing line comprising slitting shears (3) for thick sheets two gauges (23) for measuring sheet lengths to be cut are provided in the area of the crosscut shears (5). The gauges are disposed across the width of the sheet and are adapted to operate independent of each other so as to cut a pair of longitudinally divided strips of the sheet simultaneously into equal or different lengths.

3,566,730
PUNCH PRESS HAVING RAM WITH STRIPPING MEANS

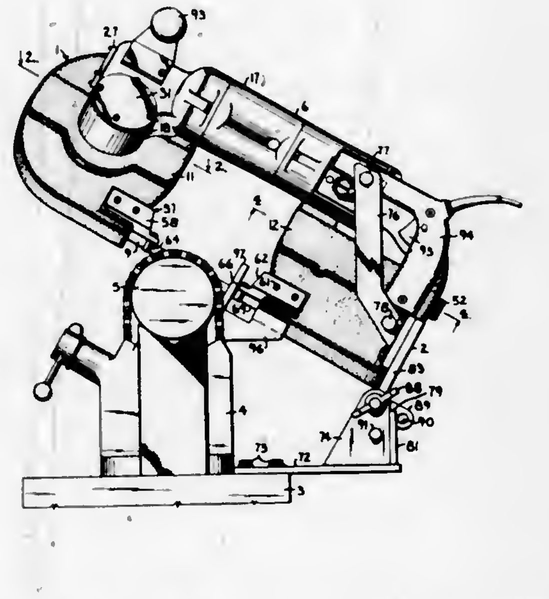
James J. Pancook, Tonawanda, N.Y., assignor to Houdaille Industries, Inc., Buffalo, N.Y.
Filed Feb. 25, 1969, Ser. No. 802,098
Int. Cl. B26d *7/18*
U.S. Cl. 83—137 **9 Claims**



A punch press has a frame receptive of a punch and stripper assembly and a die, and has a ram which includes a number of fluid-pressure biased pistons which act through force transmitting means on the stripper.

3,566,731
BANDSAW, SUPPORT, AND DRIVE MECHANISM THEREFOR

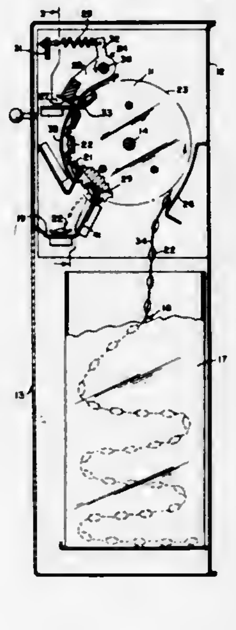
Glover C. Ensley, 420 E. 10th St., North Kansas City, Mo.
Filed Dec. 4, 1968, Ser. No. 781,223
Int. Cl. B26d *1/48*
U.S. Cl. 83—201.14 **5 Claims**



A bandsaw has a housing enclosing power operated drive means operatively engaging a saw blade driving member spaced from a driven member and an endless blade engaging the driving and driven members. A mounting bracket is secured to the housing and to a support structure and has a support member having spaced ears mounted on and extending upwardly from the support member to pivotally receive an arm secured to the housing. The arm has a planar portion for engaging an abutment portion extending outwardly from the spaced ears for supporting the band saw in a substantially upright position. A motor within the housing rotates a drive shaft having a pinion gear operatively engaging a helical gear on a worm gear shaft whereby same is rotated and a worm gear thereon operatively engages a helical gear on a driving member shaft whereby the driven member is rotated thereby driving the endless blade.

3,566,732
VENDING MACHINE

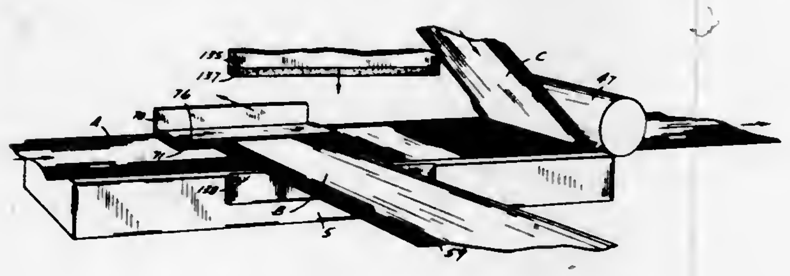
Mark Hasten, Indianapolis, Ind.; Lee S. Jones, Berwyn, Pa., and Floyd Lobash, Minneapolis, Minn., assignors to General Mills, Inc.
Filed Jan. 23, 1969, Ser. No. 793,330
Int. Cl. B65h *5/28*
U.S. Cl. 83—205 **4 Claims**



A vending machine using a rotary conveyor to move a strip of individual items from a storage area in the machine to a cutter which severs individual items from the strip as a purchaser purchases the items and operates the vending machine.

3,566,733
APPARATUS FOR FORMING MULTI-PLY TAPE

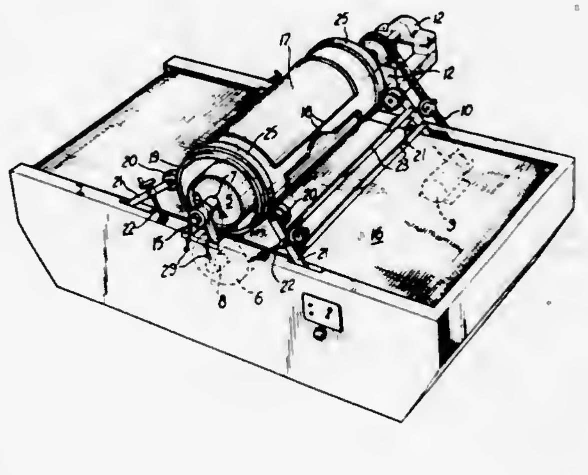
William G. McClean, Milwaukee, Wis., assignor to The Youngstown Sheet and Tube Company, Boardman, Ohio
Original application Aug. 15, 1967, Ser. No. 660,749, , which is a division of application Ser. No. 258,039, Feb. 12, 1963,. Divided and this application May 1, 1969, Ser. No. 820,720
Int. Cl. B23d *15/04, 15/12*
U.S. Cl. 83—282 **4 Claims**



This patent discloses a machine for forming multi-ply tape in which a group of parallel discrete strands of material such as fiber glass are drawn through a station and a crossply laid on the continuous ply being drawn through the machine. If desired, two plys of continuous material may be utilized, with the crossply in between. The tape may be treated with a binder and then dried and coiled.

3,566,734
ROTARY CUTTING OR CREASING MACHINE

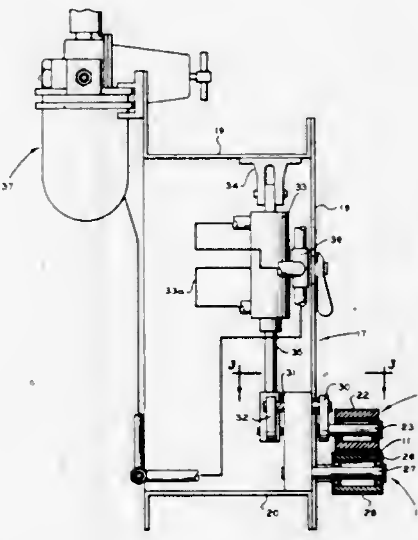
Charles Robinson, Henshaw Street Works, Lady Street Entrance, Henshaw Street, Oldham, Lancashire, England
Filed Nov. 19, 1968, Ser. No. 776,911
Claims priority, application Great Britain, Nov. 22, 1967, 53145/67
Int. Cl. B26d *1/28*
U.S. Cl. 83—339 **19 Claims**



A rotary cutting or creasing machine is disclosed having upper and lower drums between which material to be cut is passed on a conveyor belt, the upper drum being surrounded by a cylindrical sleeve of a diameter greater than the drum and supported by a removable end support in such manner that the sleeve may be withdrawn from one end and replaced by another sleeve.

3,566,735
FIBRILLATION

Max E. Greene, Spartanburg, S.C., assignor to Phillips Petroleum Company
Filed Feb. 12, 1969, Ser. No. 798,654
Int. Cl. B26f *3/00, 1/20*
U.S. Cl. 83—344 **5 Claims**

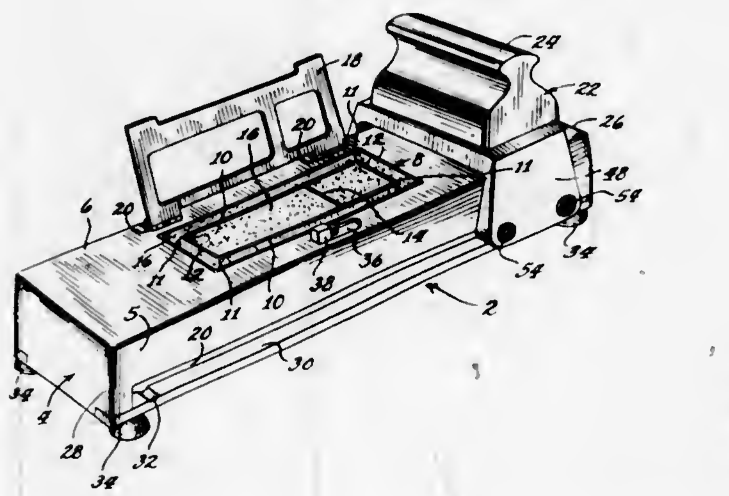


An apparatus for fibrillating a film of thermoplastic material. The apparatus includes a pair of counterrotating rollers having confronting peripheries which define a fibrillating zone. Mechanical means are provided for applying a force on one of the rollers to maintain a predetermined pressure in the fibrillating zone.

3,566,736
SEGMENT CUTTER

Ralph L. Johnson; David M. Beveridge, Wheaton, Ill., and Gene F. Kiela, Kohler, Wis., assignors to Johnson & Quin, Inc.

Filed Apr. 9, 1969, Ser. No. 814,626
Int. Cl. B26d *1/02*
U.S. Cl. 83—510 **10 Claims**

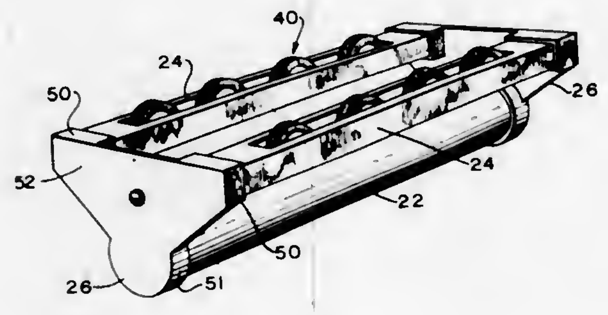


A segment cutter especially suitable for cutting segments from a paper tape such as an encephalogram or electrocardiogram chart which is of compact design and relatively simple in operation. The segment cutter comprises a flat working surface supporting diecutting edges upon which the length of paper is placed and which is held in place by a hinged platen member spring biased into the closed or overlying position with respect to the diecutting edges. A rolling pressure member overrides the entire paper chart or tape supporting surface and is mounted for linear movement through the entire extent of the working surface. The roller member is slightly spaced from the platen surface and when put in rolling contact therewith causes the diecutting edges to pierce the paper supported thereon to cut a segment from the paper web. Other embodiments of the invention are also disclosed.

3,566,737
MUSICAL INSTRUMENT

William Gussak, c/o M. Glazer, 57 Broad Lawn Park, Chestnut Hill, Mass.

Filed July 29, 1969, Ser. No. 846,315
Int. Cl. G10d *13/00*
U.S. Cl. 84—402 **10 Claims**

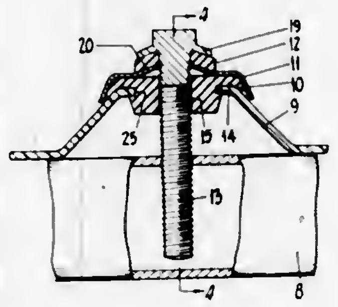


A musical percussion instrument including a container enclosing pellets and a set of jingles, the container and jingles so arranged as to permit selective sound generation from the container and pellets or from the jingles depending upon the directions in which the instrument is shaken.

3,566,738
SEALING MEMBER FOR CLADDING SHEETS

George Moffat Cupit, 77 Crockford Street, Port Melbourne, Victoria, Australia

Filed Nov. 22, 1968, Ser. No. 778,065
Claims priority, application Australia, Nov. 23, 1967, 30216/67
Int. Cl. F16b *35/00*
U.S. Cl. 85—1 **8 Claims**

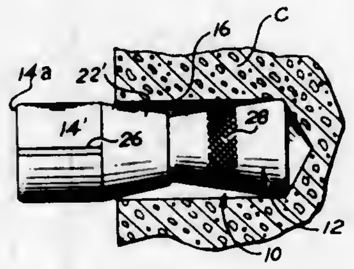


Apparatus for securing a cladding sheet to a structural support. The cladding sheet defines an aperture for securely receiving a resilient member having a depending boss. In assembling the combination, a rigid clamping plate is positioned to overlie the resilient member in such manner that a fastener can pass through aligned apertures in the clamping plate and in the resilient member. Only the resilient member has its through aperture elongated over its entire depth in the longitudinal direction of the cladding sheet to allow movement in unison and in the longitudinal direction of both the sheet and the resilient member relative to the fastener and the clamping plate.

3,566,739
ANCHORING DEVICE

Charles S. Lebar, Woodcreek Road & Rte. 63, Barrington Hills, Ill.

Filed Feb. 7, 1969, Ser. No. 797,408
Int. Cl. F16b *13/06*
U.S. Cl. 85—72 **2 Claims**



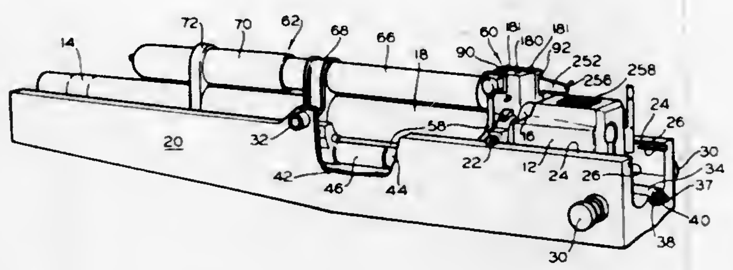
An improved anchor is provided by a single piece that is preshaped to define both an expander and sleeve positioned in endwise relation to each other and interconnected through a connection that is shearable upon bottoming the sleeve on the bottom wall of an aperture and then sharply striking the distal end of the expander to shear said connection and simultaneously telescope the expander into the sleeve. The portion of the sleeve adjacent the shearable connection may be thinned for easier rupture and a portion of the sleeve may be slotted for ease in expansion.

3,566,740
VELOCITY SENSOR FIRING MECHANISM FOR ARTILLERY WEAPONS

Jimmy H. Williams, Bettendorf, Iowa, and Lawrence L. Frauen, Moline, Ill.

Filed May 28, 1969, Ser. No. 828,561
Int. Cl. F41f *13/10, 19/12*
U.S. Cl. 89—27 **18 Claims**

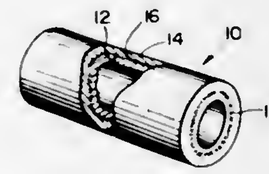
In recoiling guns of the type wherein the firing thereof is accomplished during the forward travel of the recoiling parts, the problem of compensating for variations in the distance of recoil travel has been solved by a velocity sensor device disposed in the path of the flow of hydraulic fluid between the recuperator and recoil mechanisms and provided with a movable firing piston arranged to be actuated by the hydraulic flow thereagainst upon the attainment of sufficient momentum to overcome the predetermined resistance introduced into an adjustable mechanical linkage arrangement in direct ratio to the size of the propellant charge in the ammunition to be fired.



3,566,741
TUBULAR, SEAMLESS, DUAL-HARDNESS ARMOR PLATE

Joseph L. Sliney, 528 Main St., West Concord, Mass.

Continuation-in-part of application Ser. No. 719,386, Apr. 8, 1968, now abandoned. This application June 9, 1969, Ser. No. 831,688
Int. Cl. F16l *9/19*
U.S. Cl. 89—36 **4 Claims**

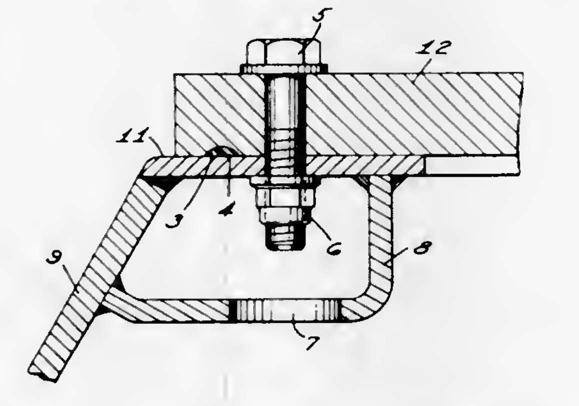


Seamless, dual-hardness, tubular armor plate is formed from a brittle impact-resistant outer shell metallurgically bonded to a ductile inner shell by coextrusion of the two shells. Central hollow cores of either simple or complex shape are readily formed. The resultant structure has superior resistance to impact as compared to homogeneous cylinders or welded bimetallic cylinders.

3,566,742
ARMORED VEHICLE HAVING MEANS FOR INTERCHANGEABILITY TOP MOUNTED WEAPONRY

James M. Bemiss, St. Clair Shores, Mich., assignor to Cadillac Gage Company, Warren, Mich.

Continuation-in-part of application Ser. No. 740,961, June 28, 1968. This application Aug. 27, 1969, Ser. No. 858,251
Int. Cl. F41h *7/12*
U.S. Cl. 89—40 **1 Claim**

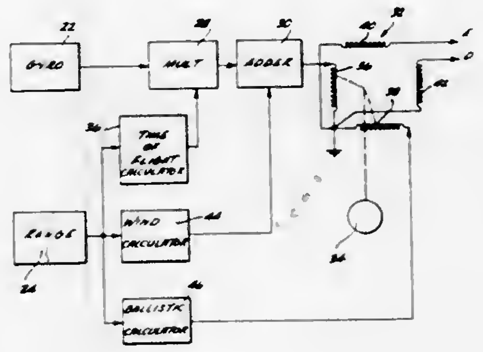


An armored vehicle with an open-top hull design to provide interchangeability of optional top mounted armored weapons or equipment.

3,566,743
KINEMATIC DEVICE FOR FIRE CONTROL AGAINST TERRESTRIAL TARGETS WITH SINGLE RATE SENSOR

Millard M. Frohock, Jr., Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 21, 1968, Ser. No. 754,408
Int. Cl. F41g *5/16, 1/00, 3/10*
U.S. Cl. 89—41 **5 Claims**

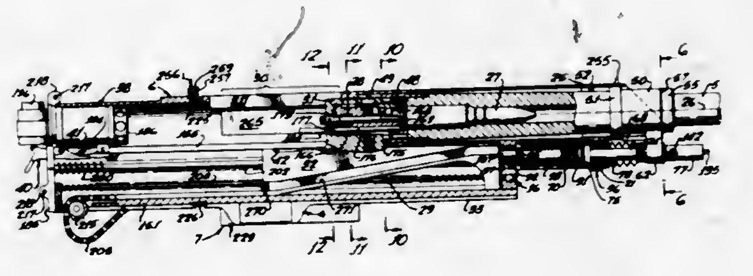


In gun pointing a gun platform is driven by a tracker, but especially in military tanks, the gun platform is rarely horizontal. Accordingly, an elevational correction is necessary in addition to an azimuthal correction to lead a substantially horizontally moving target. The present device uses a single rate sensor to sense the azimuthal rate of the gun platform and a gravity sensor to detect the angle by which the gun platform is off of horizontal. The gravity sensor takes the form of a resolver which accepts the rate information to provide elevational and azimuthal gun pointing correction on such targets.

3,566,744
AUTOMATIC GUN RECEIVER COMBINATION

Eugene M. Stoner, Rte. 1, Box 70, Port Clinton, Ohio

Continuation of application Ser. No. 763,449, July 22, 1968, now abandoned , which is a division of application Ser. No. 491,300, Sept. 29, 1965, now Patent No. 3,455,204. This application July 14, 1969, Ser. No. 854,005
Int. Cl. F41d *5/02, 11/12*
U.S. Cl. 89—125 **11 Claims**

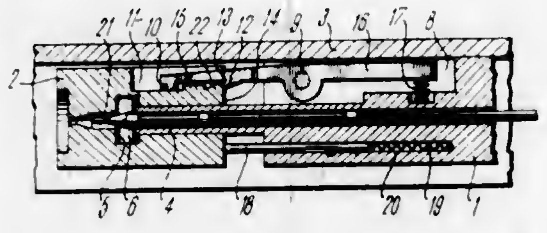


The automatic gun receiver combination includes a recoiling barrel, bolt and bolt carrier, two ammunition feeding means, recoil assembly and buffer assembly. The recoiling barrel reciprocates axially in the receiver forwardly of the ammunition feeding means. A bolt is reciprocated axially past the feeding means by a recoiling bolt carrier. The bolt is also rotated into and out of a position in which it is locked to the barrel. Two cams extend along the length of the bolt carrier to cooperate with cam followers on each of the two ammunition feeding means, either of which may be selected to feed ammunition into the receiver. The recoil assembly is coupled between the barrel and receiver both for buffering recoil and counterrecoil of the barrel and for accelerating the bolt carrier in recoil relative to the barrel. The buffer assembly at the rear of the receiver both buffers the recoil force of the bolt and bolt carrier and mounts a sear, selectively engageable with the bolt carrier, such that when the sear and bolt carrier are engaged, the resulting interruption of the counterrecoil of the bolt and bolt carrier is buffered.

3,566,745

AUTOMATIC FIREARM BIPARTITE SEMIRIGID BOLT

Stanly Jauch, Weiden uber Horb, and Herbert Meidel, Oberndorf, Germany, assignors to Heckler & Koch GmbH, Oberndorf (Neckar), Germany
Filed Oct. 25, 1968, Ser. No. 770,648
Claims priority, application Germany, Oct. 28, 1967, P 15 78 392.3
Int. Cl. F41d *1/00, 3/00*
U.S. Cl. 89—187 **11 Claims**

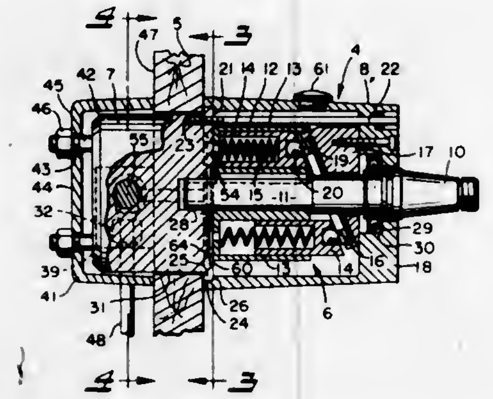


An automatic firearm, in particular a hand firearm or small arm, with a semirigid bolt having a bolt head carrier provided with a camming piece and a bolt head disposed on the camming piece so as to be movable within certain limits in the longitudinal direction of the bolt. At two diametrically opposed points of the bolt, recesses are provided for accommodating locking members in the form of locking rollers which can be pushed outward by the camming piece to a point where they are free to leave the recesses of the bolt head in an outward direction and to enter into corresponding recesses in the barrel extension of the firearm.

3,566,746

HYDRAULIC STEERING SYSTEM FOR BOATS

Robert R. Harrison, Elyria, Ohio, assignor to Nemo Corporation, Cleveland, Ohio
Filed Apr. 29, 1969, Ser. No. 820,222
Int. Cl. F04b *1/02*
U.S. Cl. 91—6.5 **11 Claims**



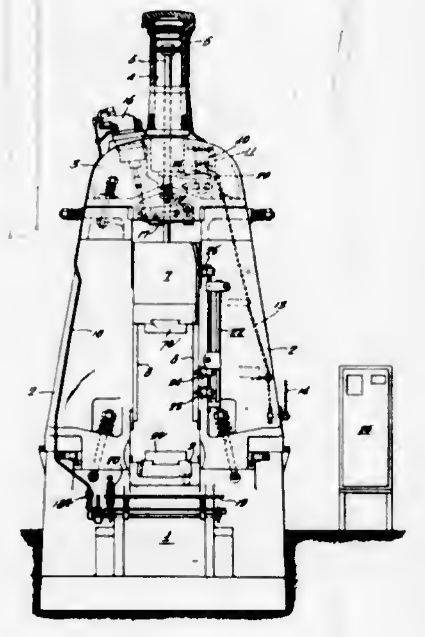
Steering system includes a pump mechanism wholly contained within the steering wheel shaft mount in front of the dash panel, with a porting plate protruding behind the mounting plate to a slight extent sufficient to provide room for connection of fittings thereto and attachment of the steering system to the dash panel.

3,566,747

SELF-REGULATING EXPANSION TYPE CONTROL VALVE

Charles W. Frame, Chambersburg, Pa., assignor to Chambersburg Engineering Company, Chambersburg, Pa.
Filed Feb. 14, 1969, Ser. No. 799,277
Int. Cl. F15b *21/02*
U.S. Cl. 91—35 **13 Claims**

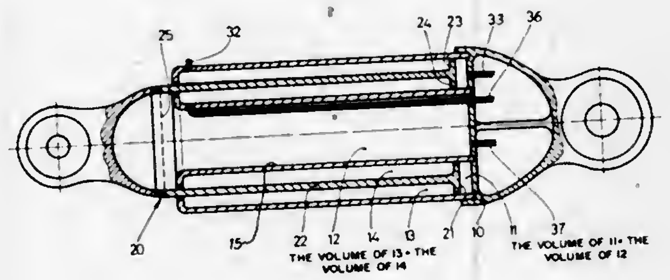
The lifting of a drop hammer is controlled by a spool-type valve admitting compressed air into the main cylinder of the hammer. In order for compressed air to be admitted the valve spool is forced from its normal position exhausting the cylinder into a position supplying compressed air to the main cylinder by admitting control air into a region in which its pressure moves the spool against opposition by a spring. After compressed air has been admitted to the main cylinder, at a preselected control position, the control air is exhausted. A slide in the valve is then moved toward the spool and into a stop by air pressure from the cylinder. The spring returns the spool part way toward normal position until it contacts the slide, in which position the cylinder is closed off from the supply of compressed air but is not opened to exhaust. When the air pressure in the cylinder has been reduced by expansion to a predetermined level at which most of its energy is extracted the spool under urging of the spring will push the slide out of the way and the spool back to position to exhaust the cylinder.



3,566,748

DUAL-ACTING, REDUNDANT, HYDRAULIC CYLINDER ARRANGEMENT FOR AIR AND SPACECRAFT

Edmund Norbert Mahler, Landham-West, Germany, assignor to Entwicklungsring Sud G.m.b.H., Munich, Germany
Filed Aug. 19, 1968, Ser. No. 753,659
Claims priority, application Germany, Aug. 31, 1967, E34700
Int. Cl. F01b *7/00*
U.S. Cl. 91—411 **3 Claims**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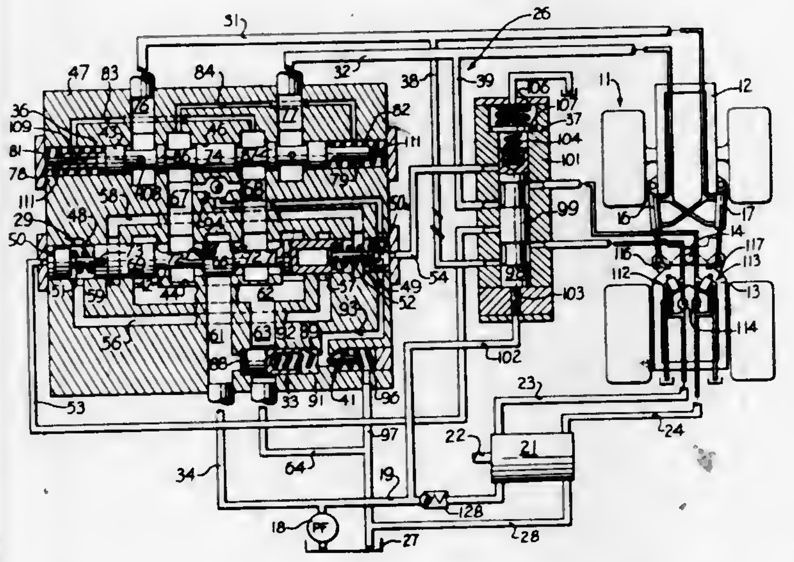
A dual-acting, redundant hydraulic cylinder including a first hydraulic cylinder system arranged radially around a second hydraulic system. Each of the systems is provided with a common piston. In accordance with the illustrated embodiment, the piston is constructed so that the working area associated with the first hydraulic system is approximately equal to the working area defined by the second hydraulic system.

3,566,749

HYDRAULIC FLOW AMPLIFIER VALVE

Thomas E. Allen, East Peoria; Gordon W. Johnson, Joliet; Richard L. M. Sears, Washington; Chester L. Strantz, East Peoria, and John B. Waggoner, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 13, 1968, Ser. No. 712,747
Int. Cl. F15b *11/08, 13/042*
U.S. Cl. 91—445 **14 Claims**

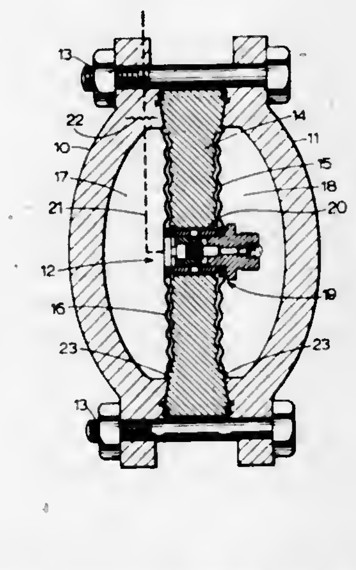


A hydraulic flow amplifier valve assembly for regulating fluid flow to steering jacks. A steering control valve receives fluid directly from a pump and is pilot operated by fluid from a conventional metering unit to provide amplified flow of pump fluid to the jacks. A blocker valve passes fluid from the steering valve during steering motion of the jacks and otherwise isolates the jacks to prevent fluid loss. A lock valve protects against steering wheel slippage during overpressure conditions and also permits pilot fluid provided by the metering unit to operate the steering jacks in the event of pressure failure.

3,566,750

DIFFERENTIAL PRESSURE CELL WITH KEYSTONE STRUCTURE

Albert Allen, Sharon, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Mar. 10, 1969, Ser. No. 805,495
Int. Cl. F01b *19/02*
U.S. Cl. 92—48 **1 Claim**

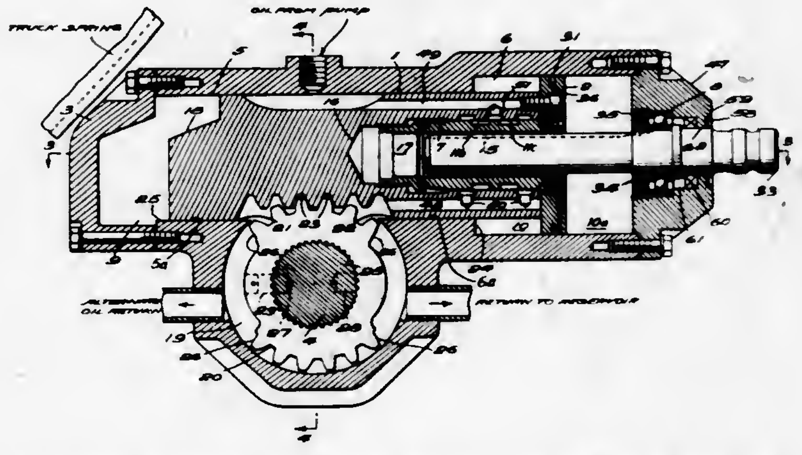


A keystone structure to eliminate the need for diaphragm welding in a differential pressure capsule. Diaphragms are securely locked and sealed in place by bolts applying joining pressure to diaphragm periphery in a ring keystone structure. This structure provides a mechanical seal diaphragm mounting with tapered lock-in structure which prevents significant slippage during overrange.

3,566,751

POWER STEERING GEAR

Richard H. Sheppard, 101 Philadelphia St., Hanover, Pa.
Continuation of application Ser. No. 690,964, Dec. 15, 1967, now abandoned. This application Aug. 12, 1969, Ser. No. 852,530
Int. Cl. F01b *9/04*
U.S. Cl. 92—136 **8 Claims**

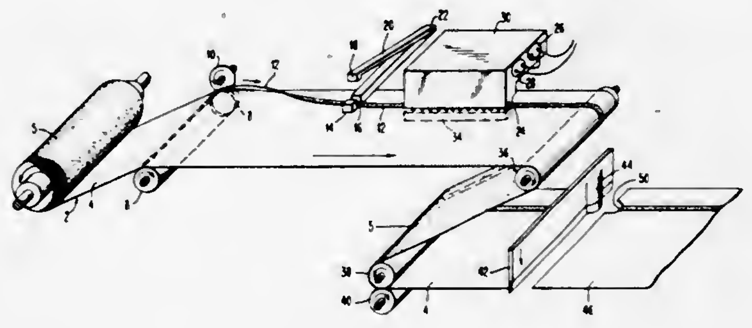


A power steering apparatus wherein an offset piston is slidable within a stepped cylinder to provide a more compact design. The piston is in slidable engagement with the cylinder on both sides of the driving rack whereby the return chamber enclosing the driven pinion and said rack is subject only to return pressure. The operating end of the body of said piston is cut back opposite said pinion for further compactness and said pinion is provided with alternate sets of teeth and reduced lands for cooperation with said rack and the sealing area of said piston, respectively. The body of said piston is made separate from the enlarged disc and detachably mounted thereon.

3,566,752

METHOD OF FORMING A TEAR STRIP ON A PACKAGING SHEET

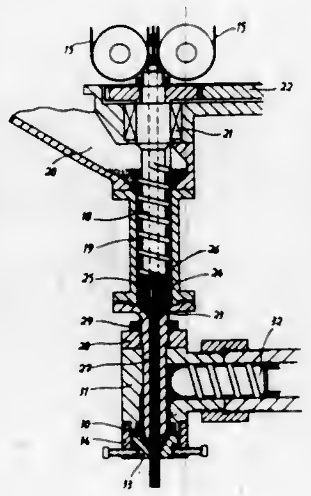
Hans C. Dreher, Dallas, Pa., assignor to General Cigar Co. Inc., New York, N.Y.
Filed Aug. 12, 1968, Ser. No. 751,967
Int. Cl. B31d
U.S. Cl. 93—1 **1 Claim**



This invention relates to the formation of a tear strip on a packaging sheet having a surface which is heat or pressure sealable. By trimming a narrow strip from the packaging sheet and sealing the trimmed strip to the surface of packaging sheet, a packaging sheet with an affixed tear strip of the same sheet material is produced.

3,566,753
METHOD AND APPARATUS FOR PRODUCING FILTERS FOR CIGARETTES

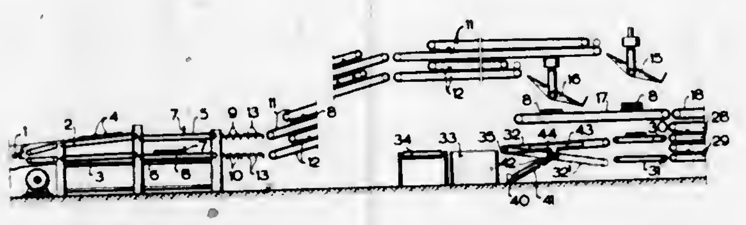
Joachim Mantke, Meiningenallee 5, Berlin 19, Germany
Filed Sept. 25, 1968, Ser. No. 762,585
Claims priority, application Germany, Sept. 28, 1967, P 16 32 243.3
Int. Cl. B31b *49/00;* **B31d** *5/00;* **B31b** *7/74*
U.S. Cl. 93—1 **3 Claims**



Method and apparatus for producing filters for cigarettes in which a chamber containing a flowable pulverulent effective filter material inside a sheath enveloping the entire filter is closed at each end by a plug of permeable material which likewise has a filtering effect.

3,566,754
PLANT FOR MAKING BAGS

Willi Stork, Tecklenburg; Walter Franke, Weddel; Ewald Fischer, Braunschweig; Karl Haupt, Wolbeck, and Werner Hassman, Lengerich, Germany, assignors to Windmoller & Holscher, Westphalia, Germany
Filed May 16, 1968, Ser. No. 729,815
Claims priority, application Germany, May 22, 1967, W44023
Int. Cl. B31b *1/00*
U.S. Cl. 93—8 **18 Claims**



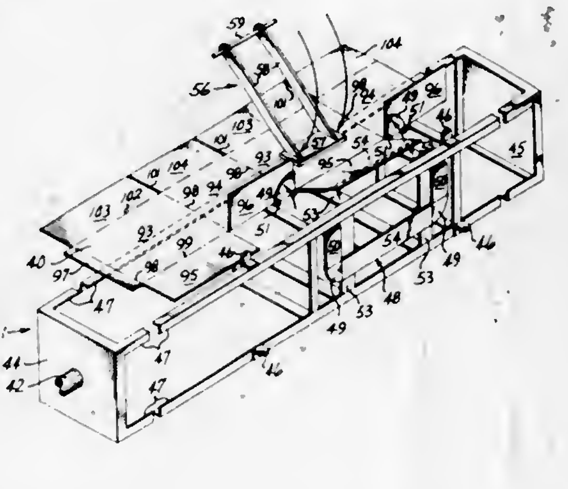
The plant comprises a tube-making machine, a station for forming stacks from the tube sections made by the tube-making machine, a conveyor and a distributor for delivering the stacks to preferably two or more end-laying machines, and a device for removing the stacks of bags made by the end-laying machines. A storage device is disposed between the stack-forming device and the distributing station and serves to receive the stacks of tube sections and to deliver them to the distributing station as required, automatically and independently of the delivery speed and delivery timing of the stack-forming device.

ERRATUM

For Class 93—44.1 see:
Patent No. 3,566,762

3,566,755
APPARATUS FOR ERECTING CARTONS

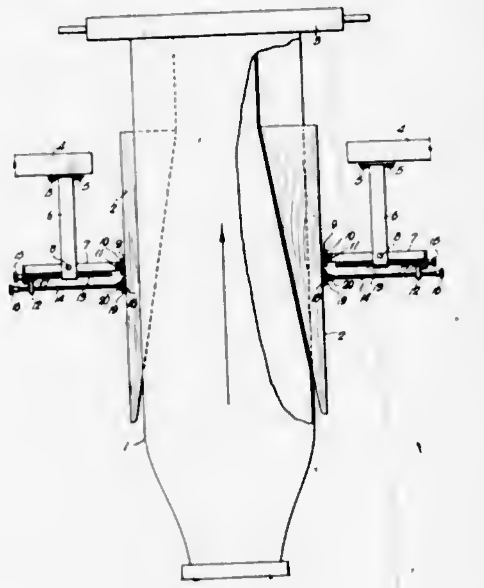
Barton K. Smith, Winnetka, Ill.; Ralph W. Groff, Sr., Cherry Hill; James B. Rodman, Sr., Burlington; Henry F. Orzechowski, Lindenwold, and Joseph S. Hartle, Sr., Moorestown, N.J., assignors to Weyerhaeuser Company, Tacoma, Wash.
Original application Dec. 28, 1966, Ser. No. 605,321. Divided and this application Jan. 14, 1969, Ser. No. 810,886
Int. Cl. B31b *1/26*
U.S. Cl. 93—49 **5 Claims**



An apparatus and method for packaging articles of variable height. The articles are stacked and the height measured. A half-slotted container is then cut to size and scored and slotted. The blank is partially erected and the articles placed into the container through an open side. The container is then closed.

3,566,756
GUSSETER GUIDE

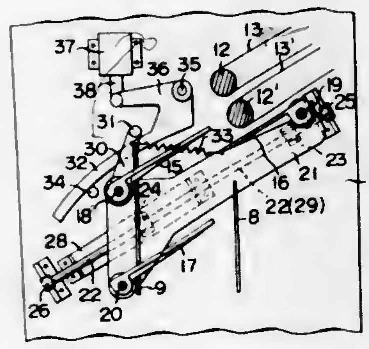
Richard G. Schmid, Osgood, and James H. Champer, Greensburg, Ind., assignors to Gulf Oil Corporation, Pittsburgh, Pa.
Filed Jan. 10, 1969, Ser. No. 790,419
Int. Cl. B31b *45/00, 41/26;* **B31c** *5/00*
U.S. Cl. 93—84 **4 Claims**



A gusset is put into a bubble of blown film just before the film is flattened from a bubble by the pinch rolls by means of a gusseter guide sled which is shaped like a wedge in both lateral and transverse directions. The sled is positioned by a novel apparatus which controls depth of penetration of the sled into the bubble of blown film, and the angle of the sled in the film in both the transverse and lateral direction.

3,566,757
APPARATUS FOR MAKING BUNDLES FROM THE STREAM OF PRINTED SHEETS IN ROLLING PRESS

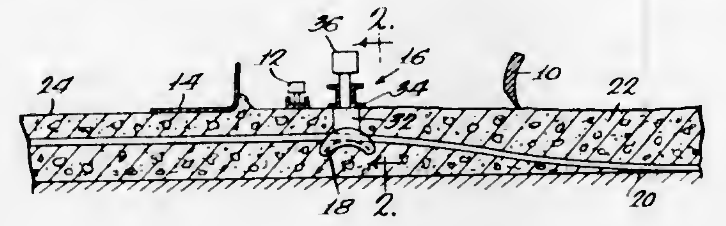
Yuji Fujishiro, 6 of No. 3 Fukozawa, 1-chome, Setagaya-ku, Tokyo, Japan
Filed July 23, 1969, Ser. No. 843,962
Int. Cl. B65h *33/00*
U.S. Cl. 93—93 **2 Claims**



In combination with an apparatus for making bundles from the stream of printed sheets in a rolling press having a vertical passage to receive the delivered stream of printed sheets and a turn table at the bottom of said passage, an interruption plate in the passage capable of rocking up and down, a relay plate below the interruption plate, a makeup plate under table relay plate, a movable frame supporting the interruption plate, the relay plate, and the makeup plate, means to move the frame forwardly and rearwardly across the passage along a straight line settled at an angle to the passage, and means to control the rocking motion of the interruption plate and the motion of the frame for a prescribed period and manner by signals from a counter head provided at the delivery end of the stream of printed sheets.

3,566,758
CONTINUOUSLY REINFORCED CONCRETE PAVING APPARATUS

Glen E. Perkins, 1428 40th Ave., Rock Island, Ill.
Filed Apr. 29, 1969, Ser. No. 820,214
Int. Cl. E01c *19/00*
U.S. Cl. 94—39 **7 Claims**

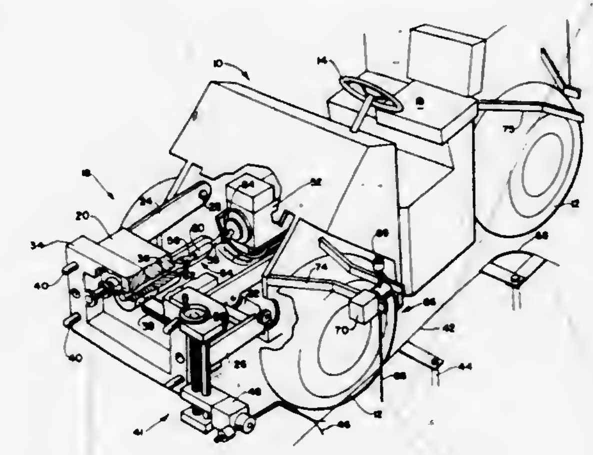


Apparatus for directly forming continuously reinforced concrete paving, i.e., paving having imbedded therein essentially continuous spaced parallel longitudinal reinforcing rods, characterized by a series of transversely spaced members carried by a conventional paving machine and each having a rod guiding groove or channel disposed longitudinally of the road site for receiving and guiding a reinforcing rod into its final intended position in the concrete mass, both vertically and horizontally, as the paving machine advances along the road site.

3,566,759
MOUNTING ARRANGEMENT FOR SIDEWALK BUILDING EQUIPMENT OR THE LIKE

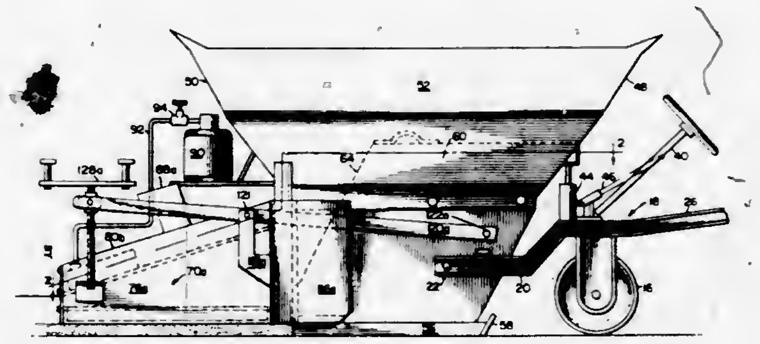
Raymond A. Gurries, San Jose, Calif., assignor to Gurries Manufacturing Co., San Jose, Calif.
Filed Dec. 17, 1968, Ser. No. 784,402
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 **10 Claims**

Mounting arrangement for sidewalk or road building equipment, such as graders, spreaders and pavers, which provides replaceable mounting of a selected unit from a mobile frame for height, cross slope and lateral adjustment automatically in response to a sensed reference so that the building operation will follow a predetermined path.



3,566,760
APPARATUS FOR FORMING PAVED CHANNELS

Napoleon G. Lafleur, 20 L'Homme St., and Roger F. Lafleur, Windham Road, Danielson, Conn.
Filed Mar. 13, 1969, Ser. No. 807,002
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 **6 Claims**

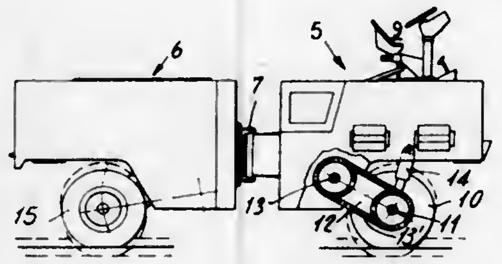


A paving machine for laying asphalt, preferably in double-curbed channel form, is provided with a steerable ground-engaging support section, a material storage hopper and a heater and spreader section through which fluidized asphaltic material is dispensed through detachable and interchangeable orifice means and is thereby formed into a paved trough of any desired cross-sectional configuration.

3,566,761
GROUND-TAMPING MACHINE MADE OF A TOWING UNIT MOUNTED ON RUBBER WHEELS AND OF A TOWED TAMPING UNIT

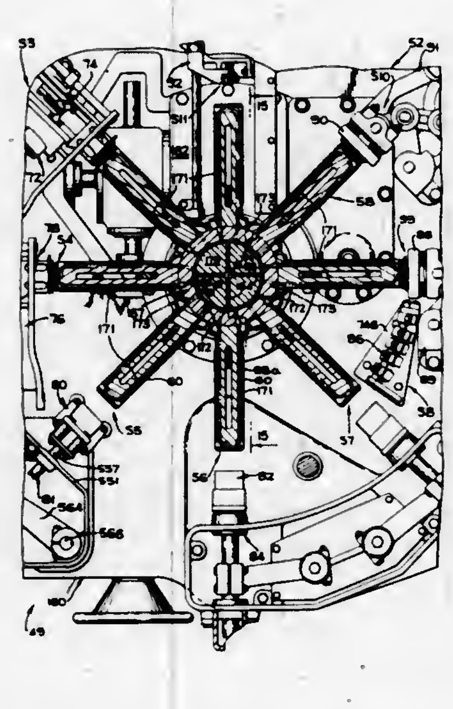
Domenico Domenighetti, Via Nosetto 6, 6500 Bellinzona, Switzerland
Filed Feb. 5, 1969, Ser. No. 796,822
Claims priority, application Switzerland, Feb. 7, 1968, 1992/68
Int. Cl. E01c *19/24*
U.S. Cl. 94—50 **4 Claims**

A ground-tamping machine comprises a tractor unit and a trailer unit. The tractor unit is mounted on at least three rubber-tired wheels that are axially aligned and supported singly or in pairs on arms that are maintained at an adjustable angle by fluid motors. A fluid motor interconnects the tractor and trailer for relative horizontal swinging movement. The trailer comprises a vibratory drum which may be plain cylindrical or a sheep's-foot roller.



3,566,762
CARTON-FORMING APPARATUS

Leslie Vadas, Los Gatos, and Robert W. Drake, San Jose, Calif., assignors to FMC Corporation, San Jose, Calif.
Original application June 7, 1965, Ser. No. 461,738, now Patent No. 3,456,419, dated July 22, 1969. Divided and this application Mar. 11, 1968, Ser. No. 711,967
Int. Cl. B31b *1/02*
U.S. Cl. 93—44.1 **24 Claims**

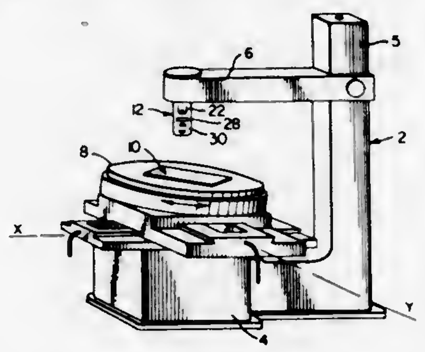


Carton-forming apparatus which is adjustable to handle thermoplastic cartons of different sizes. A plurality of adjustable mandrels on an intermittently driven turret receives folded carton blanks from a magazine with the bottom closure flaps projecting outward of the mandrels. The intermittently driven turret then moves the cartons past apparatus wherein thermoplastic material on the bottom closure flaps is heated to a bonding temperature, the flaps are folded to a closed position, sealing pressure is applied to the flaps, and the cartons with the flaps sealed are stripped from the mandrels.

3,566,763
DISPLACEMENT RESPONSIVE APPARATUS FOR PRODUCING PATTERNS ON A PHOTOSENSITIVE SURFACE

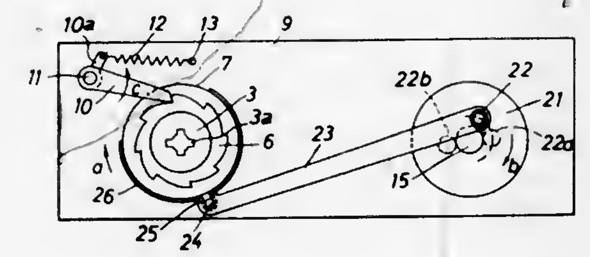
George S. Knopf, Dayton, Ohio, assignor to The Bendix Corporation
Filed June 5, 1968, Ser. No. 734,752
Int. Cl. G03
U.S. Cl. 95—1 **7 Claims**

An apparatus for producing uniform patterns on a photosensitive surface by triggering a light source at intervals determined by the change in displacement of the photosensitive surface relative to the light source. The light source illuminates a predetermined portion of the surface at intervals determined by the change in displacement of the photosensitive surface relative to the light source. A counting mechanism receives an electrical pulse for each equal increment of movement between light source and surface and counts the pulses. After counting a predetermined number of pulses, it produces an output signal which activates the light source.



3,566,764
DRIVE MECHANISM FOR ROTATABLE FLASH ATTACHMENT

Dieter Maas, Munich; Richard Schmierl, Uterhaching near Munich, and Guenter Heidrich, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 21, 1968, Ser. No. 715,058
Claims priority, application Germany, Mar. 31, 1967, A55314
Int. Cl. G03b *19/00*
U.S. Cl. 95—11 **9 Claims**

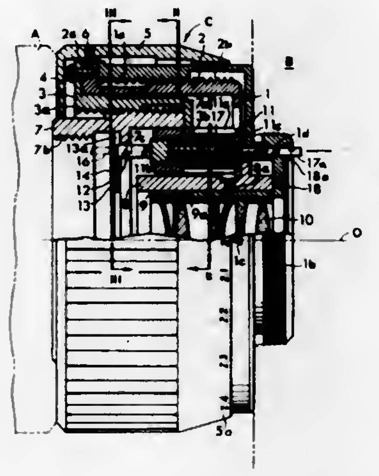


A photographic camera which has a built-in indexible socket for receiving the plug of a multiple flash bulb holder. The socket is held against rotation in one direction by a one-way clutch including a ratchet wheel which is affixed to the socket and a spring-biased pawl which is mounted in the housing. The mechanism for indexing the socket in the opposite direction includes a shaft which forms part of the film transporting mechanism and carries an eccentric crank pin which reciprocates a crank arm. The crank arm turns the socket in the opposite direction by way of a friction coupling including a cylinder coaxially affixed to the socket and a leaf spring which engages and partially surrounds the peripheral surface of the cylinder and is connected to one end of the crank arm.

3,566,765
A DEVICE FOR CONTINUOUSLY ALTERING THE FOCAL LENGTH OF PHOTOGRAPHIC LENSES

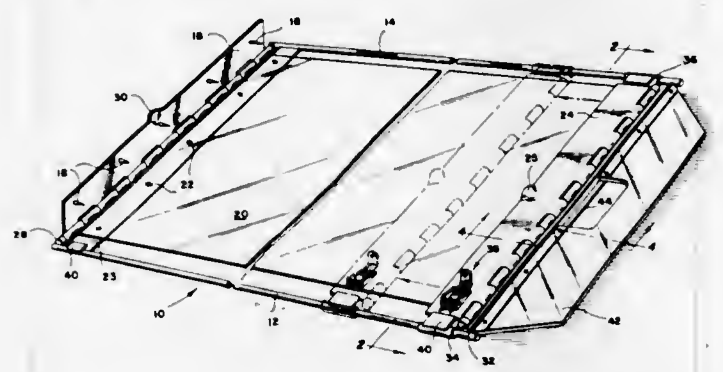
Motoi Nagashima, Tokyo-to, Japan, assignor to Shima Kogaku Kabushiki Kaisha, Tokyo-To, Japan
Filed Aug. 27, 1968, Ser. No. 755,665
Claims priority, application Japan, Dec. 31, 1967, 43/200
Int. Cl. G02b *7/10*
U.S. Cl. 95—45 **1 Claim**

A device for continuously altering the focal length of photographic lenses, which is detachably mounted between the camera body and the objective lens unit containing a diaphragm means and which comprises an operating ring means capable of continuously altering the focal length of the objective lens system or, in other words, the magnification of the objective lens system by a mere rotation of said operating ring means causing said objective lens unit to be driven forwardly or backwardly in the direction of the optical axis of said objective lens system and a built-in diaphragm actuating rod means capable of making telescopic movement in accordance with the forward or backward movement of said objective lens unit, whereby effecting the automatic operation of the diaphragm means in interlocking relation with the operation of the shutter button which is provided on the camera body, regardless of whichever focal length adjusting position occupied by said operating ring means.



3,566,766
MOUNTING DEVICE FOR FLEXIBLE FILM

Forrest Ashton Wessells, Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.
Filed Nov. 29, 1968, Ser. No. 779,667
Int. Cl. G03d *3/00*
U.S. Cl. 95—100 **3 Claims**

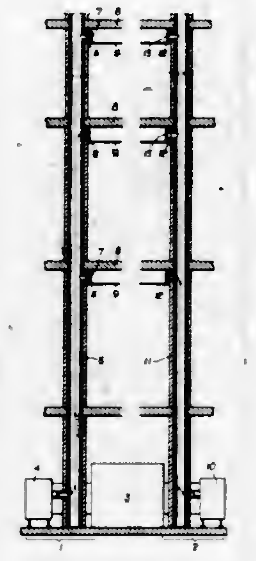


A device for mounting a flexible film which includes a pair of substantially parallel rails having a first plate member disposed near one end with stud elements disposed along the base thereof and projecting substantially parallel to each other. A second plate member is oppositely disposed to the first plate member and is positioned along the rails, with the second plate member having stud elements disposed along the base thereof and projecting substantially parallel to each other. Bar elements are disposed in association with the first and second plate members forming a pivotal clamping arrangement, and a handle element is mounted transverse the rails. A flexible film may be mounted between the first and second plate members by the stud members projecting therethrough.

3,566,767
AIR VENTILATING OR AIR CONDITIONING SYSTEM

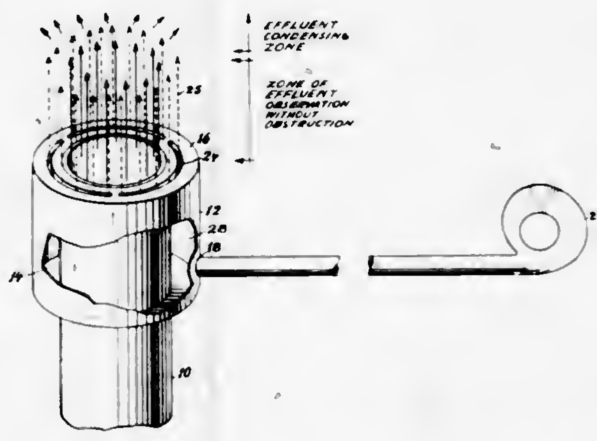
Paul Odelga, 17 Nedergasse, 1190 Vienna, Austria
Filed Oct. 9, 1968, Ser. No. 766,254
Claims priority, application Austria, Oct. 11, 1967, A9194/67
Int. Cl. F24f *7/00*
U.S. Cl. 98—31 **4 Claims**

An air conditioning system for a building structure having several floors and which is provided with a ducting work having a horizontal main duct to which are connected at least two vertical distributing ducts is improved by making the vertical distributing ducts of equal cross section throughout their entire length. At least some of the floors are provided with openings which are in communication with said vertical ducts and serve for supplying and exhausting air respectively. Said openings are provided with selectively applicable closure caps.



3,566,768
STACK-JET CURTAIN

Robert H. Walpole, Jr., Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Jan. 22, 1969, Ser. No. 793,118
Int. Cl. E04f *17/02*
U.S. Cl. 98—58 **2 Claims**

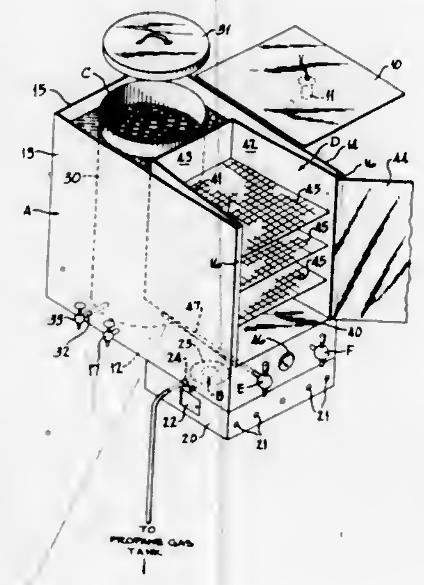


An apparatus permitting observation of the true nature of effluent gas traversing a stack. The apparatus is instrumental in forming an air curtain around the outlet end of the stack where the exhaust gases traversing the stack are emitted from the restrictive closure of the stack to the atmosphere. An air curtain so produced creates a transparent barrier that separates the hot moisture bearing effluent gases of the stack from the cooler air of the surrounding atmosphere to delay cooling the gases passing up through the exhaust stack until they pass beyond the air curtain and are discharged to the atmosphere. Delay in cooling the effluent gas prevents it from condensing as visible clouds and thus permits observation at this point to present a true appearance of the effluent.

3,566,769
COMBINED FOOD WARMER AND BEVERAGE DISPENSER

Richard H. LeFever, 1129 Highland Ave., Chester, Pa.
Filed Sept. 10, 1969, Ser. No. 856,677
Int. Cl. A47j *31/00*
U.S. Cl. 99—288 **5 Claims**

A combined food warmer and beverage dispenser includes a generally parallelepipedal boiler, adapted to contain water, and associated means to heat the water. Suspendedly mounted in one end of the boiler and kept warm by the water therein are one or more beverage urns. The other end of the boiler contains a food warming chamber, extending into the boiler and jacketed by boiler water, said chamber including an access opening occupying most of the face of this end of the boiler. The same face which contains the access opening also contains a plurality of dispensing valves. One of these valves drains hot water from the interior of the boiler for beverage use. Another valve is connected to a beverage urn and drains previously prepared hot beverage from it. Thus, a user standing at one location can obtain hot beverage, hot water and/or warm food.



3,566,770
APPARATUS FOR INFUSING TEA, COFFEE AND THE LIKE

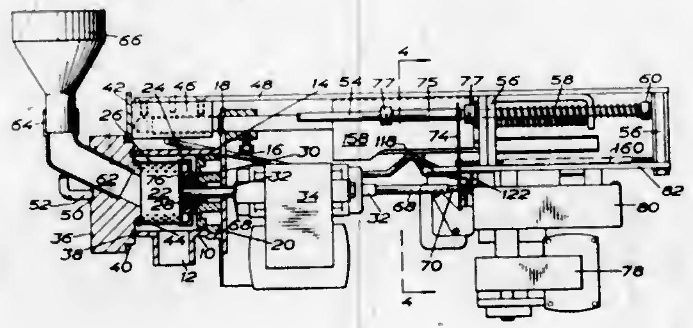
Ernest Ellis Crossley, Ansdell, Lytham, England, assignor to Ditchburn Organisation Limited, Lytham, England

Filed Oct. 21, 1968, Ser. No. 769,074

Claims priority, application Great Britain, Oct. 26, 1967, 48,637

Int. Cl. A47j *31/22*

U.S. Cl. 99—279 **9 Claims**



An apparatus for infusing a single unit serving of a beverage such as coffee wherein dry ingredients and hot liquid are fed to a chamber at least part of a wall of which is pervious to liquid, the chamber is rotated about a horizontal axis to infuse the beverage and force it outwards through the pervious wall of the chamber under the influence of centrifugal force, and the spent ingredients are discharged from one end of the chamber as by a piston disc movable relative to the chamber.

3,566,771
TEA BAG DISPOSERS

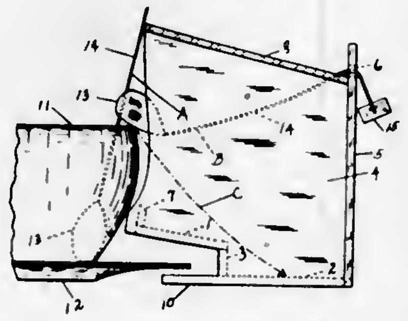
Louis W. Rosen, New York, N.Y. (2018 North Bay Road, Miami, Fla. 33140)

Filed Jan. 2, 1969, Ser. No. 788,442

Int. Cl. A47j *31/48*

U.S. Cl. 99—290 **7 Claims**

My invention relates to a self-contained disposer, with compartment therein, for transfer thereto, without spillage en route, of a plurality of stringed tea bags from cups of diverse heights, stationed alongside of it either in or out of a saucer, said compartment having its highest reach at the portal thereof for admittance therethrough of such bags from said variety of cups while preserving, through compensating means, a depth throughout the same no less than that at said portal; for deposit therein of such bags, with means for the continuous guidance of such string during the process of such transfer.



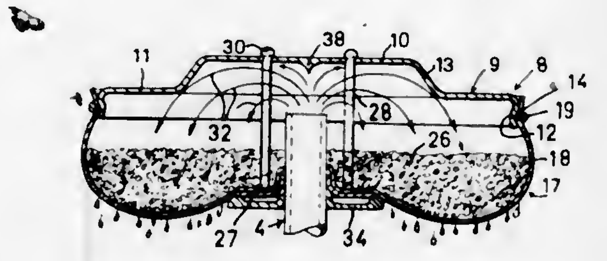
3,566,772
DISPOSABLE COFFEE CONTAINER

Herbert Albert Oliver, 2814 Steinhart Court, Santa Clara, Calif., and Ernest L. McDonald, 4197 Lemoyne Way, Campbell, Calif.

Filed Aug. 3, 1967, Ser. No. 658,100

Int. Cl. A23f *1/00*

U.S. Cl. 99—295 **5 Claims**



A disposable beverage making package adapted for quick positioning on and removal from the upper open end of the conventional central water riser tube of a percolator on which tube the package is solely supported in the upper portion of the percolator by its engagement with the upper end portion of the riser. All water is ejected from the unobstructed open upper end of the riser into the package and is uniformly distributed over the bed of ground coffee around the riser for passage through the porous support for said bed into the coffee container.

3,566,773
BACON COOKING DEVICE

George A. Chadwick, Jr., Boyds, Md. (5100 Wisconsin Ave. N.W., Washington, D.C. 20016)

Filed Feb. 11, 1969, Ser. No. 798,281

Int. Cl. A47j *37/04*

U.S. Cl. 99—349 **6 Claims**

A bacon cooking device consisting of two or more coacting metal rollers between the peripheries of which strips of bacon are fed. The rollers are heated by gas or electricity and

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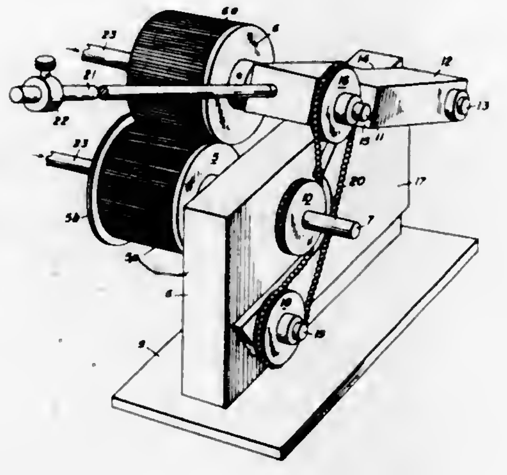
are power driven so that the bacon is automatically cooked as it is fed between the rollers. The device includes means for applying a regulated, peripheral contact pressure between the heated rollers so as to facilitate cooking.



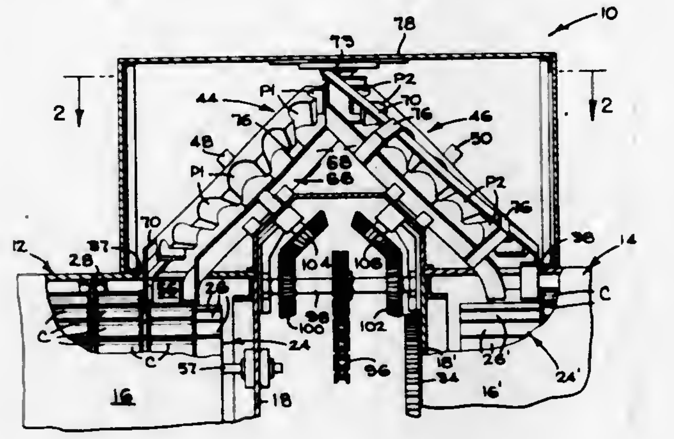
3,566,774
CONTAINER TRANSFER MECHANISM

Samuel A. Mencacci, Wilrijk, Antwerp, Belgium, assignor to International Machinery Corporation, S. A., St. Niklaas-Waas, Belgium

Filed Nov. 14, 1968, Ser. No. 775,675

Int. Cl. A23l *3/02*

U.S. Cl. 99—361 **9 Claims**



A mechanism for transferring containers between axially aligned reel and spiral cookers and coolers which mechanism includes a pair of turrets having container-holding pockets in their peripheries, each turret axis being mounted in a common plane at a 45° angle with the longitudinal axes of the cooker and cooler, the turrets being rotatable so that the pockets of one turret will confront the outlet of the cooker to receive a container and upon rotation will move the container into confronting relation with a pocket of the second turret, the pockets of said second turret being rotatable from a position confronting a pocket of said first turret into confronting relation with the inlet of the cooler so that a container may be transferred from the cooker to the cooler. The turret pockets may be constructed in the form of a rotary pressure valve.

3,566,775
FLOW CONTROLLING SYSTEM FOR COOKERS

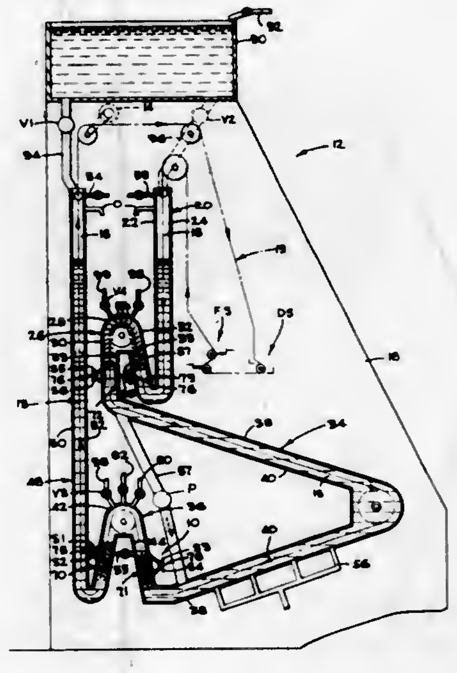
Samuel A. Mencacci, Wilrijk, Belgium, assignor to International Machinery Corporation, S.A., St. Niklaas-Waas, Belgium

Filed June 20, 1968, Ser. No. 738,448

Int. Cl. A23l *3/04*

U.S. Cl. 99—362 **13 Claims**

A protective system for maintaining the fluids in a hydrostatic cooker in static balanced condition. The protective system includes several series of baffles which upon flow of fluids therepast due to unbalanced conditions in the cooker cause measurable pressure drops. A control system is provided to detect the presence of pressure drops and open selected protective valves to rapidly direct the appropriate fluids into appropriate chambers thereby correcting the unbalanced conditions.



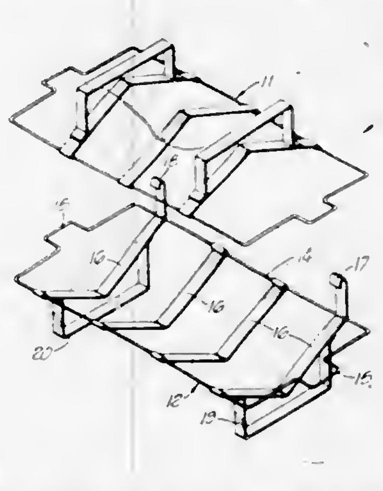
3,566,776
WIRE ROASTING FRAME

Virginia M. Young, and Garth L. Young, Jr., 327 S. Medio Drive, Los Angeles, Calif.

Filed Oct. 25, 1968, Ser. No. 770,498

Int. Cl. A47i *36/22*

U.S. Cl. 99—426 **3 Claims**



A pair of brackets are integrally secured about a roast to aid in handling. One of the brackets includes at least one hook integral with the bracket body for cooperating with parts on the other bracket to temporarily secure the brackets to one another about the roast, permitting the entire assembly to be handled as a unit.

3,566,777
REMOVABLE CLOSURE MEMBER FOR BASKET

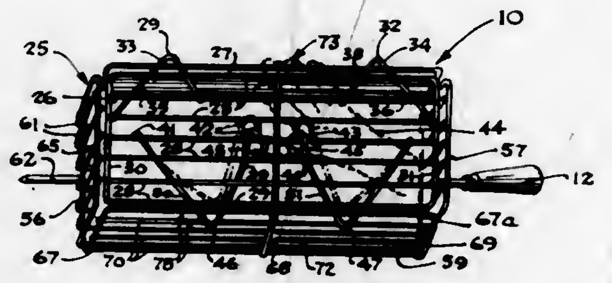
Walter Koziol, Russell, Ill., assignor to Charmglow Manufacturing Co., Antioch, Ill.

Continuation of application Ser. No. 672,780, Oct. 4, 1967, now abandoned. This application Dec. 4, 1969, Ser. No. 876,157

Int. Cl. A47j *43/18*

U.S. Cl. 99—427 **10 Claims**

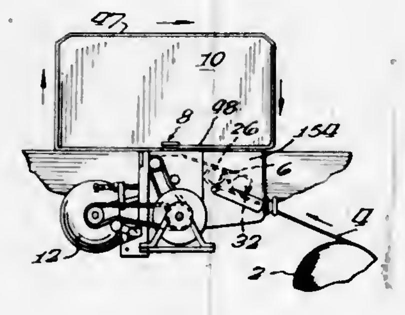
A closure member for a wire type barbecue basket which is removably retained within the confines of the basket solely by means of stationary wire flanges at one side of the closure and movable wire type projections at the opposite side. The stationary flanges and the movable projections rest on the horizontally extending wires of the basket and the movable projection is designed to be positioned inwardly to permit the



closure cover to be removed from within the confines of the basket.

3,566,778
STRAP FEEDING AND TENSIONING SYSTEM

Ilmar J. Vilcins, Northbrook, Ill., assignor to Signode Corporation
Filed Jan. 27, 1969, Ser. No. 793,967
Int. Cl. B65b *13/02*
U.S. Cl. 100—2 **9 Claims**

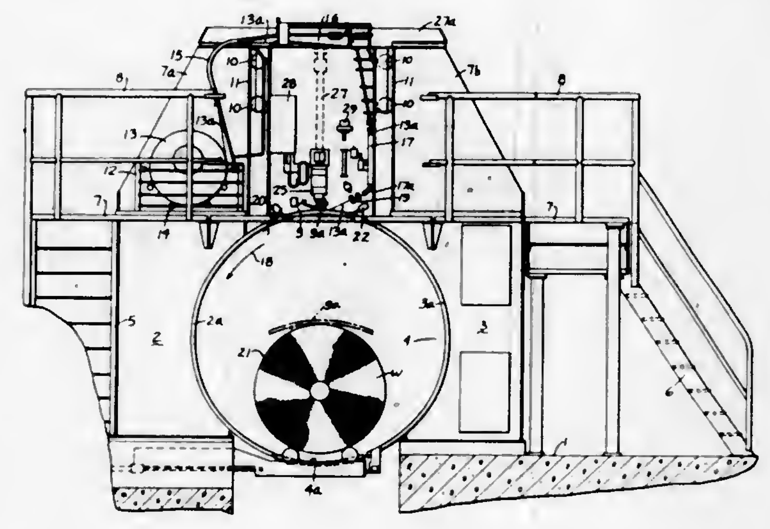


A strap feeding and tensioning mechanism for applying strap material about a package, with the mechanism including means for relieving the tension in the strap prior to severing the strap from the supply of strap material. During the strap feeding and tensioning operation, a pair of pinch rolls are positioned adjacent the periphery of a strap material feed wheel, and the pinch rolls are biased into engagement with the feed wheel and the strap material disposed thereabout. The strap tension is relieved by moving the pinch rolls to a position out of engagement with the feed wheel and the strap material.

3,566,779
APPARATUS FOR BANDING WORKMEMBERS

Curt Kronsbein, Hagen-Boelerheide, Germany, assignor to Eugen Bellmann G.m.b.H., Hammerstrasse, Germany
Filed Oct. 21, 1968, Ser. No. 769,123
Claims priority, application Germany, Oct. 20, 1967, P 15 61 989.3
Int. Cl. B65b *13/04*
U.S. Cl. 100—4 **9 Claims**

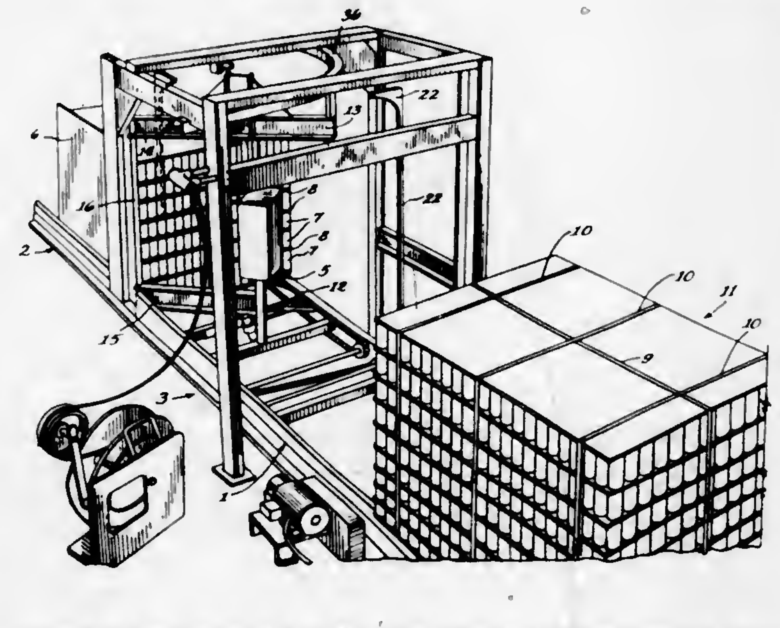
The invention pertains to an apparatus for banding workmembers in the form of coils of strip material, or bunches, or stacks of sheet or rod material, and includes a frame into which the workmember is introduced horizontally, whereupon a strip of banding material is fed into the space around the workmember and guided about the member until its ends overlap. The leading end of the strip of banding material is then clamped to the workmember. The band is then drawn tight about the workmember and clamped thereto near the trailing end. The overlapping ends of the strip of banding



material is interconnected and the band is cut off from the supply of banding material.

3,566,780
STRAPPING APPARATUS

John C. Chisek; Robert H. Campbell, Chicago, and Earl H. Hahn, La Grange, Ill., assignors to said Earl H. Hahn and Robert H. Campbell assignors to Continental Can Company, Chicago, Ill. and said John C. Chisek assignor to Interlake Steel Corporation
Filed Jan. 14, 1969, Ser. No. 790,969
Int. Cl. B65b *13/04*
U.S. Cl. 100—7 **9 Claims**



Strapping apparatus for securing binder straps round a palletized load of cans or other objects having a conveyor along which a load is transported. The conveyor has a first station where the load is prepared and a longitudinal strap is applied and a second station where additional straps are applied transversely to the direction of the first strap. A gate provided with a strapping means is pivotable between the first station and the second station so that it can be employed for applying all of the straps to the load.

3,566,781
DEVICE FOR THE PRESSURE PROCESSING OF A CONTINUOUS PARTICULARLY TEXTILE WEB

Friedrich Kunze, Zittau, Germany, assignor to Veb Textilmaschinenbau Zittau, Zittau, Germany
Filed Aug. 12, 1968, Ser. No. 751,802
Int. Cl. B30b *3/04*
U.S. Cl. 100—172 **5 Claims**

An apparatus for uniformly pressure treating a running web, such as an apparatus for squeezing a textile web, with

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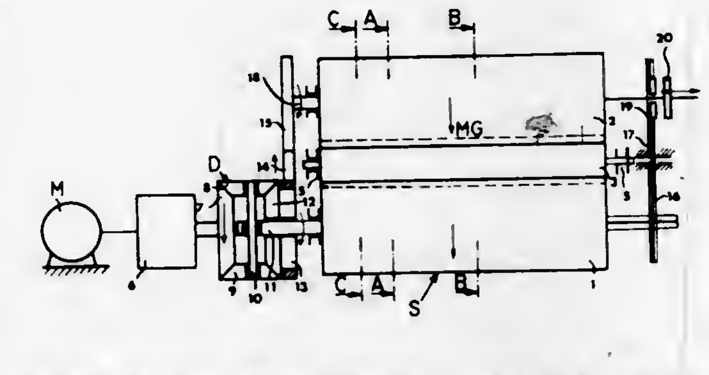
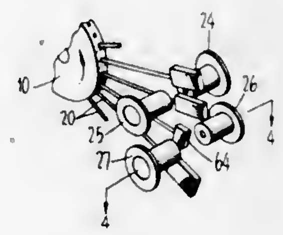
two outer rollers rotating in the same direction, and a central roller arranged between and slightly ahead of the outer rollers to define with one of them a working gap, in which the central roller, for purposes of closing the gap is movable



towards the gap, one of the outer rollers being driven by a differential transmission which includes a main drive member and an auxiliary drive member for this outer roller, while the outer roller drives the auxiliary drive member.

3,566,782
ADDRESS SYNCHRONIZER

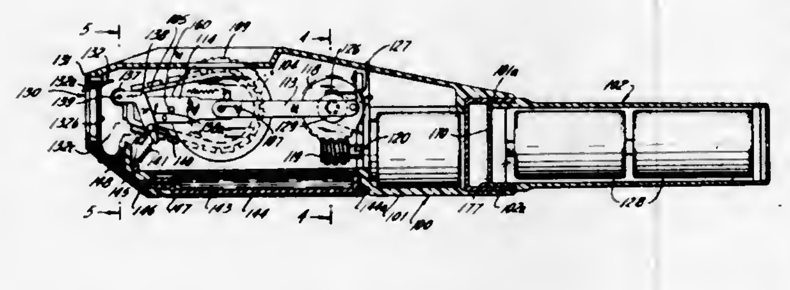
Beat A. Kocher, Alameda, Calif., assignor to The Singer Company
Filed Aug. 21, 1968, Ser. No. 754,431
Int. Cl. B41j *1/34*
U.S. Cl. 101—93 **4 Claims**



A synchronizer for the address counter of an on-the-fly print wheel has two photoelectric cells, one of which generates pulses in response to all character pads, or spaces, of the wheel, and the other in response to all spaces but one. The unpaired pulse is used for setting the address counter.

3,566,783
ELECTROMECHANICAL MARKING DEVICE

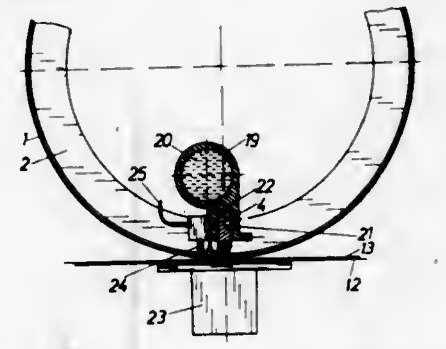
Howard Price, Kings Point, and Joseph Laszlo, New York, N.Y., assignors to International Patents & Development Corp.
Filed May 28, 1969, Ser. No. 828,573
Int. Cl. B41j *3/34, 7/84*
U.S. Cl. 101—108 **10 Claims**



An electrically operated marking device for stamping articles repeatedly with preset characters. Marking of an article is accomplished by placing the marking device in contact with the article with slight pressure to close a switching contact. The closing of the switch causes the marking device to apply an impression of the preset characters to the article.

3,566,784
SQUEEGEE DEVICE

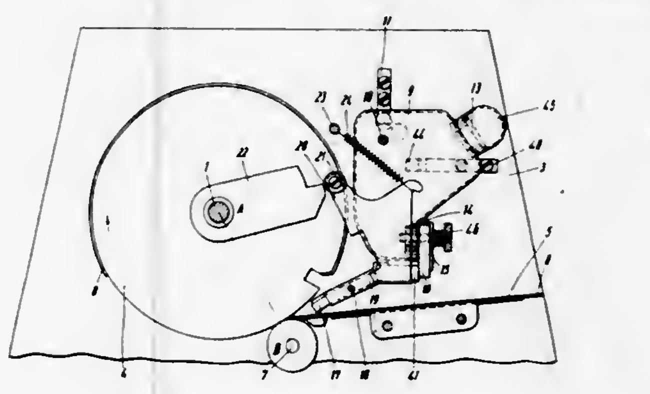
Mathias Mitter, Klagenfurt, Austria, assignor to Johannes Zimmer, Klagenfurt, Austria
Filed May 23, 1968, Ser. No. 731,549
Claims priority, application Austria, May 26, 1967, A4888/67;A7591/67
Int. Cl. B41l *13/06*
U.S. Cl. 101—120 **2 Claims**



A squeegee device for stencil printing machines having rotary screens wherein the squeegee is arranged on the squeegee carrier movable towards the support. The squeegee is under the action of forces directed to the support and essentially distributed over the working breadth. The squeegee on the one hand and one element of the support on the other are working elements acting on each other by magnetic forces wherein at least one of the elements is magnetic and the other at least partially of magnetizable material. An ink pipe projects inside a rotary screen and the squeegee carrier is connected with the ink pipe. A slit open towards the support is provided in the squeegee carrier and the squeegee is adjustable in the slit.

3,566,785
MOISTENING APPARATUS FOR DUPLICATING MACHINES

Gerhard Ritzerfeld, Berlin 33 (Dahelm), Germany
Continuation-in-part of application Ser. No. 719,142, Apr. 5, 1968. This application Jan. 31, 1969, Ser. No. 795,566
Int. Cl. B41l *7/08*
U.S. Cl. 101—132.5 **11 Claims**

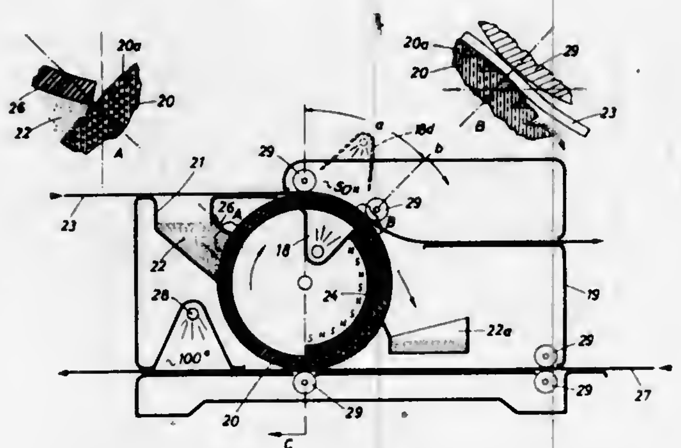


The moistening device of a duplicating machine has a soft highly absorbent felt pad which is in contact with a felt pad receiving liquid from a container, and also in contact with an applicator felt pad which moistens a copy sheet.

3,566,786
IMAGE PRODUCING APPARATUS

Helmut Kaufer, Am Duellanger Gruenwald near Munich; Erich Burger, Ter-Meer Str.17, Unterhaching near Munich, and Hans-Peter Huber, Saebenerstr. 100, Munich, Germany
Original application Jan. 29, 1965, Ser. No. 428,964, now Patent No. 3,472,695. Divided and this application Mar. 6, 1969, Ser. No. 804,956
Int. Cl. B41m *1/10;* **B41f** *9/00*
U.S. Cl. 101—150 **10 Claims**

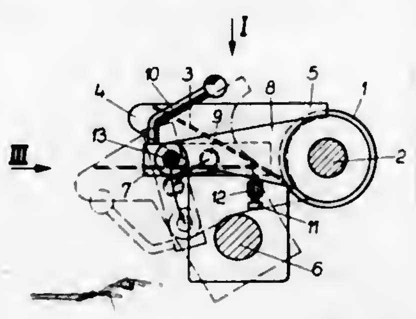
A copy of an image is produced by utilizing the temperature dependency of the magnetic permeability of a magnetizable material in a device which comprises a cylindrical wall having a horizontal axis and formed with an inner cavity. Along the outer periphery of the cylindrical wall are formed a plurality of closely spaced grooves extending in longitudinal direction of the cylindrical wall. The cylindrical wall is rotatable about its axis and a feeding arrangement is provided for introducing magnetizable pulverulent material such as a magnetic ink into the grooves at a portion of the outer periphery of the cylindrical wall which is upstream of the top portion of the rotating wall. Means are provided for passing concurrent with the rotation of the cylindrical wall an image-carrying sheet along the top portion thereof and for passing a carrier sheet for the image to be formed along the bottom portion of the cylindrical wall, so that when the cylindrical wall serves as a printing cylinder the carrier sheet passes the cylinder in a printing plane and contacts the cylinder along a printing line formed by the lowermost portion of the cylinder. A heating arrangement is so located as to heat the image-carrying sheet in the area of contact of the same with the outer surface of the cylindrical wall so that the magnetizable material in the grooves located in this area of contact will be selectively heated according to a pattern corresponding to the image, thereby forming in the magnetizable material in the grooves a selective pattern of predetermined magnetic permeability corresponding to the image. A source of magnetic force is located in the cavity of the cylinder adjacent to the portion of the cylindrical wall which passes from the area of contact with the image towards the printing line, and serves for holding in the grooves only the portions of the magnetic pulverulent material which forms the selective pattern of predetermined permeability, whereas the other portions of the pulverulent material are allowed to fall off the cylinder. The source of magnetic force is so arranged that the magnetic force will terminate adjacent but spaced from the radial plane of the cylindrical wall passing through the printing line, whereby at the printing line the pulverulent material forming the selective pattern will no longer be subjected to magnetic force and will drop from the grooves onto the carrier sheet forming thereon a copy of the image.



3,566,787
INK DUCT APPARATUS FOR PRINTING PRESSES

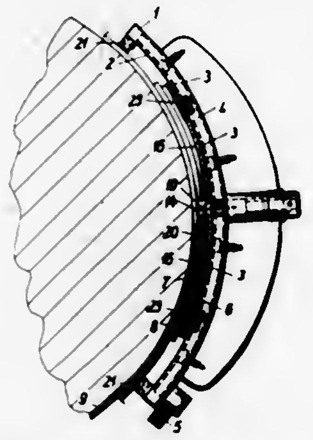
Franz Moos, Frankenthal, Pfalz, Germany, assignor to Schnellpressenfabrik Frankenthal, Albert & Cie, Aktiengesellschaft, Postfach, Germany
Filed Sept. 18, 1968, Ser. No. 760,606
Claims priority, application Germany, Sept. 18, 1967, 1,611,288
Int. Cl. B41f *31/06*
U.S. Cl. 101—363 **6 Claims**

This invention provides an ink duct apparatus for printing presses. The ink duct is mounted in the side frames of the printing press adjacent ink rollers which are also mounted therein. The sidewalls of the ink duct are in ink tight contact with the roller. Each ink duct is equipped with an ink knife. The ink duct may be swung away from and toward the ink roller about an axle that is parallel to the axle of the ink roller.



3,566,788
APPARATUS FOR POSITIONING INDIVIDUAL PLATES IN EXACT REGISTER ON ROTARY LETTER PRESS PRINTING MACHINES

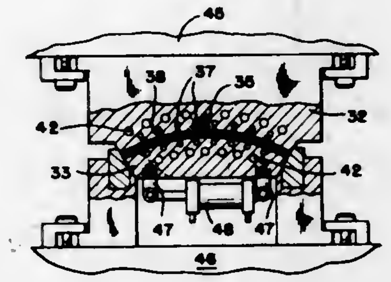
Hans-Bernhard Bolza-Schuenemann, Wurzburg, Germany, assignor to Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft, Wurzburg, Germany
Filed July 24, 1968, Ser. No. 747,331
Claims priority, application Germany, Mar. 12, 1968, 42093
Int. Cl. B41f *27/06, 27/12, 13/16*
U.S. Cl. 101—426 **1 Claim**



This is a handling device for placing and removing individual printing plates on letterpress rotaries in exact position on the printing or plate cylinder. There is an arcuate transparent shell of the size of the individual plate or a little greater. This shell has spaced apart passageways in the inner concave face that have connecting outlets in the face. The passageways are connected to pipe fittings that are in turn connectable to a vacuum source. At each side of the arcuate shell at points midway the ends of the shell, there is fixedly mounted a retractable spring biased punch which when released forces the punch outward from the inner face of the shell. Also mounted along one side and along one end of the shell are two spaced apart abutments that are slidably mounted in T-shaped grooves in the inner face of the shell. Each abutment is threadedly connected to a knurled end adjusting screw that is threadedly received in a nut fixed to the shell. The threads are slightly different in pitch in the nut and the abutment and therefore a differential screw is provided that affords micro adjustment of the abutments that position a printing plate. The vacuum shell has positioned on its inner face a transparent proof and holes are bored in the proof in alignment with the vacuum holes in this concave inner face of the shell. The shell with proof secured thereto as with double face tape is placed so the transparent proof aligns with its individual printing plate to be removed. The vacuum holes in the proof and shell abut the face of the printing plate. The vacuum is lightly applied at first so that the shell and proof while clinging to the printing plate may be moved into exact registry with the printing plate to be removed. The vacuum is fully applied and the spring pressed punches are released so that a keyhole is formed extending into the printing plate carrier shim mounted on the printing cylinder. This provides for exact remounting and registry of the same or other plates.

3,566,789
METHOD OF MANUFACTURING A COMPOSITE LETTERPRESS PLATE WITH SCARF DEFINING POCKETS

Robert F. Hecht, 115 Broadstreet Road, Centerville, Ohio, and Stanley Perdue, 345 Blatty Drive, Xenia, Ohio
Filed Aug. 26, 1968, Ser. No. 755,059
Int. Cl. B41c *1/18;* **B41d** *3/08*
U.S. Cl. 101—401.1 **3 Claims**



A novel printing plate is produced by placing an electrotype shell and a partial base in a mold cavity, holding them in place in properly spaced relation to each other as by means of vacuum and hydraulically or pneumatically operated hold down mechanisms, and filling the mold cavity with molten plastic or similar synthetic material from a plastic injection machine. The partial base skeleton includes scarf cavities, and portions of this skeleton may be embedded in the plastic when it hardens into the final shape.

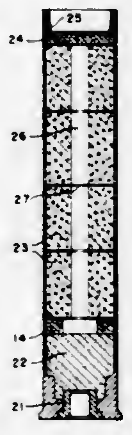
3,566,790
PACKAGED AQUEOUS SLURRY TYPE EXPLOSIVES

Herbert G. Knight, Jr., Flanders, N.J., assignor to Hercules Incorporated, Wilmington, Del.
Continuation-in-part of application Ser. No. 694,097, Dec. 28, 1967, now Patent No. 3,442,729. This application Dec. 16, 1968, Ser. No. 784,211
Int. Cl. F42b *3/00*
U.S. Cl. 102—24 **18 Claims**

A packaged, and thickened, but generally pourable, inorganic oxidizer salt explosive of the aqueous slurry type is provided which contains a "release" agent to preclude adhesion of the mass of explosive to the inner wall of the container during gravitation of the mass therefrom. The agent is disposed so as to be in direct contact with said mass and the container inner wall across the mass-inner wall interface during the gravitation. In certain embodiments the agent serves as a fuel for the subsequent detonation.

3,566,791
SIGNAL CARTRIDGE FOR PROVIDING LONG DURATION DISPLAY

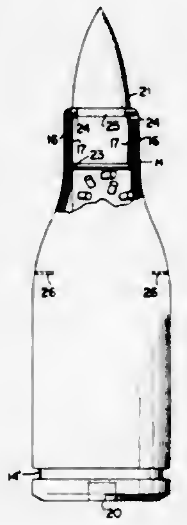
Carl W. Lohkamp, Scotland, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Mar. 20, 1969, Ser. No. 808,734
Int. Cl. C06d *1/10*
U.S. Cl. 102—32 **3 Claims**



A signal cartridge for providing a night display of relatively long duration having a plurality of flare pellets within a cartridge case and having means for expelling and igniting the flare pellets to produce a shower display of burning chaff which has been mixed into the flare pellets.

3,566,792
AMMUNITION

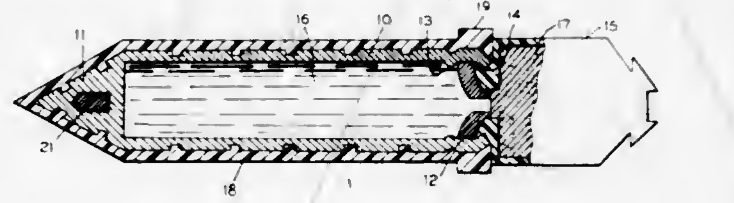
Andrew J. Grandy, 2707 Grant Ave, North Hills, Pa.
Filed June 26, 1968, Ser. No. 740,141
Int. Cl. F42b *5/26*
U.S. Cl. 102—38 **3 Claims**



A built-up cartridge case in which a blanked and formed steel metal skeleton is provided having longitudinal finger elements that are laminated with reinforced plastic material.

3,566,793
ARMOR PIERCING ROCKET

George R. Kruzell, 4301 Hotchkiss, Bay City, Mich.
Filed Sept. 27, 1968, Ser. No. 763,321
Int. Cl. F42b *13/06, 13/28*
U.S. Cl. 102—49.3 **1 Claim**

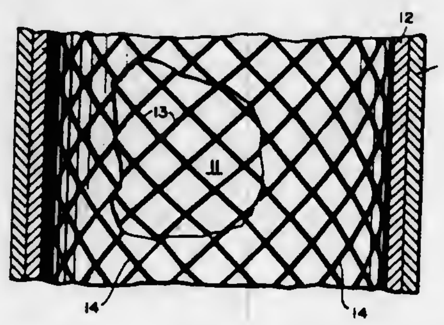


An armor piercing rocket-type projectile having a drill-type penetrator embedded within the forward nose portion thereof so that upon impact the penetrator is driven forward from the projectile, into the target and displaces material as it moves therethrough.

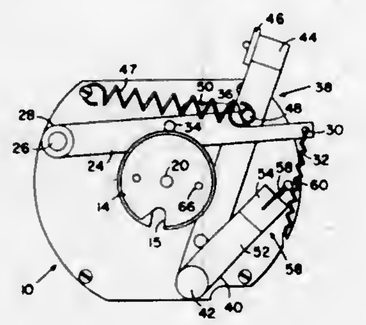
3,566,794
CONTROLLED FRAGMENTATION OF MULTI-WALLED WARHEADS

John Pearson; Robert G. S. Sewell, and Richard T. Carlisle, China Lake, Calif., assignors to United States of America as represented by the Secretary of the Navy
Filed Nov. 26, 1958, Ser. No. 776,656
Int. Cl. F42b *13/18*
U.S. Cl. 102—67 **3 Claims**

A fragmentation device comprising; an inner fragmentation casing comprising a right circular cylindrical tube of fracturable material of uniform wall thickness adapted to be impulsively loaded internally thereof, said wall having intersecting sets of equally spaced helical stress-forming grooves therein disposed circumferentially about the inner surface thereof and extending in the longitudinal direction of the tube, the spacing and depths of said grooves with respect to the thickness of said wall being such that upon a predetermined amount of internal impulse loading, cleavage surfaces due to shear propagation and emanating at a groove, are formed in two outward directions at 45° away from a diametrical plane containing the axis of the tube and a groove and each cleavage surface intersects, at the outer surface of the tube, with a like cleavage surface emanating from an adjacent groove and an outer like fragmentation casing surrounding said inner casing with its inner surface engaging the outer surface of the inner casing, whereby impulsive loading within the inner casing transmits forces to the outer casing prior to fragmentation of the latter and both casings fragment simultaneously.



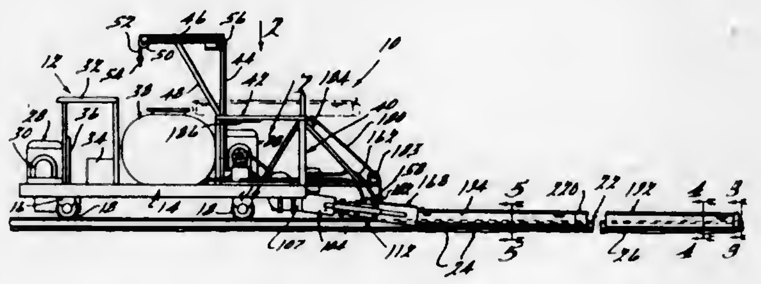
3,566,795
ACCELERATION-ACTUATED STRIKING MECHANISM
Bernie J. Cobb, and Frank R. Skinner, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the ARMY
Filed May 23, 1968, Ser. No. 731,518
Int. Cl. F42c *9/02, 9/04*
U.S. Cl. 102—83 **5 Claims**



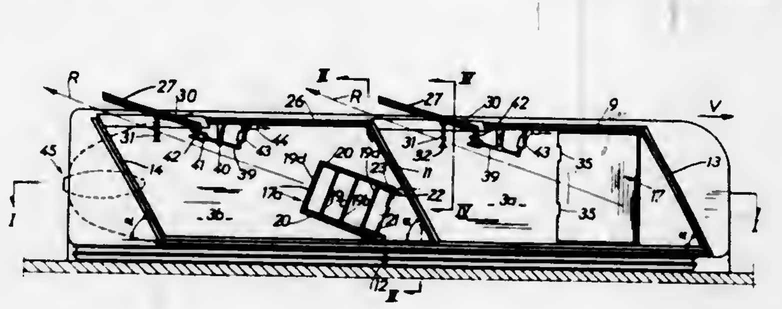
A high force striking mechanism actuated in response to application of axial acceleration forces acting thereon. The mechanism includes a spring-biased cam disposed for rotation upon release thereof from a first restrained position. The cam is held in the restrained position by a weighted member having a spring secured thereto and extending therefrom in interfering engagement with the cam. Acceleration forces acting on the weighted member causes displacement thereof for release of the spring-biased cam from its restrained position for rotation of the cam. A first spring-biased arm supports a spring-biased striker arm in cocked position against a cam surface provided on the first arm. A cam follower carried on the first arm is disposed for movement along the periphery of the cam until it falls into a cam slot thereon to cause displacement of the first arm. The spring-biased striker arm is released as a result of the displacement of the first arm to cause the striker to impact on a percussion squib or other mechanisms with high force.

3,566,796
RAIL TEMPERATURE REGULATING APPARATUS
Clifford C. Herrick, White Plains, N.Y., assignor to Penn Central Company.
Original application Mar. 28, 1967, Ser. No. 631,112, now Patent No. 3,451,470, dated Feb. 24, 1969. Divided and this application Mar. 28, 1969, Ser. No. 840,864
Int. Cl. B60h *3/04;* **E01b** *29/32*
U.S. Cl. 104—2 **12 Claims**

An apparatus for controlling the temperature of a section of railroad rail in order to expand or contract the section preparatory to anchoring the same to its associated roadbed; the apparatus comprising a self-propelled wheeled vehicle which is adapted to travel along a railroad right-of-way and is provided with a pair of elongated temperature regulating enclosures which extend rearwardly from the vehicle and partially enclose the railroad rails; heating and cooling means on the vehicle for raising and lowering the temperature within the enclosures to heat or cool the rail sections enclosed therewithin; and means for moving the enclosures between an inactive position on the vehicle to an operative position extending rearwardly of the vehicle.

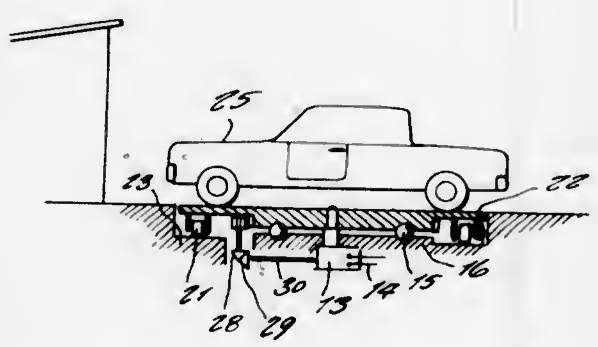


3,566,797
JET THRUST PROPULSION OR BRAKING DEVICE FOR A GROUND EFFECT MACHINE
Francois Louis Giraud, Plaisir, France, assignor to Societe De L' "Aerotrain", Paris, France
Filed Oct. 17, 1968, Ser. No. 768,286
Claims priority, application France, Oct. 19, 1967, 125.114
Int. Cl. B60v *1/04, 1/14, 1/18*
U.S. Cl. 104—23 **7 Claims**



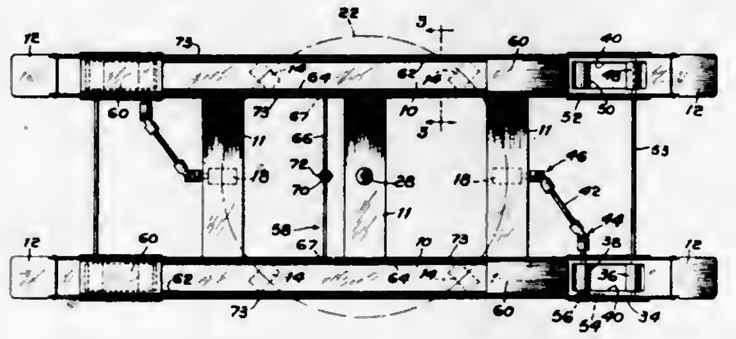
A propulsion or braking device for a fluid cushion machine comprising means for supplying pressurized fluid to the cushion and exhausting fluid therefrom with a velocity component directed along the longitudinal axis of the machine.

3,566,798
AUTOMOBILE TURNTABLE
Herbert G. Peitzman, Des Moines, Iowa (P. O. Box 12, Johnston, Iowa 50131)
Filed Feb. 10, 1969, Ser. No. 797,750
Int. Cl. B60s *13/02*
U.S. Cl. 104—44 **1 Claim**



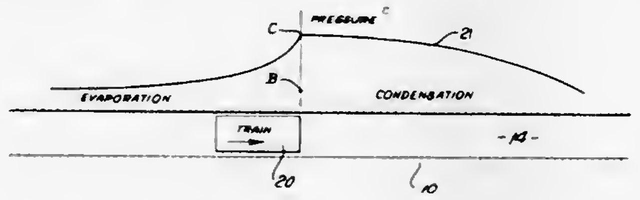
A turntable for an automobile driveway of limited width so as to permit a vehicle to run around for forward travel along the driveway, the turntable including a mechanism for rotating the same.

3,566,799
MOTOR VEHICLE TURNTABLE ASSEMBLY
James J. Stern, 115 Short Hills Road, West Orange, N.J.
Filed May 5, 1969, Ser. No. 821,710
Int. Cl. B60s *13/02*
U.S. Cl. 104—44 **10 Claims**



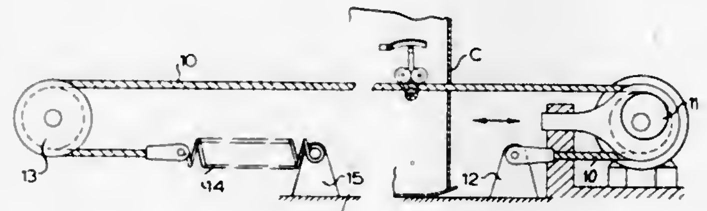
A motor vehicle turntable assembly for a garage or driveway or the like is provided for turning a motor vehicle around in a limited space. The turntable is mounted on support rollers which directly contact the driveway surface and are directly driven by the vehicle rear wheels via drivable wheel means mounted on the turntable and engaged by the vehicle rear wheels when the rear wheels are driven in reverse. Drivable roller means are disposed at each end of the turntable and a slide assembly is provided for covering the drivable roller means closest to the vehicle as it is driven onto the turntable and for uncovering the said closest drivable wheel means after the vehicle front wheels have moved over them.

3,566,800
TRANSPORTATION SYSTEM
Raymond L. Chuan, Altadena, and Norman V. Petersen, Chatsworth, Calif., assignors to The Susquehanna Corporation, Fairfax, Va.
Filed Nov. 28, 1967, Ser. No. 686,105
Int. Cl. B61b *13/10*
U.S. Cl. 104—138 **10 Claims**



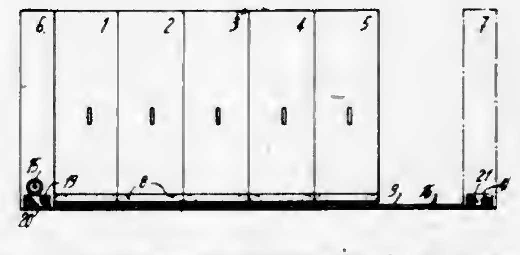
A novel transportation system is described including a payload carrying vehicle, and a close fitting tube through which the vehicle travels. Aerodynamic drag on the vehicle is substantially eliminated by effecting, thermodynamically, a phase change in the tube medium in advance of the vehicle which is reversible to the rear of the vehicle.

3,566,801
TRANSPORT MEANS
Joseph Ashurst, Wigan, England, assignor to Gullick Limited, Wigan, England
Filed Jan. 27, 1969, Ser. No. 794,2[illegible]6
Claims priority, application Great Britain, Feb. 28, 1968, 9608/68
Int. Cl. B61b *9/00, 7/20*
U.S. Cl. 104—173 **14 Claims**



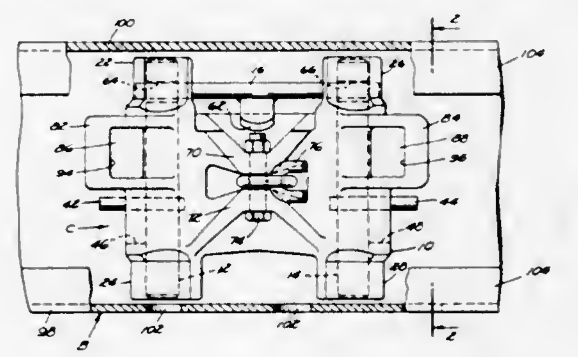
A transport means comprises a carriage and an elongated member, for example, a flexible cable, anchored at and extending between the ends of a path to be travelled by said carriage. Means is provided for oscillating said elongated member in the direction of its length and the carriage is connected to the elongated member by a unidirectional driving device whereby the vehicle is caused to travel in one direction along the length of the elongated member when the latter is oscillated. Two oppositely acting unidirectional driving devices may be provided for connecting the carriage to the elongated member, one or other of these unidirectional driving devices being selected according to the direction along the elongated member in which it is desired that the carriage should travel.

3,566,802
ELECTRICALLY CONTROLLED TRACTION DEVICE FOR MOVABLE UNITS, ESPECIALLY CONTAINERS OR SHELVING UNITS
Harald O. Lundgvist, 25, route deMalagnou, Geneva, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,456
Claims priority, application Switzerland, Sept. 12, 1967, 012814/67
Int. Cl. A47b *53/02;* **B61b** *13/12*
U.S. Cl. 104—172 **19 Claims**



A device for moving several shelving units to open a gangway between any of them. The units are mounted on rails over a chain and have a solenoid to operate a plunger to engage the chain. A motor is variably coupled to the chain depending on the number of units to be moved and switches mounted along side of the rails control the movement of the units over specific lengths.

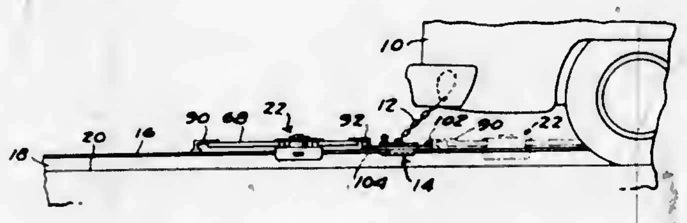
3,566,803
VEHICLE TIE-DOWN STRUCTURE
Donald J. Blunden, Southfield, and Israel D. Peisner, Huntington Woods, Mich., assignors to Whitehead & Kales Company, River Rouge, Mich.
Filed July 5, 1968, Ser. No. 742,681
Int. Cl. B60p *7/10;* **B61d** *45/00*
U.S. Cl. 105—369 **9 Claims**



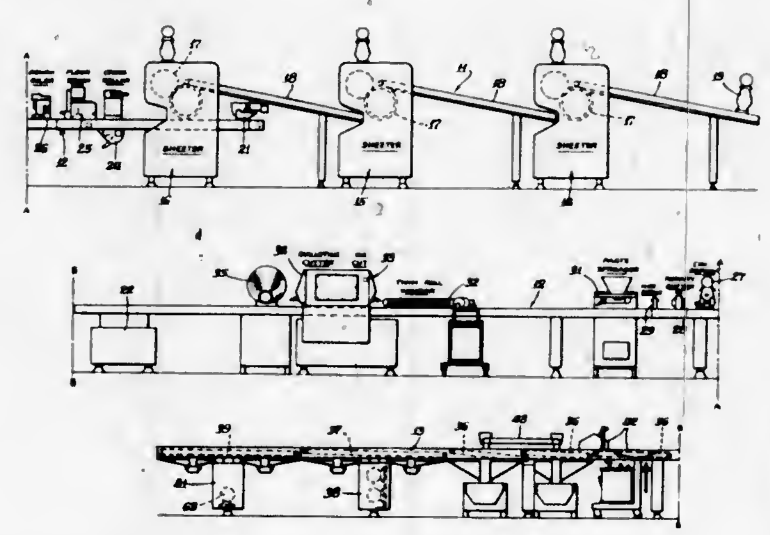
This invention relates to a tie-down system for vehicles.

3,566,804
JACK FOR ADJUSTING CARGO HOLDDOWN APPARATUS
Walter F. Mietla, Dearborn, Mich., assignor to Portec Inc., Chicago, Ill.
Filed Dec. 6, 1968, Ser. No. 781,821
Int. Cl. B61d *45/00;* **B60p** *7/08;* **B65i** *1/22*
U.S. Cl. 105—369 **12 Claims**

A rack and pinion type jack having a push-pull implement and bidirectional ratchet for moving cargo tiedown devices along their anchoring rails or channels while such devices are connected to the cargo to thereby tension the cargo securing chains. The jack has a multipurpose framework rendering it compatible with T-beam anchoring rails and also channel type anchoring rails.

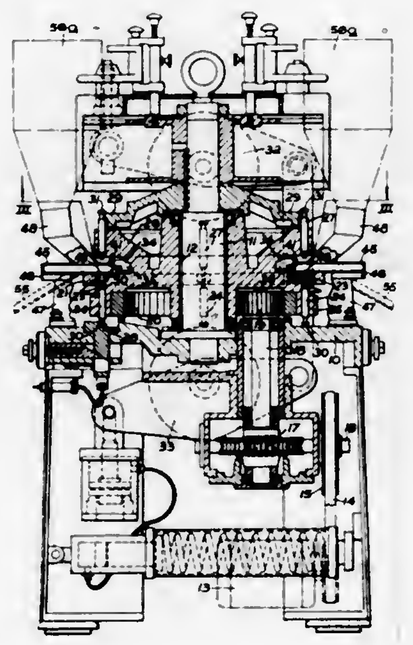


3,566,805
PASTRY PRODUCT PRODUCTION SYSTEM
Alfred L. Meyer, Wood Dale, Ill., assignor to Anelsberger Brothers Inc., Northbrook, Ill.
Filed Sept. 9, 1968, Ser. No. 758,246
Int. Cl. A21c *11/10*
U.S. Cl. 107—1 **15 Claims**



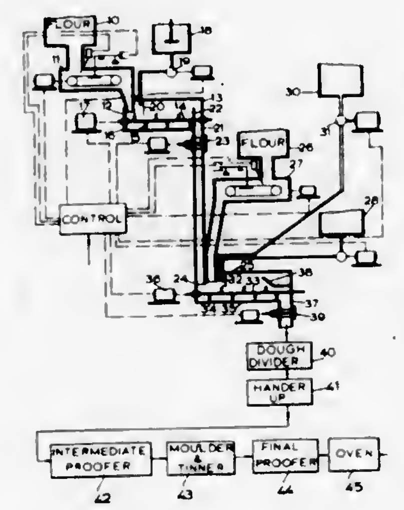
A pastry product production system for programmed sheeting, forming, cutting and finishing operations, comprising sheeting means for receiving pastry dough and rolling it into a continuous sheet and including variable speed motor driving means and transmission means having speed-change mechanism; makeup conveyor means for receiving the dough sheet and including a second variable speed motor driving means and selectively operable cross roller, flour brush, dough oiler, cinnamon duster, rotary cutter, paste spreader, filling depositor, and roll winder means; cutting means including a high speed guillotine unit with a third variable speed motor driving means and transmission means having speed-change mechanism, and a low speed die cut unit with a vertically reciprocal die, a fourth variable speed motor driving means and transmission means including speed-change mechanism, a normally inoperative clutch, pulse-responsive means automatically operable to effect cyclic operation of the clutch, pulse control means for periodically energizing the pulse-responsive means, means selectively operable to vary the period of the pulse control means, a brake cyclically operable to stop the die at its uppermost position, a die guide reciprocable horizontally to move the die at the bottom of its stroke with the dough being cut, selectively adjustable means for varying such horizontal throw of the die guide, and a protective hood with a safety switch for stopping operation of the system when the hood is opened: finishing means including conveyors and a fifth variable speed motor driving means; and a control unit including a variable speed generator for supplying alternating current to all of the motor driving means and selectably varying the frequency thereof to synchronize the several variable speed motor driving means, and means for individually adjustably controlling operation of the sheeting, makeup, cutting and finishing means to selectively program the production of different types of products, including means for indicating and controlling the speed of the generator, means for indicating the output speed of each transmission means, and selectively operable controls for each speed-change mechanism.

3,566,806
ROTARY TABLETTING MACHINES
Eric Forster, and Ernest Frederick Sumner, Liverpool, England, assignors to Manesty Machines Limited, Liverpool, England
Filed July 24, 1969, Ser. No. 844,525
Claims priority, application Great Britain, July 25, 1968, 35505/68
Int. Cl. B30b *11/02*
U.S. Cl. 107—17 **7 Claims**



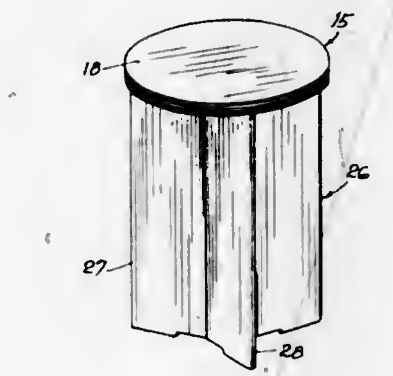
In a rotary tabletting machine, the annular space occurring between the die table and the usual flange thereabove is enclosed as a material feed chamber for containing material to be tabletted, so that such material moves continuously with the die table and is involved in the minimum of directional change for filling the dies.

3,566,807
PROCESSES FOR MAKING BREAD
George H. Blanchard, Kilburn Hall, and William Dixon, Twickenham, England, assignors to Spillers Limited, London and Wallace & Tiernan Limited, Tonbridge, England
Filed Oct. 3, 1968, Ser. No. 764,775
Claims priority, application Great Britain, Oct. 6, 1967, 45710/67
Int. Cl. A21d *2/22*
U.S. Cl. 107—54 **17 Claims**



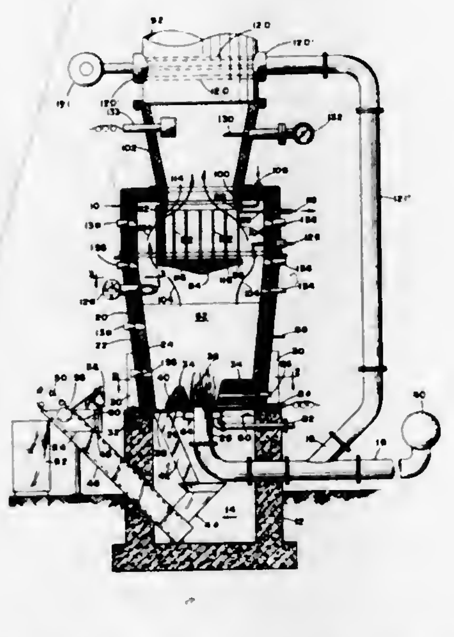
There is disclosed a process for the continuous production of dough from normal bleached and treated flour, in which a stream of about three-quarters of the flour and a stream of a suspension of yeast in water are mixed under controlled conditions in a first mixing stage to form a batter which is fed to a second mixing stage in which the remainder of the flour, any remainder of the water are added and mixed under controlled conditions to form dough, which is delivered as a continuous flow of dough to a divider. Fat and/or improvers and/or additives can be included in either or both the mixing stages and the normal fermentation period can be eliminated.

3,566,808
KNOCKDOWN CORRUGATED PAPER BOARD TABLE
Arthur R. Slate, Jr., Chicago, and Michael F. Notko, North Riverside, Ill., assignors to Sears, Roebuck and Co., Chicago, Ill.
Filed Apr. 7, 1969, Ser. No. 814,035
Int. Cl. A47b *3/06*
U.S. Cl. 108—157 **8 Claims**



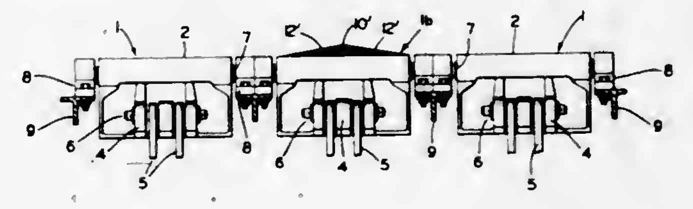
A knockdown table formed from die-cut and scored panels of corrugated paper board adapted to be shipped in flat condition and to be erected at the point of use into a table which has substantial stability and strength.

3,566,809
INCINERATOR FOR WASTE MATERIAL
Robert W. Carry, Oradell; Francis J. Flemming, Plainfield, and Arthur W. Hindenlang, Edison, N.J., assignors to Ecology Industries, Inc., South Plainfield, N.J.
Filed July 14, 1969, Ser. No. 841,262
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 **11 Claims**



An incinerator of industrial and commercial type comprising a vertical combustion chamber arranged to receive processed waste material of combustible nature, including trash and garbage, and discharge the same upwardly through the bottom of the chamber for initial combustion by a primary burner surrounding the inlet to the chamber, the exhaust for products of combustion being positioned adjacent the top of the chamber and a horizontal separator being positioned in spaced relationship to the inlet to the exhaust means operable to cool the gases of combustion and also deflect solid material back to the combustion zone, and ash discharge means located in the bottom of the combustion chamber for discharge into a quenching pool having conveyor means to remove the quenched ash upwardly for discharge to suitable disposal means.

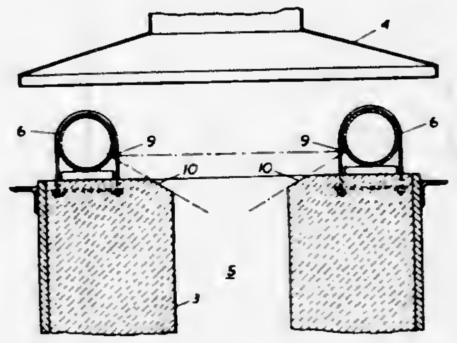
3,566,810
INCINERATOR STOKER WINGED GRATE
Donald J. Sprague, Massillon; Joseph F. Stenglein, Centerville, and Glenn T. Dubs, Canton, Ohio, assignors to Canton Stoker Corporation, Canton, Ohio
Filed Aug. 12, 1969, Ser. No. 849,349
Int. Cl. F23b *1/22*
U.S. Cl. 110—39 **6 Claims**



A pivoted grate for an incinerator stoker having a high point at the rear of its top surface, the high point being located at the median line of the incinerator stoker. The top surface of the grate is sloped down forwardly and laterally from said high point.

With an even number of pivoted grates in each row, the two pivoted grates in the center of each row are winged grates, each having the high point at the inner rear corner of the top. Where an uneven number of pivoted grates is located in each row, only the center grate of each row is a winged grate, the high point being at the center of the rear edge of the top.

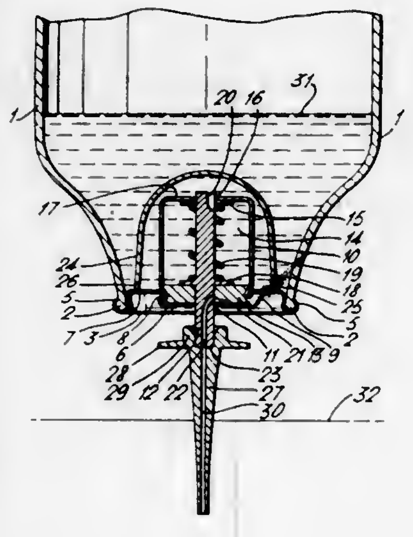
3,566,811
AIR DAMPER
David J. Tidd, Scott Township, Pa., and Lawrence E. Carroll, Oswego, N.Y., assignors to said Carroll assignor to Alcan Research and Development Ltd., Montreal, Canada and said Tidd assignor to Loftus Engineering Corporation, Pittsburgh, Pa.
Filed Mar. 12, 1969, Ser. No. 812,951
Int. Cl. F23j *11/00*
U.S. Cl. 110—184 **3 Claims**



There is disclosed a damper for use in furnace flues wherein opposed sheets or curtains of air are directed from ducts on opposite sides of a flue toward the center at a downward slope, and regulation thereof by controlling the damper by varying the air flow to the ducts.

3,566,812
DISPENSING APPARATUS

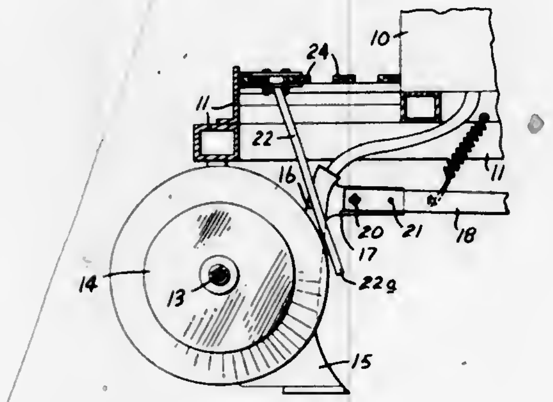
Edward Barnes, Speldhurst, and Kenneth Horace Nance, Bromley,Kent, England, assignors to Direct Nitrogen Limited, London, England
Filed June 10, 1968, Ser. No. 735,664
Claims priority, application Great Britain, June 28, 1967, 29718/67
Int. Cl. A01c *23/02*
U.S. Cl. 111—7.3 **7 Claims**



A pressure pack for dispensing anhydrous nitrogenous fertilizers containing anhydrous liquid ammonia and a normally solid compound soluble therein for example ammonium nitrate. The pack is safe to use and since the fertilizer is self dispensing no propellant is required. The pack is particularly useful for domestic garden use.

3,566,813
SEED BOOT RESTRICTOR FOR SEED DRILLS

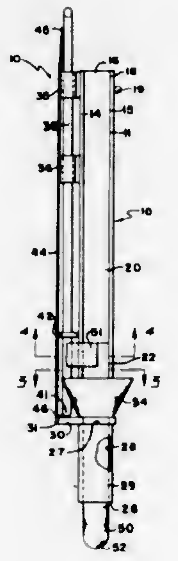
Archie D. Staley, Rte 1, and Ernest G. Stoess, P.O. Box 656, Washtucna, Wash.
Filed Sept. 12, 1968, Ser. No. 759,439
Int. Cl. A01c *5/06*
U.S. Cl. 111—85 **5 Claims**



In a seed drill of the type wherein a bladelike furrow opener is carried at the lower end of and in front of the seed tube, and pairs of rotating packer wheels receive a portion of the seed tube and furrow opener between them, this invention provides a guide means extending downward from the frame to keep the seed tube from swinging or twisting into engagement with the packer wheels. The guide means consists of a forked member fixed to the frame and having its lower portions extending down in front of the packer wheels along the sides of the seed tube and across the tube inhibiting transverse movement of the tube to such extent as to bring the tube into contact with the packer wheels. The seed tube is free to move up and down between the portions of the guide for adjustment of depth of planting of the seed and for transport and is protected against wear by engagement with the rotating packer wheels in all of its positions.

3,566,814
PLANTING TOOL FOR TREE SEEDLINGS

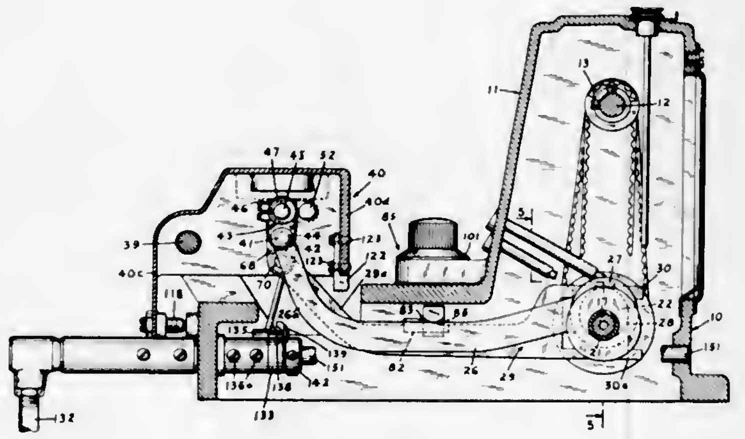
Norman R. Pelton, 12127 York Ave., Haney, British Columbia, Canada
Filed Feb. 24, 1969, Ser. No. 801,273
Claims priority, application Canada, Feb. 6, 1968, 013,329
Int. Cl. A01c *5/02;* **A01b** *45/02*
U.S. Cl. 111—99 **8 Claims**



A tool having a punch for forming a hole in the ground and a guide for directing a tree seedling into the hole.

3,566,815
SKIP STITCH MECHANISM FOR BLIND STITCH SEWING MACHINE

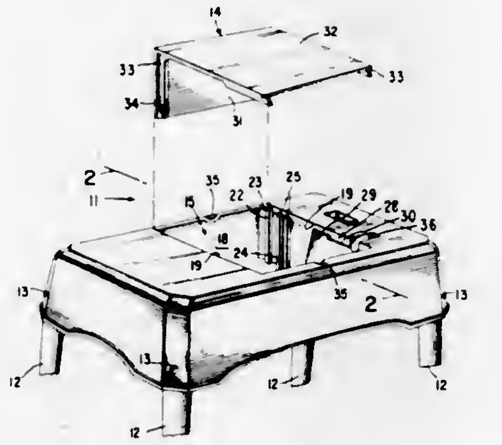
William T. Richards, Chicage, Ill., assignor to Union Special Machine Company, Chicage, Ill.
Filed Sept. 23, 1969, Ser. No. 860,217
Int. Cl. D05b *1/24*
U.S. Cl. 112—178 **9 Claims**



Blind stitch sewing machine having an improved mechanism adapted to form blind stitches of either the skip or nonskip type. Includes a pivoted work support table lockable to stationary position and unlockable to permit swinging movement of the table. A first pitman and a second pitman operate in response to rotation of the main shaft of the machine. The forward end of the first pitman is connected to a rockable node former shaft which rocks in a rockable cradle under the work support table. The forward end of the second pitman is connected to the cradle. Means are provided for adjusting the machine to nonskip position in which the second pitman idles and to skip position in which the second pitman is fulcrumed so that it causes the cradle to be rocked.

3,566,816
SEWING TABLE

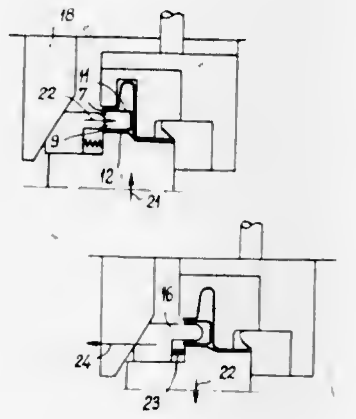
George L. Zilg, Dunellen, and Henry J. Milan, Clark, N.J., assignors to The Singer Company, New York, N.Y.
Filed May 7, 1969, Ser. No. 822,457
Int. Cl. D05b *75/00, 77/00*
U.S. Cl. 112—217.1 **10 Claims**



A table, preferably of plastic, having a storage well formed therein for receiving a sewing machine and including a table top insert for covering the storage well when the machine is stored therein and for covering a portion of the opening only when the machine is placed in its normal sewing position.

3,566,817
METHODS OF MANUFACTURING VEHICLE DOORS

Gaetan De Coye De Castelet, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France and Automobiles Peugeot, Paris, France
Filed Feb. 5, 1968, Ser. No. 703,127
Claims priority, application France, Mar. 8, 1967, 97,915
Int. Cl. B21d *51/00*
U.S. Cl. 29—525 **3 Claims**

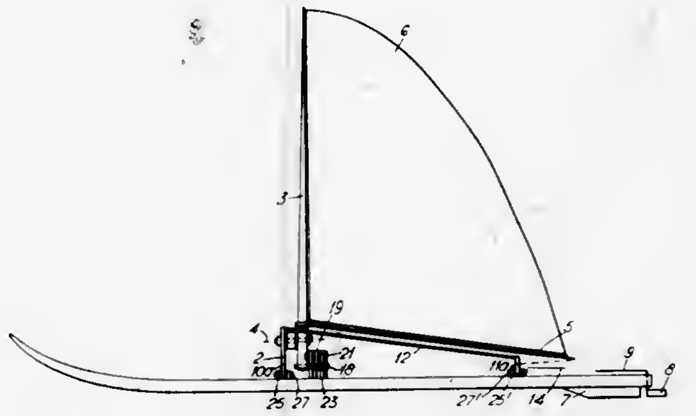


A method of manufacturing vehicle doors comprising a window and consisting of three sheet metal elements pressed or made of sections, said elements constituting the first one an external door panel in which the window opening is formed, the second one an internal box-sectional door element in which the window opening is also formed, and the third one a window frame consisting of channel sections, having their side flanges directed towards the middle of the opening. The edges of the window openings folded inwardly of the door are engaged in the frame and folded each against the internal face of the corresponding flange of the channel section, respectively, the peripheral edge of the external panel and box-sectioned element being subsequently folded on each other.

3,566,818
WITHDRAWN

3,566,819
SAILING CRAFT

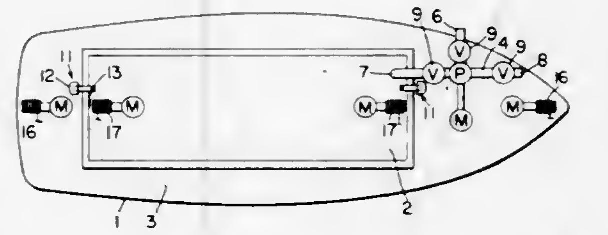
James Edward Keddie, 1 Freelands Road, Bromley, Kent, England
Filed Apr. 28, 1969, Ser. No. 819,645
Claims priority, application Great Britain, Apr. 26, 1968, 19928/68
Int. Cl. B63b *35/00;* **B63h** *9/04*
U.S. Cl. 114—39 **6 Claims**



The disclosure provides a sailing craft having elongate parallel hulls pivotable about axes parallel to the length of the hulls, and a pivotable mast operatively connected to the hulls whereby pivotal motion of the mast in a first sense will result in pivotal motion of the two hulls in the reverse sense of rotation. The craft may be used either on water or as a snow yacht.

3,566,820
MARINE SALVAGE APPARATUS

John J. Bayles, Oxnard, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 8, 1969, Ser. No. 848,432
Int. Cl. B63c *7/00*
U.S. Cl. 114—50 **6 Claims**

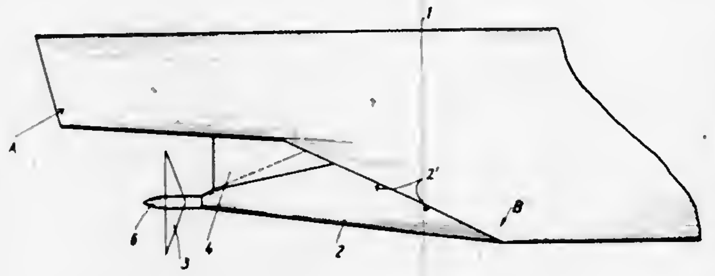


A ship hull is divided into a pair of tanks, the first being centrally disposed of the hull and the second disposed peripherally of the first. The tanks are movable upwardly and downwardly independently one of the other in response to variations in the buoyancy of each tank. Positive buoyancy is employed to raise the load. For this purpose, each tank is secured to the load by a winch-operated cable and each tank forms a part of the skin surface of the ship so as to be exposed to the buoyancy forces. A motor-driven pump permits the filling and evacuating of each tank, the lifting force being achieved by initially tightening all of the cables, submerging one of the tanks to slacken its cable which then again may be tightened with this tank in its submerged disposition. Sea water then is pumped from this submerged tank to create a positive buoyancy which, due to the tightened cable, lifts the load. Next the other tank is submerged to produce a slack in its cable while the cable of the previously-submerged tank remains taut. Slack is again taken up and the submerged tank pumped to provide another incremental lifting force. Successive incremental lifting forces raise the object to the surface.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

3,566,821
HULL FOR PROPELLER-DRIVEN VESSELS

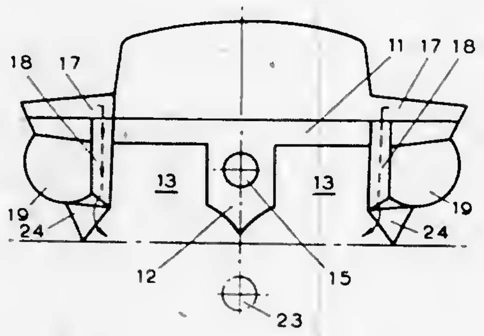
Herbert Schneekluth, Aachen, Germany, assignor to Blohm & Voss A G, Hamburg, Germany
Filed Aug. 9, 1968, Ser. No. 751,483
Claims priority, application Germany, Aug. 11, 1967, 1,531,561
Int. Cl. B63b *1/04*
U.S. Cl. 114—57 **6 Claims**



A hull for propeller-driven vessels includes a front portion and a rear portion. The rear portion includes a leading section and a trailing section. It further includes a hull plating having at opposite sides of the rear portion mutually inclined outer guide surface means constructed and arranged to effect in the region of the leading section a rearward and upward deflection of fluid streaming along the hull towards the rear portion. An elongated rearwardly tapering bulge extends rearwardly from the region of the leading section of the rear portion.

3,566,822
AIR CUSHION VEHICLES

Peter Rowland Crewe, Newport, England, assignor to British Hovercraft Corporation Limited, Yeovil, England
Filed Jan. 27, 1969, Ser. No. 794,225
Claims priority, application Great Britain, Feb. 16, 1968, 7677/68
Int. Cl. B63b *1/38*
U.S. Cl. 114—67 **5 Claims**

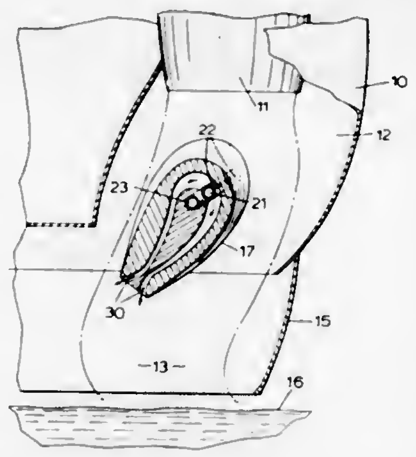


A vehicle for operating over water supported by air cushions and having a central hull to divide the air cushion area and to provide a low location for a prime mover and power transmission system. The hull provides additional buoyancy and is shaped to provide planing lift. The air cushion area is bounded partly by rigid members and partly by a flexible skirt assembly. The rigid members include ducts to conduct pressurized air to the air cushion and have on their outer sides inflated flexible members which give additional buoyancy and protection against wave impact caused by high seas.

3,566,823
POWER PLANT

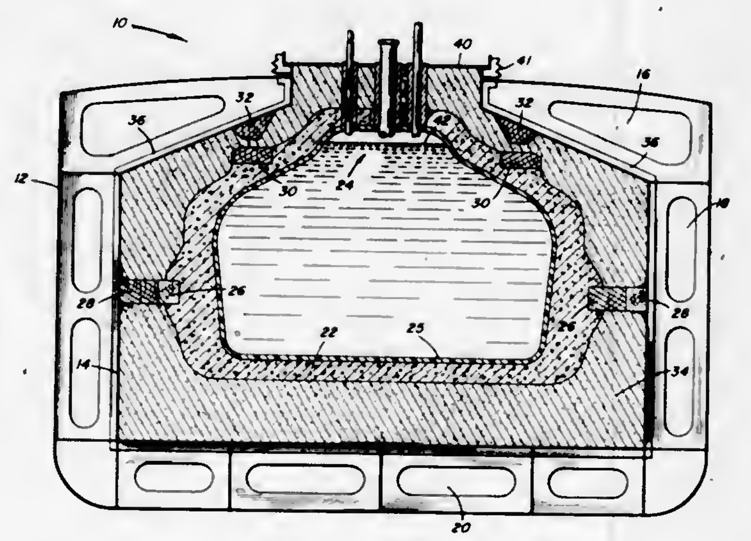
Charles Davis Hope-Gill, 1580 Jamaica Square, North Tonawanda, N.Y.
Filed Oct. 28, 1968, Ser. No. 771,119
Claims priority, application Great Britain, Nov. 7, 1967, 50526/67
Int. Cl. B63b *1/38*
U.S. Cl. 114—67 **14 Claims**

In a jet power plant, the mass flow and/or momentum of the primary jet is augmented by passing the hot primary jet over a heat exchanger to which a secondary fluid is supplied. The secondary fluid receives heat from the primary jet and is directed as a secondary jet so as to assist the primary jet.



3,566,824
MARINE TRANSPORTATION OF LIQUIFIED GASES

Joseph J. Cuneo, Scarsdale; Norman K. Basile, Hauppauge, L.I.; George R. Knight, and Thomas F. Bridges, Port Washington, N.Y., assignors to John J. McMullen Associates, Inc., New York, N.Y.
Filed Apr. 3, 1969, Ser. No. 813,087
Int. Cl. B63b *25/08;* **B65d** *25/18*
U.S. Cl. 114—74 **12 Claims**

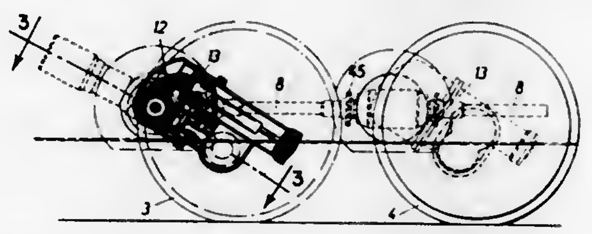


A ship of simplified construction for the marine transportation of liquefied gases at cryogenic temperatures is equipped with at least one concrete tank. In a first embodiment, the concrete tank is surrounded by a layer of sand. A second embodiment contemplates both a layer of sand surrounding the concrete tank and a further layer of insulating material within the tank. In a third embodiment, a layer of insulating material is provided within the concrete tank. A fourth embodiment of the invention relates to a concrete tank surrounded by a layer of insulating material which abuts the hull of the ship. And in a fifth embodiment of the invention, the entire hull of the ship is concrete and forms at least one containment tank. In the fifth embodiment, there may be provided a layer of insulating material within each tank.

3,566,825
AMPHIBIOUS ARMORED VEHICLE

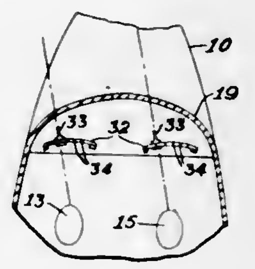
Walter Ruf, Battighofen, Landhaus am See Thurgau, Switzerland
Filed Sept. 3, 1968, Ser. No. 756,947
Int. Cl. B63f *3/00*
U.S. Cl. 115—1 **8 Claims**

An amphibious armored vehicle having a plurality of wheels which are arranged in spaced relationship on each side of a hull and which is steered by controlling the speed of the wheels on one side as compared with the speed of the wheels on the other side. Each wheel is individually suspended and on each side of the vehicle there is provided a drive shaft means which is driven from a steering mechanism and by which each wheel is driven.



3,566,826
AIRCRAFT DRIFT METER

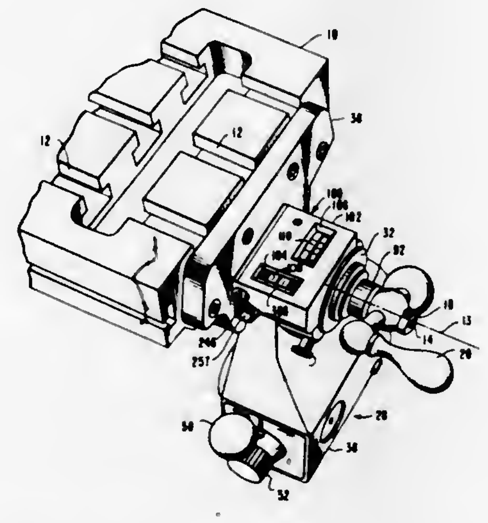
Lloyd M. Forster, 1624 Lochridge Road, Bloomfield Hills, Mich.
Filed Oct. 3, 1968, Ser. No. 764,843
Int. Cl. B60q
U.S. Cl. 116—28 **1 Claim**



An aircraft drift meter comprising a centerline mark on the cowling parallel to the longitudinal axis of the aircraft and in line with the center of the pilot's seat. A plurality of incrementally angular lines marked on the cowling on either side of the centerline radiating from a center point coinciding approximately with the pilot's eye position in order to facilitate pilot observation while in flight with visual land contact of the actual track of the aircraft by alignment of a radial line on the cowling with a landmark which maintains such alignment.

3,566,827
POSITION INDICATOR FOR MACHINE TOOLS

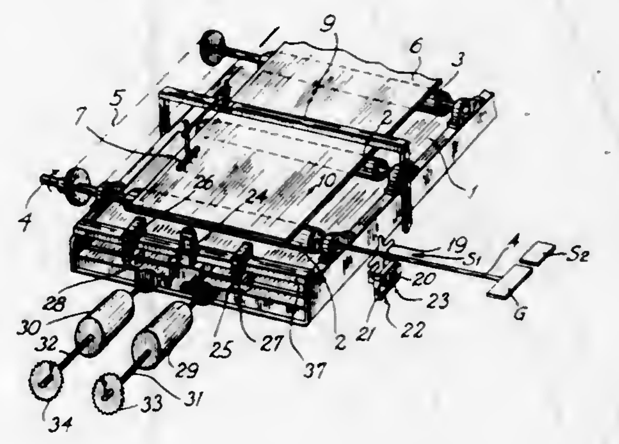
Francis L. Moseley, Pasadena; Peter Moseley, and Glenn A. Johnson, Altadena, Calif., assignors to Servo Products Company
Filed Feb. 19, 1968, Ser. No. 706,586
Int. Cl. B23g *17/00*
U.S. Cl. 116—115.5 **9 Claims**



A reversible bidirectionally operable position indicator, driven by a lead screw, for example, is provided for showing the accumulated displacement of a workpiece to either side of a reference point. A coarse reading of displacement is furnished by a resettable counter driven in a selected direction by a transmission coupled to the lead screw and having a bidirectional output. A fine reading of displacement is provided by a manually adjustable vernier scale cooperating with a reference scale driven by the lead screw. A gearing arrangement may be utilized for obtaining indicator readings, selectively, in either the English or metric system.

3,566,828
AUTOMATIC APPARATUS FOR SPRAYING PLATE-SHAPED BODIES

Egon Verner Christensen, Copenhagen, Denmark, assignor to H. Nielsen & Son Maskinfabrik A/S, Herlev, Denmark
Filed Dec. 27, 1967, Ser. No. 694,001
Int. Cl. B05c *11/00*
U.S. Cl. 118—2 **7 Claims**

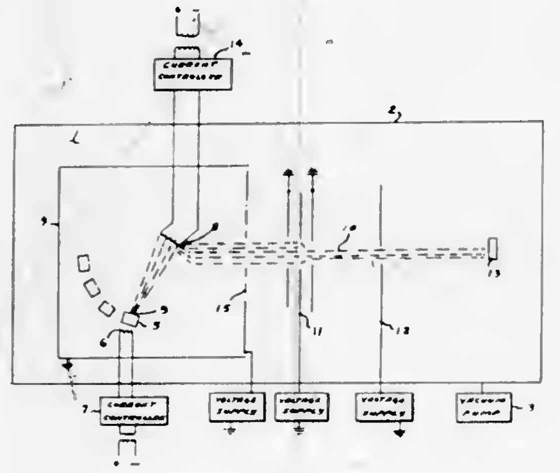


Automatic apparatus for spraying plates including a roller conveyor for conveying plates along a path, at least one spray gun for spraying the plates during movement, driving mechanism for reciprocating the spray gun across the conveyor path between opposite sides of the plates and an electronic sensing apparatus for controlling starting and stopping of the paint supply to the spray gun. The sensing apparatus includes two electromagnetically operable width measuring sensors at the inlet of the conveyor, each sensor having a movable carriage, two motors for respectfully driving the carriage, and a control means for starting the motors to move the sensors from a first position in the vicinity of the longitudinal centerline of the conveyor path in opposite directions across said path towards the opposite edges of the plate to outer positions corresponding to the opposite side edges of the plate. Additionally included is an electric bridge circuit including a potentiometer having a displaceable tap whose axis is mechanically coupled to the motors of the carriages; said tapping arranged such that in the outer position of a sensor carriage, the tap determines the position of one side edge of the plate in relation to the longitudinal axis of the conveyor path.

3,566,829
ION IMPLANTATION MEANS INCLUDING A VARIABLE RATIO ION SOURCE

Bryan H. Hill, Dayton, Ohio
Filed Mar. 6, 1969, Ser. No. 804,886
Int. Cl. C23c *13/08*
U.S. Cl. 118—5 **1 Claim**

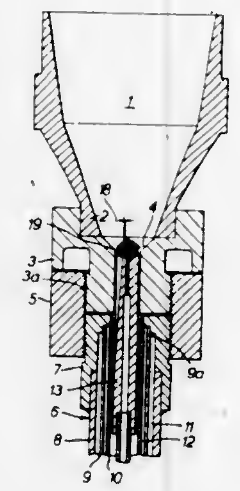
An ion source capable of producing an ion beam comprised of a plurality of controlled ion species. A plurality of effusion cells, each containing a particular evaporant, are positioned at equal distances from a hot ionizing surface. The number of molecules effusing from the respective effusion cells are controlled, thereby controlling the ratio of the molecules effusing from a particular cell with respect to the sum total of the molecules effusing from all the cells. The molecules, as they exit from each effusion cell, are directed to strike a hot ionizing surface where the neutral atoms are ionized. The ions are then extracted from the ion chamber to be deposited on some substrate.



3,566,830
FLUIDIZED BED APPARATUS

Hermann Jakob Flamm, Bournemouth, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Oct. 1, 1968, Ser. No. 764,160
Claims priority, application Great Britain, Oct. 9, 1967, 46028/67
Int. Cl. C23c *11/10*
U.S. Cl. 118—48 **3 Claims**



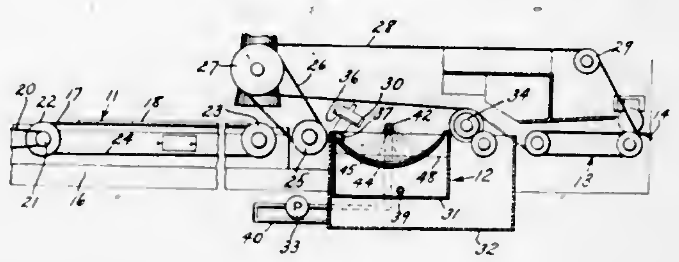
A fluidized bed vessel has a fluid injection assembly arranged to inject process gas and fluidizing fluid into the vessel via separate coaxial orifices. The construction of the assembly is such as to provide two annular injection orifices for fluidizing fluid. These orifices serve to direct fluidizing fluid over the wall of the vessel and over the process gas injection orifice. The assembly gives fine control over the concentricity of the orifices.

3,566,831
PRINT TONER BATH AND FEED CONSTRUCTION FOR PHOTOCOPIER DEVICES

David L. Herman, 63 Catherine Road, Scarsdale, N.Y. 10583

Filed Sept. 27, 1968, Ser. No. 763,242
Int. Cl. B05c *5/00*
U.S. Cl. 118—304 **1 Claim**

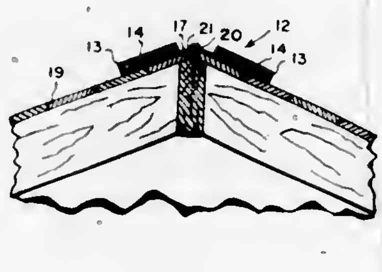
A toner bath apparatus including a tray having a curved upper surface open which a sheet of exposed, sensitized paper travels, and a toner spray device extending above the curved tray and dispensing an elongated spray of toner of substantial angular extent whereby the spray impinges upon the surface of the paper and forces it to conform to the curvature of the tray.



3,566,832
ROOF TREATING DEVICE

Theodore M. Williams, 847 Daytona Ave, Holly Hill, Fla.

Filed Oct. 8, 1969, Ser. No. 864,738
U.S. Cl. 118—506 **8 Claims**

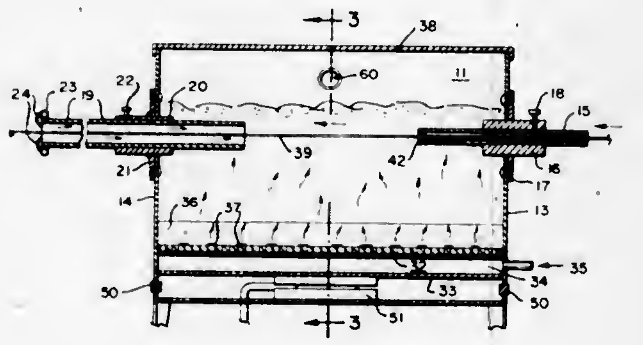


A holder or dispenser attached along the ridge of a roof and containing a chemical capable of being gradually dissolved by moisture so as to bleed from the holder and flow down the roof surface for cleaning the roof of stains and discolorations, for coloring the roof or for restoring the original color thereof.

3,566,833
CONTINUOUS COATING APPARATUS

Norman Percy Beebe, Ferrysburg, and Bruce Aubert Madeley, Manistee, Mich., assignors to Anaconda Wire and Cable Company, New York, N.Y.

Filed June 28, 1968, Ser. No. 741,093
Int. Cl. B05b *5/00*
U.S. Cl. 118—634 **3 Claims**

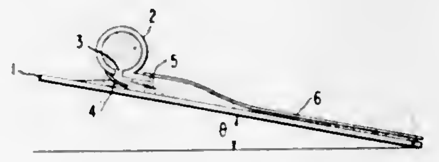


A magnet wire is prepared by first passing a copper wire through a dense cloud of electrostatically charged and finely divided plastic particles such as epoxy powder held within a confined chamber and being created by a spray gun positioned within the chamber and below the elongated member and in combination with a fluidized bed of a similar or a different plastic powder and then passing the electrostatically coated wire through an oven maintained at a temperature sufficiently high to fuse the electrostatically deposited plastic particles thereon to form an insulation film on the wire.

3,566,834
ELECTROPHOTOGRAPHIC DEVELOPING DEVICE

Yasuo Tamai; Satoru Honjo; Seiji Matsumoto, and Masamichi Sato, Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 19, 1968, Ser. No. 772,059
Int. Cl. B05b *5/00*
U.S. Cl. 118—637 **3 Claims**



An electrophoretic developing device having an inclined conductive surface with a clamping means provided near the top of said surface for an electrophotosensitive sheet opposite to said surface. A liquid developer is intermittently supplied from a suitable feed means so as to provide a film of liquid between the conductive surface and the sheet.

3,566,835
PERFLUOROALKYLENE ETHER AND THIOETHER TRIAZINE COMPOUNDS

George A. Grindahl; Ogen R. Pierce, and John R. Greenwald, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,291
Int. Cl. C07d *55/50*
U.S. Cl. 260—248 **7 Claims**

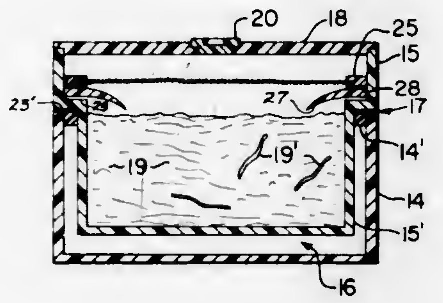
The invention provides triazines of the formula

Y being a perfluoroalkylene radical containing at least one ether or thioether linkage, R_f being a monovalent polyfluorinated hydrocarbon radical of no more than 12 carbon atoms, X being bromine or iodine. Triazine polymers of these compounds are also disclosed. as heat-stable elastomers.

3,566,836
PORTABLE WORM-BREEDING CHAMBER

Merna A. Elfert, 2807 Byron, Odessa, Tex.

Filed Apr. 14, 1969, Ser. No. 815,985
Int. Cl. A01k *01/00, 29/00*
U.S. Cl. 119—1 **5 Claims**



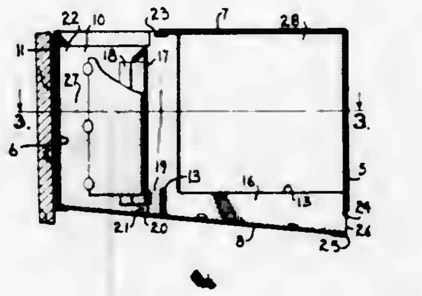
A portable worm-breeding chamber having an upwardly opening enclosure member within which there is disposed a worm excluder with the worm excluder having a central opening therein which defines an opening into the chamber. The worm excluder has a curved edge portion which presents a barrier impossible for the worms to negotiate when they attempt to crawl out of the breeding chamber.

3,566,837
CHINCHILLA DUST BATH APPARATUS

John H. Denham, Route 1, Weir, Kans.

Filed Apr. 28, 1969, Ser. No. 819,827
Int. Cl. A01k *67/00*
U.S. Cl. 119—1 **5 Claims**

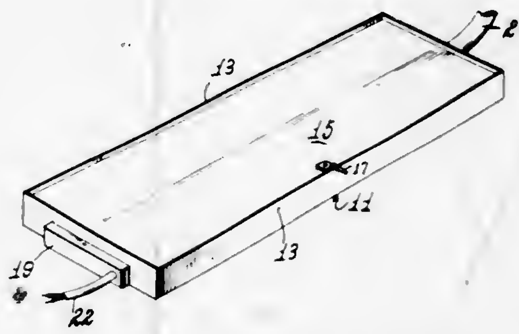
Dust bath apparatus comprises a boxlike structure mounted in an elevated position and includes a hopper for containing bath dust which empties through a low slot into a trough, the trough opening into an adjacent animal chamber having a sloping floor with a discharge opening at the lowermost portion.



3,566,838
ANIMAL COMMODE

William A. Edwards, 347 South Division, Harvard, Ill.

Filed July 11, 1969, Ser. No. 841,075
Int. Cl. A01k *01/00, 23/00*
U.S. Cl. 119—1 **3 Claims**

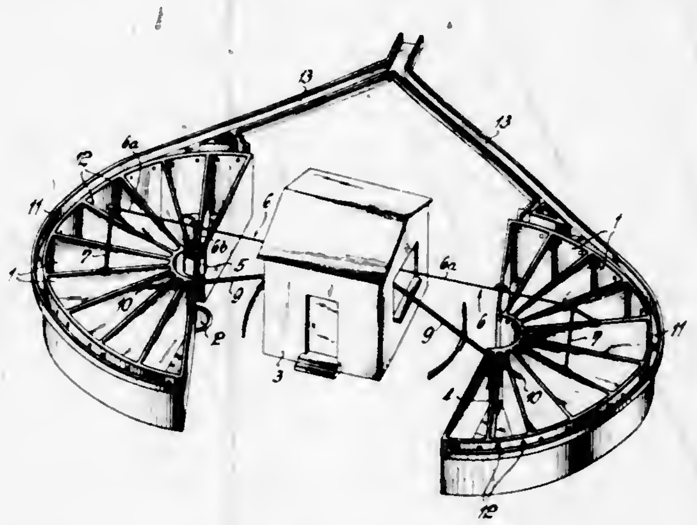


An animal commode comprised of a shallow pan having a nonskid bottom surface and formed with an internal flange adjacent to its top edge to support a platform that can be turned over readily to deposit excrement thereon into the pan. A heater element is enclosed within the pan for drying out the excrement.

3,566,839
FISHPOND SYSTEM

Eugen Hilble, Heinrich Otto-Str.6, 7906 Herrlingen near Ulm, Germany

Filed July 31, 1969, Ser. No. 846,438
Claims priority, application Switzerland, Aug. 2, 1968, 11605/68
Int. Cl. A01k *61/00*
U.S. Cl. 119—3 **9 Claims**

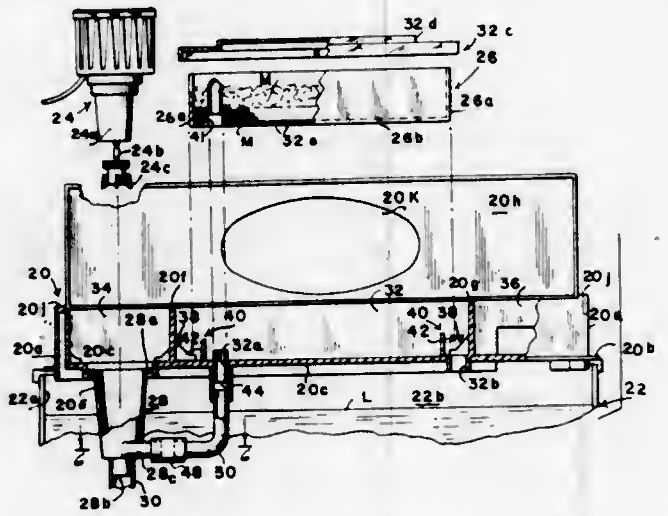


A fishpond system for the controlled feeding and sorting of fish which consists of a plurality of ponds of sector-shaped outline arranged in two semicircular clusters around two spaced retrieval pits located on opposite sides of a fish-sorting cabin. The two retrieval pits accommodate retrieval baskets which, after being loaded with water and fish, are transferred to the sorting cabin by means of a hoist and cableway.

3,566,840

AQUARIUM AUXILIARY CONTAINER

Allan H. Willinger, New Rochelle, N.Y., assignor to Metaframe Corporation, Maywood, N.J.
Filed Sept. 4, 1968, Ser. No. 757,265
Int. Cl. A01k *63/00*
U.S. Cl. 119—5 **4 Claims**

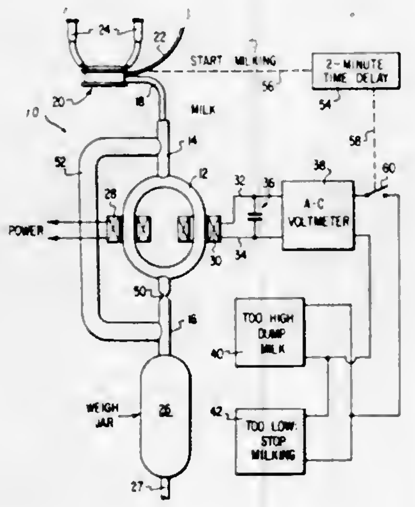


An auxiliary container having a mounted position within an aquarium tank which compactly houses a pump and filter assembly and also forms the fluid connections for an efficiently operating water recirculation filtration system of which the pump and filter assembly are integral parts. The filter assembly is additionally readily removable for replacement of the filter material and, when replaced, readily establishes the necessary fluid connections for efficient operation of the filtration system.

3,566,841

MILK MONITOR AND SYSTEM

John B. Gerrish, and William G. Bickert, East Lansing, Mich., assignors to Research Corporation, New York, N.Y.
Filed July 11, 1969, Ser. No. 840,950
Int. Cl. A01j *05/00, 07/00*
U.S. Cl. 119—14.15 **5 Claims**

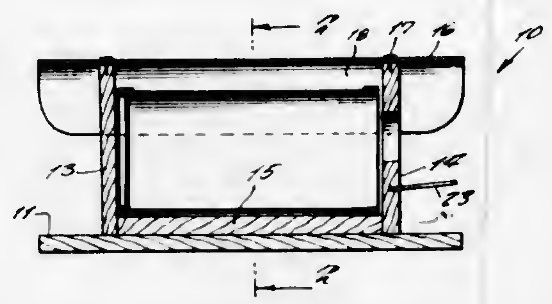


A milking system is provided in which an electrodeless conductivity meter continuously monitors milk from each cow and sensed data from each of the meters determines when milking is complete and screens for abnormal milk. The meter may be incorporated in a system to sequentially activate various relays and timers connected to automatic stall gates, washers, feeders, etc., to thereby reduce to a minimum man-time normally required during milking procedures.

3,566,842

BIRDHOUSE WITH REPLACEABLE LINER

Lewis K. Oldaker, Rte 1, Utica, Ohio
Filed Aug. 22, 1969, Ser. No. 852,321
Int. Cl. A01k *31/00*
U.S. Cl. 119—23 **4 Claims**

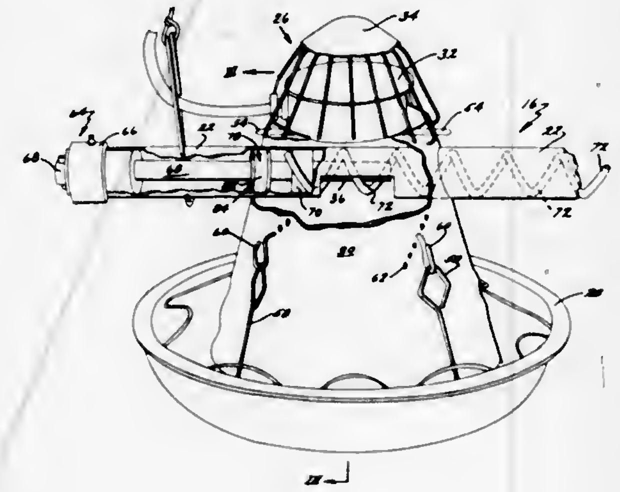


A house for birds, the birdhouse being comprised of a wooden enclosure with a removable sheet metal roof so as to gain access to the interior of the enclosure for the purpose of placement of an empty tin can therewithin, the tin can having an open end which is aligned with a small opening in one end of the enclosure so to allow access of birds thereinto, the tin can being readily replaceable with a fresh tin can after a season of use by birds.

3,566,843

POULTRY FEEDER PAN FOR AUGER-TYPE FEEDERS

Robert L. Van Huis, and Dee Dexter Allen, Zeeland, Mich., assignors to U. S. Industries, Inc., New York, N.Y.
Filed Apr. 16, 1968, Ser. No. 721,720
Int. Cl. A01k *05/00*
U.S. Cl. 119—53 **15 Claims**

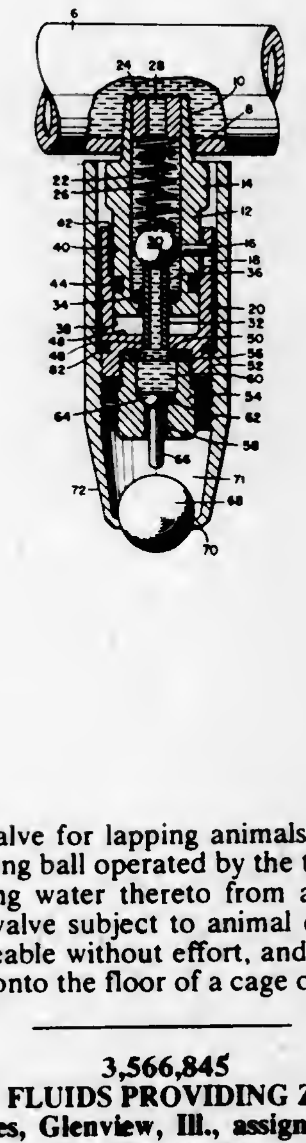


A poultry feeder pan and supply conveyor arrangement, of the type wherein the supply conveyor has an opening in its bottom through which feed is dropped into the feeder pan, wherein the feeder pan includes a baffle plate and a platelike feeler arm spaced from the latter and positioned parallel thereto, to thereby define a channel which confines the feed dropped into the feeder pan for better sensitivity and increased reliability of a switching means controlled by such feeler arm. Where the supply conveyor is an auger operating within a tubular housing, the structure of the invention includes an arbor shaft rotatably mounted within such housing, along the axis of the auger, and having a circular pluglike member mounted on the shaft immediately downstream of the aforementioned feed-drop opening in the tubular auger housing, to which the downstream end of the auger is secured and which provides an anchor therefor. This pluglike member positively impedes the passage of feed along the conveyor tube beyond the opening in the latter through which feed drops into the feeder pan, such that all feed is, in effect, blocked within the auger tube and thrust downward into the feeder pan. Further, a circular disclike bearing is secured to the arbor shaft immediately downstream of the aforementioned pluglike member to support the arbor shaft at such point and, at the same time, to positively block any feed from working its way downstream beyond that point. This bearing rotates upon the arbor shaft and against the inside of the auger housing, and it preferably has an outer or circumferential periphery of lubricous plastic or the like to reduce the frictional contact between it and the auger housing.

3,566,844

DRINKING VALVE FOR LAPPING ANIMALS

Alfred J. Occhiodori, Cincinnati, Ohio, and James A. Turton, Florence, Ky., assignors to The Fieldstone Corporation, Cincinnati, Ohio
Filed Feb. 6, 1969, Ser. No. 797,126
Int. Cl. A01k *07/00, 09/00*
U.S. Cl. 119—72.5 **12 Claims**



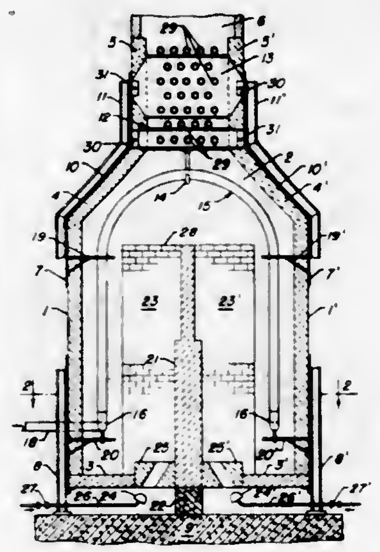
The drinking valve for lapping animals includes a lapping nozzle and a lapping ball operated by the tongue of an animal to release drinking water thereto from a source of supply. Elements of the valve subject to animal contact are quickly and easily replaceable without effort, and without spillage or leakage of water onto the floor of a cage or runway.

3,566,845

HEATER FOR FLUIDS PROVIDING ZONE HEATING

Marion W. Barnes, Glenview, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Sept. 4, 1969, Ser. No. 855,324
Int. Cl. F22d *21/30*
U.S. Cl. 122—240 **4 Claims**

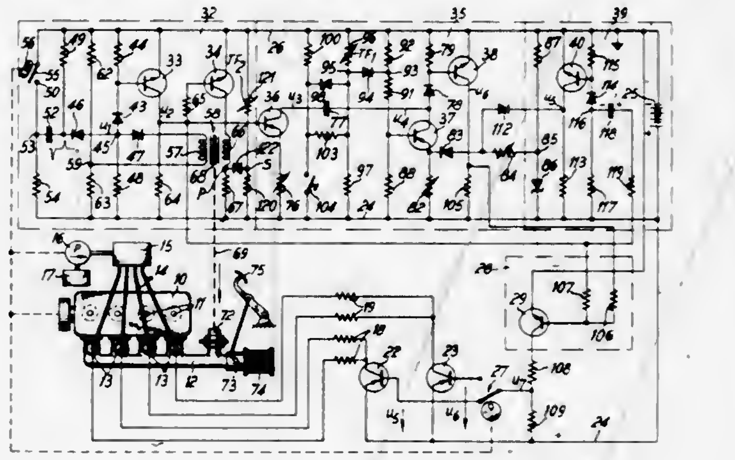
An updraft form of fluid heater having a continuous fluid heating conduit formed from the interconnecting of a plurality of spaced-apart and inverted U-tube sections that are positioned transversely across the interior of the heater. Burners are spaced longitudinally along the central and lower portion of the heater to provide for radiant heating to the fluid conduit and, as desired, spaced transverse partitioning walls in the interior of the heater between certain of the spaced burners provide for maintaining controlled "zone heating" to the fluid carrying through the special continuous radiantly heated conduit section.



3,566,846

ELECTRONICALLY CONTROLLED FUEL INJECTION ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

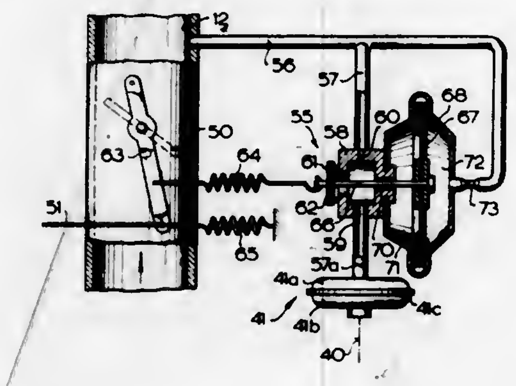
Otto Glockler, Renningen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Feb. 20, 1969, Ser. No. 800,851
Claims priority, application Germany, Feb. 23, 1968, P 16 01 367.5
Int. Cl. F02d *5/00*
U.S. Cl. 123—32 **25 Claims**



A fuel injection arrangement for internal combustion engine in which one monostable multivibrator provides a pulse the duration of which is determined by a temperature-sensing device thermally coupled to the engine. The pulse duration of this monostable multivibrator is also a function of a pressure within the intake manifold of the engine. A second monostable multivibrator with the pulse being controlled by the first multivibrator has a pulse duration determined by a second and separate temperature-sensing device at a different location from the first temperature-sensing device. The quantity of fuel injected is determined by the combination of the pulse durations of the two multivibrator circuits.

3,566,847
FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

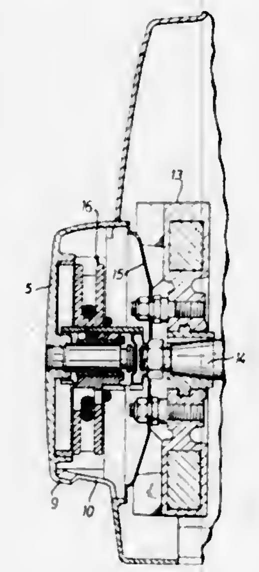
Hermann Scholl, Stuttgart-Kaltental, and Hermann Hoelle, Stuttgart W., Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Mar. 14, 1969, Ser. No. 807,334
Claims priority, application Germany, Mar. 29, 1968, 1,751,078
Int. Cl. F02d *5/02*
U.S. Cl. 123—32 **5 Claims**



A fuel injection system for internal combustion engines wherein the fuel injection valves admit fuel into the intake manifold at a frequency which is a function of rotational speed of the engine and for intervals whose length is a function of manifold pressure when the throttle in the intake manifold is at a standstill. An overriding device which is actuated by the throttle causes the fuel injection valves to extend the length of intervals of fuel admission beyond such length which reflects the then prevailing manifold pressure when the throttle is moved toward open position.

3,566,848
PORTABLE POWER-DRIVEN CHAIN SAWS

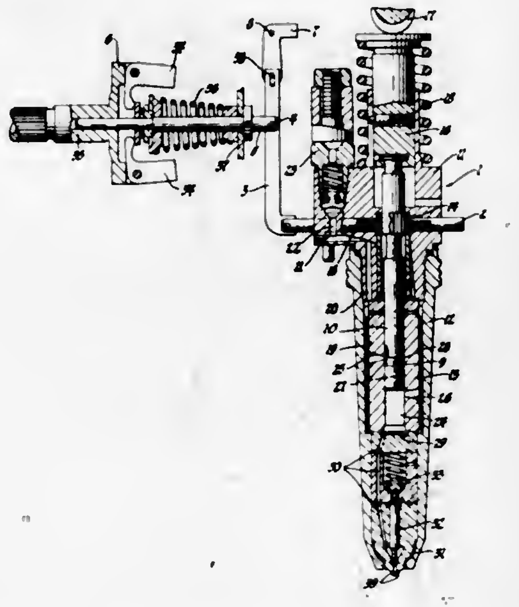
Gunther H.W. Dobbertin, Ovre Olskroksgatan 28, Goteborg, Sweden
Filed June 28, 1968, Ser. No. 741,189
Claims priority, application Sweden, June 30, 1967, 9898/1967
Int. Cl. B27b *17/02*
U.S. Cl. 123—41.65 **1 Claim**



The present portable engine-driven chain saw has a casing for the engine with a side air inlet opening facing a fan-impeller attached to the engine drive shaft for cooling the engine, a cover for said casing opening having a front wall with air inlet openings and sidewalls spacing said cover front wall from said fan-impeller providing an area in which is positioned a perforated strainer plate attached to said drive shaft between said front wall and said fan-impeller for catching impurities such as sawdust, wood chips, pieces of bark or snow coming in with the air and throwing such impurities by centrifugal force through openings in said cover sidewalls away from the operator's face.

3,566,849
FUEL INJECTOR PUMP AND LIMITING SPEED GOVERNOR FOR INTERNAL COMBUSTION ENGINE

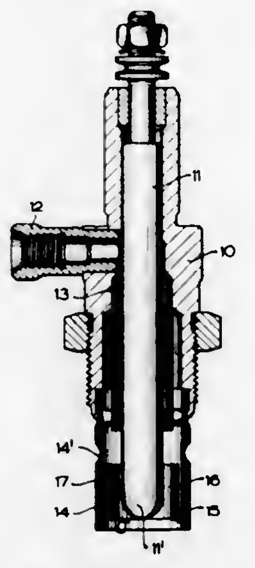
Charles H. Frick, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 28, 1969, Ser. No. 845,403
Int. Cl. F02m *45/00*
U.S. Cl. 123—140 **6 Claims**



A jerk-type fuel injector pump having a rotatively adjustable plunger with differently inclined helix portions controlling the delivery rate in the low and high ranges of adjustment, and an engine speed-limiting governor having flyweights operative under the control of a relatively high rate spring to limit the pump delivery rate over approximately the upper half of the engine speed range.

3,566,850
GLOW PLUG CONSTRUCTION

Otto Beesch, Stuttgart-Sonnenberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Oct. 9, 1968, Ser. No. 766,177
Claims priority, application Germany, Oct. 18, 1967, B 37123
Int. Cl. F02p *19/02*
U.S. Cl. 123—145 **2 Claims**

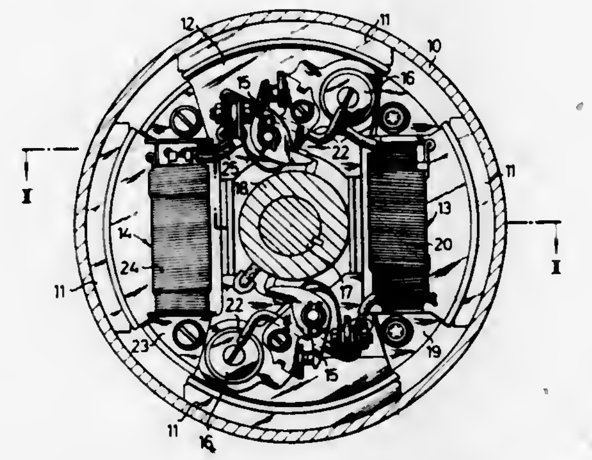


A glow plug has a housing provided with an internal passages which is bounded by an inner circumferential surface and has an open front end. An elongated glow pin is carried by the housing rigid therewith and extends with radial clearance through the passage. A forward portion of the pin is located inwardly adjacent the open front end of the passage and ignition of the fuel takes place in the region of this forward front end portion. An annular insert is mounted in the passage concentrically surrounding the forward end portion of the pin and defining annular clearances with the

same and with the inner circumferential surface bounding the passage.

3,566,851
MAGNETO FOR MULTICYLINDER ENGINES OF AUTOMOTIVE VEHICLES

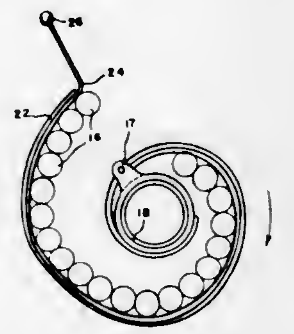
Gustav Pfrommer, Stuttgart-Oberturkheim, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Feb. 20, 1969, Ser. No. 800,997
Claims priority, application Germany, Mar. 7, 1968, P 16 63 168.8
Int. Cl. F02p *1/00*
U.S. Cl. 123—149 **10 Claims**



A rotating magnet-type magnetos for use with multicylinder engines of automotive vehicles wherein a rotor with several equidistant radially magnetized permanent magnets carries a breaker cam which opens one of two sets of breaker contacts when the other set is closed and vice versa. Each set of breaker contacts is connected with one end of a winding in one of two armatures which are mounted on a stationary plate adjacent to the path of movement of permanent magnets. The armatures overlie each other and are magnetically connected in parallel with each other. The other end of each winding is connected with the ignition coil. The plate carries an auxiliary armature which can supply current to the lighting system of the vehicle.

3,566,852
SPRING-TYPE END-WEIGHTED ROPE REEL CHAFF DISPENSER

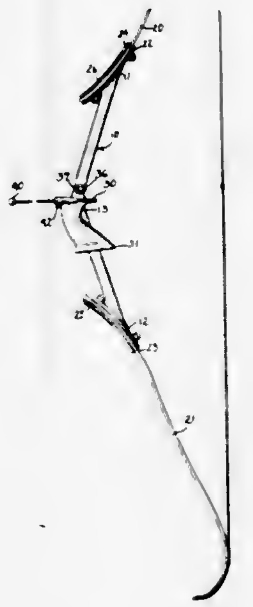
Ramon I. Padron, Levittown, Pa., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Oct. 11, 1968, Ser. No. 766,692
Int. Cl. F41b *15/00*
U.S. Cl. 124—6 **7 Claims**



Reellike compartments stacked on a common axis. A steel spring is seated in archimedian spiral grooves in the discs of each reel and forms a ramp along which a series of subassemblies is installed. The bias of the spring is to rewind itself about the central axis of the reel causing shortening of the ramp and capsule ejection, with successive decreases in velocities from maximum to zero. Each subassembly comprises telescoping elements held compressed between the discs. Each contains a length of rope. Time delayed means spins each hub individually. The ramps of successive compartments intersect the periphery of the device with angular separations so that capsules can be ejected simultaneously from each compartment with equal velocities but with vector or angular separations, equal to 360° divided by the number of compartments in the stack; this prevents entanglement.

3,566,853
ARCHERY BOW WITH UNOBSTRUCTED SIGHT WINDOW

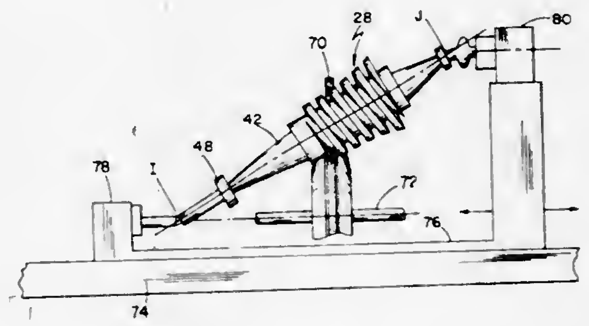
Kenneth O. Larm, 7200 Pleasant Ave. South, Minneapolis, Minn.
Filed Oct. 10, 1969, Ser. No. 865,370
Int. Cl. F41b *5/00*
U.S. Cl. 124—24 **8 Claims**



A bow including a rigid metal elongated member having limbs attached to each end thereof so that the axes of the limbs lie generally in a common plane and the central member is offset laterally from said plane to provide an unobstructed view of the target area and a pistol-grip type handle affixed to the central member and lying generally in the common plane.

3,566,854
METHOD FOR MODIFYING THE SURFACE OF AN ABRADING WHEEL

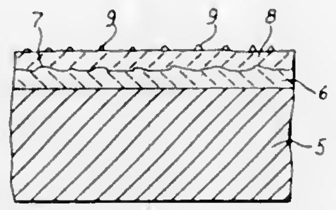
Warren I. Nissen, Topsfield, Mass., assignor to The Gillette Company, Boston, Mass.
Original application Oct. 14, 1966, Ser. No. 586,873, now Patent No. 3,461,616. Divided and this application Jan. 29, 1969, Ser. No. 832,872
Int. Cl. B24b *53/00, 1/00*
U.S. Cl. 125—11 **2 Claims**



The surface configuration of a tapered abrading wheel is modified to provide a straight line of intersection between two tapered abrading wheels when those abrading wheels are mounted for rotation about parallel axes by fixing the axis of the abrading wheel at a location parallel to a line that does not intersect and is not parallel to the axis of the dressing wheel, and relating the axis of a dressing wheel to that line such that rotation of the axis of the dressing wheel about that line would generate a true hyperboloid of revolution, and then simultaneously rotating the abrading and dressing wheels while the surfaces of the abrading and dressing wheels are in contact to modify the surface of the abrading wheel and produce a surface that closely approximates a portion of a true hyperboloid of revolution.

3,566,855
SELF-CLEANING COOKING APPARATUS

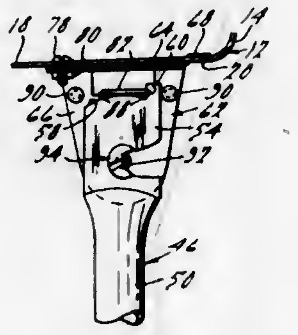
Curtis L. Morgan, Sigel, Ill., assignor to Fedders Corporation, Edison, N.J.
Filed Oct. 21, 1969, Ser. No. 868,007
Int. Cl. A21b *1/00*
U.S. Cl. 126—19 **18 Claims**



A self-cleaning, abrasion-resistant surface for a cooking apparatus comprising a three-layer coating on a metal surface, each of the first two layers comprising a mixture of a ceramic and a catalytically active material, with, preferably, increased amounts of catalyst in the second coating layer, and an interrupted layer of ceramic above the two-layer coating. Improved bond between the three-layer coating and the base structure of the cooking apparatus can be achieved through the use of a sandwiched ceramic layer.

3,566,856
BARBECUE GRILL

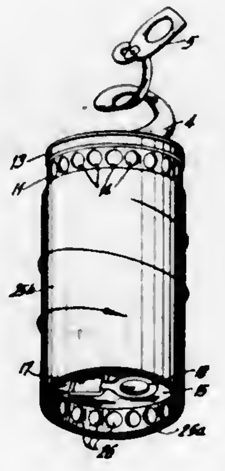
Robert S. Linstead, Rockford, Ill., assignor to King-Seeley Thermos Co., Ann Arbor, Mich.
Filed Nov. 26, 1968, Ser. No. 778,980
Int. Cl. F16m *11/38;* **F24b** *3/00;* **F24c** *15/08*
U.S. Cl. 126—25 **15 Claims**



A barbecue grill comprising a fuel containing structure defining a generally horizontally extending support surface, a pair of generally U-shaped support legs each comprising a pair of end sections and an intermediate section extending therebetween, the legs being adapted for pivotal movement between retracted positions extending generally parallel to the support surface and extended positions extending generally normal to the surface, a plurality of support brackets having generally horizontally extending support portions adapted to be fixedly secured to the surface and mounting portions extending generally perpendicular to the surface, means pivotally securing each of the leg end sections to one of the brackets, each of the brackets having an abutment flange section and a pair of detent embossments projecting from one side of the mounting portion thereof, and locking tang means provided adjacent the ends of each of the legs and adapted to be received between the abutment flanges and the adjacent of the detent embossments for releasably maintaining the legs in their respective extended positions.

3,566,857
SELF-HEATING CONTAINER

Dan M. Price, P.O. Box 308, Litchfield, Ill.
Filed Apr. 14, 1969, Ser. No. 816,008
Int. Cl. A47g *23/04*
U.S. Cl. 126—262 **10 Claims**

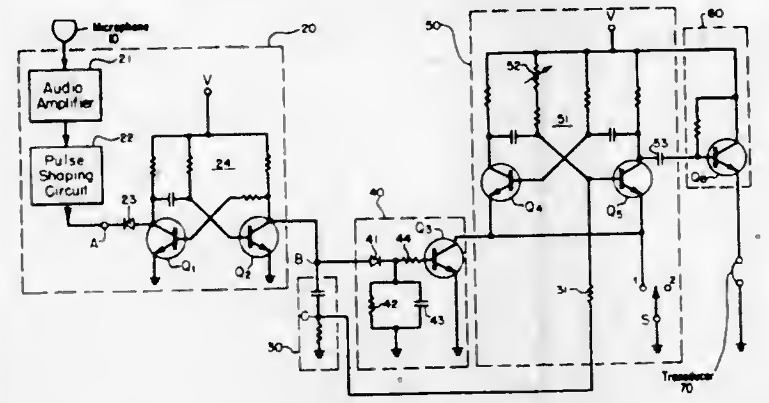


A package product is completely ensealed within a container formed of heat-conducting material and joined along its upper rim to the upper edge of a shell to thus be disposed within the upper portion of said shell. The shell, preferably, has the same cross sectioned configuration as the body of said container, the configuration of said shell being larger than that of said container body so as to provide an air gap therebetween. The shell is provided with vents communicating with said air gap, and the bottom of said shell is enclosed by an end structure supporting interiorally of the shell a supply of fuel preferably in solid form. Surrounding said shell and substantially coextensive therewith is a slideably fitted sleeve formed of heat insulating material provided with ports near its bottom edge. In the normal position of the sleeve relative to the shell, the ports or vents in each are covered by the structure of the other. To prepare the package for its heating function, the sleeve is displaced relatively to the shell either downwardly or circumferentially a sufficient distance to fully expose the ports or vents in both the sleeve and shell which complete an air circulation path through the shell after its bottom end closure is ruptured, the fuel ignited and the package placed to rest on any suitable flat surface. To extinguish, the sleeve and the shell are displaced relative to each other to close the ports and thus shut off any air to the fuel supply.

3,566,858
ANTISTUTTERING THERAPEUTIC DEVICE

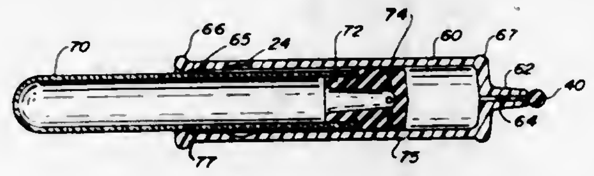
Stephen R. Larson, Evanston, and John C. Sinclair, Oak Park, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.
Filed Nov. 4, 1968, Ser. No. 773,068
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 **8 Claims**

A therapeutic device which provides voice masking to assist a patient in overcoming a speech deficiency such as stuttering. A microphone, selectively responsive to the patient's voice, receives his speech and converts it into electrical signals which are utilized to develop a control signal. An audio oscillator generates an audiofrequency pulsed wave which is varied in frequency in proportion to pitch changes in the patient's voice by a circuit responsive to the control signal. An output transducer converts the audiofrequency pulsed wave into a corresponding sound wave which is applied to the patient's ear. A switching circuit, also responsive to the control signal, enables application of the sound wave only while the patient is speaking or attempting to speak.



3,566,859
VACUUM SYRINGE

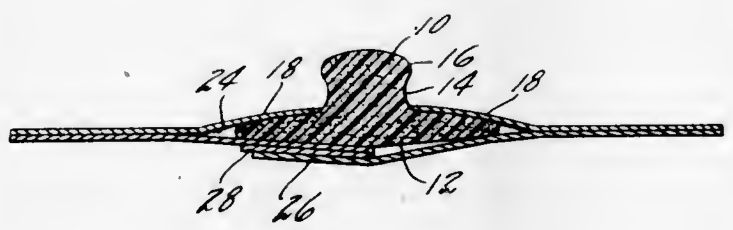
Boris Schwartz, 400 Park Ave., Paterson, N.J.
Original application June 12, 1967, Ser. No. 645,264, now Patent No. 3,464,412. Divided and this application Aug. 29, 1969, Ser. No. 854,090
Int. Cl. A61b *5/14;* **A61m** *5/22*
U.S. Cl. 128—2 **5 Claims**



A syringe combination having an outer housing and a hollow plunger providing a pair of chambers of determined size. The plunger is provided with a piston having three or more spaced, ringlike sealing surfaces and with a fluid passageway from the interior of the plunger which is flow-connected to the outer piston surface and between ringlike sealing surfaces. The outer housing has one or more recesses of determined size formed in its inner surface with the recesses positioned near the open end of the housing and of a length so that the rearmost sealing surface of the plunger piston engages the housing between the recesses and the rear end of the housing when the flow-connection is brought into a fluid-conducting position with the recess.

3,566,860
CARBON-IMPREGNATED BODY ELECTRODE

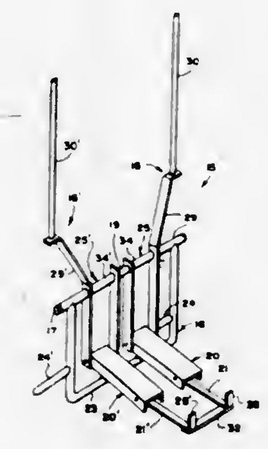
Lucas H. Moe, Jr., Andover, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Dec. 20, 1968, Ser. No. 785,577
Int. Cl. A61b *5/04;* **A61n** *1/02*
U.S. Cl. 128—2.06 **1 Claim**



A carbon-impregnated plastic or metallic male electrode is disposed within a body contacting adhesive coated web, the electrode being secured to the skin of a patient by the adhesive for the purpose of conducting electrical currents to and from the body of the patient. A conductive paste or jelly may be used to enhance conduction through the junction of the electrode with the body, if desired.

3,566,861
EXERCISER AND PHYSICAL REHABILITATION APPARATUS

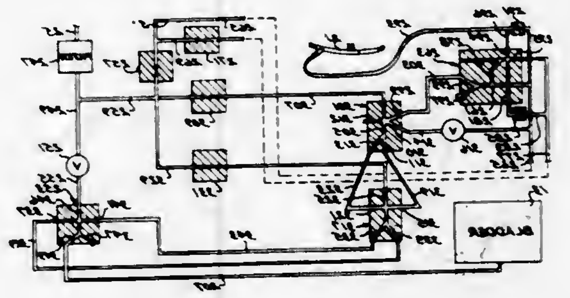
Eugene Weiss, Merrick, N.Y., assignor to Beacon Enterprises, Inc., New York, N.Y.
Filed Apr. 18, 1969, Ser. No. 817,353
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 **7 Claims**



Two upright levers extending down to near the floor, are swingably mounted in spaced relation on a stand. Each of two foot pedals has a roller near its rear end to roll on a track which extends rearwardly on the floor from the stand, and said pedals at forward end are swingably mounted to the bottom end of said levers respectively. All axes are horizontal and parallel. The pedals are to stand on, and for most exercises the upper parts of the levers are grasped in hand. The pedals are near alongside each other. The handle portions are further apart.

3,566,862
RESPIRATION APPARATUS

Paul A. Schuh, 3428 Alabama, San Diego, Calif., and Ralph C. Hagley, 5054 San Joaquin Drive, San Diego, Calif.
Filed Aug. 1, 1968, Ser. No. 749,513
Int. Cl. A61h *31/02*
U.S. Cl. 128—30.2 **9 Claims**

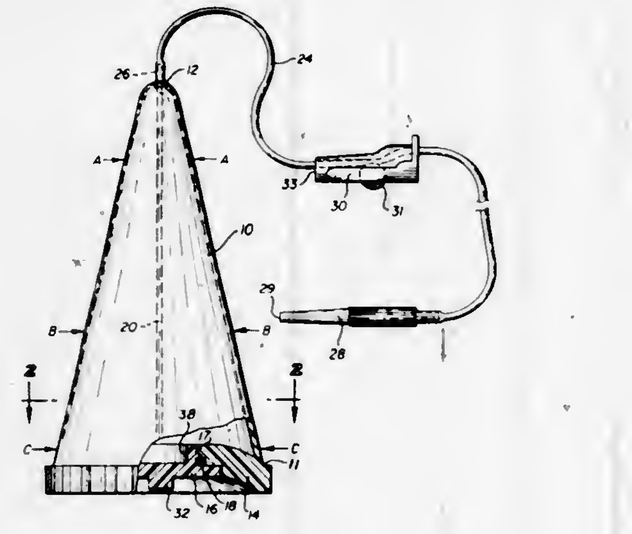


Respiration apparatus including a jacket having a collapsible bladder supported in the abdominal area of the patient. Pressurization means are connected to the bladder by conduit means; including a control valve having an exhaust port. Control means which may include cascaded fluidic amplifiers, controls flow of pressurization air through the valve and includes a sensing element for sensing the patients respiration cycle. The control means is responsive to a positive signal, caused by initial exhalation to direct air flow to the bladder to depress the abdominal muscles and assist the patient in exhaling. The control means is also responsive to a negative signal, caused by initial inhalation, to close the control valve and exhaust the bladder out the exhaust port.

3,566,863

GAS-PRESSURIZED WASHING DEVICE

Richard D. Law, 2291 Youngfield St., and Robert E. Eckels, 2101 Youngfield St., Golden, Colo. 80401
Filed May 1, 1969, Ser. No. 820,971
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **7 Claims**

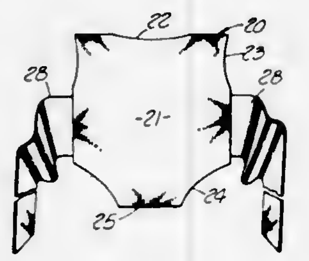


An aqueous solution cleaning or washing device, using effervescent salts to generate delivery gas pressure, includes a conical chamber having its side subtending an angle of 30 to 75° exposing minimum liquid surface area at maximum fill to maximum area at minimum fill to contained gas under pressure, provides an essentially uniform delivery pressure throughout the discharge of solution from the unit. The device issues a pulsing jet of solution providing a cleaning unit for use on teeth and gums, for medicinal irrigation, a medicinal douch, etc.

3,566,864

INFANT SAFETY GARMENT HAVING INTEGRAL MEANS FOR SECURING THE SAME

William Peter Garrow, 5504 Dodsworth Ave., Glendora, Calif., and Rex L. Neuman, 18313 St. Marys, Detroit, Mich.
Filed July 22, 1968, Ser. No. 746,633
Int. Cl. A61f *13/00*
U.S. Cl. 128—134 **10 Claims**

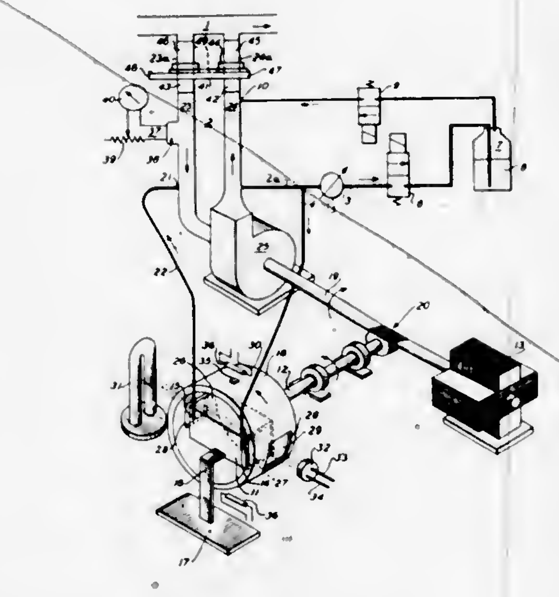


A garment which is fitted about the body of the user and has elongated portions extending therefrom which may secure a body to a relatively stable object so as to maintain the garment, and concomitantly the user's body, in a predetermined position. The garment of the invention permits unlimited movement of the head or limbs of the user while permitting limited movement of the user within the garment.

3,566,865

ANESTHESIA SYSTEM

Wayne W. Hay, Madison, Wis., assignor to Air Reduction Company, Incorporated, New York, N.Y.
Filed June 12, 1968, Ser. No. 736,427
Int. Cl. A61m *17/00*
U.S. Cl. 128—188 **7 Claims**

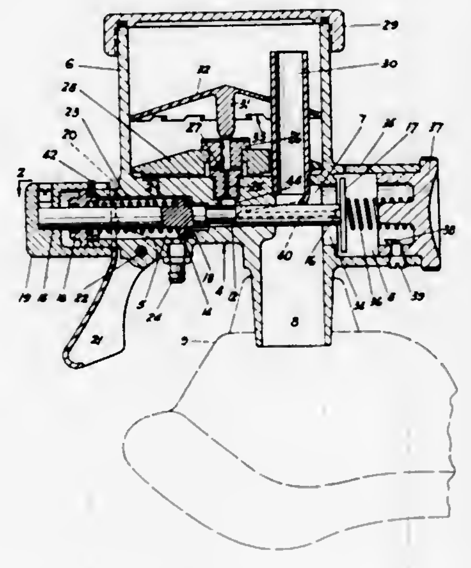


An anesthesia system having a main circuit and a sample bypass, said bypass being manually opened and closed to gas flow from the main circuit by a zeroing valve and having an oxygen analyzer, an anesthetic analyzer and automatic controllers associated therewith.

3,566,866

BREATHING AID ADMINISTRATION DEVICE

Henry J. Adams, Sulvania, Australia, assignor to The Commonwealth Industrial Gases Limited
Filed Aug. 8, 1967, Ser. No. 659,160
Claims priority, application Australia, Aug. 10, 1966, 9497/66
Int. Cl. A62b *7/00*
U.S. Cl. 128—145.8 **5 Claims**

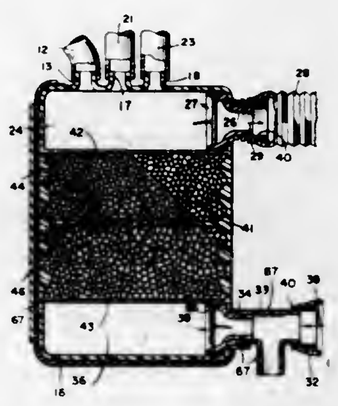


A breathing aid device for administration of a gas to a patient comprising: a valve casing connected to a source of gas under pressure, a liquid reservoir located on the casing and a gas discharge outlet duct on the casing adapted for attachment thereto of an administration element, and a valve for controlling the flow of gas from the source to the outlet by way of the liquid reservoir. The valve is arranged so that when flow of gas to the outlet is halted the outlet is automatically opened to the atmosphere.

3,566,867

UNITARY DISPOSABLE CIRCLE ABSORPTION CANISTER ASSEMBLY

Gale E. Dryden, Indianapolis, Ind., assignor to Dryden Corporation, Indianapolis, Ind.
Filed Nov. 17, 1967, Ser. No. 684,005
Int. Cl. A63m *17/00*
U.S. Cl. 128—188 **2 Claims**

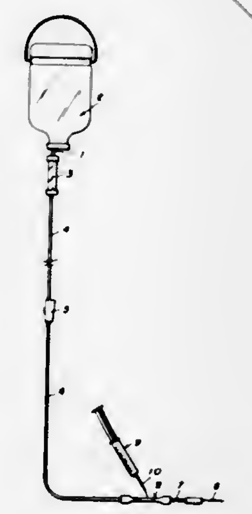


A circle absorption system for anesthesia including a gas machine, a carbon dioxide absorbing canister assembly with corrugated inner wall surface, a gas supply hose thereto, rebreathing hoses and a mask connected thereto, an absorbing medium therein, and one-way valves mounted therein, the canister assembly with absorbing medium and valves being disposable.

3,566,868

PARENTERAL LIQUID ADMINISTRATION SET WITH INJECTION SITE AND METHOD OF MAKING SAME

Victor H. Baptist, Burbank, and Mitchell B. Brodkin, Los Angeles, Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.
Filed Aug. 26, 1968, Ser. No. 755,184
Int. Cl. A61m *5/00*
U.S. Cl. 128—214 **8 Claims**

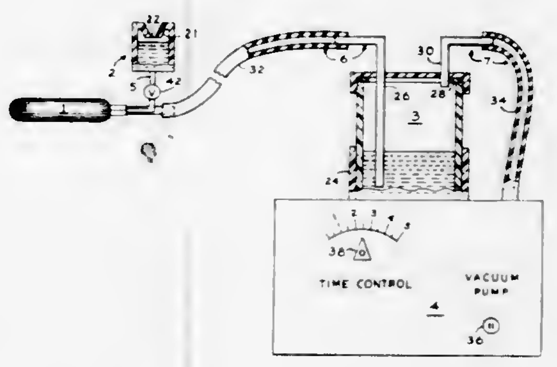


An administration set in the form of a tubular conduit for draining blood, dextrose solutions, et. from a container to a patient's vein. This administration set has an improved injection site made of a rubber tube length which has been turned inside out and which has an inner wall surface in a constant state of annular compression. The rubber tube length quickly and tightly reseals a puncture hole made by a needle of a hypodermic syringe used to inject additive medication into the administration set.

3,566,869

VACUUM-UTILIZING HYGIENIC TEETH-CLEANING SYSTEM

David Lamar Crowson, P.O. Box 798, Petal, Miss.
Filed Dec. 26, 1968, Ser. No. 787,167
Int. Cl. A61h *19/00*
U.S. Cl. 128—230 **10 Claims**

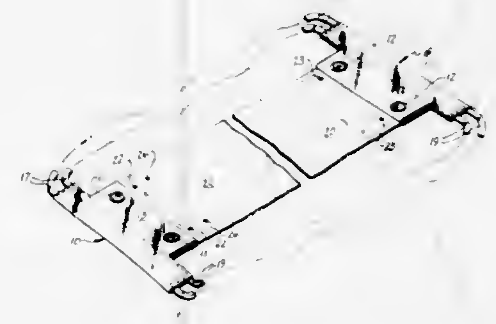


A system for cleaning teeth comprising a vacuum pump and a selected one of a number of mass-produced mouthpieces, fitting somewhat loosely over the user's teeth. Via the closed mouth and sealed tubular connections the pump's suction is placed on a measured quantity of liquid dentifrice, which may contain both a cleanser and an agent for preventing or inhibiting pyorrhea and tooth decay. After all the dentifrice is sprayed on and passes over the teeth the pump's motor automatically stops. The dentifrice and food particles are prevented from entering the pump by a water-containing trap in the suction line. Most of the parts are of synthetic plastic, formed in quantity production molds.

3,566,870

ARTICLE OF PERSONAL HYGIENE

Mina I. Benjamin, 5545 39th Ave.N.E., Seattle, Wash.
Filed Oct. 23, 1968, Ser. No. 814,470
Int. Cl. A61f *13/16*
U.S. Cl. 128—289 **3 Claims**



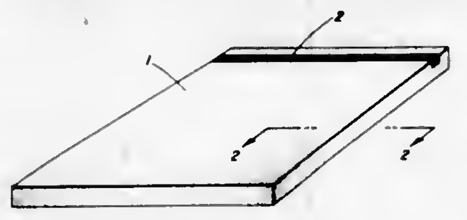
An article of personal hygiene comprises a hip-hugging belt having juxtaposed panels for disposition fore and aft in the pelvic region adapted to embrace and secure the ends of a crotch shield of absorbent sheet material.

3,566,871

HYDROPHILIC MEDICAL SPONGE AND METHOD OF USING SAME

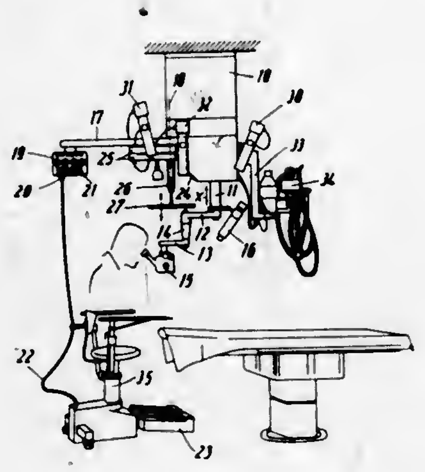
Ferdinand Joseph Richter, and Charles Teets Riall, Danbury, Conn., assignors to American Cyanamid Company, Stamford, Conn.
Filed June 11, 1968, Ser. No. 736,181
Int. Cl. A61f *13/00*
U.S. Cl. 128—296 **8 Claims**

A hydrophilic polyurethane sponge adapted for medical usage, in which the sponge pores contain a surfactant coating to accelerate absorption of body fluids into the pores at medically preferred rates, the fluids being retained therein by capillarity to affect removal of the fluids from the body. The sponge is flexible, and substantially free from lint, toxicity, and abrasiveness, making it particularly suitable for use as a surgical laparotomy pad.



3,566,872
MICROSURGICAL OPERATING UNIT

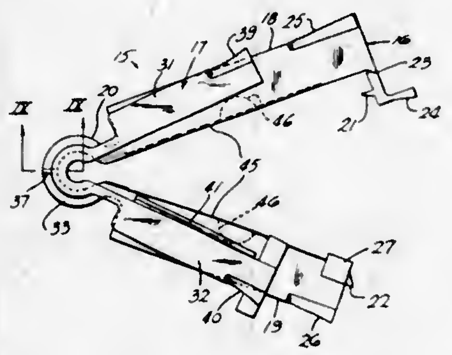
Jorg A. Draeger, Bremen, and Friedrich J. Klein, Wedel, Holstein, Germany, assignors to J. D. Moller Optische Werke GmbH, Wedel Holstein, Germany
Filed Nov. 21, 1968, Ser. No. 777,797
Int. Cl. A61b *17/36*
U.S. Cl. 128—303.1 **5 Claims**



A microsurgical operating unit which is mounted on the ceiling of an operating theater. This unit serves to combine all of the apparatus necessary for carrying out a microsurgical operation, such as a microscope, the illuminating light sources, the electrical and pneumatical operating instruments, the anaesthetizing apparatus, and is provided with suitable fittings and connectors for the operating instruments. All of the equipment can be remote-controlled by the operating surgeon himself.

3,566,873
CIRCUMCISION INSTRUMENT

Frederick J. Melges, 314 N. Orchard Place, Battle Creek, Mich.
Filed Dec. 2, 1968, Ser. No. 780,463
Int. Cl. A61b *17/326, 17/08*
U.S. Cl. 128—305 **20 Claims**



This surgical instrument has a clamping and holding member of special construction especially suited for use in circumcision operations involving the use of conventional hospital instruments such as a probe, scalpel, and hemostat, for completing the circumcision operation, while in the preferred form the instrument will involve the use in combination of two main portions, with one of these being the clamping and holding member, and the other a cutting member, with the two members pivotally connected together and guided in cooperative operating position, and when the two main portions are principally formed of plastic, same can be discarded at the end of the operation without need of sterilization for reuse.

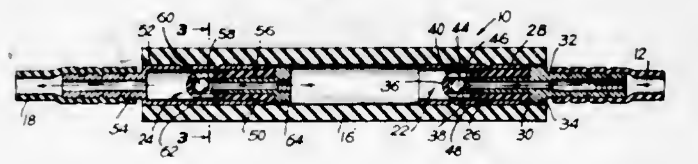
3,566,874
CATHETER

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 654,044, July 4, 1967, and a continuation-in-part of 567,856, July 26, 1966, and a continuation-in-part of 650,259, June 30, 1967. This application Aug. 13, 1968, Ser. No. 752,221
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 **12 Claims**

Catheters are provided with coating of a hydrophilic acrylate or methacrylate polymer. The coating reduces the irritation and infection normally accompanying the use of catheters. Infection can be reduced still further by absorbing an antibiotic in the coating.

3,566,875
DEVICE FOR DRAINING CEREBROSPINAL FLUID

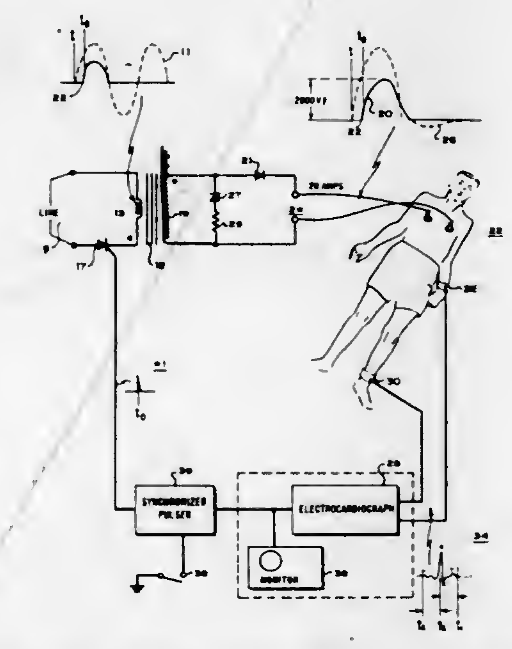
Richard K. Stoehr, 12 Kuebler St., Blue Point, N.Y.
Filed May 20, 1969, Ser. No. 826,214
Int. Cl. A61m *25/00*
U.S. Cl. 128—350 **9 Claims**



A device for draining cerebrospinal fluid automatically to the venous system in cases of hydrocephalus. The device includes an outer elastic tube which houses in its interior identically flow oriented upstream and downstream check (unidirectional) valves respectively communicating with the cerebrospinal fluid and the venous system. Each check valve includes an inner elastic tubular member within the outer tube and having an upstream open end and a downstream closed end. At the region of its downstream closed end each inner tubular member is formed with at least one axially extending slit which forms the outlet of the valve. Within each inner elastic tubular member is a freely movable ball member located in the region of the closed end of the inner tubular member where the slit is situated. A rigid tube is situated within each inner elastic tubular member and has a downstream end at a short distance from the closed end of the tubular member to provide the freely movable ball member with a restricted extent of axially free movement. Because of the free movability of this ball member within each check valve the interior thereof is kept clean, particularly at the region of the slits, and thus malfunctioning due to clot formations at the slit is reliably avoided. Moreover, since the slit extends to substantially the closed end of the tubular member, dead space in which blood can clot to obstruct flow is substantially eliminated and the danger of infection is substantially reduced.

3,566,876
DEFIBRILLATOR

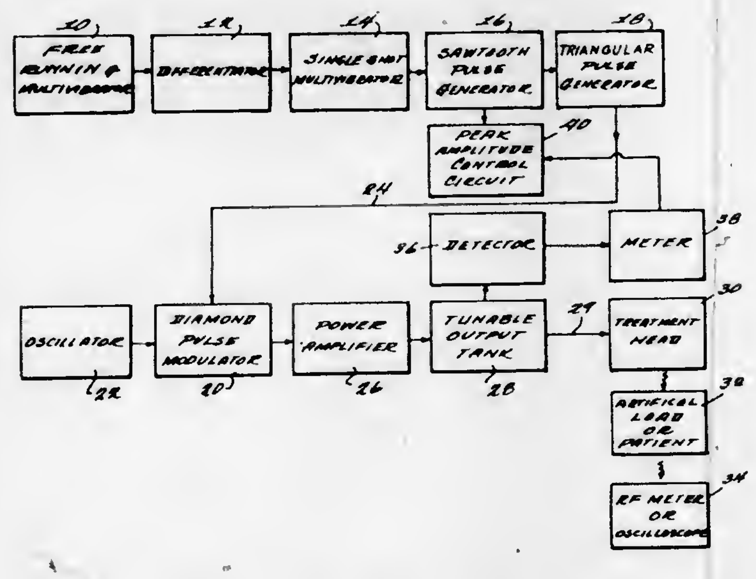
Paul E. Stoft, Menlo Park, and Robert F. Shaw, San Francisco, Calif., assignors to said Stoft assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Dec. 14, 1967, Ser. No. 690,586
Int. Cl. A61n *1/36*
U.S. Cl. 128—421 **1 Claim**



A monopolar cardiac defibrillator obviates the need for bulky storage capacitors by operating directly from line signal to supply a high power-defibrillating pulse substantially as a half-wave portion of the line signal the defibrillating pulse is generated in timed relationship to a patient's electrocardiogram by activating a signal-controlled switch to apply a half wave of line signal to the defibrillator circuitry.

3,566,877
ELECTROTHERAPEUTIC APPARATUS AND TREATMENT HEAD AND METHOD FOR TUNING SAID TREATMENT HEAD

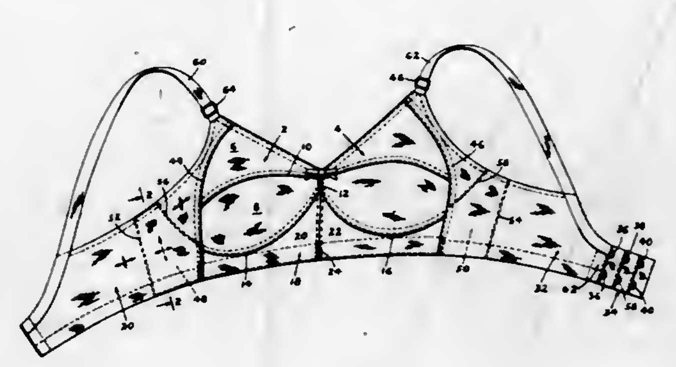
Luther B. Smith, and Frank A. Yarger, Miami Beach, Fla.
Filed Jan. 5, 1968, Ser. No. 696,039
Int. Cl. A61n *1/40*
U.S. Cl. 128—422 **49 Claims**



An electrotherapeutic apparatus is disclosed wherein diamond-shaped pulses of electromagnetic energy are produced by a pulse generator and applied to a treatment head which radiates the pulsed energy to a given load. A power amplification output stage of the pulse generator includes a tunable tank circuit. A detector is provided to determine whether the tank circuit is in its resonant state, the detector being transformer coupled to the tank circuit whereby the minimum current flowing through the detector corresponds to the resonant state of the tank circuit. Connected in series with the detector is a resistor network which permits the detector reading to be on-scale for each amplitude adjustment of the diamond-shaped pulses. Included within the treatment head is a further tunable tank circuit which comprises a tunable capacitor and an inductor, several embodiments of which are disclosed. The pulsed energy from pulse generator is transformer coupled to the tunable tank circuit of the treatment head, the primary winding of the treatment head transformer also being disclosed in several embodiments. Methods for tuning the electrotherapeutic apparatus with an artificial load which simulates a patient or the like and for establishing the artificial load are also disclosed.

3,566,878
BRASSIERES

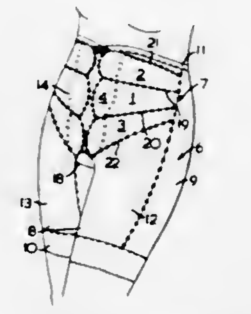
Alfreda R. Radomski, Trumbull, Conn., assignor to Warnaco Inc., Bridgeport, Conn.
Filed Jan. 13, 1969, Ser. No. 790,561
Int. Cl. A41c *3/00*
U.S. Cl. 128—489 **1 Claim**



An improved brassiere having nonelastic cups with an elastic area in the cup along the underarm side of the cup, an elastic back panel and an elastic, reinforced side panel, said side panel being formed by a section of fabric elastic in one direction and stretchable but nonelastic in the opposite direction superimposed on the fabric of said back panel with the direction of the elasticity of said back panel and said superimposed fabric substantially at right angle to each other.

3,566,879
GIRDLE

Carmen M. E. M. Braun, St. Laurent, Quebec, Canada, assignor to Canadian Lady-Canadelle Inc., Montreal, Quebec, Canada
Filed Oct. 3, 1968, Ser. No. 764,757
Claims priority, application Canada, Mar. 1, 1968, 013,735
Int. Cl. A41c *1/00*
U.S. Cl. 128—541 **8 Claims**



A girdle especially adapted to supplement the natural underlying muscle of the abdominal region. The girdle includes three sets of elastic panels which act in the same direction as the Transversus Abdominal Internal Oblique and External Oblique to effect control of the human figure. Coincidentally, the direction of the panels have a common focus at a point approximately on the hip of the wearer.

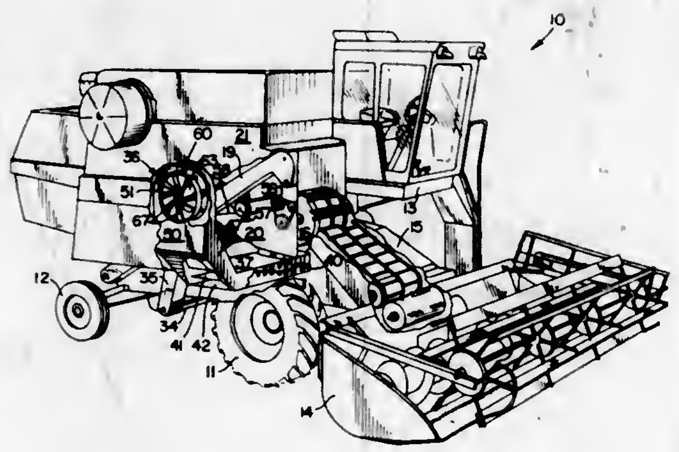
3,566,880
COMBINE-CLEANING SYSTEM

Glenn E. Riffe, East Moline, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed July 7, 1969, Ser. No. 839,345

Int. Cl. A01f *12/48*

U.S. Cl. 130—27 **10 Claims**



A winnowing fan for use on a combine harvester having a vertical chamber spaced from the sidewall of the harvester. A fan mounted in the upper portion of the vertical chamber that functions to draw air into the chamber from both sides and directs it down the chamber where it flows into a plenum box. An even stream of winnowing air is discharged from the plenum box towards the chaffer and sieve of the harvester-cleaning system.

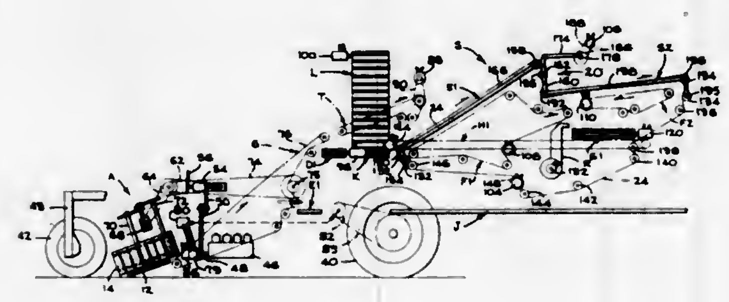
3,566,881
TOMATO HARVESTER SHAKING MECHANISM

Harold L. Link, and Ferdinand J. Dumanowski, San Jose, Calif. assignors to FMC Corporation, San Jose, Calif.

Filed Oct. 15, 1968, Ser. No. 767,736

Int. Cl. A01d *45/00*

U.S. Cl. 130—30 **8 Claims**



Tomatoes are shaken from their vines by an endless shaker conveyor comprising first and second linearly moving shaker sections which are independently oscillated in relatively opposite directions at a maximum velocity that exceeds the linear velocity of the shaker conveyor.

3,566,882
SMOKER'S DESK SET WITH AUTOMATIC TRAY DISCHARGE MECHANISM

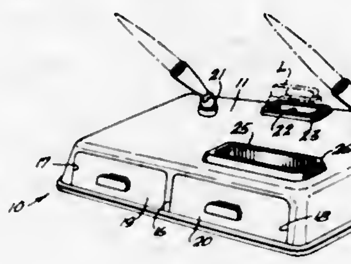
Frank J. Schroeder, 4210 31st St. S., St. Petersburg, Fla.

Filed Nov. 3, 1969, Ser. No. 873,199

Int. Cl. A24f *19/08, 19/10*

U.S. Cl. 131—234 **8 Claims**

A smoker's desk set having an ash receiver below which is arranged a sliding ash receiver drawer having an upper plate portion which serves as the ash receiver bottom when the drawer is in place, and which serves, in cooperation with a peripheral bottom edge of the ash receiver sidewall, to scrape ashes etc. into an open section of the drawer for removal upon withdrawal of the drawer.



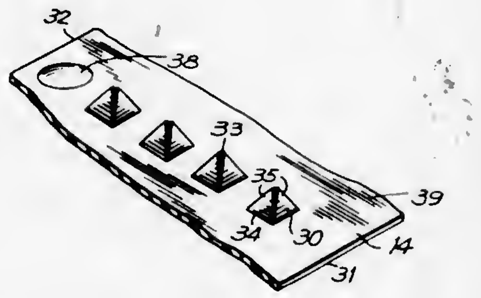
3,566,883
HAIRDRESSING TAPE

Adley H. Hochstadt, Hotel Sutton East, 330 E. 56th St., New York, N.Y.

Filed June 21, 1967, Ser. No. 647,849

Int. Cl. A45d *2/00*

U.S. Cl. 132—9 **5 Claims**



This invention is concerned essentially with a flexible adhesive tape for hairdressing purposes, including punctured portions, for ventilated attachment to and easy removal from a user's person. The instant invention also embraces an apparatus for tape manufacture wherein complementary rolls define a nip through which tape is passed and simultaneously pierced by coaction between projections on one roll and recesses on the other.

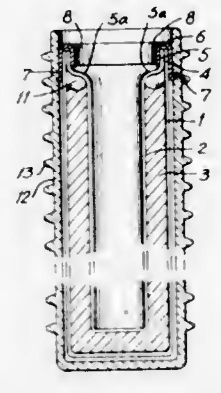
3,566,884
HAIRWINDER FOR USE IN CURLING HAIR

Arne Bybjerg Pedersen, Clarens (Montreux), Switzerland, assignor to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of application Ser. No. 818,192, Apr. 21, 1969, now abandoned , which is a continuation of application Ser. No. 615,606, Feb. 13, 1967, now abandoned. This application June 5, 1969, Ser. No. 830,638

Int. Cl. A45d *2/12*

U.S. Cl. 132—33 **2 Claims**



A hair winder in which a tubular metal cap is inserted into a tubular metal container in spaced relation and wherein the cap has an open end of deformed S-shape which is in contact with the open end of the container, whereby an enclosed space is formed between the cap and container which is filled with a heat-accumulating substance adapted to be melted by heating before the hair winder is used, whereby heat is transferred to an outer curler element surrounding the metal container. An annular double wall metal closing ring of U-shaped section clampingly engages the container and the cap to form a hermetic sealed joint at their contacting open ends and the closing ring has an outer projection to anchor the curler element to the ring.

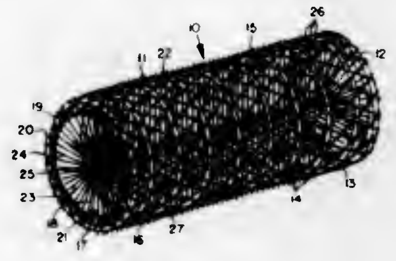
3,566,885
HAIR ROLLERS

Harry W. Meyer, Clearwater, Fla., assignor to The Industrial Development Corporation, Orlando, Fla.

Original application Jan. 18, 1965, Ser. No. 426,169, now Patent No. 3,434,193, dated Mar. 25, 1969. Divided and this application Mar. 13, 1968, Ser. No. 750,683

Int. Cl. A45d *2/12*

U.S. Cl. 132—39 **4 Claims**



A hair roller has a brush and an internally supported tubular net component that is provided with shrunken filaments at its ends to retain the support in a proper position in the assembly. With heat shrinkable netting material, the filaments at the ends of the supported tubular component are heat shrunk and then followed with a water or air quench to ambient temperatures before the brush is inserted in the tubular net. Heating and quenching are accomplished with an apparatus having spaced heaters with associated quenching devices, and a carriage for conveying the internally supported tubular component through the heaters. The carriage is equipped with cam actuated holders for inverting the held items between heaters.

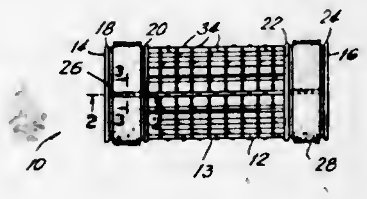
3,566,886
HAIR CURLER

Nathan L. Solomon, Cedar Lane, Englewood, N.J.

Continuation-in-part of application Ser. No. 728,663, May 13, 1968, now Patent No. 3,438,382. This application Oct. 17, 1968, Ser. No. 768,475

Int. Cl. A45d *2/12*

U.S. Cl. 132—39 **11 Claims**



A hair roller having at least one strip of material containing radially extending resilient hair gripping bristles mounted on the peripheral surface of the curler body and securely held in position without requiring stitching, such as by passing the ends of the strips through slots interiorly into the curler body, or positioning the strip in a slot with overlying edges along opposite strip edges and having a thickness substantially the same as the strip.

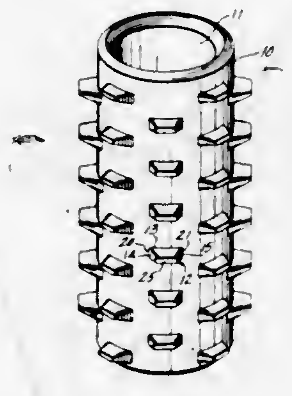
3,566,887
HAIR CURLER

Thomas F. Nelson, Stratford, Conn., assignor to General Electric Company

Filed Apr. 22, 1969, Ser. No. 818,338

Int. Cl. A45d *2/14*

U.S. Cl. 132—39 **8 Claims**



The disclosure herein concerns a hair curler that prevents tangling of the hair. The curler consists of a cylindrical body with an array of outwardly projecting elements arranged in at least six longitudinally extending rows around the body. The sidewalls of the projections, as viewed in a plane normal to the longitudinal axis of the curler body, converged to form an included angle between 25 and 50 degrees which is substantially bisected by radial lines.

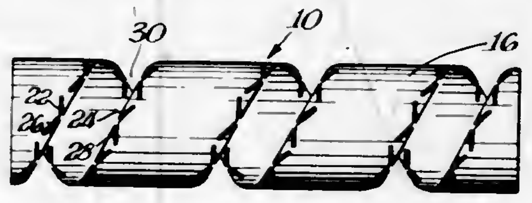
3,566,888
HAIR CURLER

John P. Bonarigo, 1401 Pennsylvania Ave., Wilmington, Del.

Filed Aug. 4, 1969, Ser. No. 847,333

Int. Cl. A45d *2/18*

U.S. Cl. 132—40 **12 Claims**



A hair curler includes a tubular body having a continuous spiral slit so that the body may be distorted from its original tubular shape by the application of a pulling force to create a gap formed by the spiral slit. Hair-anchoring means are disposed at the slit in such a manner as to be shielded when the body is in its original tubular form and to be exposed when the body is distorted therefrom.

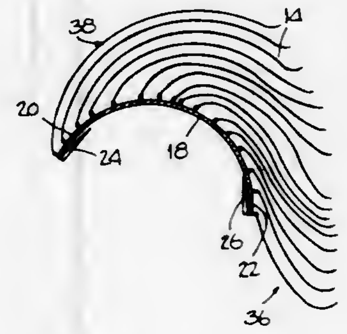
3,566,889
WIG CONSTRUCTION

Bernice Cole, New Hyde Park, and Miguel A. Marin, Brooklyn, N.Y., Bernice Cole, 10 Leslie Lane, New Hyde Park, N.Y.

Filed Aug. 9, 1968, Ser. No. 751,473

Int. Cl. A41g *3/00*

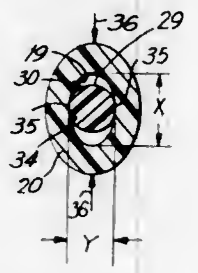
U.S. Cl. 132—53 **1 Claim**



A wig which includes a base member of generally hemispherical shape and having hair secured to and distributed over the area of the outer surface so as to overlie the top of the wearer's head and conceal the natural hair from view. The hair is trimmed to a generally shorter length toward one end and to a generally longer length toward the other end thereof so that when the wig is mounted on the wearer in one direction the wearer exhibits a relatively short hair styling effect, and when the wig is mounted on the wearer in the opposite direction the wearer exhibits a relatively long hair styling effect.

3,566,890
ADJUSTABLE HEADDRESS FRAME

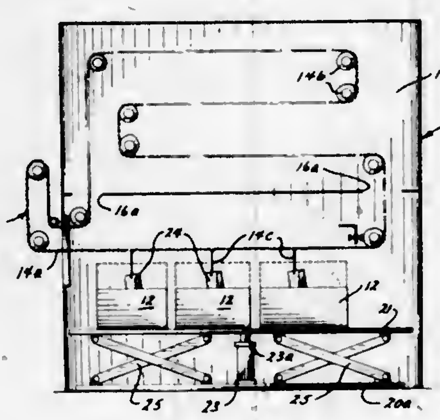
Marjorie Mc Cullough, 258 Wadsworth Ave., New York, N.Y.
Filed Oct. 25, 1968, Ser. No. 782,502
Int. Cl. A41g *5/00*
U.S. Cl. 132—54 **8 Claims**



A headdress frame adjustable into a variety of positions to retain the hairdo in a selected configuration.

3,566,891
TANK ARRANGEMENT

Robert L. Koch, II, Evansville, Ind., assignor to Ashdee Corporation, Evansville, Ind.
Filed Oct. 7, 1968, Ser. No. 765,371
Int. Cl. B05c *3/10;* **B08b** *3/04*
U.S. Cl. 134—61 **3 Claims**

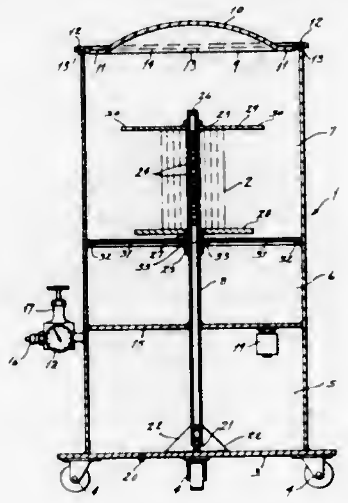


A tank arrangement particularly adapted for processing small parts characterized by the indexing of several tanks into processing position through simultaneous vertical movement.

3,566,892
OIL FILTER CLEANER INCLUDING ARRANGEMENT FOR CLEANSING OF CLEANER SOLVENT

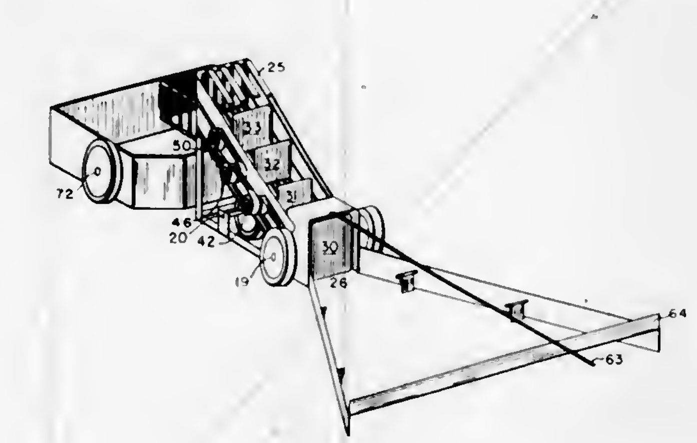
Russell F. Logue, Ferguson, and John H. Williams, Ironton, Mo., assignors to Fil-Clean Corporation, Ironton, Mo.
Filed Nov. 5, 1968, Ser. No. 773,559
Int. Cl. B08b *3/00, 9/02*
U.S. Cl. 134—102 **8 Claims**

In an oil filter cleaner including a container segmented into three separate compartments, and having a tubular member extending vertically through each compartment, the oil filter to be cleaned mounts upon the upper end of the tubular member and air under pressure discharges into the lower compartment forcing the solvent settled therein to pass up through the tubular member and be discharged into and pervade throughout the oil filter for effecting its cleaning. A filtering element is disposed intermediate the upper and middle compartments of the container so that as the solvent discharges from the oil filter, it is cleaned as it passes into the middle compartment for temporary disposition before it drains back into the lower compartment for reusage. The upward end of the tubular member may be formed as a diffuser and cooperate with support means for mounting various sizes and embodiments of oil filters during the cleaning process.



3,566,893
BALL RETRIEVING DEVICE

Ray A. Richardson, 201 S. Eastbourne, Tucson, Ariz., and Helen M. Richardson, fiduciary
Filed Nov. 12, 1968, Ser. No. 774,779
Int. Cl. B60p *1/38*
U.S. Cl. 134—115 **8 Claims**

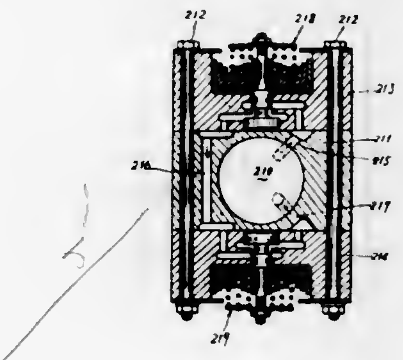


A device for retrieving objects such as golf balls from a ground area such as a driving range area and conveying them to a receptacle ready for reuse. The retriever device is mobile over the area and a V-shaped member extending from the device funnels the balls to the mouth of a conveyor having a series of rotating paddles which move the balls along an inclined conveyor to a point of collection. In the preferred embodiment a washer having a rotating agitator collects the balls from the conveyor to wash them.

3,566,894
HYDRAULIC PRESSURE GOVERNOR VALVE

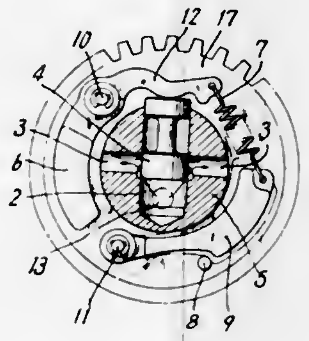
Takehito Satoh, Yokohama, Japan, assignor to Isuzu Motors Ltd, Tokyo, Japan
Filed June 11, 1968, Ser. No. 736,102
Int. Cl. G05d *13/10*
U.S. Cl. 137—54 **21 Claims**

A hydraulic pressure governor valve which is connected so as to be driven by a rotary shaft has a valve casing, in which a sleeve valve is disposed within a radial bore formed in the valve casing so that when the shaft rotates, the centrifugal force acting upon the valve provides a regulated output i.e., governor pressure. A number of weights *n* are slidably disposed on the valve, on which are spring means which act radially inwards, whereby the governor pressure can be regulated to increase in $(n + 1)$ steps in proportion to increasing speed of the shaft.



3,566,895
FLUID PRESSURE GOVERNOR

Isamu Goto, Tokorozawa-shi, Japan, assignor to Honda Giken Kogyo Kabushiki, Kaisha, Tokyo, Japan
Filed Jan. 21, 1969, Ser. No. 792,367
Claims priority, application Japan, Jan. 20, 1968, 43/3,509
Int. Cl. G05d *13/10*
U.S. Cl. 137—56 **9 Claims**

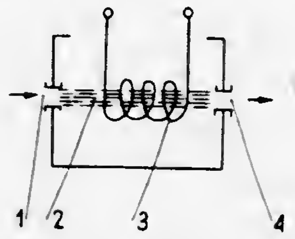


A fluid pressure governor comprises a rotating shaft having a pressure chamber in communication with a pressure fluid source such as a pump, there being a movable control valve in the chamber to regulate the opening of a discharge outlet, thereby to control the pressure of the fluid in the chamber. A main centrifugal weight engages the valve and a subsidiary centrifugal weight is resiliently connected to the main weight and is limited in its angle of swing to a predetermined value by a stop member such that the effect of the two weights is initially applied to the valve until the subsidiary weight is restrained, after which only the additive centrifugal effect of the main weight is applied to the valve.

3,566,896
ELECTROPRESSURE JETSTREAM CONVERSION ELEMENT

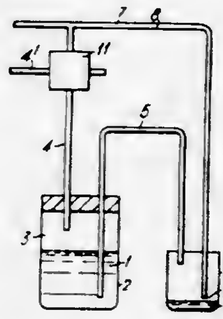
Andrzej Proniewicz, 90 ul. Byslawska 79am 34, and Tadeusz Sinolecki, 84 ul. Nowogrod zka 10 m 10, Warsaw, Poland
Filed Feb. 5, 1968, Ser. No. 703,150
Claims priority, application Poland, Feb. 18, 1967, P-119039
Int. Cl. F15c *1/04*
U.S. Cl. 137—81.5 **8 Claims**

An electropressure fluid jetstream conversion element has an electric resistance heater of low thermal inertia in engagement with a jetstream inlet; a variation in an electric current supplied to the resistance heater, such as voltage or frequency, causes a corresponding variation in a sensible property of the jetstream.



3,566,897
CONTROLLING THE FLOW OF FLUID COOLANT

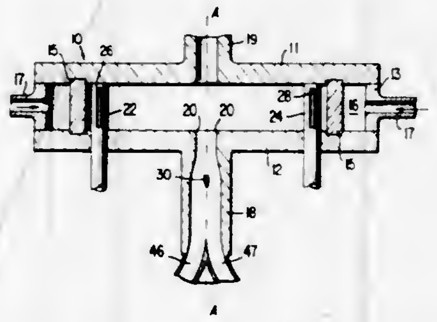
David Thomas Collier, Dunstable, England, assignor to Hawker Siddeley Dynamics Limited, Hatfield, Hertfordshire, England
Filed May 6, 1969, Ser. No. 822,194
Claims priority, application Great Britain, May 9, 1968, 16,977/68
Int. Cl. F15c *1/04*
U.S. Cl. 137—81.5 **7 Claims**



Apparatus for transferring a readily evaporable liquid, by gas pressure, from a first container to a second container, wherein a dip tube monitors the level of the liquid in the second container and the pressure signal in the dip tube is transmitted to a fluidic control device which controls the application of gas pressure to the liquid in the first container. The fluidic control device also receives a second control signal from the tube conveying the liquid from the first to the second container, and receives its main gas supply from the same source as that which supplies the gas pressure to the first container.

3,566,898
FLUERIC VORTEX PROPORTIONAL AMPLIFIER

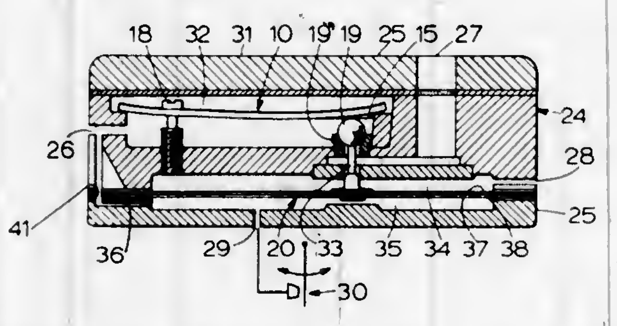
Kenneth R. Scudder, Saint Leonard; John F. Burke, Beltsville, Md., and John L. Dunn, Fairfax, Va., assignors to the United States of America as represented by the Secretary of the Army
Filed Dec. 20, 1968, Ser. No. 785,544
Int. Cl. F15c *1/16*
U.S. Cl. 137—81.5 **5 Claims**



A flueric vortex proportional amplifier having two concentric rings contained between a top plate and a bottom plate with fluid supply inputs providing a source of fluid between the concentric rings. The inner ring is of a porous material construction such that restricted fluid flow through the porous inner ring causes a nearly uniform pressure to be built up between the two rings to assure substantially irrotational radial flow within the chamber formed by the inner porous ring and the top and bottom plates. Concentric with the vortex chamber and in each end plate is a fluid output drain having an airfoil positioned therein and extending from the drain wall to the center of the drain with the chord of the airfoil being parallel with the axis of the drain. Downstream of the airfoil and in an expanded section of the drain, two normal splitters divide the drain into four equal outputs. The two outputs directly under the airfoil are the amplifier outputs. Two tangential control nozzles are positioned within the chamber with the output slots thereof facing in opposed tangential directions.

3,566,899
PNEUMATIC RELAY

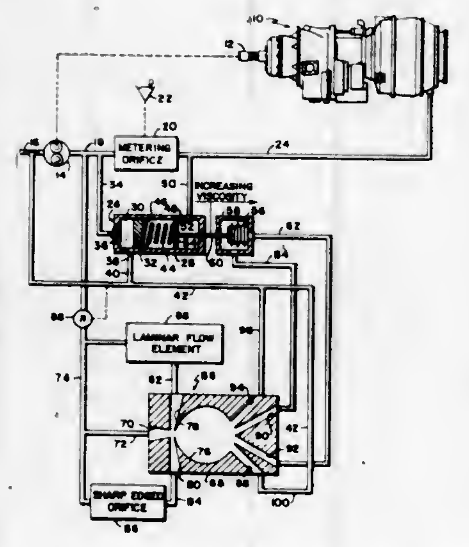
Hoel L. Bowditch, Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Jan. 7, 1969, Ser. No. 789,453
Int. Cl. F15b *5/00;* **G05d** *16/00*
U.S. Cl. 137—82 **3 Claims**



A pneumatic relay wherein a diaphragm is used as a valve actuator, with the diaphragm formed as a sandwich of a flexible metal sheet with relieving slots therethrough and a rubber sheet as a covering seal for the slots, and in which a leaf-spring structure is provided as an adjustable zero bias device for the relay valve, the spring being an H form with the H leg ends grounded and tongues between the H legs, one tongue having grounded adjustment means and another tongue as the spring force applicator to the relay valve as a bias therefor, this device, further, having an adjustable valve seat in the relay valve.

3,566,900
FUEL CONTROL SYSTEM AND VISCOSITY SENSOR USED THEREWITH

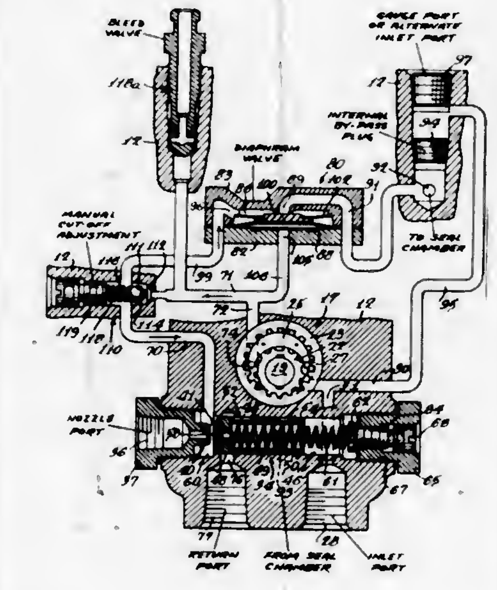
Jay I. Black, Orange, Conn., assignor to Avco Corporation, Stratford, Conn.
Filed Mar. 3, 1969, Ser. No. 803,758
Int. Cl. F15c *1/04*
U.S. Cl. 137—83 **6 Claims**



The disclosure illustrates a fuel viscosity sensor incorporated in a fuel control system for a gas turbine engine to assure a constant engine power output irrespective of fuel viscosity changes. The viscosity sensor comprises a proportional fluidic amplifier having a laminar flow element, series connected with one control jet. The fluidic amplifier is connected to the pressurized fuel supply and its output is proportional to the fuel viscosity. The pressure output from this amplifier is used to correct a flow-metering device for viscosity changes.

3,566,901
FUEL REGULATING VALVE

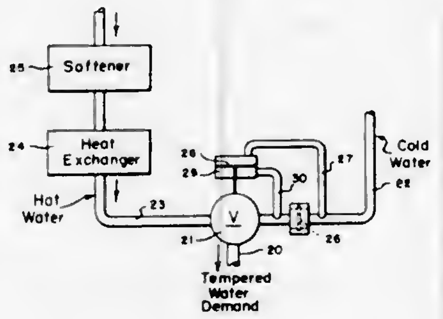
Nils E. Swedberg, Rockford, Ill., assignor to Sundstrand Corporation
Filed Feb. 27, 1969, Ser. No. 802,765
Int. Cl. G05d *7/01, 16/06*
U.S. Cl. 187—87 **15 Claims**



A fuel burner regulating valve assembly including a main regulating valve for controlling the supply of fuel to a burner nozzle and a flow responsive valve upstream of the main regulating valve for bypassing fluid from the main valve until a predetermined flow rate is achieved, together with a variable orifice for providing a pressure drop that controls the flow responsive valve, the variable orifice being located in the supply passage to the main regulating valve and automatically operative to change its effective area with flow rates above the predetermined flow rate to maintain a substantially constant pressure drop thereacross.

3,566,902
FLUID FLOW SYSTEM

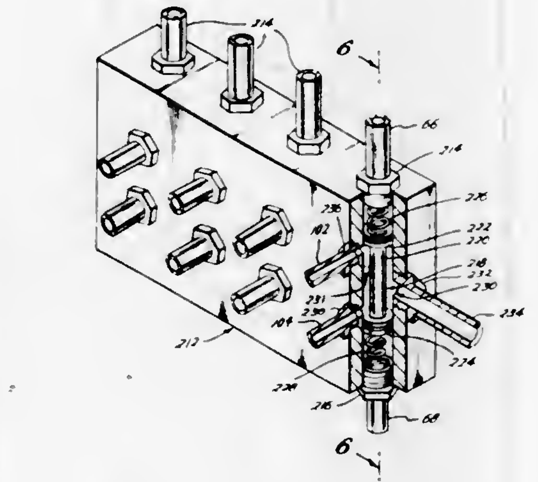
John T. Muller, Nutley, N.J., assignor to Leslie Company, Lyndhurst, N.J.
Filed May 13, 1968, Ser. No. 728,580
Int. Cl. G05d *11/00*
U.S. Cl. 137—100 **4 Claims**



In a fluid flow system having at least two flow branches whose pressure drop variations with flow rate changes are different, a flexible orifice is placed in a branch with the lesser pressure drop. The pressure drop across this orifice, which expands with increasing flow rate, tends to balance the pressure drop in the other branch or branches so as to make possible predetermined control of the fluid flow in the system.

3,566,903
DUMP VALVE

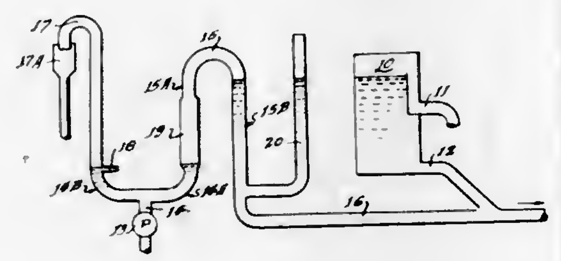
Don R. Honeycutt, Bryan, Tex., assignor to Omark-Prentice Hydraulics, Inc., Portland, Oreg.
Original application May 18, 1967, Ser. No. 639,360, now abandoned. Divided and this application Apr. 24, 1969, Ser. No. 840,882
Int. Cl. F15b *13/04*
U.S. Cl. 137—106 **4 Claims**



The present invention relates to hydraulic control systems, and in particular, to an improved dump valve to be used in such systems utilizing dump valves. The present invention discloses improved dump valves having a single spool and spool chamber with inlet and outlet openings at either end thereof and having a drain outlet intermediate the ends of the spool chamber. This single valve structure can be used for both hydraulic lines supplying actuating fluid to, and removing actuating fluid from, both sides of the piston in a cylinder operated by the remote control system.

3,566,904
LIQUID FLOW CONTROL SYSTEM

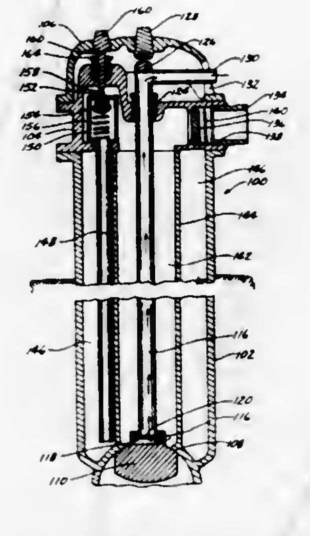
Harold S. Davis, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Apr. 15, 1969, Ser. No. 816,236
Int. Cl. F17b *1/14*
U.S. Cl. 137—206 **7 Claims**



A liquid flow control system which provides for the instant and automatic substitution of an emergency supply of liquid for a normal supply of liquid when the normal supply is inadequate, while preventing the two liquids from mixing during normal operation. The two supplies of liquid are connected by an inverted U-tube extending above the highest level the normal supply can reach. An air pocket at the top of the inverted U-tube prevents mixing of the two liquids in normal operation. When the normal supply is exhausted, the air pocket is vented to the atmosphere, causing the emergency supply to flow through the U-tube supplementing the normal supply.

3,566,905
HYDRANT PURGING MEANS

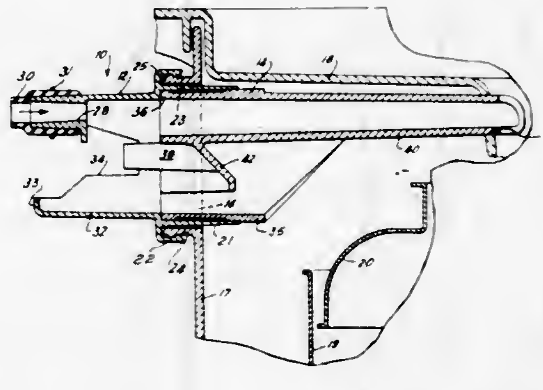
Wayne B. Noland, Avon Lake, Iowa, assignor to Woodford Manufacturing Company, Des Moines, Iowa
Original application May 23, 1967, Ser. No. 640,676. Divided and this application Apr. 1, 1969, Ser. No. 812,043
Int. Cl. E03b *9/14*
U.S. Cl. 137—209 **5 Claims**



A hydrant having an inlet port and a discharge port with a fluid passageway therebetween, and an air compression chamber in communication with the fluid passageway wherein compressed air therein will purge the remaining fluid from the fluid passageway when the inlet port is closed.

3,566,906
WATER INLET FLUME

Robert B. Beare, Herrin, Ill., assignor to The Fedders Corporation, Edison, N.J.
Filed July 15, 1969, Ser. No. 841,789
Int. Cl. E03c *1/10*
U.S. Cl. 137—216 **14 Claims**

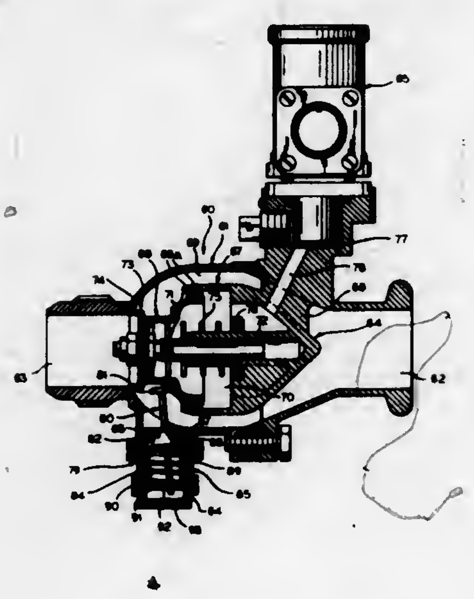


A water inlet flume assembly adapted for use in a household washing machine. The assembly comprises a first member having a tubular section at one end which is adapted to be positioned through an aperture in the tub of the washer. The opposite outer end of the first member includes an inlet nozzle and an underlying overflow trough. The second member is positioned on the inside of the tub and includes an upper trough in alignment with, but spaced from, the inlet nozzle. A transverse flange depends from the upper trough and is designed to skim the suds from the water in the event that the tub overflows and the water passes through the assembly in the reverse direction.

3,566,907
INLINE VALVE POSITION INDICATOR

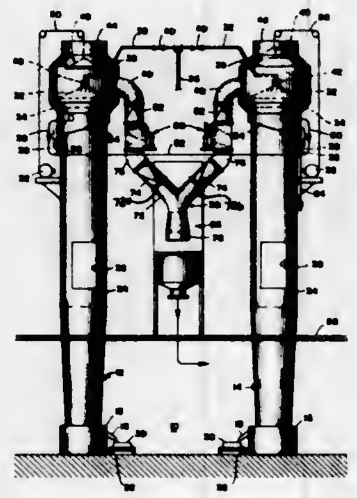
Malcolm A. Sime, Des Plaines, and Carl E. Rudolph, Chicago, Ill., assignors to Vapor Corporation, Chicago, Ill.
Filed Apr. 25, 1969, Ser. No. 819,365
Int. Cl. F16k *37/00*
U.S. Cl. 137—219 **6 Claims**

Inline valve position indicator, wherein the valve includes a poppet assembly having a piston and valve closure member driven pneumatically into open position and mechanically into closed position, wherein the position indicator includes a lever extending through the valve body and mounted thereon in pivotal and sealing relation and responsive to the movement of the piston and valve closure member, and wherein the motion of the lever is transmitted externally to actuate a readout means.



3,566,908
GASTIGHT, LIQUID SEALED, SWING-TYPE VALVE ASSEMBLY

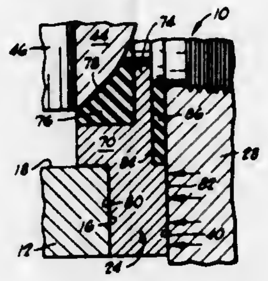
Edward M. Macnak, Des Plaines, Ill., assignor to National Dust Collector Corporation, Skokie, Ill.
Filed June 16, 1969, Ser. No. 833,560
Int. Cl. F16k *9/00*
U.S. Cl. 137—248 **6 Claims**



A gastight, liquid sealed, swing-type valve construction for controlling the flow of gases through a conduit comprising a housing having sidewalls and open at the upper and lower ends for connection with the conduit, a swing valve mounted for pivotal movement about a horizontal axis adjacent one end of the housing between a conduit closing shutoff position and an open position substantially out of the flow path of gas through said housing. Annular trough means is provided on the upper side of the swing valve so that when the valve is in said closed position said trough means may hold a body of sealing liquid around the perimeter of the valve and thereby establish a gastight liquid seal around the interior of the housing wall. Annular curtain wall means around the inside of the housing wall extends inwardly and downwardly of the sidewalls into the liquid in the trough means forming said liquid seal when the swing valve is in said closed position.

3,566,909
BETWEEN FLANGE BALL VALVES WITH FIXED-UNSTRESSED SEALS

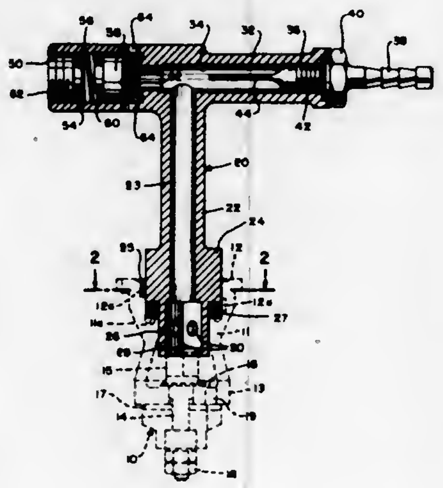
Domer Scaramucci, Oklahoma City, Okla., assignor to Balon Corporation, Oklahoma City, Okla.
Filed Jan. 3, 1966, Ser. No. 518,244
U.S. Cl. 137—315 **4 Claims**



A ball valve having both upstream and downstream seals and constructed for use between pipe flanges. The valve ball has a diameter, measured along the port therethrough, greater than the valve body and the seals are carried by seat members extending between the end of the body and the flanges to provide compressive loading on the body when the flanges are bolted into operating position.

3,566,910
VENTING DEVICE

R. Ellsworth Doremus, Clifton, and Richard E. Doremus, Morristown, N.J., assignors to Golden Gate Manufacturing Company, Delawanna, N.J.
Filed Nov. 19, 1968, Ser. No. 777,072
Int. Cl. F16k *17/168*
U.S. Cl. 137—323 **6 Claims**

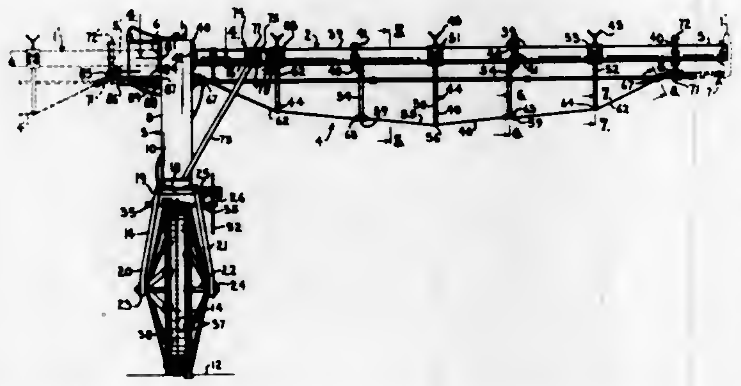


A venting device for use in withdrawing fluids from kegs which is generally T-shaped having a center leg and crossarms, said center leg and crossarms having communicating passages formed therein. The lower portion of the center leg has a keyed head with outlet passages therein for engaging the keyed operating member of a valve. One crossarm has a gas source inlet nozzle and the other crossarm a safety vent. The crossarm is used as a handle for rotating the device to open and close the valve.

3,566,911
MOBILE UNIT FOR SELF-PROPELLED IRRIGATION SYSTEMS

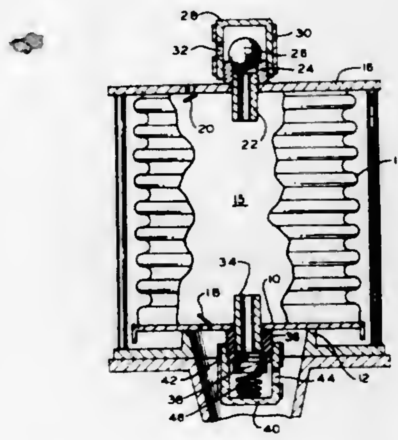
Benjamin R. Neier, East Wyatt Earp and Highway 50, Dodge City, Kans.
Filed Apr. 14, 1969, Ser. No. 815,659
Int. Cl. B05b *9/02;* **E01h** *3/02*
U.S. Cl. 137—344 **7 Claims**

A mobile unit for self-propelled irrigation systems having a plurality of mobile units wherein each mobile unit has an elongate frame, a yoke mounted on each end of the frame, a wheel rotatably mounted on each of the yokes, an elongate irrigation pipe has one end mounted on and extends transversely from one side of the frame, truss members supporting the irrigation pipe, and drive means operatively connected thereto for driving the mobile unit. The mobile units in the irrigation system are adapted to move relative to each other by a slip or expansion joint having one end of a slip joint pipe received in one end of a sleeve member mounted in the frame and one end of the irrigation pipe communicating with the other end of the sleeve member. A collar is mounted on the other side of the frame and has fluidtight seal means therein engaging an exterior surface of the slip joint pipe whereby the slip joint pipe can move relative to the frame. Movement limiting means extend between the other end of the slip joint pipe and the other side of the frame for maintaining the one end of the slip joint pipe within the sleeve member.



3,566,912
MAGNETICALLY BIASED VALVE DEVICE

Evald Dunkelis, Glenn Ellyn, Ill., assignor to GPE Controls, Inc., Morton Grove, Ill.
Continuation-in-part of application Ser. No. 625,758, Mar. 24, 1967, now Patent No. 3,454,040. This application Sept. 16, 1968, Ser. No. 760,020
Int. Cl. F16k *17/10, 17/19*
U.S. Cl. 137—493 **10 Claims**

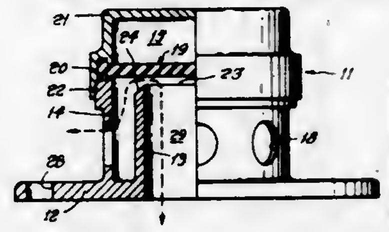


A pressure responsive valve having a single tank opening and single main pallet which provides pilot operation to relieve both overpressure and vacuum conditions within the tank. Also disclosed are features provided to improve operation of certain portions of the valve, such as means for selectively adjusting the "blowdown" of the valve and means providing a predetermined flux gap as well as improved sealing and antisticking qualities in a valve having permanent magnet biasing means.

3,566,913
DIAPHRAGM VALVE

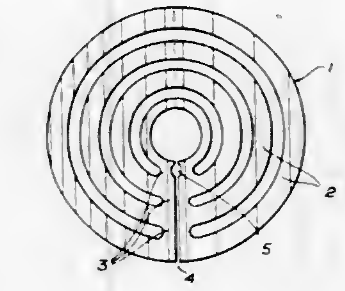
Arthur C. Parthe, Jr., Peabody, Mass., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 14, 1968, Ser. No. 775,869
Int. Cl. F16k *17/18*
U.S. Cl. 137—493 **3 Claims**

An elastic diaphragm valve is provided which permits control of fluid flow by a small pressure gradient. The diaphragm is disposed opposite a pair of passages connecting two flow lines and is under selected pressure so that, when the pressure in each of the flow lines is equal to or greater than the selected pressure, flow will occur; and when the pressure in one of the flow lines is less than the selected pressure and in the other flow line is equal to the selected pressure, flow will be prevented.



3,566,914
MULTIPLE-RING VALVE

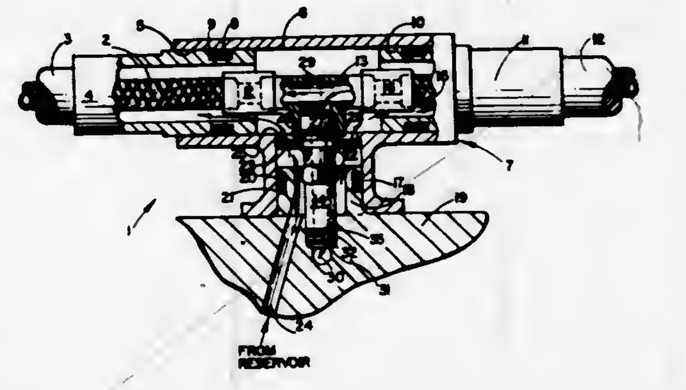
Robert F. Koehler, Schonga, Lech, Upper Bavaria, Germany, assignor to Hoerbiger Ventilwerke Aktiengesellschaft, Vienna, Austria
Filed May 21, 1968, Ser. No. 730,875
Claims priority, application Austria, May 30, 1967, A5049/67
Int. Cl. F16k *15/14;* **F04b** *39/00*
U.S. Cl. 137—516.13 **1 Claim**



A multiple-ring valve, particularly for piston-type compressors, the valve plate of which is loaded by means of a cylindrically arcuate spring plate. The spring plate comprises concentric rings interconnected by means of radial webs located on a single diameter only, a radial slot being provided in the area of the webs.

3,566,915
HYDRAULIC SYSTEM USING CONCENTRIC LINES

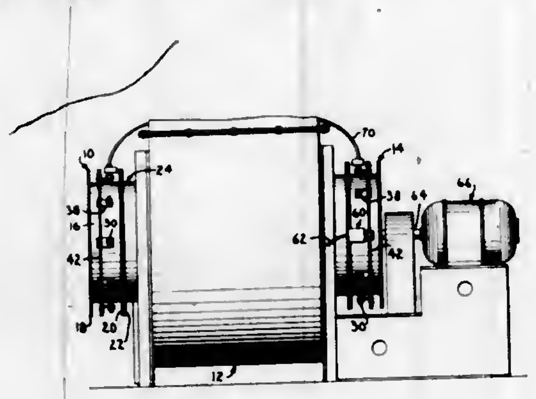
Willis D. Griffin, Chino, Calif., assignor to North American Rockwell Corporation
Filed May 5, 1969, Ser. No. 821,568
Int. Cl. F16l *39/00*
U.S. Cl. 137—561 **2 Claims**



The pressure hose of a hydraulic system is enclosed within the return hose and connected by a hydraulic fitting to the mechanical system being operated by the hydraulic fluid passing through the hoses.

3,566,916
INLET VANE DAMPER

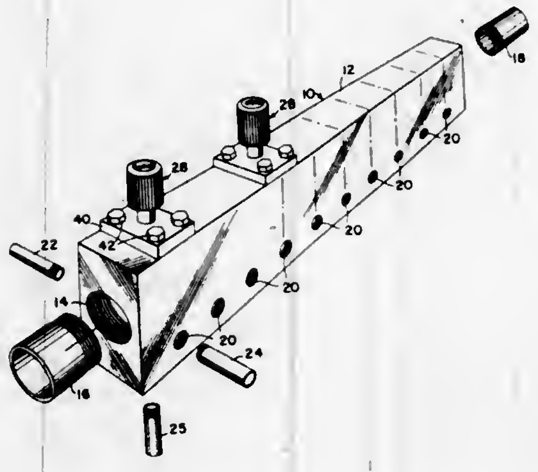
James R. Root, Independence, Mo., assignor to Ruskin Manufacturing Company, Grandview, Mo.
Filed May 1, 1969, Ser. No. 820,727
Int. Cl. F04d *29/46*
U.S. Cl. 137—601 **6 Claims**



An inlet vane damper having a rigid ring interconnecting the vane shafts for closing or opening the vanes simultaneously. A crank arm of spring material interconnects each shaft with the ring to tolerate minor variations in the movement of the various arms with respect to the ring to obviate the necessity for precision in the manufacture and assembly of the damper control elements.

3,566,917
FLUID MANIFOLD

James C. White, P.O. Box 5495, Greenville, S.C.
Filed Dec. 20, 1968, Ser. No. 785,608
Int. Cl. F16d *1/00*
U.S. Cl. 137—608 **5 Claims**

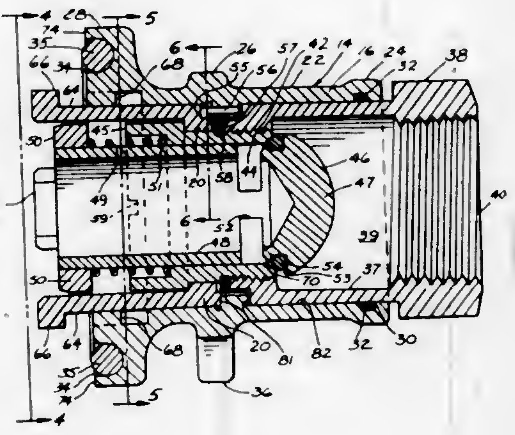


A fluid manifold in the form of an elongated conduit having spaced along its length a plurality of bores extending through a portion of the conduit spaced from the passageway of the conduit and substantially perpendicular thereto. Additional bores extending through the conduit and the passageway of the conduit and valve means for each of the bores to form a plurality of groups of outlets from the conduit with valves for each of the groups.

3,566,918
QUICK CONNECT AND DISCONNECT FLUID CONVEYING COUPLING

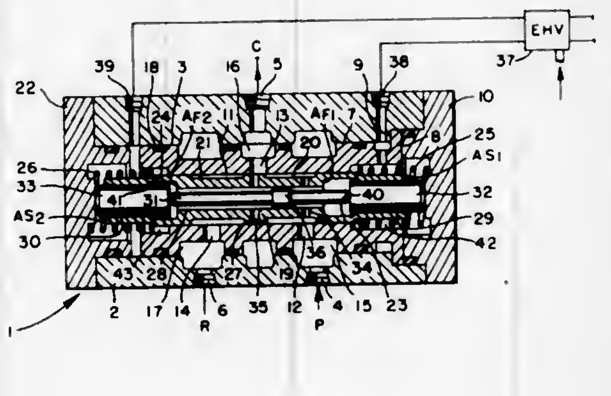
John T. Rauen, Detroit, Mich.
Filed Aug. 6, 1969, Ser. No. 847,872
Int. Cl. F16l *37/24*
U.S. Cl. 137—614.04 **5 Claims**

A fluid conveying connection coupling comprising two identical couplings which, when connected to the end of two fluid conveying flexible lines, can be leaklessly attached to each other to join the lines and simultaneously therewith, permit flow of fluid therein and self-sealingly interrupt the flow upon disconnecting the couplings.



3,566,919
HYDRAULIC SERVO VALVE WITH PRESSURE FEEDBACK

Robert Dale Vanderlaan, Kalamazoo, Mich., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio
Filed Jan. 24, 1969, Ser. No. 793,690
Int. Cl. F16k *11/07*
U.S. Cl. 137—625.63 **12 Claims**

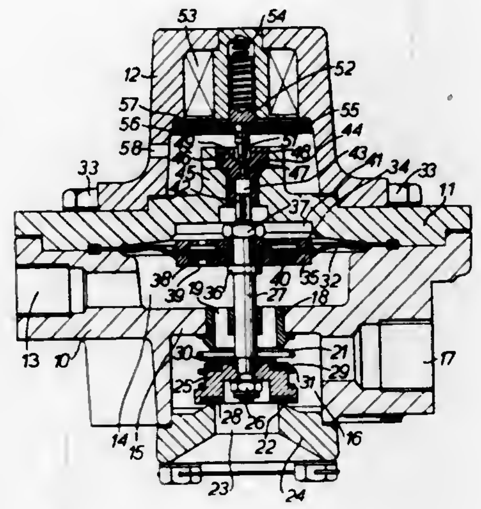


A servovalve including a hollow valve spool containing a multipiece plunger-piston stack defining separate first stage and feedback pressure areas for the spool. The plunger-piston stack extends the entire length of the bore in which the spool is contained to provide a central load reaction path therefor.

3,566,920
FLUID CONTROL VALVES

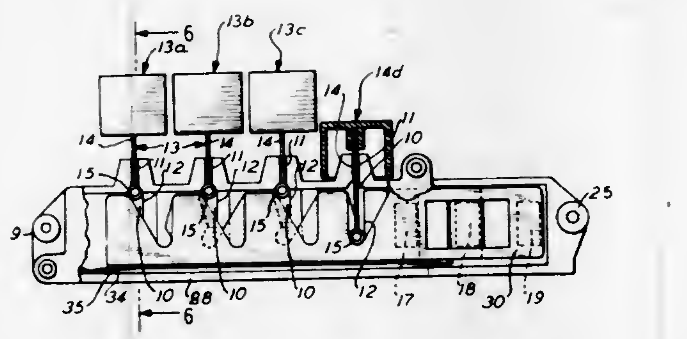
Charles G. Stewart, Solihull, England, assignor to Girling Limited, Birmingham, England
Filed Jan. 16, 1969, Ser. No. 791,602
Claims priority, application Great Britain, Jan. 24, 1968, 3,704
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.64 **7 Claims**

In a fluid control valve in which a double-beat valve head is adapted to engage alternatively with opposed axially spaced valve seats located respectively between inlet and outlet ports in the valve body and between the outlet port and a further port, the position of the valve head is controlled by a diaphragm which is exposed on its underside to the inlet pressure and on its upper side to the pressure in a chamber which is connected to atmosphere through a passage in the valve body coaxial with the valve on energization of a solenoid actuating a pilot valve which normally closes the passage.



3,566,921
MULTIPLE INTERLOCKED VALVE CONSTRUCTION

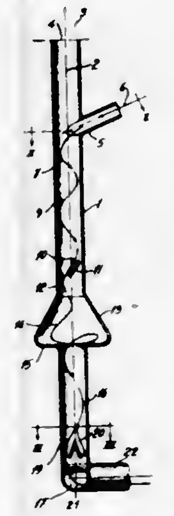
Frederick C. Bell, Newburytort, and Clifford R. Walker, Peabody, Mass., assignors to Proctor-Silex Incorporated, Philadelphia, Pa.
Filed May 22, 1969, Ser. No. 827,003
Int. Cl. F16k *11/22*
U.S. Cl. 137—637.1 **7 Claims**



A bleeder valve for vacuum cleaners comprises a housing including a body portion having three longitudinally spaced ports laterally venting, and a stem portion having three longitudinally slidable laterally spaced vanes therein adapted to seal respective ones of said ports. Each of the sliding vanes includes four cutout portions, certain of the perimeters of which being predetermined camming type surfaces and respective ones of which being in lateral alignment to constitute four sets of three laterally aligned cutout portions. The stem portion further has four transverse bores each opening at the top of the stem portion to receive a reciprocative plunger therein, each plunger being of a sufficient lateral dimension to be received in each of the laterally aligned cutout portions of each respective set, each set being coincident with a respective bore. The camming type surfaces of the cutout portions are designed so that only one plunger may be in actuated position at any one time, and, by actuation of any of the four plungers, a predetermined, selective opening or closing of the three ports by their respective vanes may be accomplished for negative pressure control in the vacuum cleaner.

3,566,922
METHOD AND DEVICE CONNECTING DOWN DRAIN PIPES FOR PRODUCING A VENTILATING GYROLAMINAR FLOW

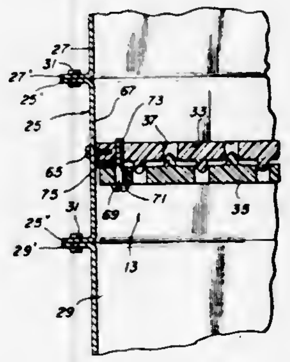
Monique nee Jouve Legg, 3, Avenue Anatole France, and Georges Richard, 51, Avenue St-Jerome, Aix-En-Provence, France
Filed Feb. 5, 1968, Ser. No. 703,069
Claims priority, application France, Feb. 6, 1967, Feb. 6, 1967, Feb. 6, 1967, Feb. 6, 1967, Feb. 7, 1967, Feb. 8, 1967, Feb. 13, 1967, Feb. 13, 1967, Mar. 9, 1967, Mar. 9, 1967, July 28, 1967, Aug. 9, 1967, 21737;21738;21739;21740;217745;217746 ;21755;21756;21779;21780;21931;21945
Int. Cl. F15d *1/02*
U.S. Cl. 138—39 **4 Claims**



The branching pipe device mounted between an upper and a lower portion of a down drain pipe, the said device comprising a main inlet located for tangentially projecting fluid on the inside wall of the device to form a fluid curtain, secondary inlets for preventing the flow from the main inlet to flow upwardly, inclined planes for regenerating the movement of the fluid and cutting the fluid curtain to maintain the intercommunication between the atmospheric pressure of the air inside the device and the air from the secondary inlets.

3,566,923
AIR VOLUME AND PRESSURE REDUCING MEANS IN AN AIR CONDITIONING MEANS

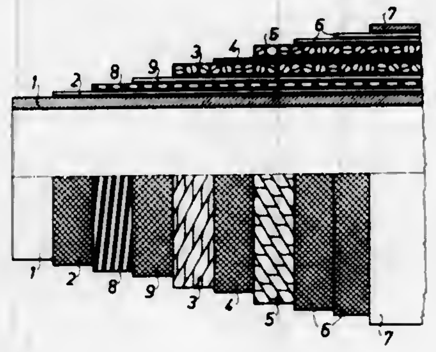
Gilbert H. Avery, 4542 Aldersgate Road, Memphis, Tenn.
Filed Dec. 13, 1967, Ser. No. 690,174
Int. Cl. F15d *1/10;* **F16l** *55/00*
U.S. Cl. 138—43 **11 Claims**



A valve, located in the conduit of an air-conditioning system which leads to a room to be conditioned by the air, for dissipating the velocity and reducing the volume and pressure of the air entering the room. The valve includes an upper plate and a lower plate spaced in parallel relationship below the upper plate. The plates are provided with a multiplicity of small apertures, the apertures of the lower plate being laterally offset from those of the upper plate. Each of the plates are provided with smooth parabolic shaped protrusions which coact with the apertures in the other plate. A mechanism is provided for moving one of the plates relative to the other of the plates to valve the flow of air therethrough.

3,566,924
PRESSURE-RESISTANT FIBER REINFORCED HOSE

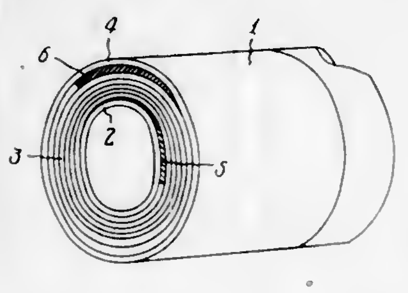
Sandor Ambrus, and Katalin Teleki, Budapest, Hungary, assignors to Orszagos Gumiipari Vallalat, Budapest, Hungary
Filed Jan. 2, 1969, Ser. No. 788,508
Claims priority, application Hungary, Jan. 9, 1968, AU-189
Int. Cl. F16l *11/08*
U.S. Cl. 138—130 **5 Claims**



A pressure-resistant hose, particularly for deep drilling, comprises spaced oppositely helically wound reinforcing inserts whose pitch, measured from a plane perpendicular to the axis of the hose, increases radially outwardly from insert to insert, for example, 6′—5° for the innermost, 25—32° for the next, and 38—45° for the next outer layer.

3,566,925
SPIRAL MULTILAYER PIPE FOR PRESSURE VESSEL

Hideo Sagara; Tomoyuki Mashimo, and Takeshi Kifune, Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Toyko, Japan
Filed Feb. 12, 1969, Ser. No. 798,679
Int. Cl. F16l *9/14*
U.S. Cl. 138—143 **4 Claims**

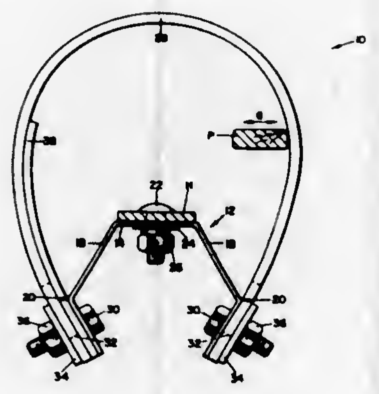


A spiral multilayer pipe for a pressure vessel characterized in that a plurality of steel sheets which are thinner than a hoop steel constituting the main spiral body and are different in length, said steel sheets being secured to at least one of the hoop steel ends so as to form the end into wedged shape.

3,566,926
PICKER STICK CHECK

Walter Roy Hampson, Holyoke, Mass., assignor to Clinton Silk Mill, Inc., Holyoke, Mass.
Filed Apr. 1, 1969, Ser. No. 812,071
Int. Cl. D03d *49/40*
U.S. Cl. 139—165 **2 Claims**

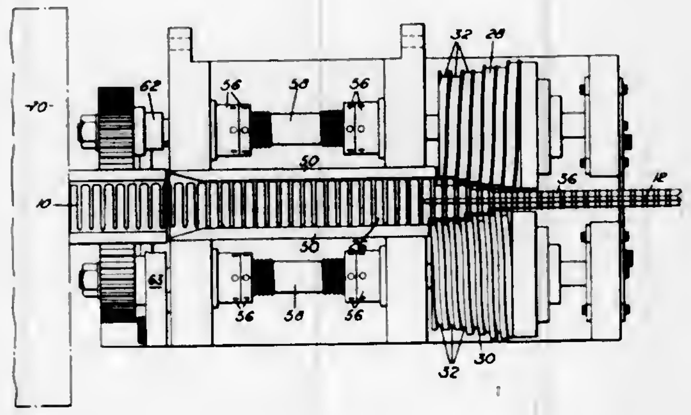
A loom picker stick check comprising, a bracket adapted for attachment to the lay of a loom, the bracket being substantially U-shaped and having a pair of legs, a check strap adjustably secured at its opposite ends to a respective one of



the legs of the bracket, the check strap forming a loop extending outwardly from the bracket for confining and substantially surrounding the picker stick.

3,566,927
BOOKBINDING

Sidney George William Adams, Hersham, England, assignor to James Burn & Co. Ltd., Surrey, England
Filed Dec. 6, 1968, Ser. No. 781,722
Claims priority, application Great Britain, Dec. 15, 1967, 57161/67
Int. Cl. B21f *45/00*
U.S. Cl. 140—71 **13 Claims**



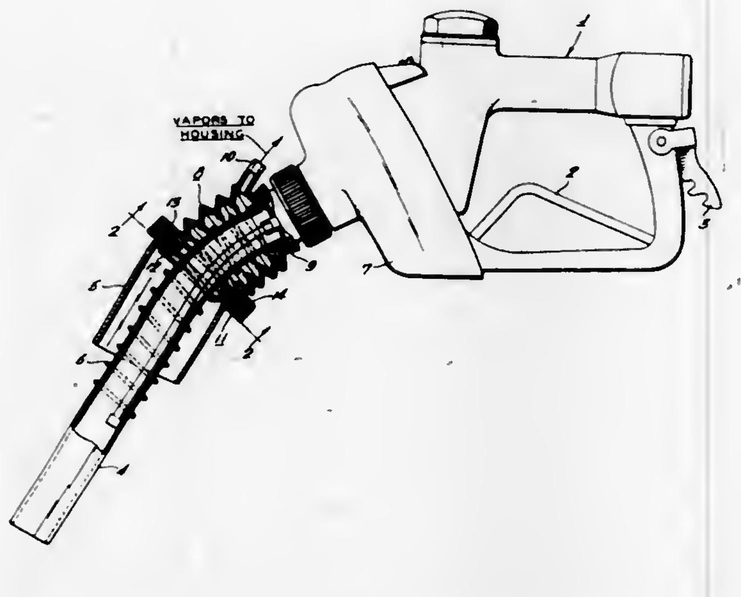
A method for the conversion of strips of zigzag wire into a tubular form suitable for binding perforated sheets, comprising feeding the strip over an anvil in a step-by-step fashion, and clamping the strip whilst it is stationary so that the edges can be bent over the anvil by strikers situated on either side of the anvil.

3,566,928
VAPOR SEAL FOR DISPENSING NOZZLES

William B. Hansel, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
Filed July 22, 1969, Ser. No. 843,719
Int. Cl. B65b *1/28, 3/18;* **B67c** *3/02*
U.S. Cl. 141—97 **4 Claims**

Vapors displaced from a liquid fuel tank by the liquid fuel

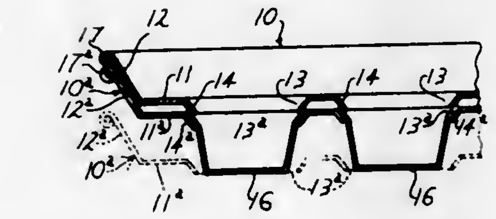
being dispensed thereinto through a nozzle are collected by



means of a flexible bellows which surrounds the nozzle and one end of which is sealed to the fillpipe of the fuel tank.

3,566,929
CUP FILLING APPARATUS

Gerald M. Mead, Rte. 3, Cullman, Ala.
Filed Aug. 1, 1968, Ser. No. 749,520
Int. Cl. B65b *3/04*
U.S. Cl. 141—237 **2 Claims**

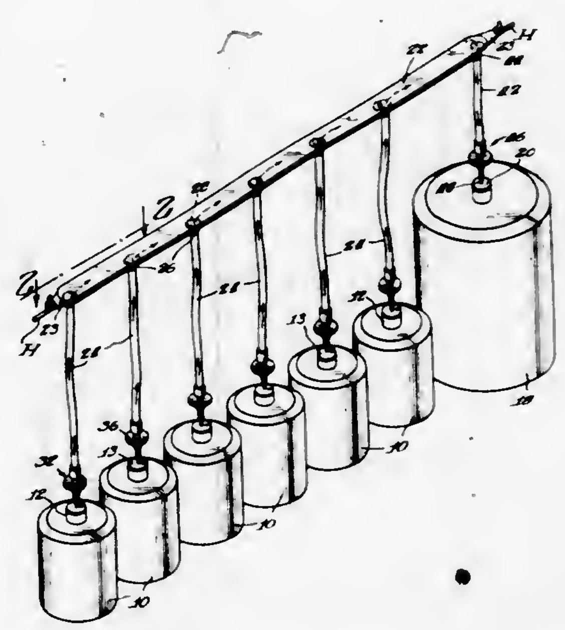


Cup-filling apparatus embodying a tray having a flat bottom wall and upstanding sidewalls. A plurality of spaced apart openings in the bottom wall are surrounded by downwardly and inwardly extending continuous flanges which engage upper inner surfaces of subjacent cuplike members to define a continuous seal therewith. A second tray having openings therein and downwardly and inwardly extending flanges in vertical alignment with the openings and flanges in the first-mentioned tray is mounted beneath the first mentioned tray with upper edges of the cuplike members clamped therebetween.

3,566,930
MEANS FOR STERILELY TRANSFERRING BLOOD PLASMA, SERUM, BIOLOGICAL OR PHARMACEUTICAL FLUIDS, AND THE LIKE

Leon I. Kirschner, Skokie, Ill., assignor to K-N Enterprises, Inc., Skokie, Ill.
Filed May 2, 1968, Ser. No. 726,065
Int. Cl. B65b *37/00*
U.S. Cl. 141—244 **2 Claims**

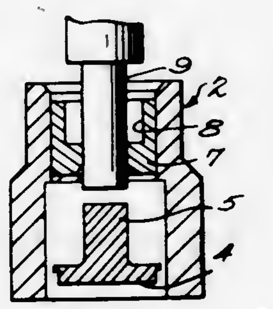
Means for sterilely transferring blood plasma, serum, biological or pharmaceutical fluids and the like from a plurality of containers containing said plasma or fluids to a single collecting or pooling container, or conversely transferring same from a single container to a plurality of containers, said



means comprising a manifold provided with a plurality of conduits or tubes, each of which is connected to a separate container of a plurality of containers, and a conduit or tube which is connected to the pooling or larger container.

3,566,931
INK CARTRIDGES OF SYNTHETIC MATERIAL

Franco Verona, Turin, Italy, assignor to Aurora Societa per Azioni, Turin, Italy
Filed Oct. 8, 1968, Ser. No. 765,898
Claims priority, application Italy, Oct. 11, 1967, 53314-A/67
Int. Cl. B65b *1/04, 3/00*
U.S. Cl. 141—367 **2 Claims**

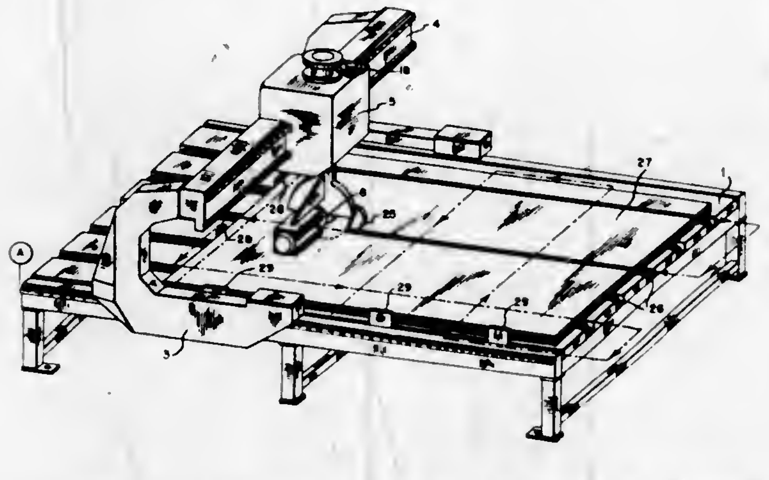


An adapter for an ink cartridge including a closure for fountain pens with cartridge openers. The adapter having a plurality of surface means thereon respectively dimensioned and configurated for accommodating differently dimensioned fountain pen cartridge openers and for permitting displacing force to be transmitted to the closure from a fountain pen cartridge opener of each of a corresponding plurality of sizes.

3,566,932
PROCESS FOR RATIONAL PRODUCTION OF SIZE PLATES WITH A PLATE SAW, IN PARTICULAR USING AN ELECTRONIC CONTROL AND DEVICE FOR PRACTICING SAID PROCESS

Guenther Papenmeier, Schulstrasse 4931 Pivetsheide V.L. Kreis, Detmold, Germany
Filed Apr. 4, 1968, Ser. No. 718,706
Int. Cl. B27b *5/18;* **B23d** *45/02*
U.S. Cl. 143—47 **5 Claims**

The invention relates to a sawing machine for rational production of size plates of any dimensions by means of a plate saw, wherein, after preselection of dimensions, a series of lengthwise and crosswise cuts are made in sequential order without lost time, while saving return runs and idle cuts.

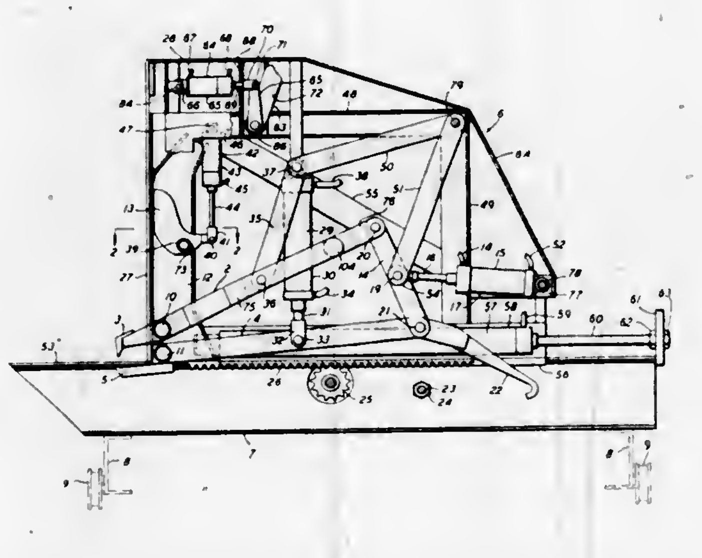


3,566,933
SAWMILL APPARATUS

Harold A. Pryor, c/o Mill Master Machine Works, Woodville, Tex.

Filed May 14, 1968, Ser. No. 729,050
Int. Cl. B27b *29/10*

U.S. Cl. 143—125 **20 Claims**



Sawmill apparatus is provided including automatic log-turning means in combination with improved nondefacing gripping means and techniques. A pair of gripping arms are pivotally mounted at opposite ends of an equalizer bar, whereby the gripping arms may be selectively and individually manipulated for gripping the top and bottom surfaces of a saw log or cant in a manner to avoid defacing the backing board. A bumper arm is also provided and utilized in cooperation with the lower gripping arm to rotate the saw log.

3,566,934
SAW GUIDED SPLITTER

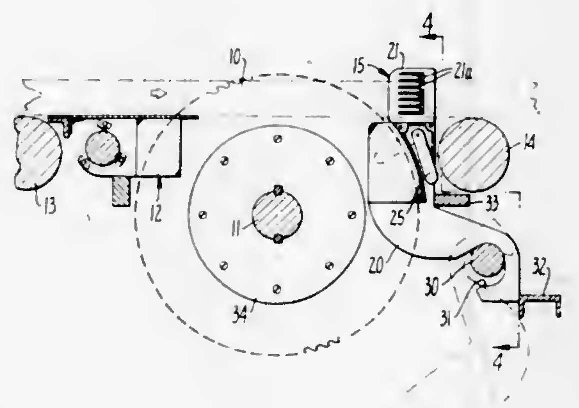
Elbridge W. Thrasher, Ukiah, Calif., assignor to Masonite Corporation

Filed Oct. 28, 1968, Ser. No. 770,937
Int. Cl. B27b *5/28*

U.S. Cl. 143—167 **10 Claims**

In combination with a saw machine having a relatively thin circular saw mounted upon an arbor with floating axial looseness and a saw guide defining a limiting control plane for guiding the leading edge of said saw, a splitter mounted for lateral movement and laterally positioned by the rear edge of said saw.

A splitter for use in saw machines having a circular saw and comprising a pair of spaced contacts, each contact having a bearing surface for making contact with opposite sides of a circular saw, and a divider member having a plurality of resilient contacts that extend into a region above said spaced contacts and in trailing relation to the rear edge of a saw.

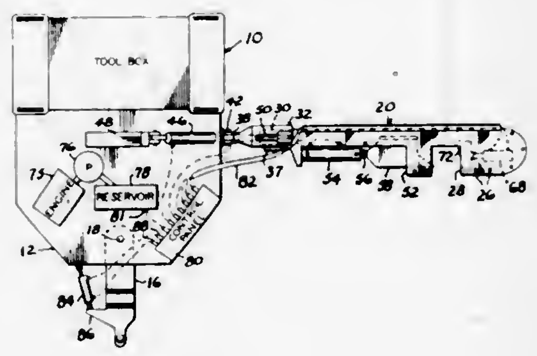


3,566,935
TREE FELLING AND CUTTING APPARATUS

Keldon W. Wilds, 1440 N.W. 49, Oklahoma City, Okla.

Filed Aug. 16, 1968, Ser. No. 753,219
Int. Cl. A01g *23/02*

U.S. Cl. 144—34 **5 Claims**



A two-wheel trailer frame is provided with a laterally extending arm structure having a tree bowl receiving socket. Oppositely disposed blades are movable toward and away from each other across the socket. Hydraulic power supply means is mounted on the trailer and arm structure for raising and lowering the arm and reciprocating the blades.

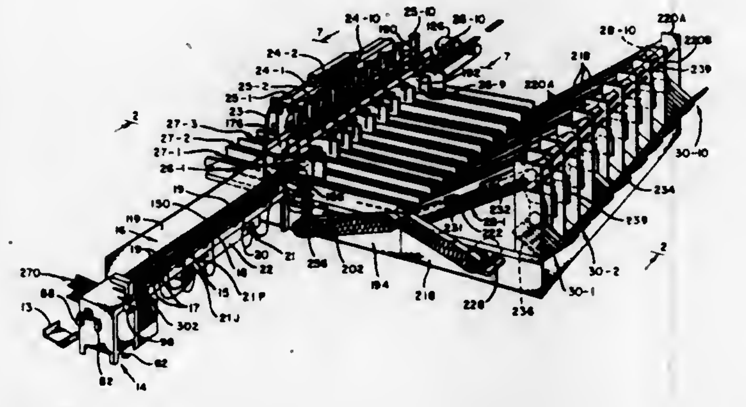
3,566,936
LUMBER SORTING METHOD

Alexander J. Golick, Seattle, Wash., and Ernest D. Giuseponi, Stockton, and Arthur J. Randolph, Santa Rosa, Calif.; said Giuseponi and said Randolph assignor to said Golick

Original application Dec. 22, 1965, Ser. No. 515,697, now Patent No. 3,502,123, dated Mar. 24, 1970. Divided and this application Aug. 18, 1969, Ser. No. 850,911
Int. Cl. B27b *1/00*

U.S. Cl. 144—312 **10 Claims**

A lumber cutting and sorting method wherein the lumber is cut into various predetermined lengths by abutting them against gage stops while making the cut. The gage stops have associated sensing means controlling downstream lateral deflector means for sorting the lumber by thickness, width, and/or grade. Crossed plural conveyors remove the cut lumber after sorting.



3,566,937
INLINE VENEER PRODUCTION SYSTEM

Harold E. Erickson, Federal Way, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Original application Oct. 10, 1963, Ser. No. 315,248, now Patent No. 3,280,866, dated Oct. 25, 1966. Divided and this application Apr. 6, 1966, Ser. No. 540,796
Int. Cl. B27l *5/02*

U.S. Cl. 144—327 **9 Claims**

A system for efficiently utilizing a wood veneer peeling lathe and dryer by installing a number of horizontally disposed and vertically spaced veneer storage and conveying trays spanning from the peeling lathe to the dryer. More levels of trays are provided than levels of conveyors in the dryer to insure a ready source of veneer to keep the dryer supplied with no gaps between pieces of veneer. A waste removal clipper may be positioned between the ends of the trays for removal of defective portions of veneer. The wetter portions of veneer can be conveyed to a slower dryer conveyor while the drier portions can be conveyed on a faster dryer conveyor without overdrying.

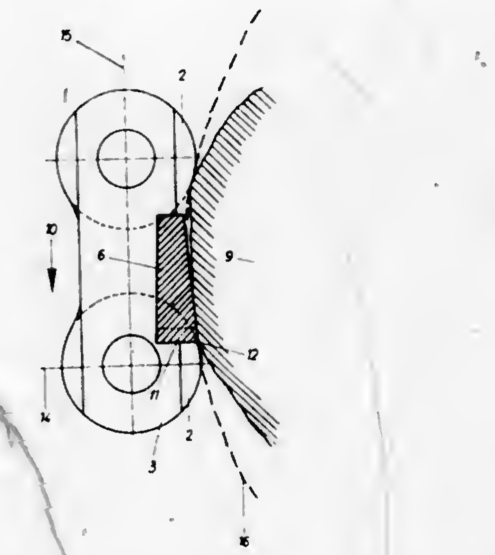
3,566,938
CHAIN CUTTER FOR DEBRANCHING AND DEBARKING TREES

Georg Wehr, and Gotthold Gotze, Rotenburg an der Fulda, Germany, assignors to Rotenburger Metallwerke GmbH, Fulda, Germany

Filed Mar. 6, 1967, Ser. No. 620,925
Claims priority, application Germany, Mar. 9, 1966, R42786
Int. Cl. B27l *1/00;* **B27b** *33/14*

U.S. Cl. 144—208 **10 Claims**

A chain cutter for debarking and debranching tree trunks and having a plurality of roller members which engage the trunks and which are connected together with a plurality of links to form a link chain. A plurality of cutting teeth are fixed to the outer links of one side face of said chain, one portion of these teeth having cutting edges projecting beyond their associated link towards the trunk, and terminating approximately at a point which is on a line with the points of engagement of an associated roller and the trunk.

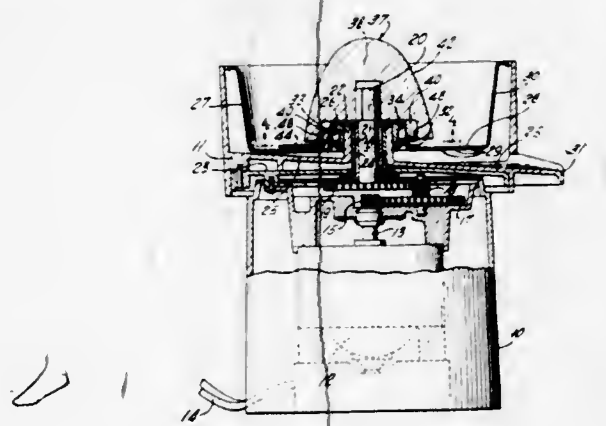


3,566,939
FRUIT JUICE EXTRACTORS

Frederick M. Hubrich, Winsted, Conn., assignor to Ronson Corporation, Woodbridge, N.J.

Filed Feb. 10, 1969, Ser. No. 797,740
Int. Cl. A47j *19/00;* **A23n** *1/02*

U.S. Cl. 146—3 **7 Claims**



A wiper is removably coupled to the reamer of a fruit juice extractor for rotation therewith, the reamer and/or wiper having means thereon for selectively adjusting the height of the wiper above the surface of the juicer strainer. The pulp content of the juicer varies in accordance with the height of the wiper above the surface of the juicer strainer.

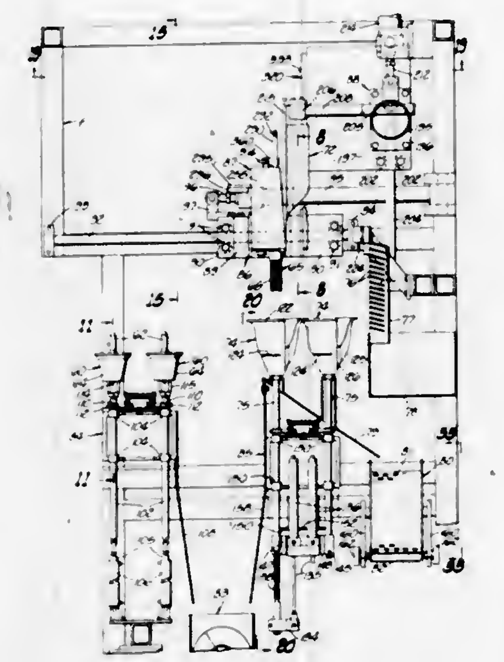
3,566,940
APPARATUS FOR SECTIONIZING CITRUS FRUIT

Robert S. Shrewsbury, Dunedin; John D. Webb, Clearwater, Fla., and Ronald C. Bushman, Claremont, Calif., assignors to Brown International Corporation, Covina, Calif.

Filed Jan. 11, 1968, Ser. No. 697,215
Int. Cl. A23n *15/00*

U.S. Cl. 146—3 **48 Claims**

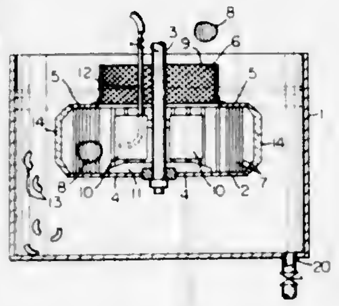
With a plurality of sectionizing tools partially inserted into a corresponding plurality of citrus fruit that are impaled on corresponding holders, the holders rotate until the tools laterally impinge on radial membranes of the respective fruit and then the tools make sectionizing strokes. In the meantime a new plurality of fruit is being loaded manually on cor-



responding loading spikes that are adapted to transfer the new plurality of fruit to the respective holders.

3,566,941
METHOD AND APPARATUS FOR SEPARATING SEGMENTS OF ORANGES

Yonekichi Morikawa, Shimizu, Japan, assignor to Daiwa Can Co. Ltd., Tokyo, Japan
Filed Aug. 21, 1968, Ser. No. 754,238
Claims priority, application Japan, Jan. 24, 1968, 43/3700
Int. Cl. A23n *15/00*
U.S. Cl. 146—3 **4 Claims**

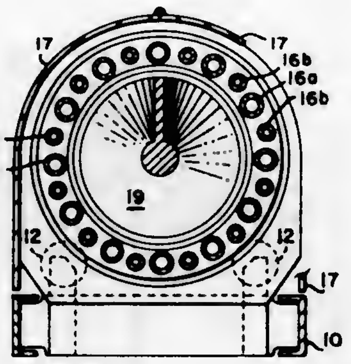


The disclosed apparatus separating the segments of oranges automatically separates the segments of fruits such as oranges, continuously throwing the peeled oranges and separating them into independent segments.

3,566,942
APPARATUS FOR PEELING VEGETABLES OR FRUITS

Traver J. Smith, San Jose, Calif., assignor to Geneieve I. Hanscom, Saratoga, Calif.; Geneieve I. Magnuson; Robert Magnuson and Los J. Thomson, trustees of the Estate of Roy M. Magnuson, a fractional part interest to each
Filed Aug. 2, 1968, Ser. No. 749,832
Int. Cl. A23n *7/02*
U.S. Cl. 146—49 **3 Claims**

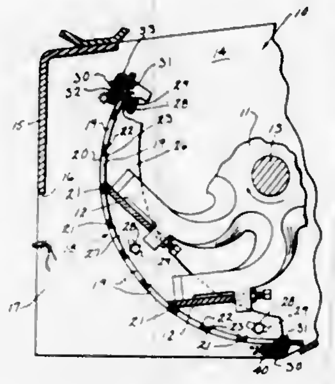
This invention provides a peeling cylinder whose peripheral wall is made up of abrasive peeling rolls and through the center of which a feed screw extends to progress material through for peeling. The rolls are all rotated at the same r.p.m. in speed but certain rolls are of smaller diameter to provide longitudinally extending recesses or pockets to



provide both a lifting action on the material being peeled to increase the effective peeling time on this material, and also to provide a differential speed between adjacent rolls of different diameter so as to further enhance the peeling action.

3,566,943
RECUTTER SCREEN

Wilmer E. Witt, Appleton, Wis., assignor to Koehring Company, Milwaukee, Wis.
Filed Aug. 5, 1968, Ser. No. 750,033
Int. Cl. B02c *18/00*
U.S. Cl. 146—117 **3 Claims**



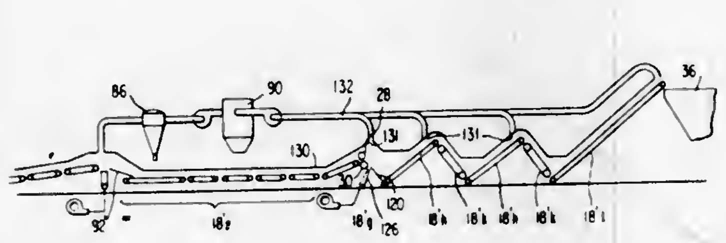
A recutter screen for use in connection with cylindrical cutters having rectangular openings separated by bars, those bars which extend axially of the cutter having inwardly offset edges to provide shearing knives for coaction with the blades of the cutter, the screen being adjustably mounted against adjustable crescents on the end walls of the cutter frame and being readily reversible to present an alternate set of shearing edges when one set becomes worn.

3,566,944
METHOD FOR PREPARING SUGARCANE STALKS FOR SUBSEQUENT PROCESSING

Sydney E. Tilby, Winterburn, Alberta, Canada, assignor to Canadian Cane Equipment, Ltd., Montreal, Quebec, Canada
Filed Dec. 20, 1967, Ser. No. 692,237
Int. Cl. B07 *4/08;* **B26d** *7/00*
U.S. Cl. 146—222 **10 Claims**

A method for preparing a mass of randomly oriented, slender cane stalks for subsequent processing at a selected location. The method is intended to deliver the stalks in cleaned condition, chopped into uniform, relatively shorter lengths and aligned longitudinally in their direction of motion. The method includes delivering the mass of stalks to a series of successively, more rapidly moving, conveyor means and subjecting the stalks to sudden vertical deflections at some of various junctions between adjacent ones of the conveyor means. At some of the junctions heavy debris (such as rocks) mixed with the stalks is caused to gravitate rearwardly and downwardly between adjacent ones of the conveyor means. At least one junction, leading portions of the stalks in the mass are also subjected to a force in a downstream direction aligned with their direction of travel upstream of the one junction. At another junction concurrently with vertical motion the canes are also subjected to a force in a direction downstream of the other junction, inclined transversely to direction of travel of the canes upstream of the other junction to exert a disentangling effect on the canes. The canes are progressively thinned out and aligned in the direction of travel and, at a point where substantially all the stalks are aligned in the direction of travel, they are chopped into shorter lengths while moving longitudinally. The chopped lengths are then realigned. At some point in their travel, the stalks are projected at high velocity across a vertical discontinuity in the conveyor means to cause the stalks to become partially airborne, at which time fluid is directed through the stalks to remove trash.

Apparatus for preparing a mass of randomly oriented, slender cane stalks for subsequent processing includes a series of separate conveyors successively receiving the stalks. Some of the conveyors in the series are arranged with their downstream ends spaced vertically above and overlapping the upstream ends of the next succeeding conveyors to define cascading junctions, between adjacent conveyors at which a vertical deflection is imparted to the stalks.



At least one pair of successively related, cascading conveyors have their respective directions of travel aligned and another pair of successively related, cascading conveyors have their respective directions of travel transversely inclined. With this arrangement, the stalks are subjected to simultaneous vertical and accelerating forces, the latter being at separate times in different perpendicularly related directions, thereby facilitating disentangling and alignment of the canes.

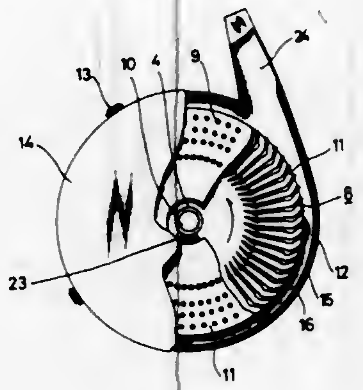
A chopping means is positioned adjacent one of the conveyor means positioned sufficiently downstream, at a point where almost all of the canes are travelling longitudinally. The chopping means cuts the stalks transversely thereof into uniform shorter lengths, while they are moving longitudinally. Realigning means positioned adjacent the chopping means realign the chopped lengths of stalk in parallel relation.

At some point in their travel, the conveyor means project the stalks at sufficiently high velocity across a transversely extending, vertical discontinuity in the series of conveyor means to cause the stalks to become at least partially airborne during which time fluid-directing means directs fluid through the stalks to remove trash.

3,566,945
METHOD OF HULLING PADDY AND DEVICE THEREFOR

Yutaka Aoki, Tokyo, Japan, assignor to Sanriku Noki Co., Ltd.
Filed July 9, 1968, Ser. No. 743,565
Claims priority, application Japan, July 13, 1967, 42-45203/67
Int. Cl. B02c *13/28, 13/08*
U.S. Cl. 146—223 **6 Claims**

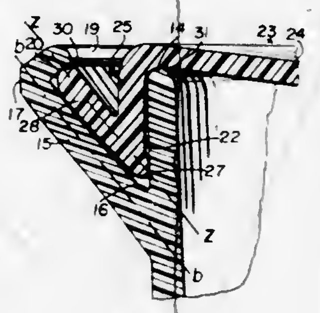
A method of hulling paddy which comprises revolving numerous hulling vanes having outer bent ends to produce a lower atmospheric pressure zone which is virtually the same as the vacuum state, passing paddy through the said lower pressure zone to expand the gas in paddy abruptly thereby rendering paddy to the state just before the crack and immediately thereafter throwing paddy against outer bent ends of the hulling vanes to crack the hulls and then discharging



the cracked paddy into the air pressure zone so that hulls and husked rice are separated perfectly.

3,566,946
Y-FLANGED CONTAINERS AND COVER MEMBERS THEREFOR

James Ian Mac Donald, 708 7th Ave.S.W., Calgary, Alberta, Canada
Filed Dec. 26, 1968, Ser. No. 787,050
Claims priority, application Canada, Aug. 9, 1968, 027,206
Int. Cl. B65d *11/06, 11/26, 43/10*
U.S. Cl. 150—0.5 **13 Claims**

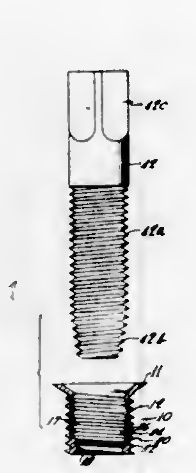


A closing cover member is provided for the mouth opening of an open-ended vessel such as a pail having a rim and made of a structural plastic material having nonrigid, flexibly distortable mechanical properties, such as high-density polyethylene, the pail having a peripheral rigidifying flange rising outwardly from the exterior of the sidewall commencing uniformly below the rim and forming an acute angle with the sidewall, the outer margin of the rigidifying flange terminating in a peripheral upwardly inturned short hook flange, and the cover member having a depending marginal flange wall terminating in a conic outwardly rising peripheral flange adapted to be forcibly nested upon the rigidifying flange with the edge engaged continuously under the hook flange, whereby axial pressure within the pail tends to enhance the sealing pressure along the contact areas of the outer and inner edges of the conic flange; either the conic flange or the rigidifying flange may be rigid, i.e. made of metal, if the other is polyethylene; where resistance to internal pressure is not required, roll-edge cover members may be snapped-on under the hook flange.

3,566,947
SELF-LOCKING THREADED INSERT

John A. Jukes, 7174 No. Hidden Place, San Gabriel, Calif.
Filed Apr. 29, 1969, Ser. No. 820,147
Int. Cl. F16b *13/04, 39/30*
U.S. Cl. 151—14 **7 Claims**

A thin walled tubular metal insert having a threaded exterior is threaded into a tapped hole in a base member by a tool partially threaded into the interior of the insert. With the insert fully in place, further rotation of the tool completes the threads on a portion of the interior of the insert, thus bulging the insert walls outwardly to lock the insert in the tapped hole.



3,566,948
STUDDED VEHICLE TIRE

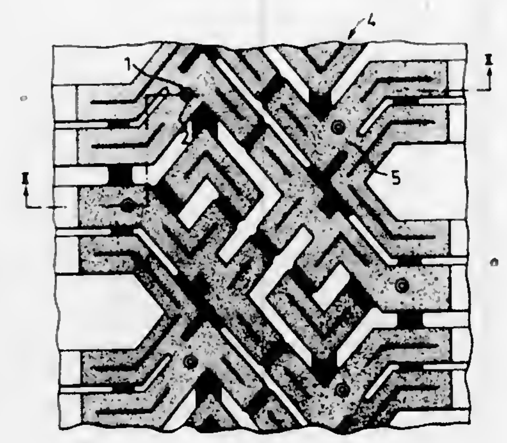
Hans Menell, Ahlem, and Johannes Kosanke, Letter, Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany

Filed Feb. 28, 1969, Ser. No. 803,343

Claims priority, application Germany, Mar. 1, 1968, C17,204

Int. Cl. B60c *11/16*

U.S. Cl. 152—210 **6 Claims**



A pneumatic vehicle tire having a tread strip and a plurality of groups of skid protective studs of hard metal respectively arranged in said tread strip along different circumferential zones and protruding outwardly from said tread strip, said circumferential zones when viewing the tire in transverse direction thereof being located one behind the other, the wear resistance of the studs of at least one group being different from the wear resistance of the studs of at least another one of said groups.

3,566,949
TIRE-TRACTION CHAIN

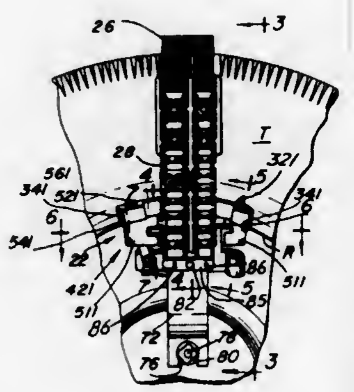
Hans Schieber, 2270 W. Logan Blvd., and Paul Bindel, 3946 W. North Ave., Chicago, Ill.

Filed Mar. 6, 1969, Ser. No. 804,811

Int. Cl. B60c *27/20*

U.S. Cl. 152—237 **7 Claims**

A traction chain for automobiles, trucks, etc., whereby the ends of which have oppositely extending connectors attached to the vehicle wheel rim on diametrically opposed sides thereof and to clamping members on the rim of said wheel.



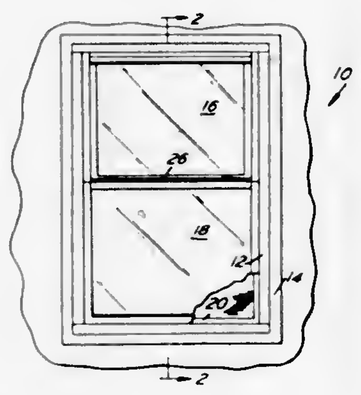
3,566,950
WINDOW CONSTRUCTION

David R. Collins, Makefield Township, and Silvio F. Yannessa, Philadelphia, Pa., assignors to Air Master Corporation, Philadelphia, Pa.

Filed June 28, 1968, Ser. No. 740,949

Int. Cl. E06b *3/32;* **E05d** *15/18*

U.S. Cl. 160—101 **7 Claims**



A window construction wherein upper and lower sashes are slidably mounted in a frame, and a panel such as a screen member removably secured to the frame, securement of the panel being accomplished by means of a vertically slidable lock bar. In one embodiment the lock bar provides at its opposite edges a meeting rail-type weatherstrip abutting a lower bar portion of the upper sash and an upper bar portion of the lower sash, and rigidifies the frame.

3,566,951
METHOD OF EQUALIZING STRESSES IN THE CONVEYANCE AND GUIDANCE OF CONTINUOUS CASTINGS

Hans Schrewe, Duisburg-Ungelsheim, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Feb. 26, 1968, Ser. No. 708,076

Claims priority, application Germany, Feb. 24, 1967, 72880

Int. Cl. B22d *11/12*

U.S. Cl. 164—82 **7 Claims**

Conveying and guiding metal castings which had been cast in a mold in a continuous casting plant, by means of driven conveyor and support rollers. In order to preclude the formation of surface cracks and other faults in the castings, the

supporting rollers are driven in such a manner that the rollers first encountered by the casting move at higher torque than subsequent rollers. Included are the travelling paths of the castings which have any shape, such as straight, curved or circular.

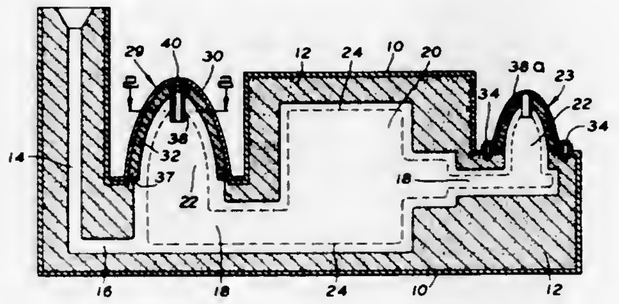
3,566,952
PRESSURE FEEDING OF CASTING USING A FEEDER HEAD

Wyman Curtis Lane, 1469 W. Lane Ave., Columbus, Ohio

Original application Oct. 26, 1967, Ser. No. 678,231, now Patent No. 3,513,904, dated May 26, 1970. Divided and this application May 22, 1969, Ser. No. 841,661

Int. Cl. B22d *27/14*

U.S. Cl. 164—120 **7 Claims**



A self-pressurizing feeder head vessel for pressure feeding molten metal into a casting mold is described. The feeder head vessel shown is a dome-shaped, fluid impervious shell with an open bottom, the shell being lined with green sand to define a feeder head cavity.

A porous cylinder or an apertured tube is provided at the top of the vessel so that steam formed by heat in the green sand may flow through the cylinder or tube and downward into the feeder head cavity and thus apply pressure on the molten metal in the feeder head cavity to force additional molten metal into the casting mold during the shrinking period.

Thus a method disclosed for applying pressure to the molten metal in the feeder head cavity is to vaporize the water in the green sand and apply the fluid pressure thereby generated to the molten metal, and thereby force the molten metal under pressure into the casting mold during shrinkage.

3,566,953
APPARATUS FOR FACILITATING THE HANDLING OF BILLETS

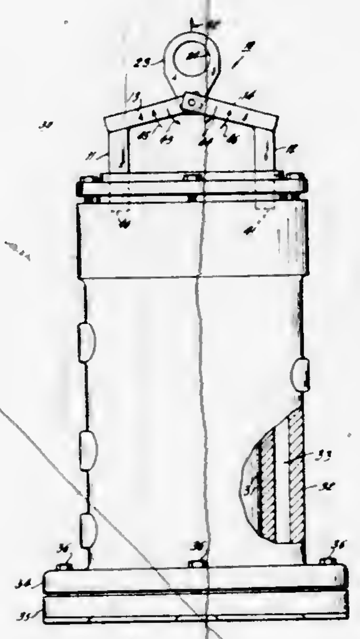
Joseph F. Bauman, Trenton, N.J.; John E. Karlberg, Wycombe, Pa., and Edward C. Rouze, Trenton, N.J., assignors to Acme-Hamilton Manufacturing Corporation, Trenton, N.J.

Filed Oct. 11, 1968, Ser. No. 766,797

Int. Cl. B22d *29/04*

U.S. Cl. 164—213 **6 Claims**

Apparatus for facilitating billet handling wherein the billet or slug is formed by pouring the molten material into a water-cooled mold having a pair of arcuate-shaped indentations for receiving the jaws of a slug-pulling assembly removably mounted within the indentations prior to filling the mold with the molten material. The slug-pulling assembly is lifted upwardly from the mold as soon as the molten material has cooled, causing the small cleats formed within the slug-pulling assembly jaws to firmly grip the slug, enabling the slug to be lifted out of the mold and transported to the next operation. The slug-pulling assembly is provided with an eyelet member to facilitate releasable mounting of a lifting hook.



3,566,954
CONTINUOUS CASTING APPARATUS

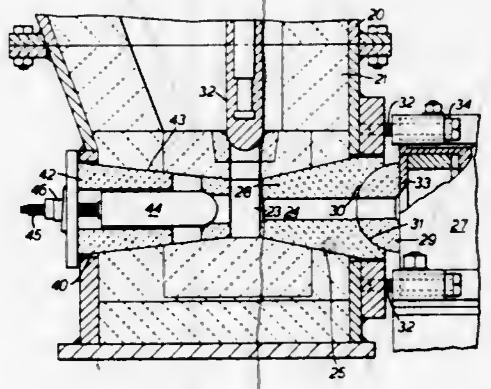
Peter Charles David Gamble, Middlesborough, and George Littler, Stockton-on-Tees, Teesside, England, assignors to Ashmore Benson, Pease and Company Limited, Stockton-on-Tees, Teesside, England

Filed Sept. 6, 1968, Ser. No. 757,982

Claims priority, application Great Britain, Sept. 8, 1967, 41,230

Int. Cl. B22d *11/10*

U.S. Cl. 164—281 **3 Claims**



Apparatus suitable for continuous casting of metal comprises a tundish for receiving the metal to be cast, and a continuous casting mould and a nozzle extending from the tundish to the inlet of the mould and the nozzle is in sealed relation with both the tundish and the mould to prevent ingress of air and egress of molten metal between the nozzle and the mould. The cross-sectional area of the mould cavity is greater than that of the bore of the nozzle to prevent solidification of the molten metal in the nozzle. The longitudinal axes of the mould and the nozzle may be arranged either horizontal or vertical.

3,566,955
ADAPTABLE DRAWING MECHANISM OR DEVICE FOR PRODUCING STRANDS BY CONTINUOUS CASTING

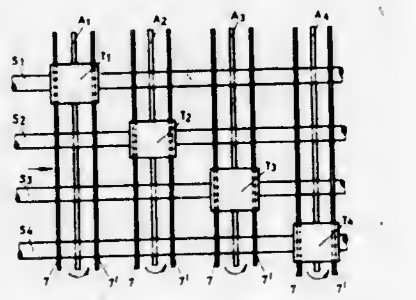
Heribert Krall, Wurzburg, Germany, assignor to Technica-Guss GmbH, Wurzburg, Germany

Filed Apr. 1, 1968, Ser. No. 717,648

Claims priority, application Germany, Apr. 5, 1967, T33603

Int. Cl. B22d *11/12*

U.S. Cl. 164—282 **2 Claims**



A drawing mechanism for the drawing of strands consisting of conveying rollers and press rollers all of which being variable, laterally, on their drive shafts and alignment rails.

3,566,956
LIQUID METAL COOLING SYSTEM

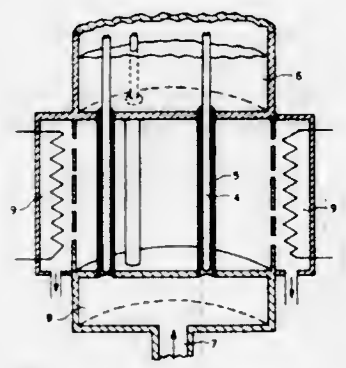
Eleonoor Van Andel, Ispra, Italy, assignor to European Atomic Energy Community (Euratom), Brussels, Belgium

Filed June 10, 1968, Ser. No. 735,637

Claims priority, application Germany, June 16, 1967, 1551454

Int. Cl. F25b *13/00*

U.S. Cl. 162—2 **3 Claims**



A method and apparatus for cooling a heated surface by means of liquid metal. A porous layer is spaced a short distance from the heated surface and the gap therebetween is filled with a liquid metal held under pressure to prevent its boiling. After the liquid metal passes through the porous layer it vaporizes, cools, is condensed and recirculated.

3,566,957
METAL-TO-METAL HEAT EXCHANGER FOR RECREATIONAL VEHICLE

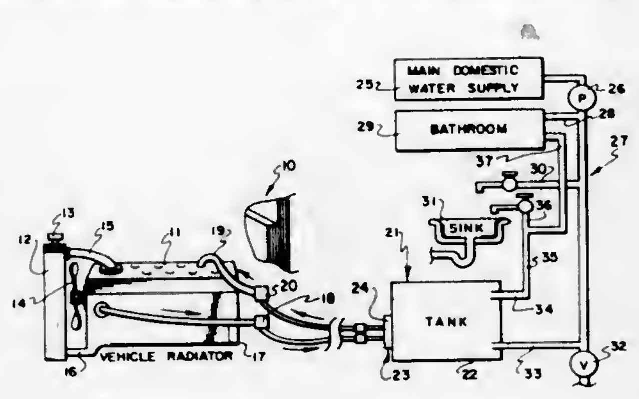
James Earl Bridegum, 12143 Gothic Ave., Granada Hills, Calif.

Filed Apr. 16, 1969, Ser. No. 816,640

Int. Cl. F28f *11/00*

U.S. Cl. 165—70 **10 Claims**

A heat exchange unit for circulating vehicle radiator liquid is positioned in a large tank that conducts potable water so that the radiator liquid becomes cooled as the potable water becomes heated. The unit includes a container capable of being mounted to the tank and a conduit inserted in heat exchange relationship within the container. For safety purposes a narrow leakage gap is defined between the container and conduit so that any leakage of radiator liquid from the conduit will automatically flow outwardly of the tank where it will be unable to contaminate the potable water.



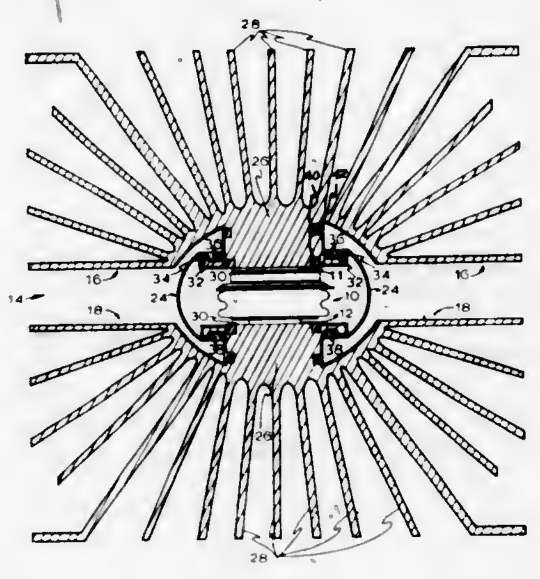
3,566,958
HEAT SINK FOR ELECTRICAL DEVICES

William B. Zelina, Edinboro, Pa., assignor to General Systems, Inc., Erie, Pa.

Filed Dec. 18, 1968, Ser. No. 784,557

Int. Cl. H01l *1/12*

U.S. Cl. 165—80 **4 Claims**



A cooling structure for pressure mounting electrical components having opposed contact surfaces wherein spring clamp means electrically insulated from and in clamping engagement with the edges of oppositely disposed heat dissipating members urges the members together to provide a pressure mounting heat sink for an electrical component disposed therebetween; the spring clamp means externally applying and maintaining a predetermined force on the component to effect the proper electrical and thermal contact between the component and the heat dissipating members.

3,566,959
HEAT SINK

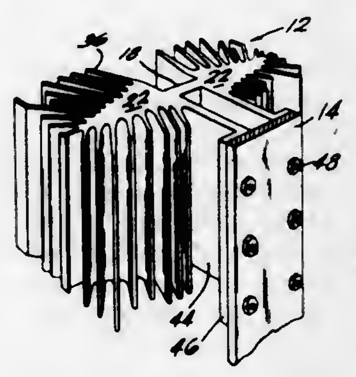
Michael A. Koltuniak, Warren, Mich.; Claybourne Mitchell, Jr., Ann Arbor, Mich., and Robert G. Plantholt, Rochester, Mich., assignors to Controlled Power Corporation, Farmington, Mich.

Filed July 17, 1969, Ser. No. 842,609

Int. Cl. F28f *7/00*

U.S. Cl. 165—80 **12 Claims**

An extruded aluminum heat sink for semiconductor rectifiers and having substantially identical right- and left-hand fin sections joined by an integral transverse horizontal web so that the heat sink is symmetrical about a vertical plane through the web. Each fin section has a relatively thick trunk portion that is tapered in thickness in a direction laterally outwardly from the web. A plurality of integral fins are disposed angularly to the trunk portion and project upwardly and downwardly therefrom so that the tips of the fins define a rectangular transverse configuration. Integral with each fin section adjacent the web is a mounting leg that projects downwardly and has an outwardly turned flange at its lower end for mounting the heat sink on a support such as a copper bus bar.



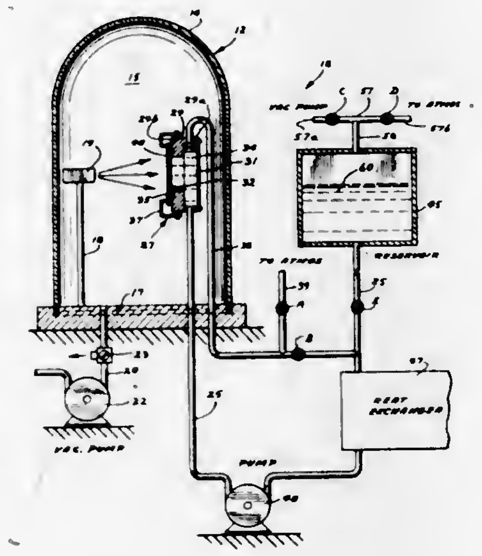
3,566,960
COOLING APPARATUS FOR VACUUM CHAMBER

Robley V. Stuart, 536 63rd Ave. N. E., Minneapolis, Minn.

Filed Aug. 18, 1969, Ser. No. 850,913

Int. Cl. F28d *15/00*

U.S. Cl. 165—107 **7 Claims**



An apparatus for cooling a workpiece within a vacuum chamber consisting of a housing within said chamber, said workpiece overlying an opening into said housing, a cooling medium within said housing having direct contact with said workpiece, means cooling said cooling medium, and a diaphragm equalizing pressure between said vacuum chamber and the chamber within said housing.

3,566,961
TUBULAR REACTOR FOR CARRYING OUT ENDOTHERMIC AND EXOTHERMIC REACTIONS WITH FORCED CIRCULATION

Friedrich Lorenz, Neustadt, Weinstrasse; Joachim Wagner, Ludwigshafen, Rhine; Dieter Bettermann, Waldsee; Walter Mann, Lampertheim, and Johann Heinrich Walter, Ludwigshafen, Rhine, Germany, assignors to Badische Anilin - & Soda - Fabrik Aktiengesellschaft, Ludwigshafen, Rhineland-Pfalz, Germany

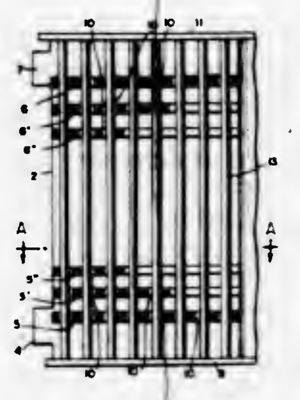
Filed Sept. 6, 1968, Ser. No. 757,957

Claims priority, application Germany, Sept. 6, 1967, Sept. 23, 1967, P 16 01 162.4/P 16 01 163.5

Int. Cl. F28f *9/22*

U.S. Cl. 165—159 **6 Claims**

A tubular reactor with forced circulation of a heat transfer medium which flushes the outside of the reaction tubes in axial direction, the heat transfer medium being supplied to, and withdrawn from, the reactor wall uniformly through circular pipelines, and particularly the constructional shape of deflecting guide plate means arranged transversely to the direction of flow and having annular openings around the reaction tubes for uniform flow towards all the tubes of the nest of tubes.



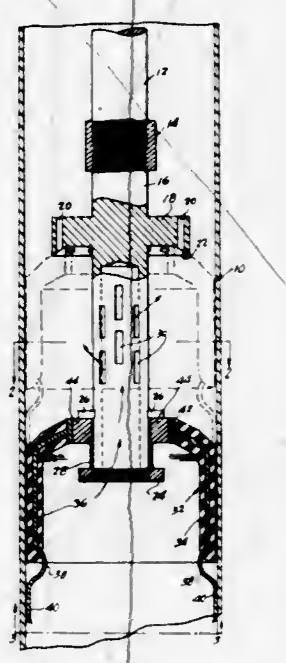
3,566,962
PIPE AND TUBING CATCHER

George W. Pease, Jr., 150 W. Maple, and Tipton T. Asher, P.O. Box 308, Fairfax, Okla. 74637

Continuation-in-part of application Ser. No. 763,245, Sept. 27, 1968, now abandoned. This application Sept. 5, 1969, Ser. No. 857,296

Int. Cl. E21b *33/129, 40/00*

U.S. Cl. 166—121 **13 Claims**



Apparatus for stopping the fall of a suspended weight in a cased area or tubing including a reinforced flexible sealing chamber having a central opening therein and a plurality of circumferentially spaced steel guides in said central opening, with the sealing chamber being hollow and having a dependent skirt therearound, and a sealing surface on the upper portion thereof adapted to abut a stop on a mandrel upon which the sealing chamber is disposed.

3,566,963
WELL PACKER

Jimmy T. Blackledge, Laurel, Miss., assignor to Mid-South Pump and Supply Co., Inc., Laurel, Miss.

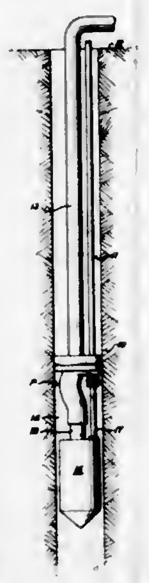
Filed Feb. 25, 1970, Ser. No. 014,022

Int. Cl. E21b *23/00*

U.S. Cl. 166—189 **6 Claims**

This specification discloses a well packer for sealing off the bore of a well at a zone spaced above a pump in the well bore and which packer comprises a heavy circular flange formed integrally with the upper end of a pipe section connected to the pump, a threaded nipple on said section extending above the flange, a circular clamping plate of a diameter less than that of the flange and fitted onto the nipple, and a leather packing cup having a flat wall positioned between the flange and plate and a circular wall overlapping the periphery of the plate.

The flange is formed with a boss on its lower face which has a threaded passage. The packing and clamping plate are formed with openings in alignment with this passage. A cable passes through the aligned passage and openings and its relation to the flange is rendered airtight by a packing gland assembly. The pipe section is deformed immediately below the flange to provide a bend which accommodates the packing gland assembly. The flange, packing cup and plate are formed with aligned apertures at a point diametrically opposite to the boss. The apertures in the flange and plate are threaded and a locking screw is received in these apertures. A coupling is screwed onto the nipple to connect the latter to a well pipe and when tightened clamps the packing between the flange and plate.



The present invention relates to a well packer, and is concerned primarily with a new and improved packer including a rigid structure at the packing zone and a fluidtight seal which accommodates a cable passing through the packer.

3,566,964

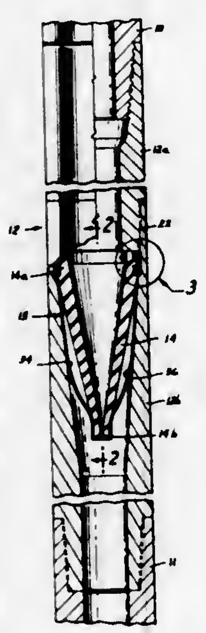
MUD SAVER FOR DRILLING RIGS

Charles S. Livingston, Houston, Tex., assignor to James B. Ringgold, Houston, Tex., a fractional part interest

Filed Nov. 9, 1967, Ser. No. 681,698

Int. Cl. E21b *17/00;* **F16k** *15/14*

U.S. Cl. 166—224 **5 Claims**



Apparatus is disclosed for attaching to the lower end of the kelly of a drilling rig to keep the drilling mud that is in the kelly from running out, when the kelly is disconnected from a drill string for any reason, e.g., to add another joint of pipe to the string. The mud saver includes a two-piece tubular housing for connection to the lower end of the kelly, between the kelly and the upper end of a string of drill pipe. An elongated sleeve of resilient elastomeric material is located in the housing with its upstream end clamped open between the two sections of the housing so all the mud pumped through the kelly into the drill pipe will pass through the sleeve. The downstream end of the sleeve is held closed by two springs located on opposite sides of the sleeve. These springs exert only enough force on the lower end of the sleeve to hold it closed against the hydrostatic pressure of the drilling mud above the sleeve when the kelly is disconnected from the drill string to thereby keep the mud in the kelly from flowing out its lower end. When the kelly and mud saver are reconnected in the drill string, drilling mud can be pumped down the kelly, through the sleeve, and into the drill string, and the pressure of the mud is more than sufficient to force the lower end of the sleeve open to permit the mud to flow through.

3,566,965

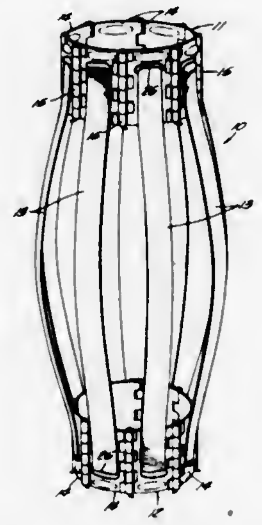
VARIABLE SIZE, MULTI-HINGE CENTRALIZER

James R. Solum, Huntington Beach, Calif., assignor to B & W Incorporated, Torrance, Calif.

Continuation of application Ser. No. 576,055, Aug. 30, 1966, now abandoned. This application July 22, 1968, Ser. No. 752,117

Int. Cl. E21b *17/10*

U.S. Cl. 166—241 **15 Claims**



A device for centering well pipes in a well bore or casing with spring bows extending between spaced collars which are adapted for mounting on the well pipe wherein each collar is assembled from a multiplicity of releaseable hinge-connected segments to create a circumference which will closely encircle the well pipe with the number of segments being variable for accommodating different sizes of well pipe and the arcuate shape of each segment not necessarily conforming to the well pipe. Each spring bow extends between and is mounted on one segment of each collar.

3,566,966

GAS PRODUCTION BY NUCLEAR STIMULATION

Eugene D. Glass, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

No Drawing. Filed Sept. 26, 1968, Ser. No. 762,988

Int. Cl. E21b *43/26*

U.S. Cl. 166—247 **6 Claims**

Gases in the chimney of broken reservoir rock formed by the detonation of a nuclear device are withdrawn as quickly as possible following the detonation. The gases are pumped to another geologic horizon for disposal until the level of long half-life, gaseous contamination drops below the tolerable limits for such contamination. By withdrawing the contaminated gases from the chimney quickly, the pressure in the chimney at the time of withdrawal will be near that immediately after the nuclear explosion and will not have built up to values near the equilibrium pressure of the reservoir. The amount of reservoir gas contaminated with said radioactive contamination and the consequent disposal problem are thereby minimized. Decontaminating processes at the surface to reduce said long half-life, gaseous contamination may be avoided. When the level of said long half-life, gaseous radioactive contamination falls below the tolerable limits for such contamination, the gases thereafter withdrawn from said chimney may be recovered as product gas suitable for processing and use.

3,566,967

THERMAL PLUGGING WITH SILICATE SOLUTIONS

Jack L. Shelton; Syed H. Raza, and H. R. Froning, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.

Filed June 19, 1969, Ser. No. 834,899

Int. Cl. E21b *33/138, 43/24*

U.S. Cl. 166—261 **6 Claims**

In an underground forward combustion process for recovering petroleum from earth formations, more uniform progress of the combustion front through a formation over a wide area is obtained by injecting a water solution of a water-soluble silicate after the combustion operation has been started. As the solution approaches the combustion front, evaporation of water results in formation of a cohesive, solid mass in the pores of the formation. Flow channels are plugged in this way, providing a more uniform progress of the combustion front. Preferably, the silicate solution is preceded and followed by water. If the formation contains exposed silica, sodium silicate can be formed in the formation by injecting sodium hydroxide.

3,566,968

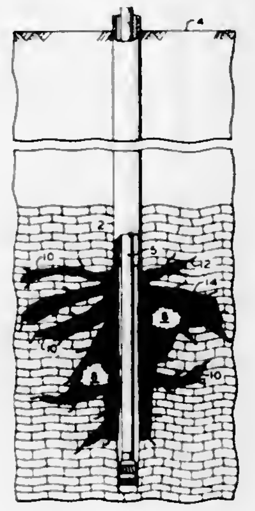
MATERIAL AND METHOD FOR PREVENTING FLUID FLOW

John W. Marx, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 6, 1969, Ser. No. 874,542

Int. Cl. C09k *3/12;* **E21b** *33/138*

U.S. Cl. 166—294 **9 Claims**



Preconditioned sponge particles in a water-free liquid are injected into fluid flow portions of the formation and expanded therein by contacting said particles with water to prevent lost circulation.

3,566,969

METHOD OF GELLING ORGANIC POLAR LIQUIDS AND COMPOSITIONS SO MADE, AND USE THEREFOR

Alfred R. Hendrickson, Tulsa, Okla., and Bobby L. Atkins, Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 323,140, Nov. 12, 1963, now abandoned. This application Dec. 12, 1966, Ser. No. 600,715

Int. Cl. E21b *43/26*

U.S. Cl. 166—299 **14 Claims**

Organic polar liquids, e.g., halogenated alkanes, halogenated alkenes, tertiary amines, ketones, and esters formed by the reaction of C_1 to C_4 alcohols, ethyl- and methyl-substituted hydrazines, and nitroalkanes can be satisfactorily gelled by admixing therewith, first between about 1 and about 30 percent (usually between about 2 and about 20 percent), by weight, of an alcohol containing from 1 to 5 carbon atoms per molecule and then admixing therewith a cross linked N-vinylpyrrolidone polymer. The gelled composition so made has utility for use in explosives and as a carrier for pesticides, resin coatings and the like.

3,566,970

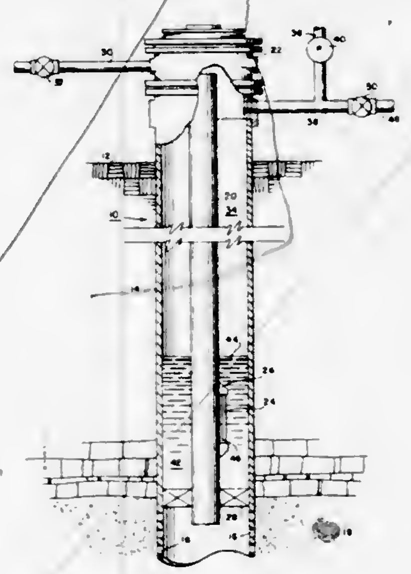
METHOD OF INJECTING TREATING LIQUIDS INTO WELL TUBING

Morgan L. Crow, and Robert W. McQueen, Dallas, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 13, 1969, Ser. No. 798,998

Int. Cl. E21b *43/00*

U.S. Cl. 166—310 **7 Claims**



This disclosure is of a method of introducing liquids into well tubing. The tubing has an injection valve and a packer located below the injection valve and expanded into contact with the casing. The liquid to be introduced into the tubing and a gas are introduced into the tubing-casing annulus. The gas pressure forces the liquid into the tubing through the injection valve against the pressure of the production within the tubing. The gas pressure may be varied to compensate for variations in tubing pressure.

3,566,971

LIQUID JET FIREFIGHTING APPARATUS FOR USE IN BURNING MASSES MATERIAL AND IN FLAME-FILLED SPACES IN GENERAL

Pasquale Cocco, Cuneo, Italy (Michelangelo Bovi Corso Vittorio Emanulle No. 74, Turin, Italy)

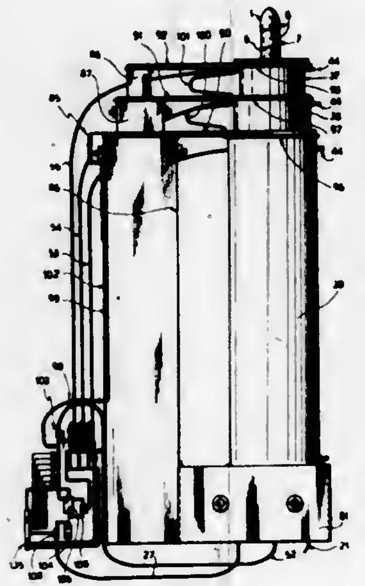
Filed Sept. 26, 1968, Ser. No. 762,892

Claims priority, application Italy, Oct. 7, 1967, 818,615

Int. Cl. A62c *25/00*

U.S. Cl. 169—2 **13 Claims**

An apparatus for extinguishing fires having one or more tubular rods having at their ends nozzles which receive, through the hollow interior of said rods, a liquid extinguishing material provided by the action of a pump. The apparatus



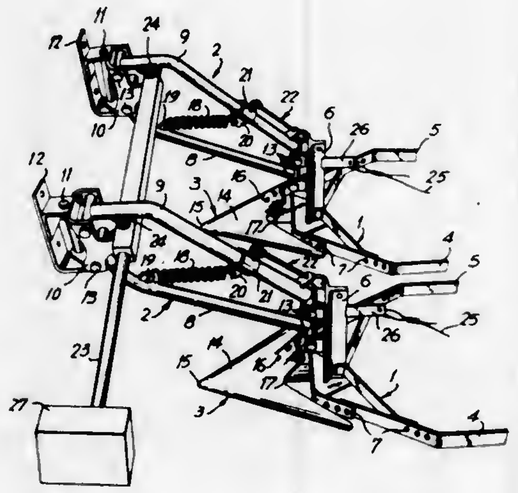
extinguishes fires by supplying the liquid extinguishing material, through the hollow interior of the rods, to the interior of the fires.

3,566,972
SENSING UNIT FOR AN AUTOMATIC CONTROL SERVOSYSTEM OF A HARVESTING MACHINE, OPERATING IN ROWS OF CULTIVATED CROP FIELDS

Felix Aronovich Chernyakov, Dnepropetrouskaya ulitsa, 2a, Kv.19; Alexandr Petrovich Gurchenko, Ulitsa Dnepropetrovskaya, 4"g,"kv.55; Timofei Petrovich Kruglikov, Ulitsa Frunze-Naberzhnaya, 29,Kv.9, and Marat Borisovich Dynkin, Ulitsa Serova, 15, Kv.26, Dnepropetrovsk, U.S.S.R.

Filed Mar. 28, 1968, Ser. No. 716,787
Int. Cl. A01d *25/00*

U.S. Cl. 171—8 **5 Claims**



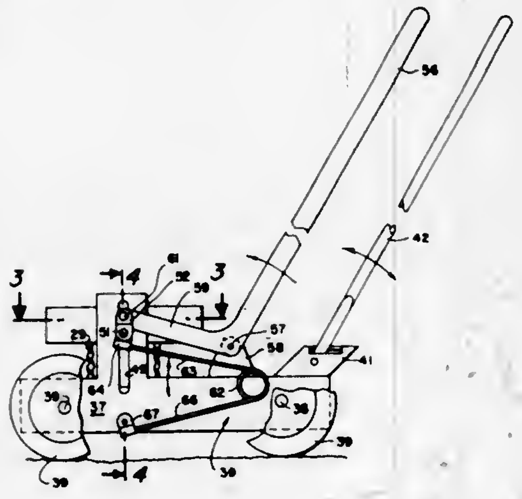
A sensing unit is provided for an automatic control servosystem of for example a harvesting machine operating for example in rows of sugar beets. The unit comprises at least one plant detector which moves below the soil surface, in the top layer thereof, in contact with the root parts of the beets in the ground and a duckfoot is urged by a spring into the ground adjacent the beets and cuts the ground to insure movement of the detector in the upper layer of soil for contact with the root parts. The duckfoot and plant detector are connected by a parallelogram linkage to the harvesting machine and the linkage incorporates a spring which urges the duckfoot against the ground.

3,566,973
LAWN-AERATING MACHINE

Charles S. Blair and Walter Bradley, Redwood City, Calif., assignors to said Bradley assignor to said Kramer

Filed Aug. 5, 1968, Ser. No. 750,244
Int. Cl. A01b *45/02*

U.S. Cl. 172—21 **2 Claims**



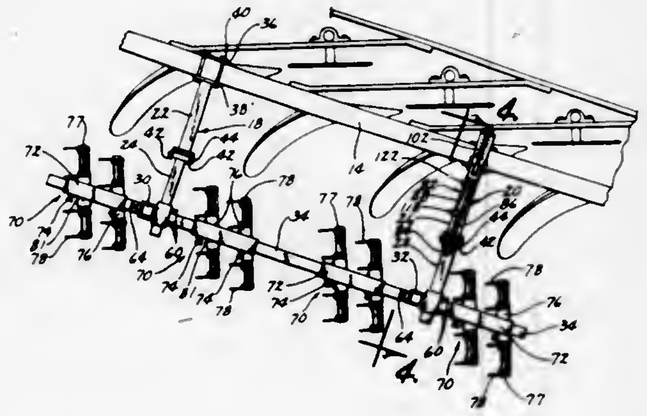
A lawn-aerating machine has a chassis which may be moved about the lawn on wheels. A transmission case moves vertically relative to the chassis and from the case depend drills shaped to dig holes in the lawn. A prime mover drives each of the drills. Means is provided to lower the drills relative to the chassis under control of the operator.

3,566,974
PLOW MULCHER

Arnold F. Kopaska, Guthrie Center, Iowa

Filed Nov. 20, 1968, Ser. No. 777,293
Int. Cl. A01b *49/02*

U.S. Cl. 172—202 **18 Claims**



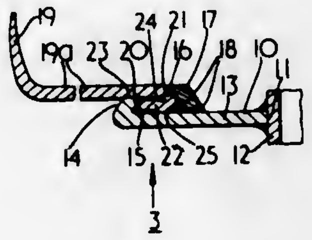
A plow having a pivotally mounted plow mulcher connected to the plow frame through hinged arms. A plow mulcher frame is carried on the outer ends of the hinged arm and may be moved between raised and lowered positions by operation of an overcenter spring arrangement, hydraulic cylinder and cable arrangement, or a hydraulic cylinder extending between the plow frame and the outer hinged arm portion. A cushioning spring may be provided for the hydraulic cylinder to yieldably permit raising of the mulcher frame without contracting the hydraulic cylinder. The mulcher and the plow may be operated from a common hydraulic power source through separate hydraulic cylinders connected together such that the mulcher is raised and lowered first due to its lower power requirements. Unlimited adjustability is provided in the mulcher structure to position the mulcher as desired relative to the plow.

3,566,975
MOUNTING EARTH-WORKING TOOLS ON THE ROTOR OF A CULTIVATING MACHINE

Arthur Clifford Howard, and John Arthur Howard, West Horndon, England, assignors to Rotary Hoes Limited, West Horndon, Essex, England

Filed Feb. 24, 1969, Ser. No. 805,975
Int. Cl. A01b *21/04*

U.S. Cl. 172—540 **7 Claims**



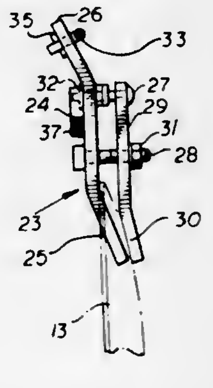
An earthworking tool and tool holder and a combination thereof are for use with a rotor of a cultivating machine, and the tool and tool holder are provided with a quick release securing mechanism including a root element on the tool or the tool holder which engages between corresponding wedging surfaces on the tool holder or tool respectively. The mechanism is such that during operation movement of the tool in its working direction tends to increase the wedging engagement between the tool and holder.

3,566,976
DISC BLADE-HOLDING DEVICE

Evert Jan Heersink, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed July 12, 1967, Ser. No. 652,798
Int. Cl. A01b *21/08*

U.S. Cl. 172—601 **4 Claims**



A holding device for use in assembling and disassembling and rigidly securing the discs of the harrow gang on an arbor bolt comprises a clamp releasably connected to the supporting beam or gang bar including a pair of clamping elements extending downwardly and clasping the upper edge of one of the discs, a lug affixed to one of the clamping elements projecting in one direction therefrom engaging the lower face of the gang bar.

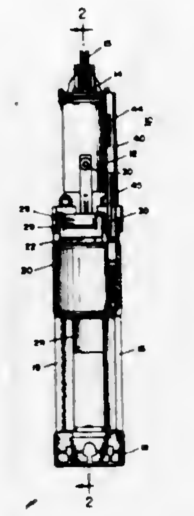
3,566,977
PERCUSSION HAMMER

George C. Wandell, Soddy, Tenn., assignor to Vulcan Iron Works Inc., Chattanooga, Tenn.

Filed Aug. 1, 1969, Ser. No. 846,720
Int. Cl. B25d *9/00*

U.S. Cl. 173—90 **7 Claims**

There is provided a percussion hammer of the type including a cylinder and a piston operable in the cylinder connected to a ram through a piston rod. Valve means are provided for cycling working fluid into and exhausting the working fluid from the cylinder to cycle the tool through power and return strokes. The cycling valve is controlled by a suitable actuator or slide bar connected to the ram and provided with cams for actuating a trip. The ram is provided with removable weights so as to permit alteration of the operating characteristics of the hammer. In addition there is provided



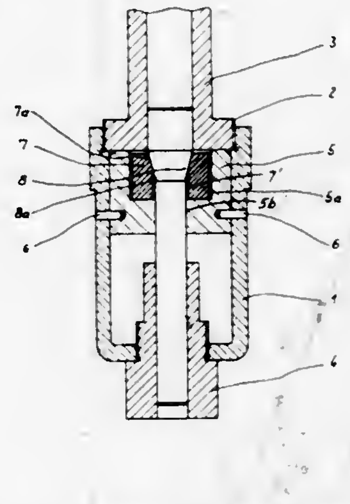
an improved means of fastening the piston rod to the ram and of connecting the slide bar to the ram. A detent is provided for latching the valve trip in the desired position.

3,566,978
APPARATUS FOR DRIVING ANCHORING ELEMENTS FOR A PREDETERMINED DEPTH OF PENETRATION

Karl-Ernst Udert, Triesen, Liechtenstein, assignor to Hilti Aktiengesellschaft, Schaan Furstentum, Liechtenstein

Filed Jan. 17, 1969, Ser. No. 792,033
Claims priority, application Germany, Jan. 29, 1968, P 16 03 852.1
Int. Cl. B25c *1/14*

U.S. Cl. 173—139 **8 Claims**



An arrangement for driving anchoring elements into a target material to obtain a predetermined reproducible depth of penetration is achieved by providing a driving force in excess to that necessary to fix the anchoring elements in place. After an anchoring element is driven to a predetermined depth the excess energy supplied is transformed into thermal energy by placing the member driving the anchoring element in frictional contact with a stop member. The portion of the excess energy not transformed into thermal energy is transferred from the stop member to another member.

3,566,979
FORMATION MARKING SYSTEM

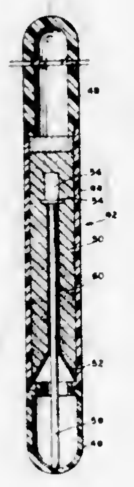
John D. Bennett and Stanley B. McCaleb, Richardson, Tex., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Dec. 26, 1968, Ser. No. 787,065
Int. Cl. E21b *7/00*

U.S. Cl. 175—2 **4 Claims**

The particular embodiment described herein as illustrative of one form of the invention utilizes, in a drilling system, capsules which are moved at high velocities out the eye of the drill bit to be impacted with the formation being drilled.

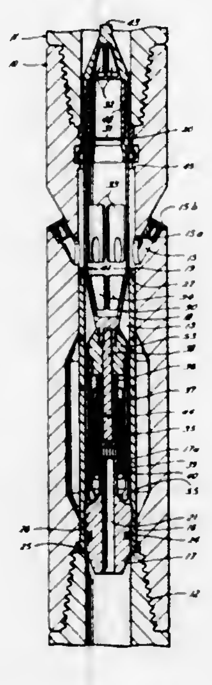
Marking materials in the capsules are thereby embedded within the formation. In one embodiment, explosive charges fracture rock formations while the drilling operation is taking place. A radioactive substance is included in the charge for marking the formation to identify and correlate the formation material at drilling depth.



3,566,980
UNDERBALANCED DRILLING SUB

Elva J. Scroggins, Lafayette, La., assignor to Drilling Well Control Inc., Houston, Tex.
Filed Dec. 3, 1969, Ser. No. 881,837
Int. Cl. E21b *41/00*

U.S. Cl. 175—65 **9 Claims**

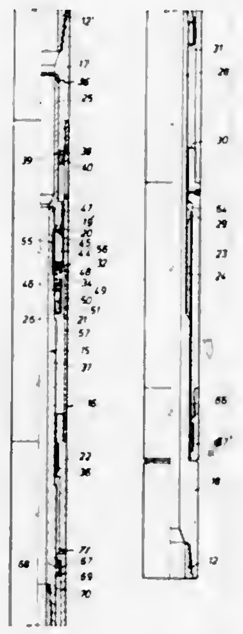


A pressure reducing apparatus insertable in a drill string to reduce the fluid pressure immediately surrounding the drill bit and a method for accomplishing pressure reduction. It includes a body with an axial bore, fluid passages in the body communicating with the annulus of the well, and means to divert normal axial drilling fluid flow upwardly through the opened passages. When the fluid is diverted through the passages, a venturi effect is created, thereby reducing the pressure on the drill bit in the area below the passages. The method includes diverting the axial flow of the drilling fluid by restriction of a portion of the inner bore of the well string while the fluid is pumped at a substantially constant rate.

3,566,981
HYDRAULIC DRILLING JAR

Frank C. Love, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Sept. 15, 1969, Ser. No. 858,025
Int. Cl. E21b *1/10*

U.S. Cl. 175—297 **6 Claims**

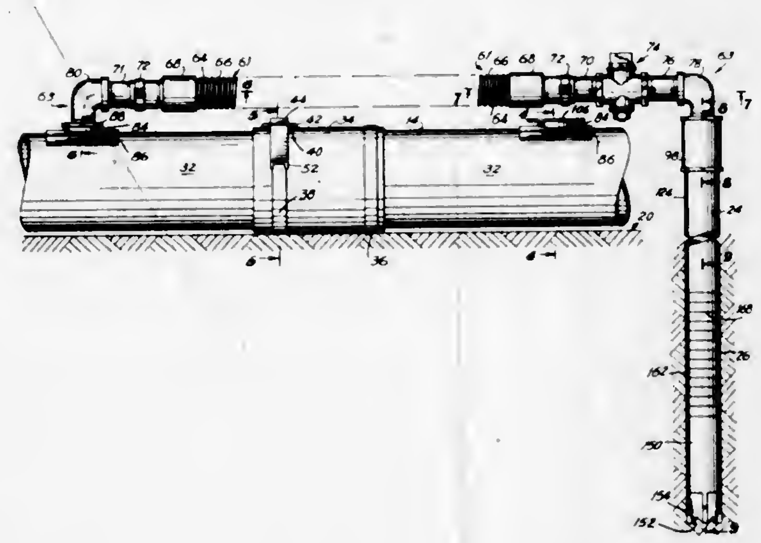


A hydraulic well jar having a metering system and a spline system located in separate, fully enclosed constant volume chambers to minimize seal wear and to enable use of a hydraulic fluid in the metering system and a lubricating oil for the splines.

3,566,982
WELL POINT SYSTEM

Jacob Henry Share, Albertson, N.Y.; Stanley Share, Ormand Beach, and Seymour Joseph Share, Daytona Beach, Fla., assignors to Complete Machinery & Equipment Co., Inc., Albertson, N.Y.
Filed Mar. 26, 1969, Ser. No. 810,581
Int. Cl. E21b *39/00;* **E02b** *11/00*

U.S. Cl. 175—314 **15 Claims**

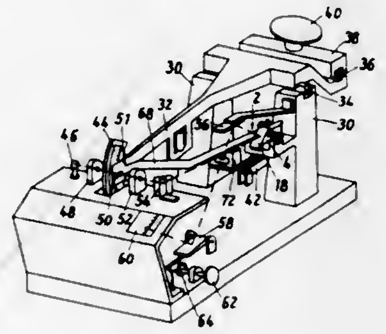


A well point system including snap-in coupling means between each of the connecting means and the header pipe unit and respective well point assembly. The coupling means includes a sleeve and an insert adapted to be disposed therein, said insert having an outer wall formed with at least one circumferential channel and including a resilient sealing member disposed in said channel for forming a fluid-type seal with said sleeve. The header pipe unit is provided with a sheath snuggly receiving the adjacent ends of adjacent pipe sections, said sheath being pressingly engaged against each of said pipe section by means of bands disposed about the outer peripheral surface thereof. One of said bands is provided with clamp means for releasably securing said band to permit the assembly and disassembly of the header pipe unit. The well point assembly includes spaced inner and outer conduits, the outer conduits being formed with a plurality of axially spaced slits therethrough, each extending partially about the circumference thereof.

3,566,983
OPTICAL LEVEL COMPENSATOR FOR PRECISION AND FINE BALANCES

Ludwig Weickhardt, Bovenden, Germany, assignor to Sartorius-Werke GmbH, Gottingen, Germany
Filed Oct. 6, 1969, Ser. No. 863,906
Claims priority, application Switzerland, Oct. 9, 1968, G15 281/68
Int. Cl. G01g *23/14, 23/32, 1/02*

U.S. Cl. 177—173 **8 Claims**



A level compensator for a precision and fine balance comprising a balance frame, a balance beam, a support for said beam, a microscale provided on the beam, a screen, and a projection apparatus for the reproduction of a section of the microscale on said screen. The level compensator comprises a pendulum provided on the balance frame for automatic level compensation. The support axis of the pendulum is arranged parallel to the support axis of the balance beam. A light reflecting member is situated on the pendulum and deflects the projection light beam. The center of gravity of the pendulum lies above an imaginary horizontal plane comprising the pendulum support axis and a spring arrangement acts on the balance frame and on the pendulum beyond the support axis thereof whereby the torque exerted by the spring arrangement on the pendulum counteracts the torque brought about by the center of gravity of the pendulum.

The center of gravity of the pendulum lies laterally above the support axis of the pendulum.

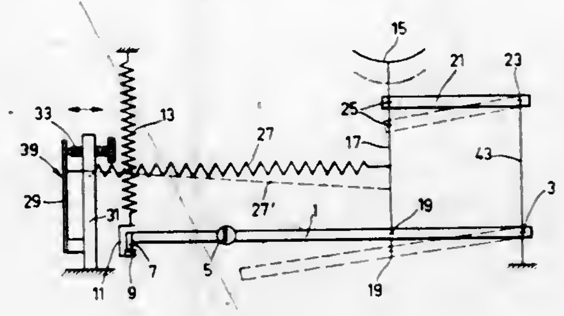
An adjusting weight is adjustable in relation to the support axis of the pendulum.

3,566,984
BEAM SPRING BALANCE WITH RIGIDITY-CONTROLLING EQUALIZER SPRING

Ludwig Weickhardt, Bovenden, Germany, assignor to Sartorius-Werke G.m.b.H., Gottingen, Germany
Filed Sept. 26, 1969, Ser. No. 861,310
Claims priority, application Germany, Oct. 2, 1968, P 18 00 689.8
Int. Cl. G01g *3/04, 1/24, 23/02*

U.S. Cl. 177—225 **7 Claims**

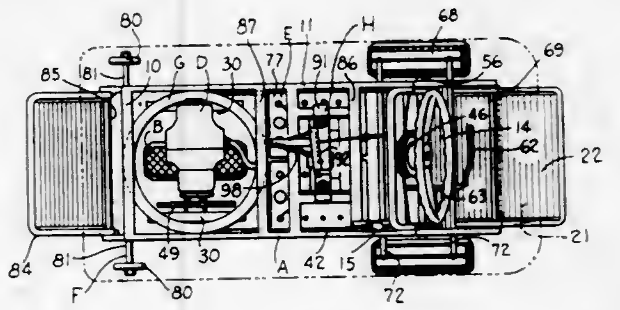
A spring balance having a balance beam, at least one spring acting on the balance beam and absorbing the load torque, and an arrangement for adapting the balance to changes in the force of gravity. The arrangement comprises at least one equalizer spring one end of which is connected to the balance support mounting by means of a device for changing the length thereof and the other end of the equalizer spring is fastened on the beam, or on a part of the balance connected to the beam for common movement. The arrangement is such that the direction of force of the equalizer spring in the neutral position of the balance extends approximately at right angles to the direction of movement of the fastening point on the balance beam or balance part and, with the balance loaded, a force component of the equalizer spring exerts on the balance beam torque directed against its deflection by the load whereby the rigidity of the spring system can be changed.



3,566,985
ELECTRIC VEHICLE

James T. Triplett, Shamrock Drive, Chester, S.C.
Filed May 7, 1968, Ser. No. 727,271
Int. Cl. B62d *9/00*

U.S. Cl. 180—26 **3 Claims**



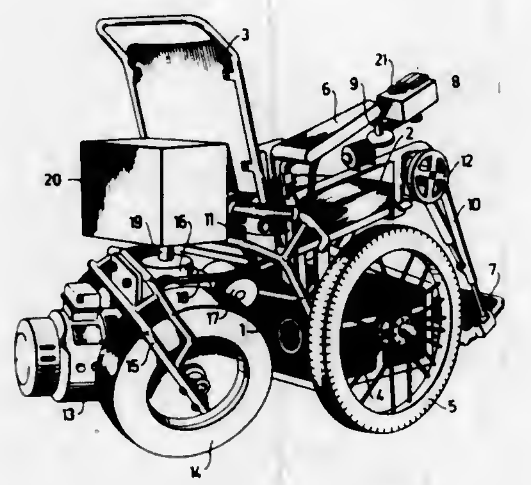
An electric vehicle capable of maneuvering in restricted areas through the use of a single steerable drive wheel mounted on a circular bearing assembly, which has a groove therein for receiving a cable so that by pulling the cable the steering wheel can be rotated. The electric vehicle has outwardly extending stabilizing members mounted on the frame adjacent the steering wheel so as to prevent the vehicle from turning over when such is cut too sharply. The vehicle is driven by an electric motor which is powered by a DC battery having a plurality of cells. A switching circuit is provided for sequentially converting a parallel connection of the cells to a series connection so as to vary the voltage supplied to the motor by simple manipulation of a single handle. The battery is carried within a pack so that such can be removed from the vehicle, and another battery pack substituted therefor, while such is being charged. Positioned adjacent the rear of the vehicle is a pivotal platform upon which the operator stands while driving the vehicle. A braking shoe is coupled to the pivotal platform so that when the operator shifts his weight forward on the platform such engages a wheel, stopping the vehicle. However, if the operator shifts his weight to the rear, the braking shoe will be raised off the wheel permitting the vehicle to move. The position of the rear axle of the vehicle can be readily adjusted by merely manipulating a locking mechanism and shifting the axle to the desired position.

3,566,986
SELF-PROPELLED WHEELCHAIR

Per Edward Carl Udden, General Delivery, Timra, Sweden
Continuation-in-part of application Ser. No. 751,016, June 7, 1968, now abandoned , which is a continuation of application Ser. No. 540,652, Apr. 6, 1966, now abandoned. This application May 15, 1969, Ser. No. 824,907
Int. Cl. B60k *7/00, 17/30*

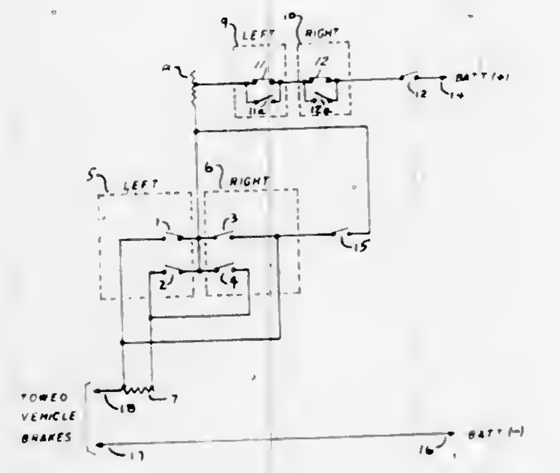
U.S. Cl. 180—52 **8 Claims**

A pair of nonsteerable main wheels are disposed at opposite sides of the frame of the wheelchair. A drive unit is disposed at the rear of the frame and is swingably interconnected therewith. This drive unit includes a drive motor and a pair of driving wheels. A self-braking driving transmission connects the motor with the driving wheels. A steering motor is also incorporated in the unit and a self-braking transmission connects the steering motor with a member fixed to the frame to cause swinging movement of the unit with respect to the frame.



3,566,987
AUTOMATIC STABILITY CONTROL

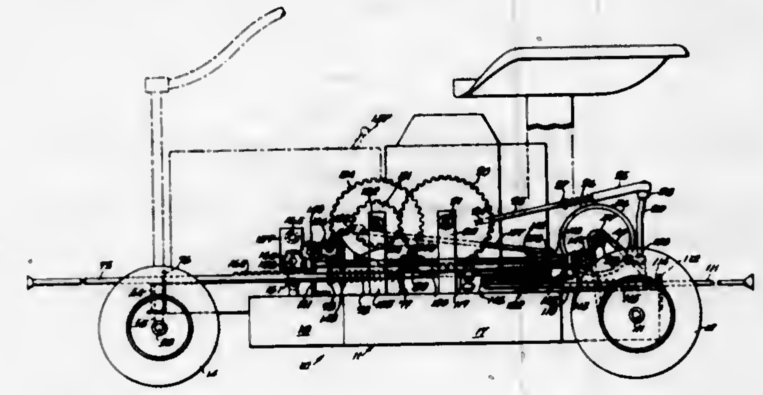
Richard M. Franzel, Rte 1, Box 580, Mound, Minn.
Filed Oct. 8, 1968, Ser. No. 765,829
Int. Cl. B60t *7/20*
U.S. Cl. 180—103 **8 Claims**



An improved stability control system for towed vehicles to overcome the inherent swaying and swerving tendency by the provision of two sensing units responsive to lateral acceleration, one sensing unit (*a*) located in the rear of the towed vehicle and the other sensing unit (*b*) located in the front of the towed vehicle or in the prime mover which, when activated by lateral acceleration forces in the prescribed way will automatically cause the brakes of the towed vehicle to be energized and immediately apply corrective action, the prescribed operation is such that when the towed vehicle is disturbed and starts to sway or swerve, sensor (*a*) will experience lateral acceleration while sensor (*b*) experiences little or none, this condition will automatically cause the brakes of the towed vehicle to apply corrective action, if sensor (*b*) receives approximately the same lateral acceleration such as in a slow 90° turn or a moderate turn at highway speeds, sensor (*b*) will cancel the signal from sensor (*a*) thus, eliminating unnecessary braking applications, further if catastrophic conditions exist, such as in a "jackknife" skid which results in extreme lateral acceleration, sensor (*b*) will reinstate the signal from sensor (*a*) and provide immediate corrective braking action to the towed vehicle.

3,566,988
DRIVERLESS LAWN MOWER

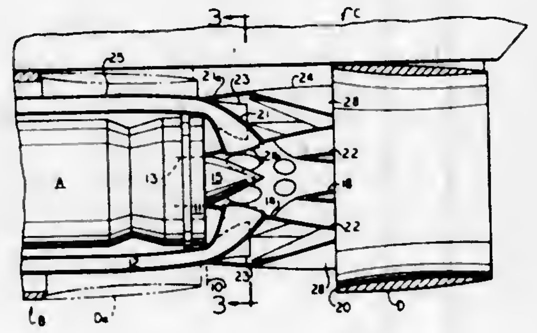
John D. Wise, 99 E. 33rd, Paterson, N.J.
Filed Mar. 3, 1969, Ser. No. 803,562
Int. Cl. B62d *5/00*
U.S. Cl. 180—79 **8 Claims**



A driverless, self-powered lawn mower or the like land processing device, including adjustable, self-contained mechanism for reversing and offsetting each successive path line of travel along a path adjacent the last previous path for systematically mowing or otherwise processing a predetermined rectangular-shaped land area, and further including means, after having completed the last path run of the area being processed, for shutting itself off.

3,566,989
SOUND SUPPRESSION NOZZLE STRUCTURE FOR FAN JET AIRCRAFT ENGINE

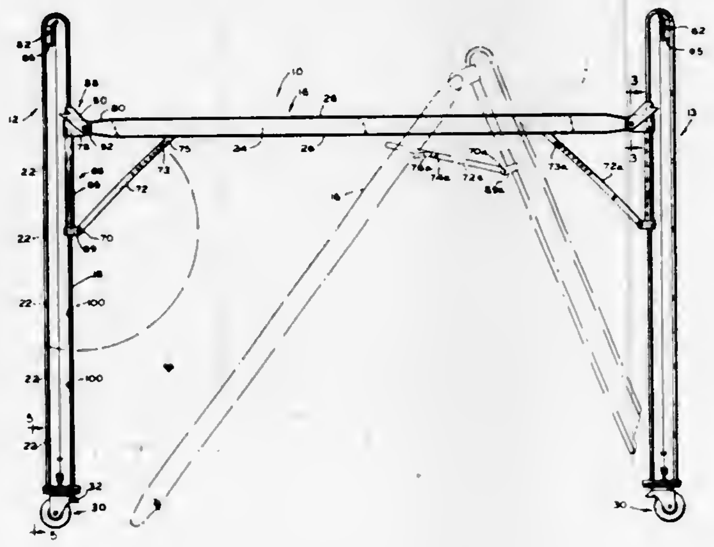
Peter H. Ellis, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Dec. 1, 1969, Ser. No. 881,204
Int. Cl. F01n *1/00;* **B64d** *33/06*
U.S. Cl. 181—51 **9 Claims**

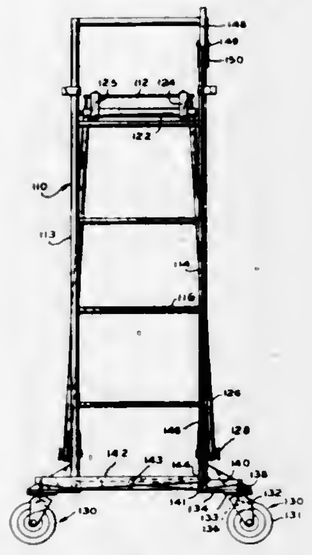


A turbofan jet aircraft engine has a fan air plenum chamber housing mounted coaxially of the engine and downstream of the engine exhaust duct, the downstream end of the housing having an opening therein to form a central fan air discharge nozzle. A plurality of circumferentially spaced fan air inlet tubes communicate the housing with the usual annular fan air duct surrounding the engine, and a plurality of short ducts, interposed in interdigitated relation between the fan air inlet tubes, discharge the remainder of the fan air into the main stream of primary exhaust gases closely adjacent the engine. A plurality of fan air nozzle tubes also radiate from the plenum chamber housing, and extend downstream to surround the central nozzle. A fluted tailpipe, coextensive with the outer wall of the annular fan air engine duct, surrounds the plenum chamber and all of the ducts and nozzles. A retractable ejector ring, preferably acoustically lined, is mounted for movement from retracted position surrounding the tailpipe to deployed position just downstream of the nozzle exit plane.

3,566,990
PORTABLE SCAFFOLD

Anthony T. Fredricks, 25 Horizon Drive, and Paul F. Smith, 4621 Mountain View Drive, Boise, Iowa
Filed Dec. 12, 1968, Ser. No. 783,191
Int. Cl. E04g *1/30*
U.S. Cl. 182—17 **21 Claims**



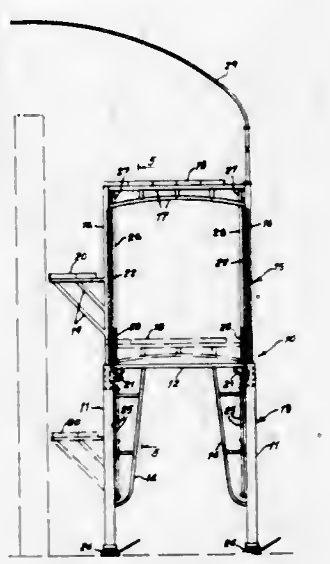


A portable scaffold having a pair of caster-mounted ladder ends joined by a vertically adjustable platform. The casters have brake shoes which can be applied remotely from the platform to stop swivel of the casters and rotation of the caster wheels. A pair of sliding members, vertically slideable along the ladder sides, is connected to the platform enabling sliding adjustment of the platform. Pivoted locking brackets carried by the glides provide selective locking of the platform at different positions along the ladder sides. Butt hinge halves at the top of each ladder, releasable and adjustable corner braces and quick-disconnect pivotal connections of the platform with the glides permit folding of the platform into a compact package and also permit quick conversion of the two ladder ends into a trestle ladder or the ladder ends separately into two lockable, caster-mounted straight ladders.

3,566,991
TELESCOPING STAGING

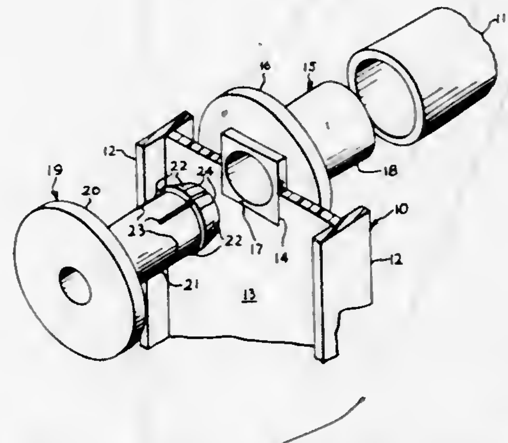
Leo R. Proulx, 66 Cypress St., Manchester, N.H.
Filed June 4, 1969, Ser. No. 830,305
Int. Cl. E04g *1/18, 1/26*
U.S. Cl. 182—129 **2 Claims**

This invention relates to a telescoping staging which may be operatively raised and lowered to desired height levels. There is also provided a canopy member supported by the movable portion of this staging which offers environmental protection for workmen using this staging device.



3,566,992
LADDER

Lewis W. Berger, 1163 Algonquin Parkway, Louisville, Ky.
Filed Jan. 12, 1970, Ser. No. 002,151
Int. Cl. E06c *7/08, 7/50*
U.S. Cl. 182—228 **8 Claims**

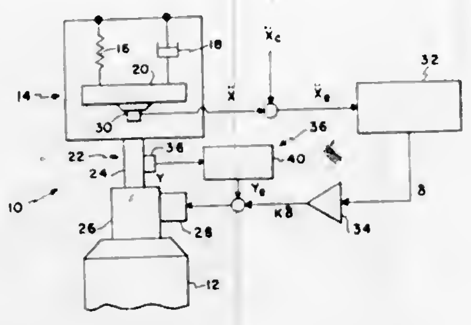


A ladder having a side rail with a noncircular opening therethrough. A first element extends through the opening and has a portion complementing the configuration of the opening. The first element also has a portion forming a flange and another portion secured to an adjacent rung. A second element is secured to the first element and has a flange which cooperates with the flange of the first element to sandwich the side rail therebetween.

3,566,993
ACTIVE VIBRATION ISOLATOR FOR FLEXIBLE BODIES

Jack D. Leatherwood, Hampton; David G. Stephens, Yorktown, and Gray V. Dixon, Hampton, Va., assignors to the United States of America, as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 26, 1969, Ser. No. 810,575
Int. Cl. F16f *15/02*
U.S. Cl. 188—1 **2 Claims**

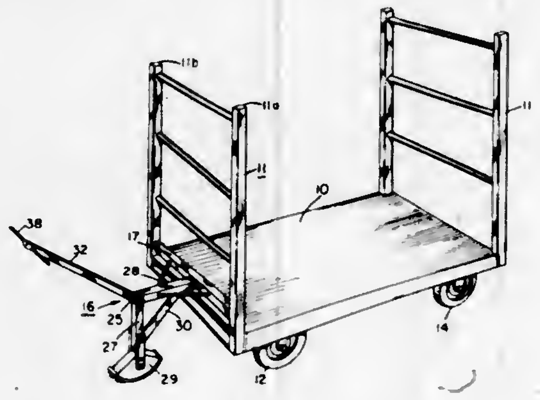
This disclosure is related to an active vibration control arrangement for isolating a flexible body from disturbances applied either externally or internally by inertial or other forces created by the body itself, and consists of an actuator having a movable element drivingly connected to the flexible body, controlled by a signal produced by excitatory reaction of the



body together with means to produce a nullifying movement of the movable member in response to the signal.

3,566,994
GROUND ENGAGING CART BRAKE

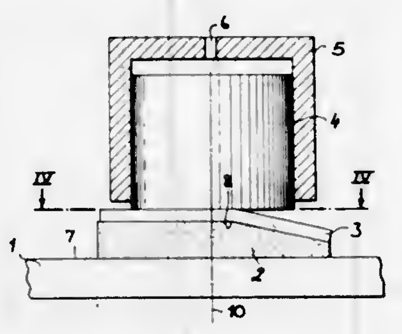
Harold Isaacs, 2583 Fenwick Road, University Heights, Ohio
Filed Apr. 1, 1969, Ser. No. 812,055
Int. Cl. B60t *1/14*
U.S. Cl. 188—5 **5 Claims**



A brake used in conjunction with a four-wheel cart in which the brake is rotatably secured to the cart and includes several structural members for mounting an arcuate friction pad for ground contact and a lever for manipulating the arcuate member to control the movement of the cart.

3,566,995
DISC-BRAKE BRAKESHOE

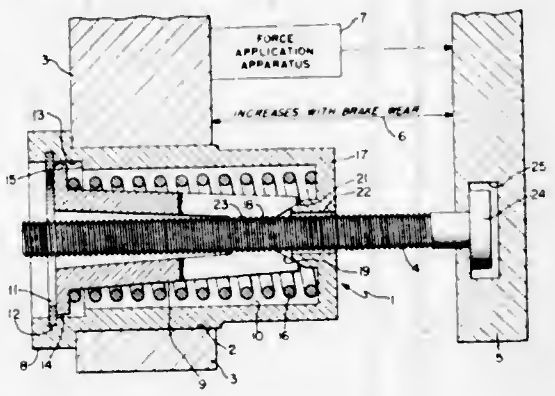
Hans Joachim Anders, Frankfurt am Main, Germany, assignor to Alfred Teves G. m.b.H., Frankfurt am Main, Germany
Filed Dec. 11, 1968, Ser. No. 782,849
Claims priority, application Germany, Dec. 15, 1967, P 16 25 831.4
Int. Cl. F16d *66/02*
U.S. Cl. 188—73.1 **5 Claims**



A disc-brake brakeshoe has a backing plate carrying a brake lining. This plate has a portion bent toward the disc along a bend line which is removed or offset from the center of the shoe and is generally directed toward the center of a brake disc. When the brakeshoe is greatly worn, the trailing, inwardly bent edge contacts and scrapes against the brake disc, thereby creating an audible signal for the driver, without imparting braking characteristics since the major portion of the lining remains effective at least until the operator of the vehicle has recognized the danger and had an opportunity to replace the brakeshoe or have the backing plate relined.

3,566,996
AUTOMATIC BRAKE ADJUSTER

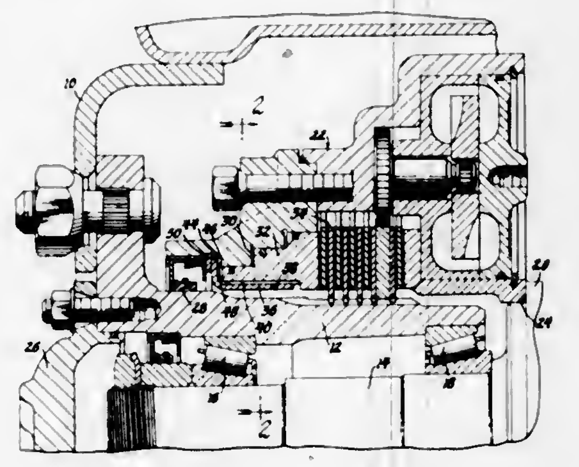
Richard L. Crossman, 386 Mark Drive, Tallmadge, Ohio
Filed Mar. 21, 1969, Ser. No. 809,260
Int. Cl. F16d *65/54, 55/10*
U.S. Cl. 188—196 **7 Claims**



An automatic brake adjuster for use on disc brakes having a pressure plate axially movable with respect to the brake housing. The adjuster has a threaded pin with one end attached to the brake pressure plate with the threaded portion of the pin extending through an internally threaded gripping member which extends through the brake housing. The threaded portion of the internally threaded member is radially outwardly expandable to permit disengagement of the threaded portion of the member from the threaded pin thereby permitting the pin to be moved by the pressure plate axially with respect to the internally threaded member. As lining wear increases in the brake, the distance between the pressure plate and the brake housing increases and the threaded pin is moved farther and farther through the threaded member. The position of the threaded pin with respect to the brake housing determines the amount of spacing between the brake housing and the pressure plate and this in turn determines the amount of clearance in the brake.

3,566,997
BRAKE-ADJUSTING MECHANISM

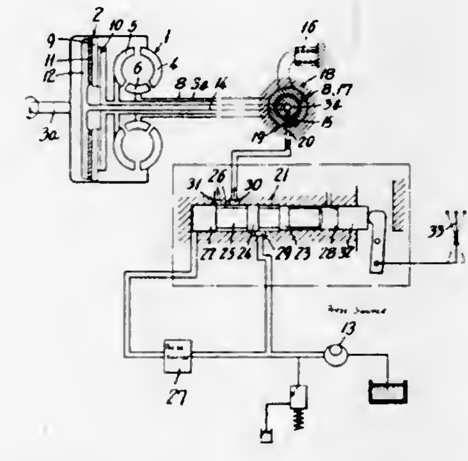
Burnette Heck, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed June 2, 1969, Ser. No. 829,348
Int. Cl. F16d *65/54, 55/46*
U.S. Cl. 188—196 **6 Claims**



An annular brake piston is provided with a sheet metal cylinder press fitted onto one surface of the piston and arranged to move with the piston for a limited distance. If the required movement of the piston exceeds the limited distance, further movement of the sheet metal cylinder is prevented while the additional movement of the piston still occurs. This causes a readjustment of the press fitted position of the cylinder on the piston, and when the piston returns to the released position it is prevented from returning as far as before. The surface of the piston on which the cylinder has been press fitted is provided with relief recesses spaced circumferentially so that the desired resistance to slip may be obtained without requiring close tolerance dimensions to be held.

3,566,998
SPEED AND TORQUE RESPONSIVE LOCK-UP CLUTCH FOR TORQUE CONVERTOR

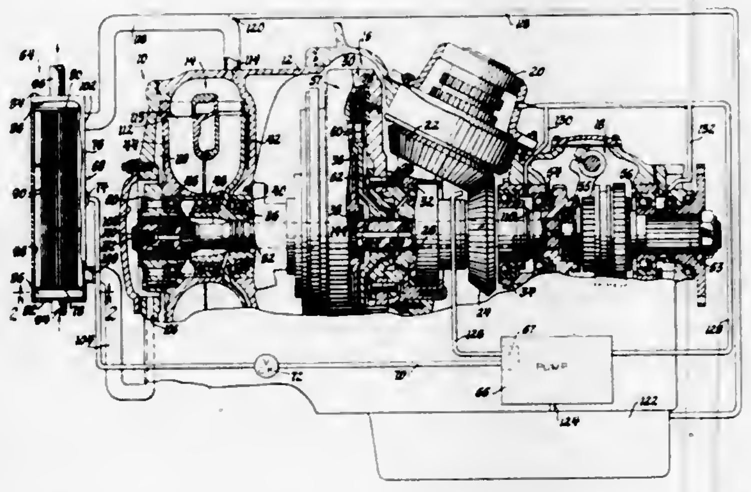
Soichiro Honda, Tokyo; Torao Hattori, Saitama-ken, and Sadanori Nishimura, Tokyo, Japan, assignors to Honda Giken Kigyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 25, 1969, Ser. No. 810,155
Int. Cl. F16d *47/06*
U.S. Cl. 192—3.3 **4 Claims**



In a transmission, the connection of driving and driven shafts can be direct or through a torque converter. Selection of one or the the other is controlled by a valve controlled by torque ratio. A second valve is used which responds to shaft speed. This second valve controls actuation of the first said valve. The second valve is adjustable for selecting different speed responses and is designed to avoid hunting or chatter.

3,566,999
FLUID COOLING SYSTEM

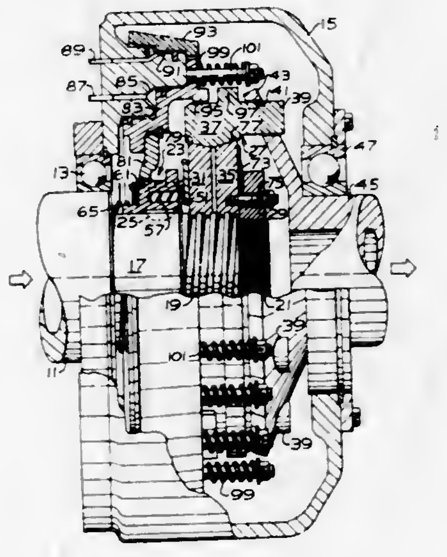
Donovan L. Robinson, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed July 9, 1969, Ser. No. 840,371
Int. Cl. F16d *33/00, 13/72, 13/74*
U.S. Cl. 192—3.28 **8 Claims**



A transmission having a torque-converter drive and an alternate mechanical drive between the transmission input and output members where the torque converter, during drive operation, provides a centrifugal pressure head between the fluid inlet to the operating chamber and the fluid outlet from the operating chamber for the circulation of the torque converter operating fluid through the labyrinth path of a heat exchanger. The makeup fluid for the torque converter is connected to the central portion of the path of the heat exchanger so that during torque converter operation the makeup fluid flows with the circulating torque converter operating fluid through the latter portion of the heat exchanger labyrinth path, and during direct drive operation when the torque converter is not operating and creating a pressure head, the makeup fluid flows through both halves of the path of the heat exchanger to the torque-converter exhaust.

3,567,000
OVERRUNNING CLUTCH COUPLING

Elmer A. Richards, Kalamazoo, Mich., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed July 17, 1969, Ser. No. 842,592
Int. Cl. F16d *13/24*
U.S. Cl. 192—47 **8 Claims**

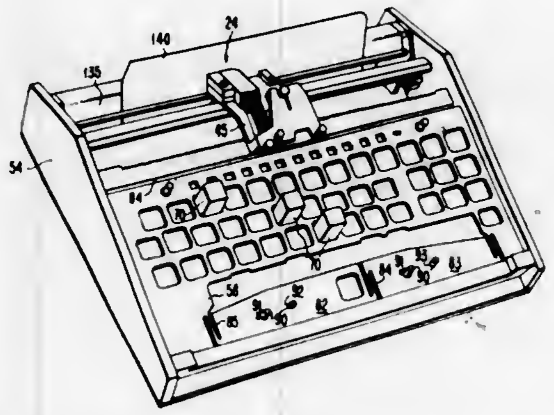


A clutch coupling for transmitting torque between a power shaft and a drive shaft comprising a pair of cone clutch plates mounted on helical splines on the power shaft to cooperate with a coaxial clutch cup which is axially movable relative to a flange on the drive shaft. The drive shaft is engaged with the clutch cup in a rotational drive relationship. A blocker mechanism serves to maintain the clutch cones in light contact with the cup, thereby allowing the cone plates to act upon the cup and transmit torque in either a clockwise or counterclockwise direction. Collapsing the blocker mechanism by pressurization of a fluid motor will allow torque to be transmitted in one direction only.

3,567,001
KEY-RESPONDING SELECTOR MECHANISM

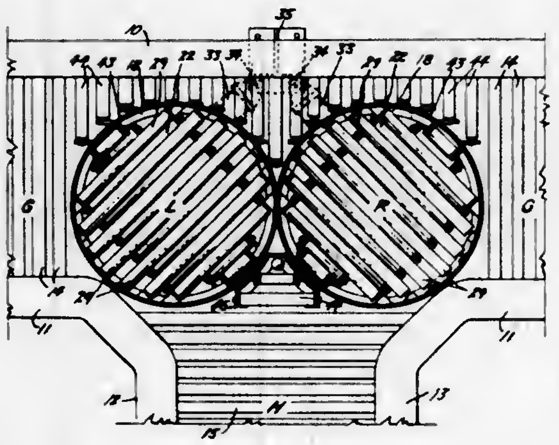
Reynold Benjamin Johnson, Palo Alto; Edward Everett Long, and George Edmund Price, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 2, 1969, Ser. No. 829,652
Int. Cl. B41j *7/74*
U.S. Cl. 197—1 **8 Claims**

The construction of mechanical devices having a multiple of elements to be actuated selectively in varying combinations is enhanced by use of a shiftable selector plate which can be punched from sheet stock and/or molded accurately and inexpensively. The selector plate has a movable rectangular selecting section integrally connected to two colinear guiding sections by means of three flexible bar sections arranged one between each section. The guiding sections have individual intermediately located pivot bores dividing the sections in like proportions. Pivot pins in the pivot bores restrain the guiding sections to pivotal movement about the bores. This restrains the movement of the other section to a line absolutely perpendicular to the line defined by the pivot pins in the pivot bores. Each of the selecting sections of the selector plates has a multiple of substantially square apertures in registry with corresponding apertures in all of the other plates. Keys are extended through the apertures in all of the selector plates in registry. The keys in the plates have surfaces cooperating with edges of the apertures of the plates defining the forward direction of the plates of two different characteristics distributed in predetermined permutation for all of the keys. Depressing a key shifts the selector plates relative to one another in accordance with the distribution of the two different characteristics. The guiding sections of the plates are pivoted at central points so that the selecting sections move directly forward regardless of the location of the particular key which is actuating the plates. The leading edge of the selector plates for the particular character desired may bear directly against the ends of the blade elements remote from the printing ends, or linking elements can be interposed between the printing blade elements and the selector plates. The square apertures of the plates which are to remain at rest for the selection of a given character are enlarged so that depressing the associated key will not disturb them. A camming element preferably is arranged in the apertures between the actuating surface of the keys and the actuating surfaces of the selector plates to provide more uniform motion.



3,567,002
LOAD TRANSFER DEVICES FOR CONVEYORS

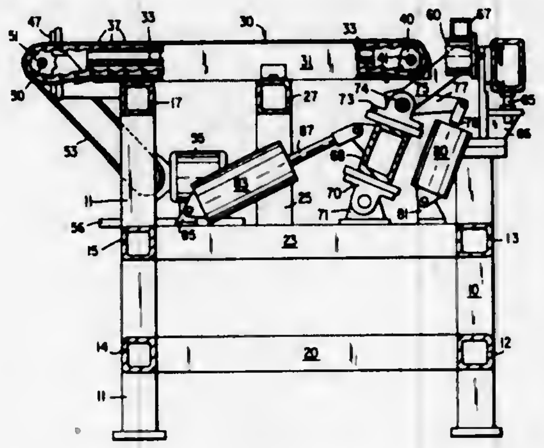
Raymond W. Russ, 30 S. Jasmine St., Denver, Colo.
Filed Mar. 12, 1969, Ser. No. 815,241
Int. Cl. B65g *47/00, 47/26*
U.S. Cl. 198—25 **3 Claims**



Two similar, closely adjacent turntables independently mounted in the travel plane of a main roller conveyor. Each turntable being provided with a plurality of parallel, power driven table rollers lying in the plane of the rollers of the main roller conveyor. The turntables being independently rotatable so that the table rollers can be directed in any desired direction so as to direct loads from the main conveyor onto intersecting side roller conveyors or from the side conveyors onto the main conveyor in either direction.

3,567,003
BAR ACCUMULATING APPARATUS

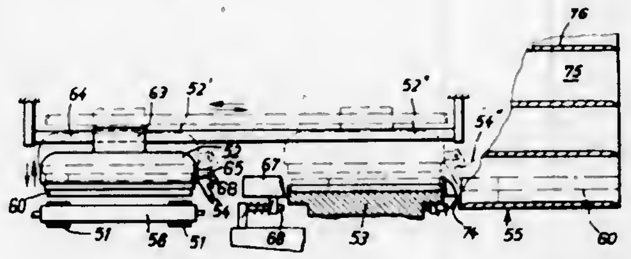
Donald L. Towne, North Syracuse, and Robert L. Schaller, Camillus, N.Y., assignors to Sundstrand-Engelberg, Inc.
Filed Oct. 22, 1968, Ser. No. 769,604
Int. Cl. B65g *47/00, 13/02*
U.S. Cl. 198—27 **4 Claims**



Apparatus for accumulating bars provided with a high finish. The finished bars are advanced on a linear series of guide rolls to a transfer position. Transfer means is power operated over an arcuate path to elevate a bar from the guide rolls, move it laterally and deposit the bar on a series of conveyors. The conveyors extend laterally from the series of guide rolls and are power operated, prior to the disposition of a bar thereon, to move the accumulated bars on a conveyor in a direction away from the guide rolls. The bars are handled without any sliding movement on the components of the apparatus.

3,567,004
METHOD AND APPARATUS FOR FORMING BLOCKS OF CIGARETTES OR THE LIKE

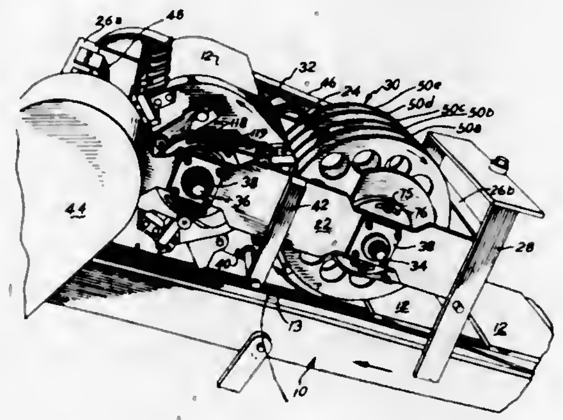
Peter Hess, Hamburg-Lohbruegge; Bernhard Schubert, Neu-Bornsen, and Dietrich Bardenhagen, Hamburg-Lohbruegge, Germany, assignors to Hauni-Werke, Korber & Co. KG., Hamburg-Bergedorf, Germany
Filed July 15, 1968, Ser. No. 745,006
Claims priority, application Germany, July 20, 1967, H63330
Int. Cl. B65b *19/04;* **B65g** *47/26*
U.S. Cl. 198—31 **23 Claims**



Blocks of cigarettes are assembled by feeding cigarettes sideways from one or more rod cigarette machines to a collecting station where the cigarettes are assembled into rows of equidistant cigarettes and are thereupon transferred to a subdividing station provided with means for breaking up each row into several layers by moving portions of a row in directions at right angles to the axes of cigarettes. The resulting layers are moved axially to a stacking station where they form blocks consisting of two or more superimposed layers of cigarettes.

3,567,005
TURNOVER DEVICE

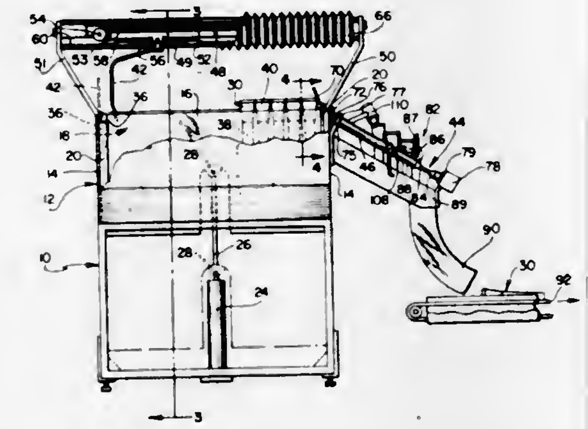
Harry M. Johnson, Urbandale, Iowa, assignor to Meredith Corporation, Des Moines, Iowa
Filed Nov. 29, 1968, Ser. No. 780,155
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 **8 Claims**



A turnover device for magazines and the like which may be mounted on an existing magazine conveyor. The device includes a mounting frame with a pusher assembly adapted to push magazines into position for gripping by a clamp cylinder also mounted on the frame. The clamp cylinder rotates counter to the direction of conveyor travel. Magazines are gripped and rotated by the clamp cylinder to effect turnover. The magazines are then released onto the conveyor for further travel. The pusher assembly and the clamp cylinder are both cam actuated.

3,567,006
BOBBIN ORIENTING AND FEEDING

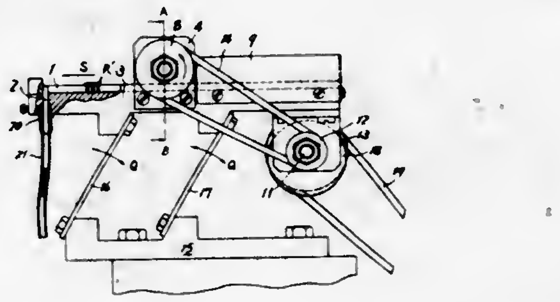
Charles C. Bell, Warwick, and Frank C. Di Mauro, Providence, R.I., assignors to Leesona Corporation, Warwick, R.I.
Filed Jan. 6, 1969, Ser. No. 789,283
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 **11 Claims**



Bobbin handling apparatus in which bobbins are stored in random orientation in a hopper and are delivered by the apparatus in an oriented manner. The bobbins in the hopper are agitated by a member movable vertically through the hopper. This member has an upwardly open mouth and upon upward movement of the member the mouth receives small ends of a portion of the bobbins in the hopper with large ends of the bobbins resting on the member adjacent the mouth. A pusher is provided for moving the bobbins to one end of the mouth from which they are received between a pair of downwardly inclined rods rotated in opposite directions so as to lift the bobbins and permit them to move down the rods to an escapement. When a bobbin is required, the escapement opens to permit a bobbin to be discharged through a chute to a conveyor belt with the bobbins oriented on the belt with smaller ends leading.

3,567,007
APPARATUS FOR ALIGNING AND CONVEYING RIVETS, SCREWS, BOLTS AND THE LIKE

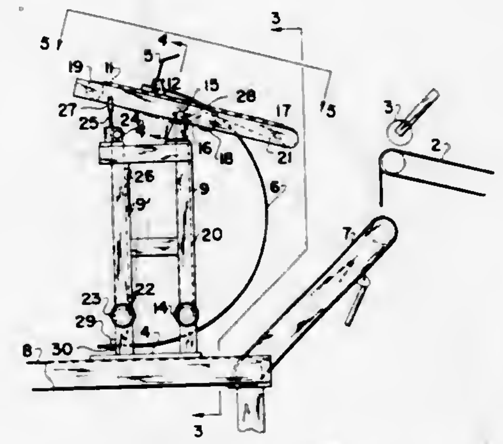
Akira Maeda, Iwata, Japan, assignor to The Toyo Bearing Manufacturing Company Limited, Osaka, Japan
Filed Sept. 11, 1968, Ser. No. 759,060
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 **2 Claims**



A method and apparatus for aligning and conveying small articles such as rivets, bolts, screws and the like. A table is mounted on a frame for reciprocable movement in a generally horizontal direction, said table having a plurality of longitudinally extending grooves therein adapted to receive at least a part of the articles being aligned and conveyed in the desired position. A roller is rotatably mounted above said table with the axis of rotation extending across said grooves with the surface of said roller being spaced from the grooved surface of said table a distance such that only articles properly positioned in said grooves can pass beneath said roller. While the table is reciprocated to move the articles in the spaced direction, said roller is rotated with the peripheral surface of the roller adjacent the grooved surface of the table moving in a direction opposite to the desired conveying direction to impell articles not in the grooves backwards on the table.

3,567,008
BLANK TURNING APPARATUS

Heinz B. Fischer, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.
Filed Feb. 11, 1969, Ser. No. 798,353
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 **10 Claims**



Apparatus for reversing a box blank after it has been treated, e.g., coated, on one side so that it may then be treated on its reverse side. The apparatus includes a roller, positioned adjacent the downstream end of a conveyor carrying the blank from the first coater, which cooperates with the conveyor to grip the blank on both sides and propel it against a flat plate stop member. After striking the stop member the blank is allowed to fall downwardly against a curved pivot plate member which curves downwardly from the flat plate member and outwardly toward a second conveyor which extends downwardly from the first conveyor. As the blank falls against the pivot plate member its end opposite the end which struck stop member begins pivoting downwardly until it strikes the second conveyor and, through frictional engagement of this end with a second conveyor and engagement of the intermediate portion of the blank with a curved plate member, the blank is pivoted so that it is dropped on a third conveyor with its sides and ends reversed from its position on the first conveyor.

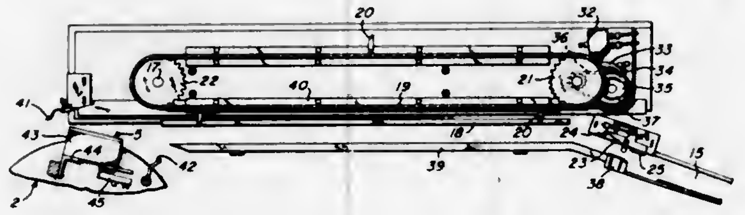
3,567,009
METERING MEANS FOR TRANSFERRING CONTAINERS AND THE LIKE IN TIMED RELATION TO THE MOVEMENT OF A CONTAINER RECEIVING MEANS

James H. Shiverdecker, Trenton, Ohio, and August Kund, Glendale, Calif., assignors to The Bergstein Packaging Trust, Middletown, Ohio

Continuation-in-part of application Ser. No. 701,782, Jan. 30, 1968, Patent No. 3,491,508. This application Oct. 2, 1969, Ser. No. 863,300

Int. Cl. B65g *47/30*

U.S. Cl. 198—34 **3 Claims**



A metering means for transferring containers and the like from a conveyor or other delivery means in predetermined timed relation to a moving container receiving means, the metering means comprising a pivotally mounted elongated arm having a container engaging finger at one end and a container contacting pad at the other, the arm being movable from a first position in which the finger engages the leading end of a first container advancing along the delivery means and arrests its forward movement to a second position in which the finger is retracted to free the first container for transfer to the container receiving means and the pad engages the next succeeding container moving along the delivery means to temporarily arrest its forward movement and thereby prevent more than one container from being released upon movement of the arm from its first to its second position, the arm being movable from one position to the other in timed relation to the movement of the container receiving means.

3,567,010
DRIVEN ROLLER FOR ROLLER CONVEYORS

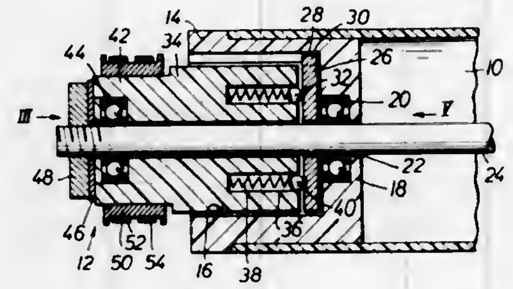
Hans Vom Stein, Wermeslkirchen, Germany, assignor to Hans vom Stein o.H.G., Dhunn-Rhineland, Germany

Filed Dec. 16, 1968, Ser. No. 784,004

Claims priority, application Germany, Dec. 21, 1967, ST28,692

Int. Cl. B65g *13/02;* **F16d** *7/00*

U.S. Cl. 198—127 **17 Claims**



thus rotate the shell by way of the cap. The balls are expelled from the sockets in response to application of a predetermined force which tends to rotate the sleeve with reference to the cap or vice versa.

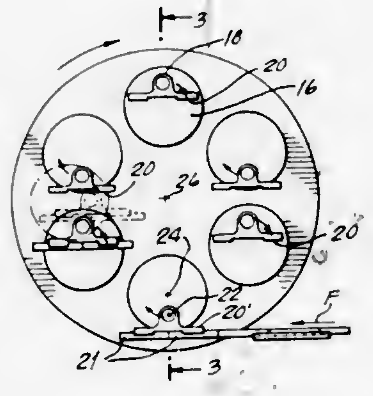
3,567,011
CIGARETTE TRANSFER APPARATUS FOR CHANGING DIRECTION AND REDUCING VELOCITY OF CIGARETTES

Jesse R. Pinkham, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Oct. 18, 1968, Ser. No. 768,844

Int. Cl. B65g *29/00*

U.S. Cl. 198—211 **3 Claims**



A transfer device useful for filter or cigarette rod-forming machines employing an epicycloidal motion to transfer cigarettes moving at a high axial velocity in a cigarette making machine to a conveyor moving at a lower velocity in a transverse direction while providing a graduated transition from one velocity to the other to eliminate damage to the cigarettes due to impact at the transition of speed and direction.

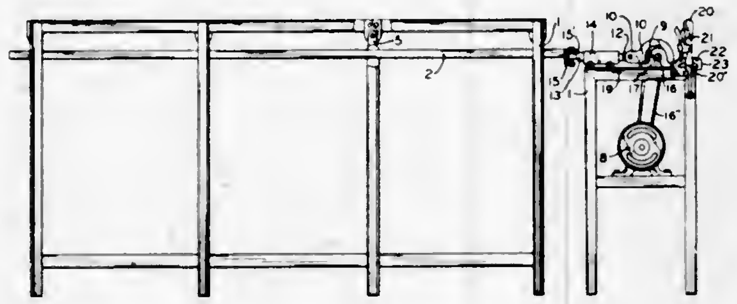
3,567,012
CONVEYING APPARATUS

Fausto Celorio Mendoza, Cumbres de Acultzingo No. 185, Lomas de Chapultepec, Mexico City 10, Mexico

Filed Sept. 16, 1968, Ser. No. 762,257

Int. Cl. B65g *27/32*

U.S. Cl. 198—220 **4 Claims**



This invention concerns a conveyor having a moveable plate and in which a vibratory or reciprocating motion is imparted to the plate so that articles are conveyed on the surface thereof. An eccentric is driven by a motor to cause the reciprocatory motion of the plate and control means is provided for changing the position of the eccentric to adjust the speed and direction of motion of articles on the conveyor plate.

3,567,013
SELF-ENCLOSING BLISTER PACKAGE

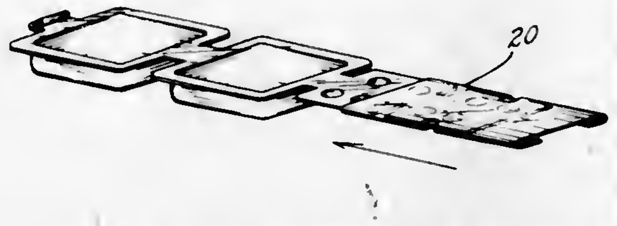
Michael A. Tannenbaum, Brooklyn, N.Y., assignor to E. L. Squibb & Sons, Inc., New YORK, N.Y.

Filed Dec. 5, 1967, Ser. No. 688,104

Int. Cl. B65d *83/04*

U.S. Cl. 206—42 **3 Claims**

This application relates to a unitary blister package whereby a primary blister pack and a secondary or outer pack are formed both at the same time in one continuous piece and folded to form an inner blister pack and an integral outer package. By means of the present invention, the production of completed packages may be achieved using basic blister forming equipment. Labor requirements for secondary packaging are eliminated since the packages of the invention may be produced on intermittent or continuous blister form fill and seal equipment and inventories of secondary packaging components are no longer required as they can be formed as needed.



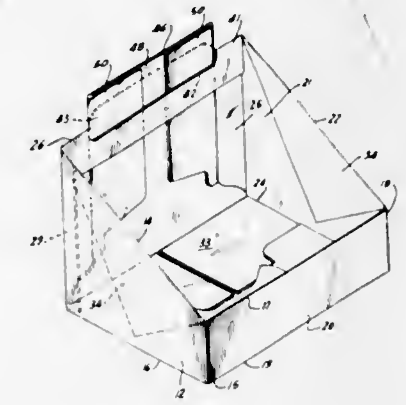
3,567,014
TRAY FOR SHIPPING AND DISPLAYING MERCHANDISE

Paul Feigelman, Elmhurst, N.Y., assignor to The Churchill Company, Inc.

Filed May 9, 1969, Ser. No. 823,273

Int. Cl. B65d *5/50*

U.S. Cl. 206—44 **10 Claims**



Open-topped tray has flap hinged to upper edge of its rear wall, flap being folded down parallel to face of rear wall. Slot extends along hinge line. A display slide is arranged between the flap and rear wall, and in shipping position a portion of the slide projects through the slot. Slide movable upwardly to display position wherein its lower margin is sandwiched between the flap and rear wall to maintain the slide erect.

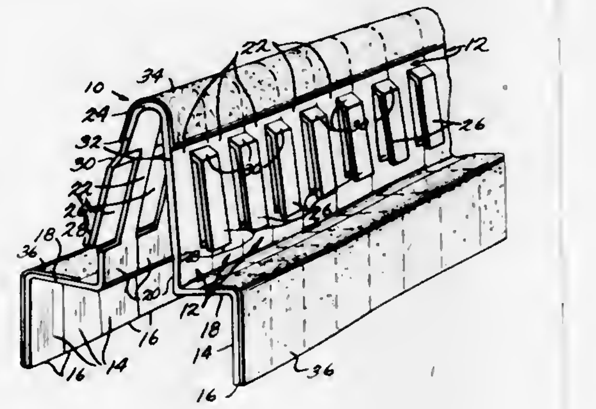
3,567,015
CLINCHABLE SNAP LOCK FASTENER PACKAGE

Edward A. Colechia, East Greenwich, R.I., assignor to Textron Inc., Providence, R.I.

Filed Oct. 1, 1969, Ser. No. 862,778

Int. Cl. F16b *15/08*

U.S. Cl. 206—56 **7 Claims**



A fastener stick package comprising a plurality of separate similarly constructed fasteners cemented together in row formation in which each fastener includes a pair of clinchable work penetrating leg portions and a pair of centrally located converging arm portions integrally interconnected at their converging ends by a tip portion and at their opposite ends with relatively short, generally parallel aperture engaging portions integrally interconnected with the leg portions by transversely extending connecting portions, the arm portions having fingers struck therefrom which are integrally joined at one end adjacent the tip portion and extend therefrom to free ends adapted to engage the adjacent surface of an apertured workpiece in which the aperture wall engaging portions are engaged.

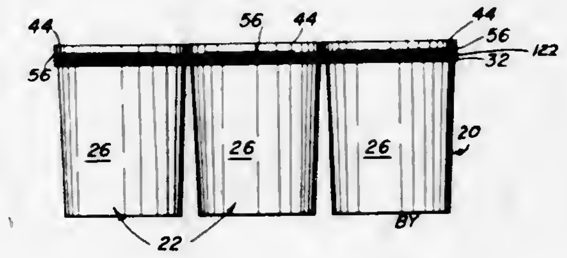
3,567,016
CONTAINER AND CLOSURE THEREFOR

Ralph V. Bardell, Homewood, Ill., assignor to Growth International Industries Corp.

Original application Dec. 3, 1968, Ser. No. 780,718, now Patent No. 3,519,163, dated July 7, 1970. Divided and this application July 16, 1969, Ser. No. 850,302

Int. Cl. B65d *71/00*

U.S. Cl. 206—65 **1 Claim**



A plastic closure adapted for application to an open head container body comprises a perimetral inverted U-shaped channel provided at the periphery thereof, with the channel being formed by an inner flange, outer flange, and an integral interconnecting top section. Interlocking means, provided on the interior of the outer flange, are adapted to engage the sidewall structure of the container body. Means are provided for separating the lower portion of the outer flange into separate sections in order to facilitate disengagement of the closure, with such means preferably taking the form of at least one vertical tear line severable with a screwdriver or the like.

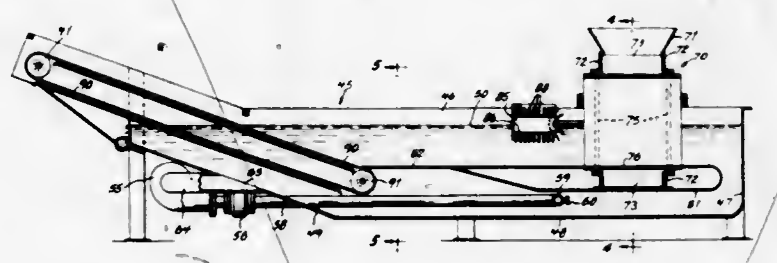
3,567,017
FLOTATION SEPARATING APPARATUS AND METHOD

Robert L. Hughes, 207 Lane St., Modesto, Calif.; Robert J. Allen, Forest Hills Apartments 23B 31 Golden Ave., Battle Creek, Mich.; Donald A. Barnes, 1678 W. Service Road, Modesto, Calif., and Donald A. Bratsch, 136 Elliot Place, Walla Walla, Wash.

Filed Aug. 3, 1967, Ser. No. 658,120

Int. Cl. B03b *3/30;* **B03d** *1/00*

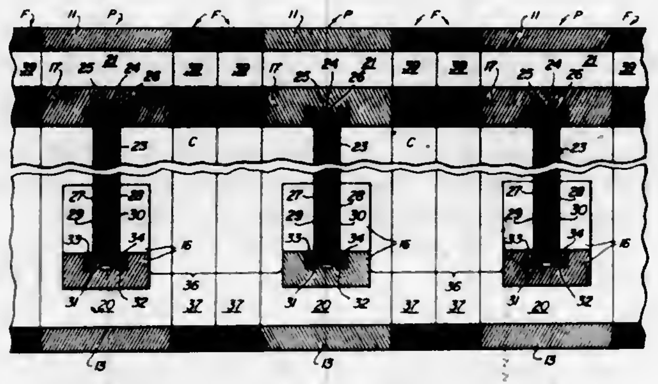
U.S. Cl. 209—156 **5 Claims**



A flotation separator containing a liquid circulating in a laminar flowing stream receives a mixture of intermingled fractions of a vegetable product introduced therein from a conveyor running in a direction transverse to the direction of flow and beneath the surface of said stream. Separate fractions are collected from the surface of said stream at separate locations downstream from their point of introduction, and any fraction remaining on said conveyor after exposure to said stream is collected at a point remote from said stream.

3,567,018
METHOD AND APPARATUS FOR FILTERING SLURRIES CONTAINING SOLID PARTICLES HAVING INTERLOCKING TENDENCIES

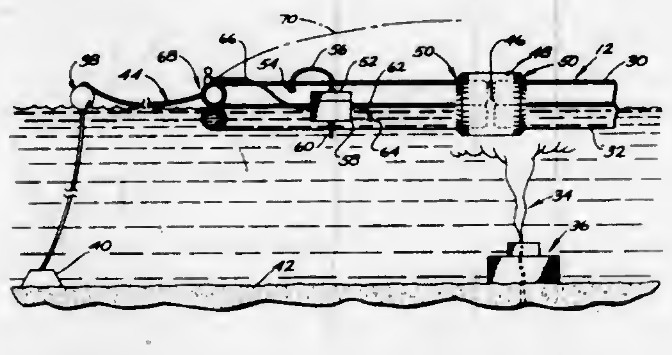
Arthur M. Moler, Salt Lake City, Utah, assignor to Kennecott Copper Corporation, New York City, N.Y.
Filed Feb. 10, 1969, Ser. No. 797,828
Int. Cl. B01d *25/12*
U.S. Cl. 210—67 **6 Claims**



Improvements in a known method and apparatus for filtering slurries containing solid particles that have strong interlocking tendencies, e.g. metallurgical slurries, such as cement copper precipitates, by filter press techniques.

3,567,019
OIL LEAKAGE BARRIER

Edward E. Headrick, 4900 Crown Ave., La Canada, Calif.
Filed Mar. 18, 1969, Ser. No. 808,287
Int. Cl. E02b *15/04;* **C02c** *01/38*
U.S. Cl. 210—87 **4 Claims**

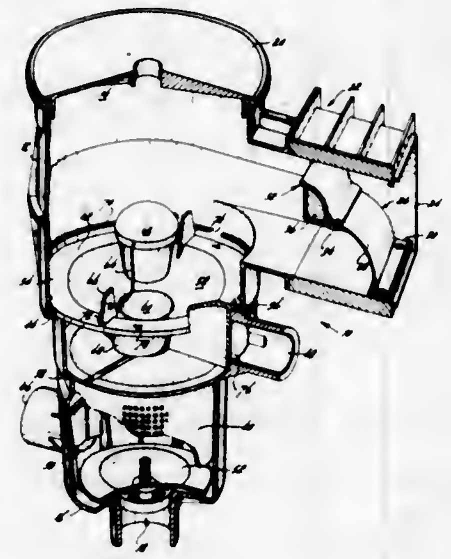


A light weight, elongated, flexible, tubular structure is provided for use in confining leaking oil and other lighter-than-water substances to a predetermined area. At an offshore location the ends of the structure are drawn together to create a closed figure surrounding the point where oil is surfacing. The structure is divided into two chambers, one of which is filled with a liquid having at least the specific gravity of the liquid in which the structure floats. The second chamber of the structure is adapted to be distended such that a barrier is created extending above and below the surface producing a surface interlock with the liquid below the floating substance to prevent the substance from shipping beneath the barrier.

3,567,020
POOL SKIMMER

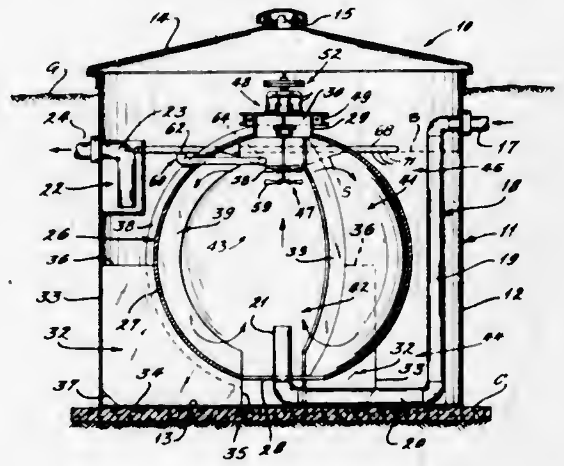
Brackston T. Whitaker, Tucson, Ariz., and William O. Baker, Huntington Beach, Calif.
Filed May 28, 1969, Ser. No. 828,594
Int. Cl. B01d *23/00*
U.S. Cl. 210—94 **11 Claims**

A pool skimmer and the like including a skimmer assembly adapted for use with residential and commercial installations with means for selectively operatively connecting various lines and apparatus in a system for liquid surface skimming, vacuuming and liquid draining having means for cleaning and filtering pool liquid for reuse thereof, wherein means are provided for simplifying establishing all necessary conduit connections for main outlet plumbing, skimmer plumbing and vacuum connections, the assembly including selectively usable and operable control and vacuum plate and float stopper to establish desired operating conditions.



3,567,021
WASTE TREATMENT SYSTEM

Daniel P. Morisseau, Jr., 1972 Rayner Road, Kirkwood, Mo.
Filed Mar. 25, 1970, Ser. No. 022,500
Int. Cl. C02c *5/10*
U.S. Cl. 210—195 **15 Claims**

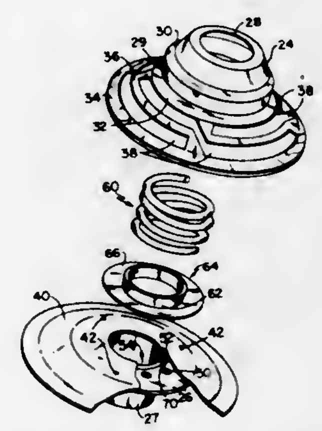


A waste treatment system having a spherical aeration chamber with a lower influent receiving zone and an upper mixing zone in which aeration and recirculation of influent is effected by a double impellor, vertical baffles being provided to prevent vortex action within the aeration chamber. The spherical chamber is positioned in a settling chamber having baffles in the lower compartment, and diverging effluent outlet pipes to a final treatment chamber and a skimmer to return any floating particles to the mixing zone.

3,567,022
FILTER WITH RELIEF AND CHECK VALVES

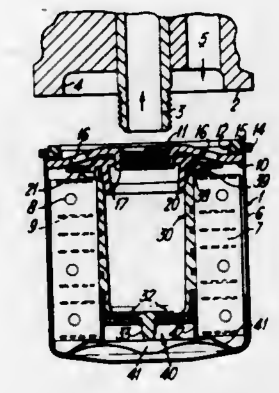
Donald I. Thornton, Warwick; Martin Mahdesyan, Pawtucket, R.I., and Earl S. Yeo, Attleboro, Mass., assignors to Fram Corporation, Providence, R.I.
Filed May 26, 1969, Ser. No. 827,861
Int. Cl. B01d *35/14, 27/10*
U.S. Cl. 210—130 **5 Claims**

Relief valve in a filter, with a seating surface adjacent an opening in the valve seat, and a flexible valve member having a portion fixed and sealed relative to the seat on the side of the opening opposite the seating surface, the flexible member being resiliently biased against the seating surface at its free portion.



3,567,023
VALVED FILTER SUPPORT TUBE

Kenneth Ernest Buckman, Winsor, near Woodlands, and Derrick Percival Tuffnell, Southampton, England, assignors to General Motors Corporation, Detroit, Mich.
Filed July 11, 1969, Ser. No. 840,913
Claims priority, application Great Britain, July 13, 1968, 33541/68
Int. Cl. B01d *35/14, 27/10*
U.S. Cl. 210—130 **7 Claims**

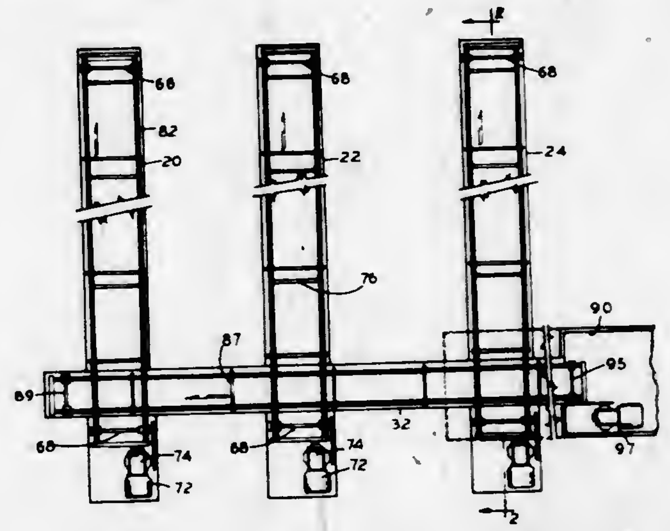


In a liquid filter, particularly an internal combustion engine oil filter, a plastics support tube, externally grooved to provide drainage channels, fits within one end of the element and has a projecting castellated portion and a flange which seals against said one end of the element, whilst a combined annular seal and relief valve member of elastomeric material has an outer flange which normally overlies inlet openings in an end plate of the filter casing, an inner peripheral portion sealed to the end plate around a central outlet opening in the end plate, and a coaxial neck which fits within the support tube and seals against the latter adjacent the castellated portion, the said outer flange being resiliently deflected by liquid entering the inlet openings and the seal between the neck and support tube being broken, to permit a bypass flow of liquid directly between the inlet and outlet openings when the pressure on the neck, through the castellations, exceeds a predetermined value.

3,567,024
TRENCH FILTER

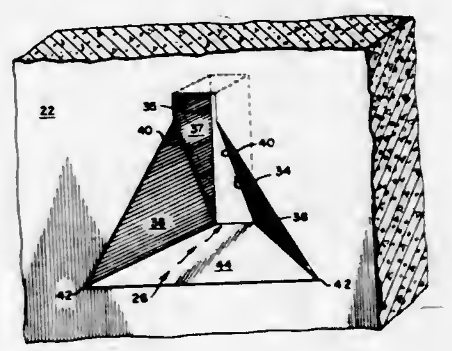
Carl R. Mc Cormick, Penfield, N.Y., assignor to M. J. French Co., Inc., Webster, N.Y.
Filed Aug. 25, 1969, Ser. No. 852,846
Int. Cl. B01d *35/16, 29/42*
U.S. Cl. 210—164 **6 Claims**

Industrial waste system having lateral lined trenches in a floor comprising spaced parallel side plates with downwardly and inwardly inclined lower sections joined to form a V bottom having a lengthwise gradient sufficient to promote flow of liquids and matter capable of suspension in the liquid from one end to a discharge point at the other end, side wall shoulders for supporting the side plates within the trench with the upper edges of the plates close to floor level, internal filter-grid support shoulders extending horizontally along the inside walls below floor level having filter grids thereon, power driven sprocket and chain means disposed on opposite sides of the side plates and extending substantially the length of the trench liner, carrying transverse scraper bars at a level to scrape the upper surface of the filter grids, and a similarly constructed trunk trench connecting the discharge ends of the lateral trenches, and means for collecting the liquids separate from the waste collected by the scraper bars.



3,567,025
SKIMMING WEIR

Edward F. Gillette, Greenwich, Conn. (737 Canal St., Bldg. 16, Stamford, Conn. 06902)
Continuation-in-part of application Ser. No. 718,467, Apr. 3, 1968, now abandoned. This application Dec. 8, 1969, Ser. No. 883,071
Int. Cl. B01d *21/24*
U.S. Cl. 210—169 **5 Claims**

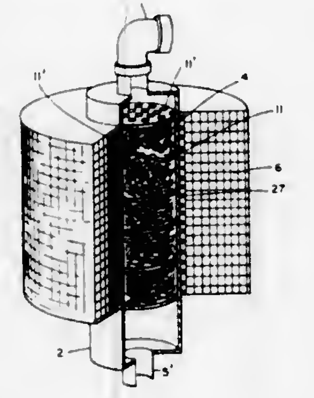


A broad crested weir with a converging trapezoidal entrance region, for maximizing velocity of surface flow relative to flow at submerged levels in the adjacent fluid reservoir. The weir's lateral walls are generally vertical in their upper rear sections and are laterally spaced a given distance apart. The lower forward sections of the walls converge from a greater laterally spaced apart distance along the forward edge of the weir crest to the given lateral distance near the weir exit, whereby entering fluid velocity at the level of the weir crest is reduced relative to fluid velocities above the weir crest.

3,567,026
MAGNETIC DEVICE

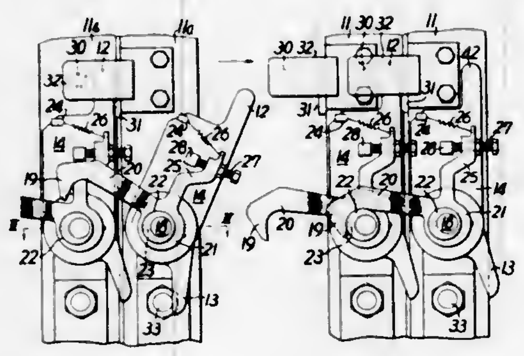
Henry H. Kolm, Weir Meadow, Wayland, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Filed Sept. 20, 1968, Ser. No. 761,048
Int. Cl. B01d *35/06*
U.S. Cl. 210—222 **4 Claims**

Apparatus for separating colloidal and subcolloidal ceramic magnetic components from a slurry by passing the slurry through a column containing a magnetic material, as a magnetic grade stainless steel wool. The steel wool is subjected to a DC magnetic field to effect magnetization thereof and provides a large number of regions of very high magnetic field gradient along the paths of travel of the slurry to attract and retain the magnetic components. At intervals, the DC magnetic field is removed, and the steel wool is demagnetized. A preferred method of demagnetization is the application of an AC magnetic field, upon removal of the DC field, the AC field being gradually reduced to zero. Eddy current means is provided to apply an eddy current field to the steel wool to shake the components from said regions of the steel wool during the intervals.



3,567,027
APPARATUS FOR RELEASING AND COUPLING FILTER PLATES IN A FILTER PRESS

Ken-Ichiro Kurita, Suita, Japan, assignor to Kurita Machinery Manufacturing Company Limited, Osaka, Japan
Original application Dec. 3, 1968, Ser. No. 780,723. Divided and this application Mar. 6, 1970, Ser. No. 17,153
Int. Cl. B01d *25/12*
U.S. Cl. 210—230 **4 Claims**

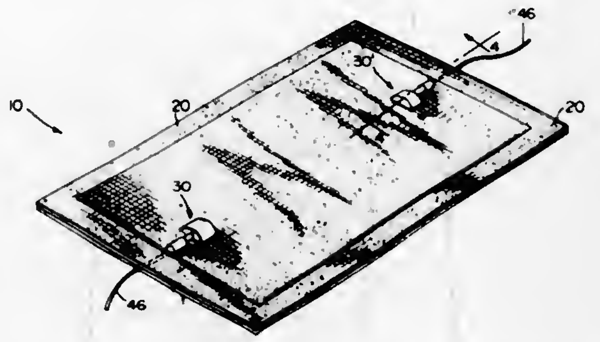


Each of the filter plates is provided on opposite sides with stud members and actuating members having hook members pivotally mounted on the outer sides thereof and associated therewith. The hook portions of the hook members on a filter plate are adapted to be engaged with stud members on the following adjacent filter plate in the order of separation. Actuating pins to cooperate with the protrusions in the upper portions of the actuating members are provided on the preceding adjacent filter plate. When the preceding plate is released, the actuating members and hook members on the following filter plate adjacent to the preceding plate are forced to function to make the following plate ready for separation.

3,567,028
MEMBRANE ENVELOPE ASSEMBLY

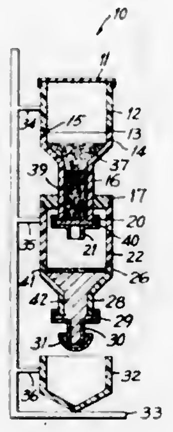
Yukihiko Nose, Cleveland Heights, Ohio, assignor to Research Corporation, New York, N.Y.
Filed Dec. 26, 1968, Ser. No. 787,054
Int. Cl. B01d *31/00, 13/00*
U.S. Cl. 210—232 **7 Claims**

A sterile, relatively inexpensive, disposable membrane envelope assembly is provided with the assembly consisting of a pair of spaced opposed extended surface membranes sealed together, a pair of porous reinforcing sheets at the obverse surfaces of the membranes adhesively secured to the membranes, and fluid inlet and outlet nipples mounted at opposite edges of the membranes to direct fluid flow between the opposed surface membranes. Membrane envelopes resulting from both total surface adherence of the reinforcing sheets to the membranes, and peripheral adherence of the reinforcing sheets to the membranes are disclosed.



3,567,029
COLUMN FOR TESTING BIOLOGICAL FLUIDS

Babington A. Quame, 235 E. 18th St., New York, N.Y. 10003
Filed Aug. 26, 1969, Ser. No. 853,066
Int. Cl. B01d *25/06, 27/02*
U.S. Cl. 210—249 **7 Claims**

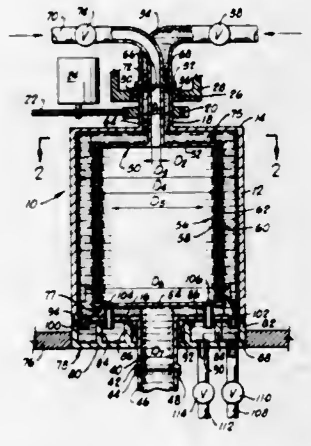


A column for testing biological fluids. The column includes an upper receiving container for receiving the fluid which is to be tested. The bottom end of the fluid receiving container is open and situated just beneath a fritted glass disc on which there is a body of resin particles, and on the latter body of resin particles there is a body of purified cellulose, so that in this way there will result a maximum adsorption of drugs together with the resin from a biological fluid. Beneath the fluid receiving container is a filtration container having at its upper region an opening communicating with the outer atmosphere so as to release any pressure which otherwise would build up within the filtration container. Within the filtration container is a filtering aid covered with a phase separating paper. Beneath the filtration container, which has a bottom end, is a collecting container which will collect clear organic solvent with pure drugs contained therein; in the case where the column is used for drug abuse testing purposes. The top open end of the receiving container and the bottom open end of the filtration container can be covered with removable closing caps so that the column can be conveniently sent through the mails, for example.

3,567,030
REVERSE OSMOSIS APPARATUS

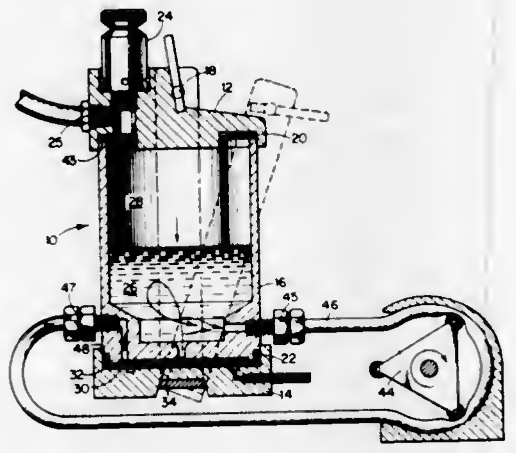
Robert I. Loeffler, 1200 Caddell, and Harold M. Bradbury, 1217 W. Brooks, Norman, Okla. 73069
Filed Nov. 29, 1968, Ser. No. 780,123
Int. Cl. B01d *13/00*
U.S. Cl. 210—321 **6 Claims**

Apparatus for carrying out reverse osmosis to separate materials, the apparatus including an outer shell and an inner shell mounted inside the outer shell for rotation of the shells about a common axis. The inner shell includes a permeable osmotic membrane at its outer periphery which is located radially inwardly of an axially extending space between the shells. There are further provided spaces between the opposed ends of the inner and outer shells through which a process solution may be directed radially to and from the axially extending space. A conduit and fluid flow passageway system is provided for removing product liquid from a point immediately radially inward of the membrane and at one end of the inner shell whereby when the shells are rotated about a common axis, a pressure differential is developed across the membrane in which the lower pressure is on the radially inner side of the membrane.



3,567,031
AUTOAGITATING ULTRAFILTRATION APPARATUS

Herbert H. Loeffler, Arlington, Mass., assignor to Amicon Corporation, Lexington, Mass.
Filed May 29, 1969, Ser. No. 828,936
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **8 Claims**

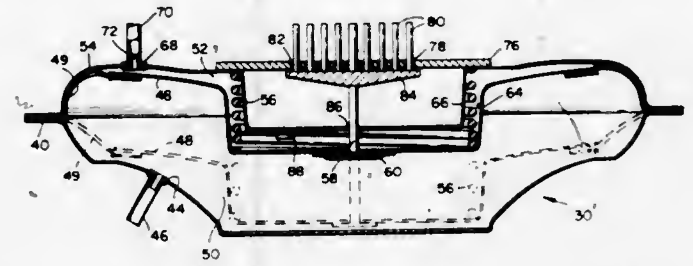


Ultrafiltration apparatus of the thin-channel type comprising a flow-directing means and a reservoir for fluid. The flow-directing means is advantageously in a spiral form so that it may impart a mixing action to fluid passed therefrom into the reservoir.

3,567,032
FILTER AND PUMP FOR A RECIRCULATING SANITARY SYSTEM

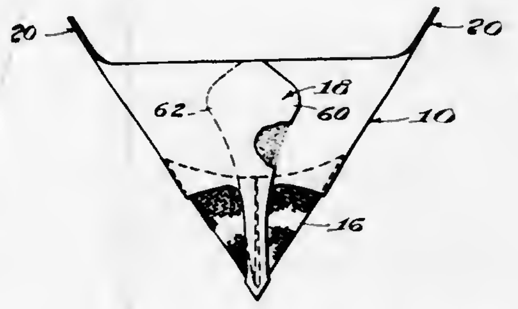
James M. Kemper, Hollywood, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.
Continuation-in-part of application Ser. No. 737,232, June 14, 1968, now abandoned. This application June 2, 1969, Ser. No. 829,486
Int. Cl. B01d *29/38*
U.S. Cl. 210—355 **6 Claims**

In a recirculating sanitary system, an improved filter and pump assembly provides a source of flushing liquid. A diaphragm pump is provided with a coupling to a plurality of needle members that reciprocate through an apertured plate. The needle members extend beyond the plate into the storage tank at all times, and the reciprocating motion imparted to the needle members tends to clean the needle-aperture combination, which acts as the filter. The pump also supplies a limited backflow through the filter for cleaning purposes during a portion of the operating cycle. In addition, a novel, pneumatic timing device assures the completion of an operating cycle.



3,567,033
DISPOSABLE FILTERING DEVICE

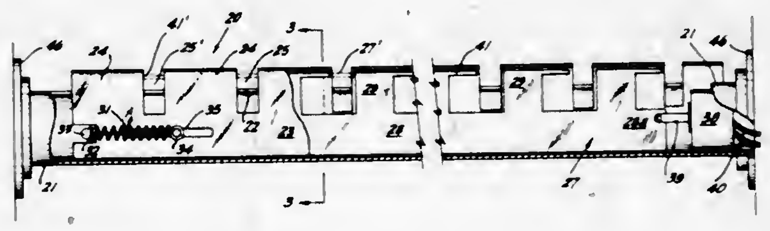
James P. Whelan, Pembroke, Mass., assignor to Ad-Tec Products, Inc., North Quincy, Mass.
Filed Oct. 11, 1967, Ser. No. 674,624
Int. Cl. B01j *23/28*
U.S. Cl. 210—497 **2 Claims**



A disposable conical filtering device having gauze covered openings is characterized by structure providing a more rigid and efficient filtering device which is more convenient in use and which is particularly adapted for straining paint or the like.

3,567,034
LOCKABLE HANGER BAR

Salomon Mozelsio, 1624 Nutwood St., Fullerton, Calif.
Filed Nov. 28, 1969, Ser. No. 880,723
Int. Cl. E05b *73/00*
U.S. Cl. 211—7 **10 Claims**



A lockable hanger bar comprises an elongate tubular bar adapted to hold a plurality of garment hangers in the crenels between hollow projections extending upwardly from the bar. A unitary, substantially planar locking member is moveably disposed entirely within the bar. The locking member includes a plurality of inverted L-shaped extensions which in an open position are hidden in the projections. In a closed position, the top part of each extension extends across an associated crenel between two projections so as to lock a hanger retained in the crenel.

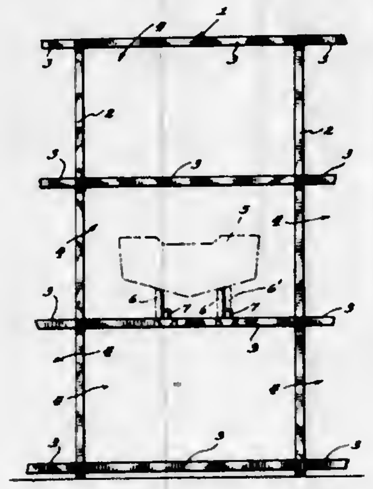
3,567,035
BOAT RACK

Leonard J. Dudzik, Dolton, Ill., assignor to Interlake Steel Corporation, Chicago, Ill.

Filed Nov. 20, 1968, Ser. No. 777,232

Int. Cl. B63c *15/00*

U.S. Cl. 211—13 **3 Claims**



A support structure for storage of boats and like articles in the form of a rack structure with defined openings in which the articles are stored. Brackets are provided in the openings for supporting horizontal beams which directly support the articles. The brackets have fastening means for frictionally engaging the rack structure to secure the brackets to the rack structure, the frictional engagement being easily releasable to permit shifting of the brackets for adjustable bracket spacing to accommodate different size articles.

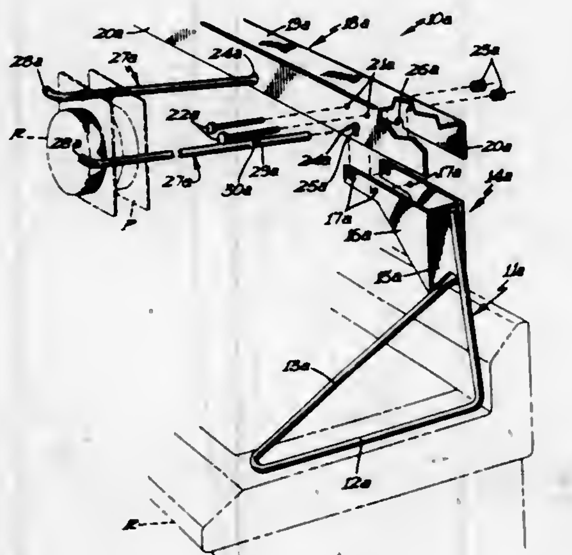
3,567,036
RESEAL PRODUCT DISPLAY RACK

John A. Tonjum; Frank M. Brown; Jean A. Burton, and Richard L. Knowlton, Austin, Minn., assignors to Geo. A. Hormel & Company, Austin, Minn.

Filed Mar. 6, 1969, Ser. No. 805,053

Int. Cl. A47f *7/00*

U.S. Cl. 211—57 **1 Claim**



A display device for supporting a plurality of packaged food products includes an elongate mounting member having a pair of flanges, each flange having a plurality of openings therein. The openings in one of the flanges is of keyhole configuration, and one opening in one flange is aligned with an opening in the other flange. A plurality of elongate similar support members each engages in a pair of openings in said mounting member. Each support member has a recess therein seated in the smaller portion of a keyhole opening and coacting therewith to prevent rotation of the support member about its longitudinal axis.

3,567,037
TELESCOPIC SUPPORTS

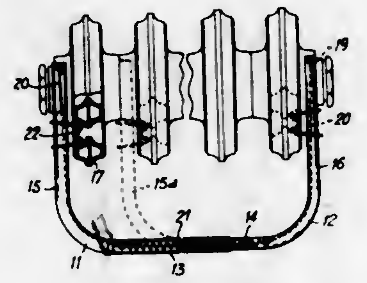
Marie-Claire Balencon, Muret-Haute-Garonne, France

Filed June 20, 1968, Ser. No. 738,628

Claims priority, application France, June 23, 1967, P.V.111,672

Int. Cl. A47k *10/10*

U.S. Cl. 211—86 **1 Claim**



There is disclosed herein an adjustable support, for instance for displaying goods or supporting towels next to household heating radiators of differing lengths, which includes a telescoping bar, elastic means biasing the bar toward longitudinal extension or retraction and clips movable along the bar which are engageable with spaced points on a fixed support, for instance with spaced heating elements on the heating radiator or adjust the distance between the bar and the fixed support.

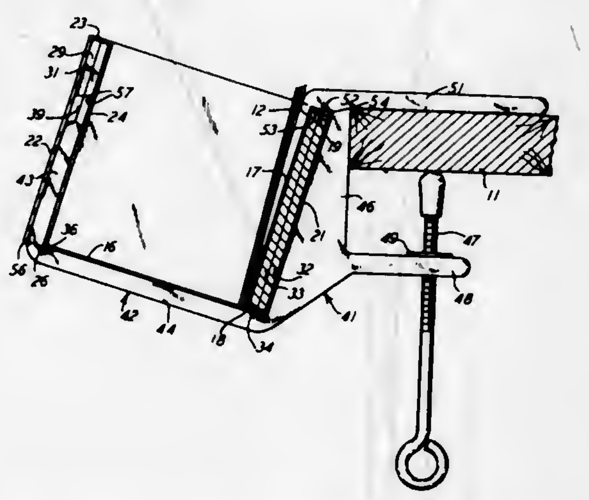
3,567,038
BIN AND SUPPORT CLAMP ASSEMBLY

Roy C. Ammann, Racine, Wis., assignor to Western Publishing Company, Inc., Racine, Wis.

Filed Sept. 3, 1969, Ser. No. 854,985

Int. Cl. A47f *5/08*

U.S. Cl. 211—88 **7 Claims**



A bin and support clamp assembly which is useful in displaying merchandise at the front edge of a support shelf or the like. The bin portion includes a front wall and a rear wall and a bottom, all preferably made from cardboard material. The clamp portion includes a U-shaped leg which extends along the three portions of the bin to securely hold the bin. The clamp also includes a fastening portion for attaching the entire assembly to a support shelf or the like, and the fastening portion and the U-shaped leg are relatively oriented so that the bin is tilted or oblique to the horizontal position of the shelf, for optimum support and display of the merchandise.

3,567,039
ELEVATOR CONVEYOR AND STORAGE RACK SYSTEM

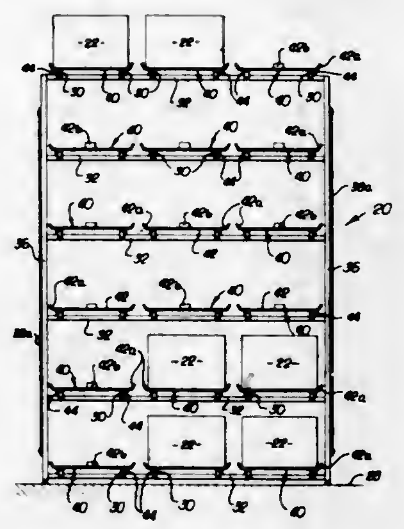
George Q. Evans, 204 S. Locust St., Compton, Calif.

Original application Feb. 7, 1967, Ser. No. 614,430, now Patent No. 3,455,469, dated July 15, 1969. Divided and this application Aug. 5, 1968, Ser. No. 761,383

Int. Cl. A47f *5/00*; **A61g** *17/00*

U.S. Cl. 211—162 **5 Claims**

A system for storing articles in a rack having a plurality of shelves and removing them therefrom using a movable and



adjustably elevated loading conveyor. The storage areas in the rack are provided with slide assemblies adapted to receive an article to be stored therein and the loading conveyor is movable to positions relative to said rack which directly align articles carried therein with storage areas in the rack so that the articles can be readily loaded and unloaded.

3,567,040
LUFFING AND SLEWING JIB CRANE

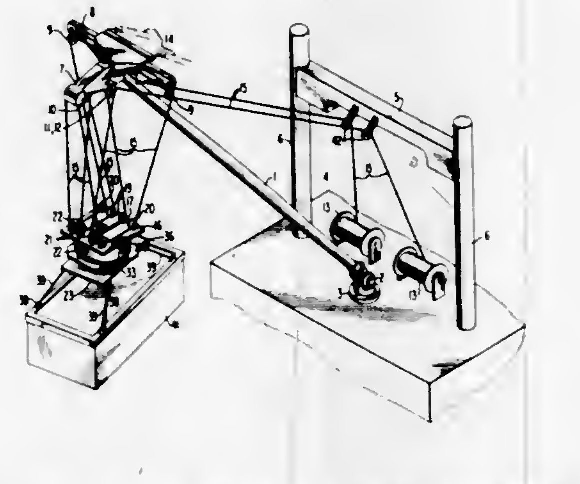
John S. Thomson, 104 Forsyth St., Greenock, Scotland

Filed June 10, 1968, Ser. No. 735,879

Claims priority, application Great Britain, June 9, 1967, 26844/67

Int. Cl. B66c *23/06*

U.S. Cl. 212—58 **2 Claims**



A ship's crane has a jib which is adapted for luffing and slewing movements, and from which is suspended a load-handling device, particularly for containers. The load-handling device is in two portions, with a motor to rotate the two portions relative to each other to position the load accurately. The crane has a single load cable which is reeved about the jib head and the upper of the two portions in such a way that, in addition to resisting reactionary rotation of the upper portion of the load-handling device, the device is enabled to maintain its horizontal position irrespective of the angle of elevation of the jib or list of the ship.

3,567,041
HOSE SUPPORT ASSEMBLY FOR A RAILWAY VEHICLE

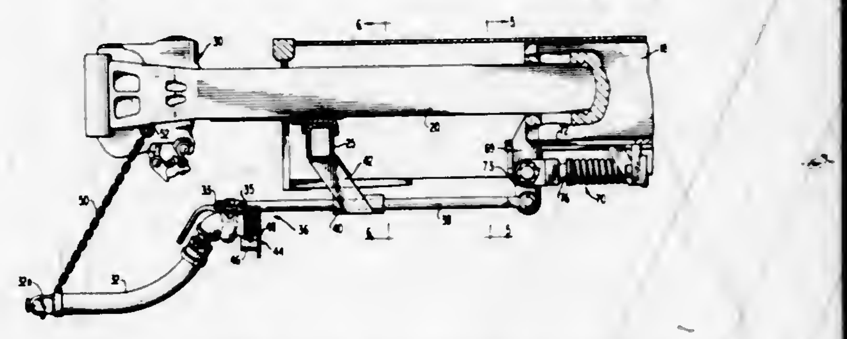
Orum E. Seay, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed July 18, 1968, Ser. No. 745,874

Int. Cl. B61g *7/00*

U.S. Cl. 213—1 **1 Claim**

An assembly which is intended to support a coupling hose of a railway vehicle having a fixed sill. A draft unit mounted in the sill is of the type including a draft housing mounted for longitudinal sliding motion within the sill. A coupling bar, having one end projecting outwardly from one end of the vehicle, is connected at its other end to the draft housing for transverse swinging motion about a vertical pivot axis disposed in a longitudinal median plane of the vehicle. The coupling hose is connected at one of its ends to a hose support member. This support member is supported by connecting means in spaced vertical relation relative to the coupling bar, in close longitudinal proximity to the one free end thereof. The connecting means is connected with the draft member to cause longitudinal motion of the hose support member relative to the sill upon corresponding motion of the coupling bar. This motion of the hose support member serves to generally maintain the relative positioning of the hose support member and the free end of the coupling bar during cushioning motion thereof. Guiding means is connected with the vehicle and with the connecting means to guide the connecting means and thus move the hose support member in a path disposed generally in the longitudinal median plane of the railway vehicle.



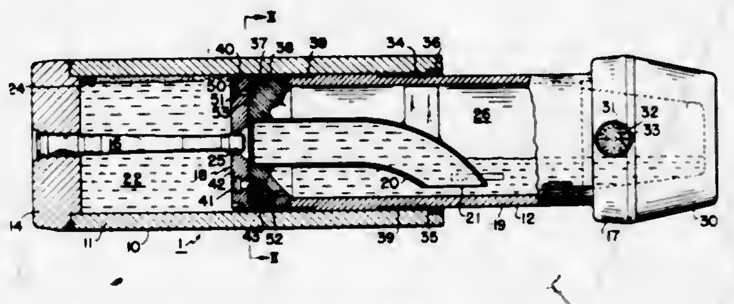
3,567,042
PNEUMATIC-HYDRAULIC SHOCK ABSORBER

Norman J. Borgo, Pittsburgh, Pa., assignor to Pittsburgh Forgings Company, Caraopolis, Pa.

Filed Dec. 23, 1968, Ser. No. 786,259

Int. Cl. B61g *9/08, 9/16*

U.S. Cl. 213—43 **1 Claim**



A pneumatic-hydraulic shock absorber having a high-pressure chamber formed by a cylinder and containing a liquid and a low-pressure chamber formed in the hollow portion of a piston and containing a liquid and a compressed gas. The shock is absorbed by the throttling action of a metering pin positioned in a deflector tube which connects the two chambers. The entrapped gas and foam which is drawn into and settles out in the high-pressure chamber is returned to the low-pressure chamber by an interconnected set of passageways therebetween.

3,567,043
TRANSFER ASSEMBLY FOR USE WITH CONTAINER PRINTING MACHINES

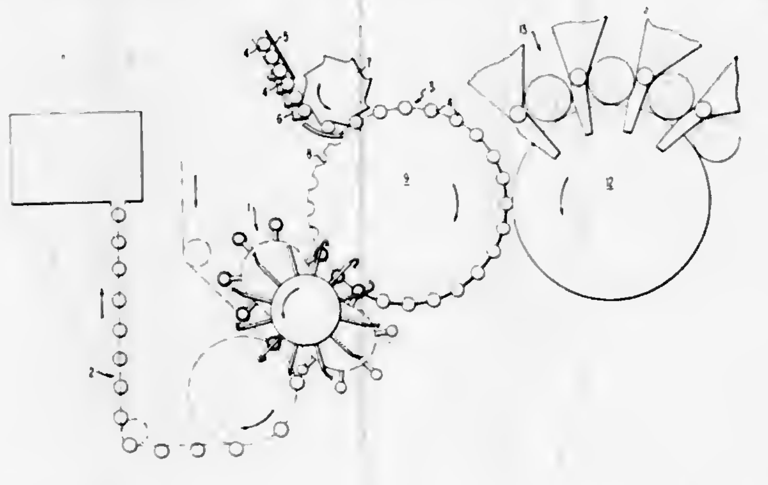
Enn Sirvet, Ridgefield; Edward J. Whelan, Hasbrouck Heights, and John P. Skrypek, Clifton, N.J., assignors to Sun Chemical Corporation, New York, N.Y.

Filed Aug. 5, 1968, Ser. No. 750,182

Int. Cl. B65g *47/34*

U.S. Cl. 214—1 **15 Claims**

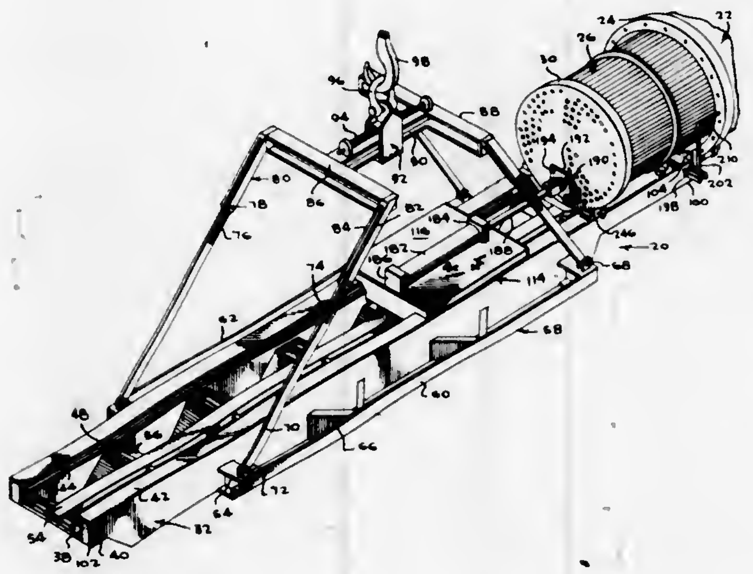
A transfer assembly for continuously removing printed cans from the mandrels of a container printing machine and placing the cans on a drying oven conveyor, the transfer assembly including a plurality of pneumatically actuated can holders mounted on an endless conveyor and laterally reciprocable thereon, whereby each can holder is moved laterally in one direction to remove a printed can from a



mandrel, and then in the opposite direction to place the can on the drying oven conveyor.

3,567,044
APPARATUS FOR FORCE APPLICATION

Bobby J. Travis, 345 Mayhaw, Vidor, Tex.
Filed Sept. 3, 1968, Ser. No. 756,920
Int. Cl. B66f *1/00*
U.S. Cl. 214—1 **7 Claims**



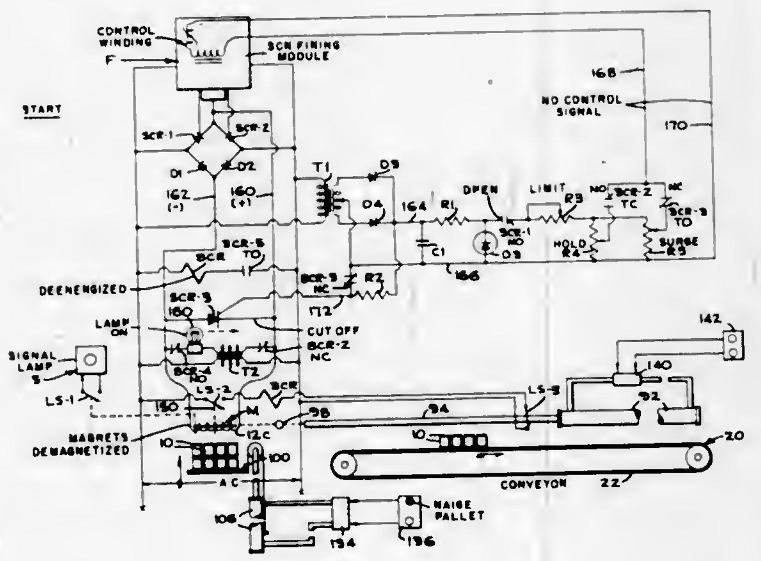
A frame has a slidably mounted skid assembly thereon with extensible and retractable cylinder means secured to the skid and to an object to which force is to be applied. The frame has sequentially spaced block means interengageable with selective dog means on the skid to restrict movement of the skid in either of two directions upon actuation of the cylinder means.

The frame is carried in a mobile support attachable to various types of prime movers.

3,567,045
MAGNETIC CAN HANDLING APPARATUS WITH DEMAGNETIZATION

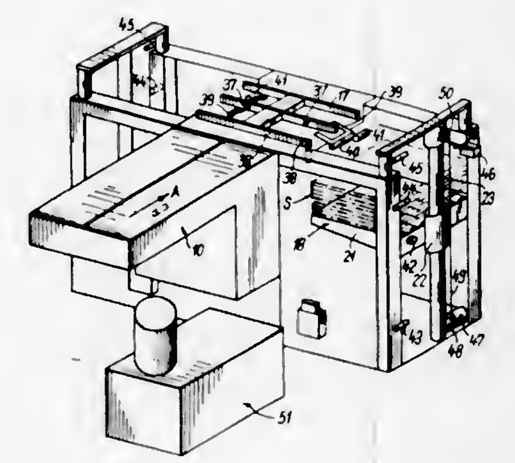
William G. Albright, Champaign, and Charles F. Kiser, Jr., Hoopeston, Ill., assignors to FMC Corporation, San Jose, Calif.
Filed July 28, 1969, Ser. No. 845,451
Int. Cl. B66c *1/08*
U.S. Cl. 214—1 **14 Claims**

Apparatus for transferring cans between a pallet and a conveyor picks up and deposits the cans by means of carriage mounted electromagnets. The DC source for the electromagnets is a bridge embodying silicon controlled rectifiers. A silicon controlled clamping rectifier is connected across the DC source and gated for passing current through the magnets only in the direction of the magnetic field collapsed current. When the magnets are deenergized the clamping silicon controlled rectifier is fired to short out the current generated by collapse of the magnetic field. This isolates the magnets from the rectifier bridge and permits it to operate under remote control of the switch for energizing and deenergizing the magnets. An incandescent lamp heated by AC is connected across the magnets when the clamping silicon control rectifier is cut off. Energization of the electric lamp demagnetizes the magnets within a few cycles after the AC is applied to the lamp.



3,567,046
DEVICE FOR THE MANIPULATION OF LAMINAR OBJECTS PARTICULARLY FOR LAYING-UP THE SAME IN A PILE

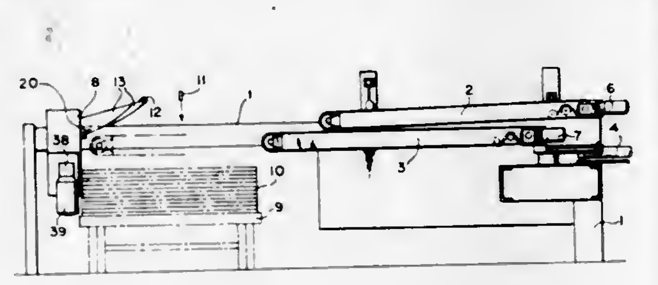
Walter Reist, Hinwil Zurich, Switzerland, assignor to Ferag, Fehr & Reist AG, Zurich, Switzerland
Filed May 27, 1968, Ser. No. 732,382
Claims priority, application Switzerland, May 26, 1967, 7459/67
Int. Cl. B65g *57/10*
U.S. Cl. 214—6 **8 Claims**



A device for handling of laminar objects, particularly for laying-out newspapers to a pile, comprises a supply grate horizontally movable to-and-fro in the direction towards and above a receiving surface for the pile and away therefrom, packages of newspapers being successively delivered on said supply grate which moves them to a position above said receiving surface, means being provided for depositing said packages of newspapers on said receiving surface upon initiation of the retracting movement of the supply grate away from said receiving surface.

3,567,047
STACKING APPARATUS FOR WOOD VENEER AND OTHER SHEET MATERIAL

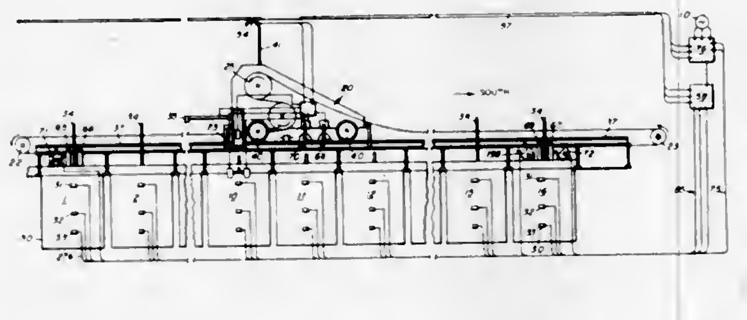
Victor H. Clausen, Bellevue, and James E. Rasmussen, Seattle, Wash., assignors to Simpson Timber Company, Seattle, Wash.
Filed Jan. 22, 1969, Ser. No. 793,022
Int. Cl. B65g *57/10*
U.S. Cl. 214—6 **8 Claims**



Disclosed herein is an apparatus for evenly stacking sheet material and particularly for evenly laying-up core and face sheets of wood veneer for making plywood of various thicknesses. The apparatus includes a substantially rectangular frame on which is mounted a barrier plate serving as a straight edge to align the lead edge of the veneer sheets delivered into a stacking position overlying a receiving surface, generally a conventional scissors hoist or lift. A series of spaced-apart clamping fingers project through the barrier plate, the fingers functioning to grasp and hold the lead edge of veneer delivered into engagement with them by a variable speed reciprocating conveyor. The reciprocating conveyor, after delivering the veneer to stacking position, is withdrawn from beneath the wood veneer a distance greater than the width of the veneer, thereby allowing the trailing edge of the veneer to fall to the top of the receiving surface. At substantially the same time suitable control means effect withdrawal of the clamping means to release the lead edge of the veneer held by the clamping means allowing the lead edge to fall to the top of the receiving surface.

3,567,048
REMOTE AUTOMATIC TRIPPER OPERATION AND CONTROL BY LOW BIN DETERMINATION

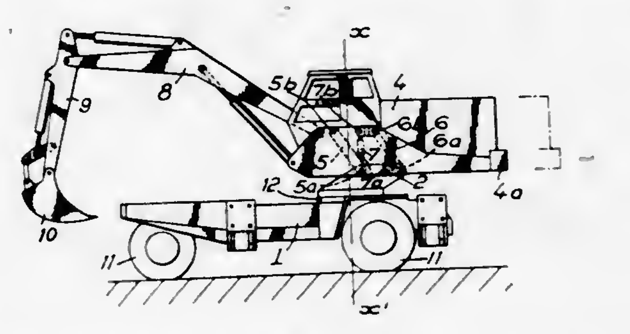
Latham E. Whitham, 11 Santa Rita St., Hurley, N. Mex.
Continuation-in-part of application Ser. No. 596,976, Nov. 25, 1966.
This application Oct. 10, 1969, Ser. No. 865,257
Int. Cl. B65g *47/19, 65/74*
U.S. Cl. 214—16 **19 Claims**



A tripper control system for regulating the flow of material from a conveyor into selected side-by-side bin locations is disclosed. The tripper is adapted to move under external program control in normal conditions to provide spot discharge of the conveyor over a predetermined low bin. The program control system includes means for periodically monitoring the level of each bin and directing the tripper to the lowest bin, where it remains until the next program cycle. A safety override responds to an overfull condition in the bin being filled to switch the tripper to self control, whereby it is moved to the next bin that is less than full and an alarm is sounded. The tripper remains in the self control mode until an operator returns it to program control or places it on manual control. In the event of control failure emergency switching shuts down the tripper and the conveyor.

3,567,049
MECHANICAL EXCAVATOR OR LOADER VEHICLE

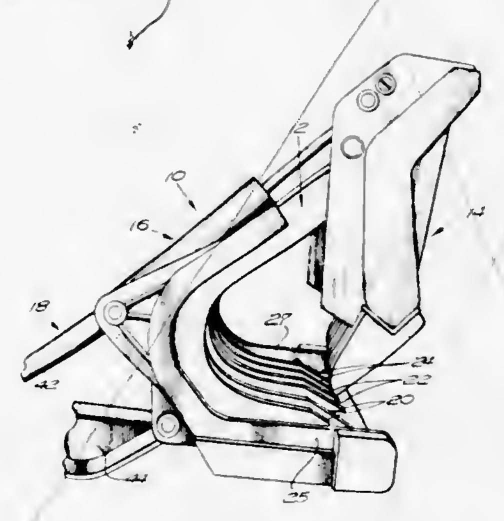
Gabriel L. Guinot, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Oise, France
Filed Apr. 3, 1969, Ser. No. 813,090
Claims priority, application France, Apr. 8, 1969, 147,346
Int. Cl. E02f *3/74*
U.S. Cl. 214—138 **3 Claims**



In a mechanical excavator or loader vehicle having a rotary turret carrying a counterweight, jib, and scoop or bucket the invention consists in supporting said turret on the vehicle chassis by parallel linkage means whereby said turret and the parts carried thereby can be moved bodily in a direction longitudinally of the jib to vary the position of the center gravity of the vehicle.

3,567,050
DEMOLITION SHOVEL

Henry P. Pasquazzi, and Anthony Pasquazzi, Cranston, R.I., assignors to Heather Corporation, Cranston, R.I.
Filed Apr. 22, 1968, Ser. No. 723,077
Int. Cl. B66c *1/48*
U.S. Cl. 214—147 **4 Claims**

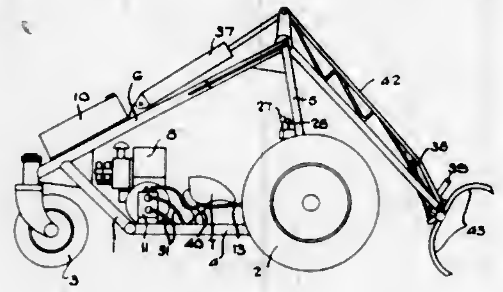


The invention comprises a shovel having a pair of jaws adapted to be mounted on a bulldozer or the like for operation. One of the jaws is an elongated channel member of U-shaped cross section which can be lifted and/or tilted by its connections with a bulldozer. The second jaw is pivoted along the top edge of the first jaw and has a toothed free edge adapted to cooperate with the bottom edge of the first jaw. Power cylinders cooperate between the first and second jaws to effect opening and closing relative movement.

3,567,051
GREATLY MANEUVERABLE SELF-PROPELLED MACHINE

Irvine Allan Bell, Empangeni, Zululand, Natal Province, South Africa, assignor to I. A. Bell and Company (Proprietary) Limited, Natal Province, South Africa
Filed Dec. 17, 1968, Ser. No. 784,409
Claims priority, application South Africa, Dec. 18, 1967, 67/7,587
Int. Cl. B62d *11/04*
U.S. Cl. 214—147 **7 Claims**

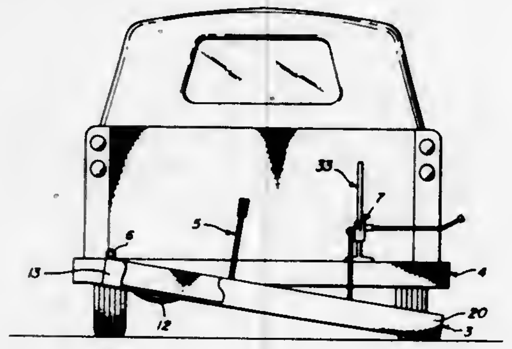
The invention relates to a self-propelled machine of exceptional maneuverability and having power-operated tool equipment and wherein the controls for controlling the machine movements are operated by the feet and the opera-



tions of the tool equipment controlled by the hands of the operator.

3,567,052
MOTORCYCLE CARRIER

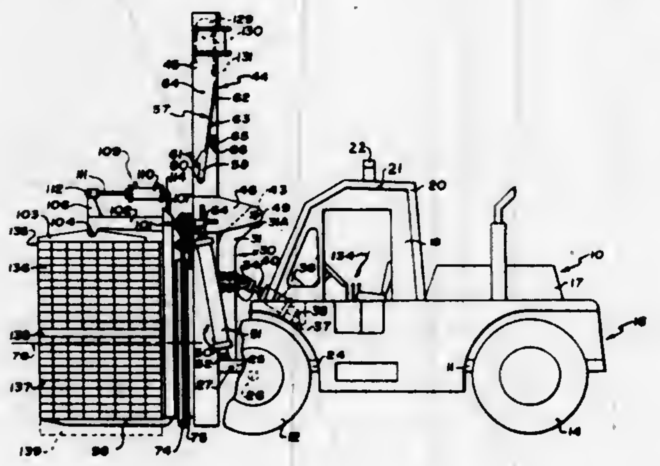
Millard Allen, Phoenix, Ariz., and Clara Allen, Executrix
Filed Sept. 18, 1969, Ser. No. 859,120
Int. Cl. B60r *9/00*
U.S. Cl. 214—450 **3 Claims**



A motorcycle rack is attached to the step bumper of a road vehicle by pivot means and cantilevered lift means. A jack raises and lowers one end of the rack between a loading position on the ground and a carrying position in side-by-side relationship to the step bumper.

3,567,053
LOAD HOISTING TRUCK

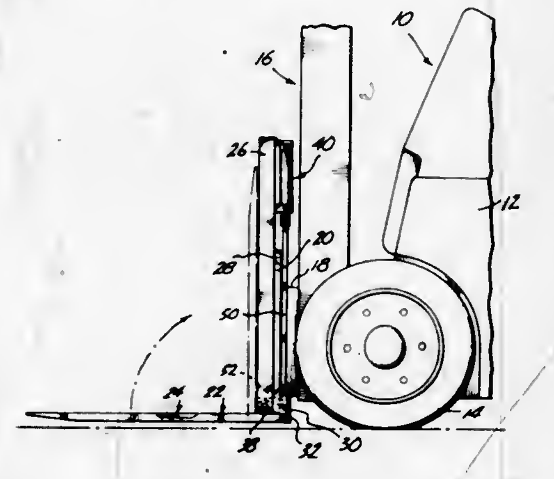
Harry E. Willock, 19851 Sharp Road, R. R. #2, Langley, British Columbia, Canada
Filed Apr. 4, 1969, Ser. No. 813,637
Int. Cl. B66f *9/18*
U.S. Cl. 214—652 **5 Claims**



A vehicle for lifting an elongated load extending across the front of the vehicle, moving the load rearwardly above the vehicle to a position where it is approximately vertically aligned with the center of gravity of the vehicle, and finally rotating the load about a vertical axis so that it extends longitudinally of the vehicle.

3,567,054
POWER-OPERATED TILT-UP LIFT FORK

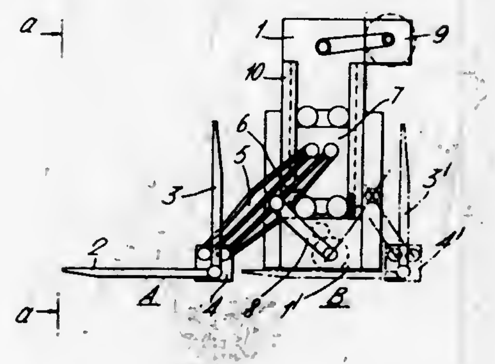
Cornelis A. Emke, Diemen, Netherlands, assignor to Cascade Corporation, Portland, Oreg.
Filed Sept. 19, 1968, Ser. No. 760,892
Int. Cl. B66f *9/10*
U.S. Cl. 214—700 **5 Claims**



A lift truck with pivoted lift forks in which each lift fork has a pivot connection mounting the fork adjacent the base of a carriage in the lift truck. The pivot connection accommodates swinging of the fork between lowered and raised positions. An upright hydraulic ram disposed rearwardly of the pivot connection for the fork is provided for swinging the fork. The ram is connected to the fork through a movable link which moves to a position releasably holding the fork in its raised position on adjustment of the ram to raise the fork.

3,567,055
ARRANGEMENT OF A MOVABLE FORK OF A STACKING CRANE OR THE LIKE

Serge Preto, and Rasmus Kjolen, Bergen, Norway, assignors to Sverre Munck A/S, Bergen, Norway
Filed Oct. 14, 1968, Ser. No. 767,109
Claims priority, application Norway, Oct. 12, 1967, 170,111
Int. Cl. B66f *9/14*
U.S. Cl. 214—730 **4 Claims**



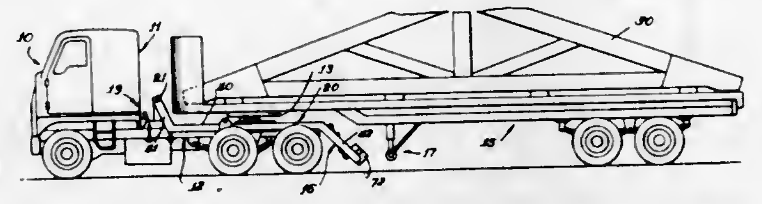
On a fork carrier of a stacking crane, a load supporting fork is movable on either side of the fork carrier between an extended position and a retracted position. Movement is directed by a parallelogram linkage connecting the fork to a linearly moving guide element on the fork carrier. Control levers connected to the fork carrier assure the movement of the fork between the two positions as the guide element moves on the fork carrier.

3,567,056
MATERIAL HANDLING APPARATUS

Marvin S. Mason, 106 S. E. 11th St., Aledo, Ill.
Filed Jan. 21, 1969, Ser. No. 792,417
Int. Cl. B66f *9/12*
U.S. Cl. 214—771 **5 Claims**

Power actuated material handling, engaging and loading apparatus, detachably mounted over the rear chassis portions of a semitrailer truck tractor, without interfering with normal

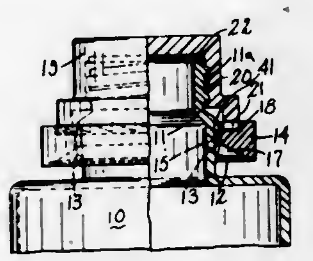
trailer hauling operations of the tractor but, capable of actuation to convert the tractor to a mobile crane and lift truck whereby load engaging means move with one end of a



pivotally movable mast assembly to provide convenient means for loading and unloading materials hauled by the trailer.

3,567,057
BOTTLE SAFETY CLOSURE

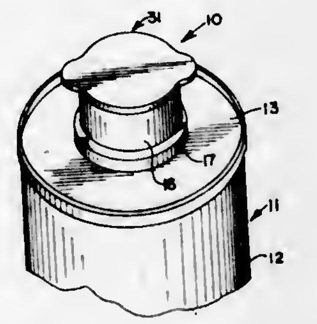
William J. Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.
Filed Apr. 17, 1970, Ser. No. 029,400
Int. Cl. A61j *1/00;* **B65d** *55/02*
U.S. Cl. 215—9 **12 Claims**



This disclosure relates to a safety cap for a bottle which may contain hazardous material and which is simple for an adult to open, but essentially impossible for a child of limited strength to open.

3,567,058
SAFETY CLOSURE

Carmen T. Mascia, Westchester, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed June 16, 1969, Ser. No. 833,541
Int. Cl. B65d *55/02, 55/12*
U.S. Cl. 215—9 **5 Claims**

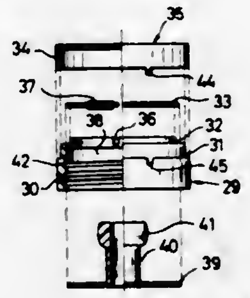


A safety closure including three components having interacting means which require a combination of linear and rotary movements to open and close the closure. The closure components must be aligned in specified positions prior to changing from a linear or rotary movement.

3,567,059
BABIES' BOTTLE

David Littman, Paris, France, assignor to Gebrimat Trust Reg., Vaduz, Liechtenstein
Filed Oct. 17, 1968, Ser. No. 768,268
Claims priority, application Germany, Oct. 31, 1967, Sch 43632 (utility model) 1,978,307
Int. Cl. A61j *9/02*
U.S. Cl. 215—11 **9 Claims**

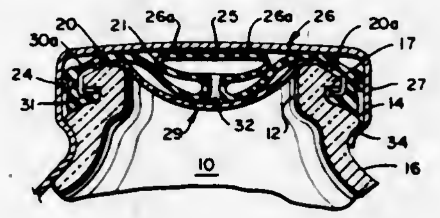
The specification describes babies' bottles with thermometers mounted in their lids. In accordance with one form of the invention the thermometer is straight and extends downwards from the lid into the container. In accordance



with other forms of the invention, the thermometer is arcuate and is enclosed in the lid so as to be visible, for instance, through a transparent cap part of the lid.

3,567,060
INFANT-FEEDING APPARATUS

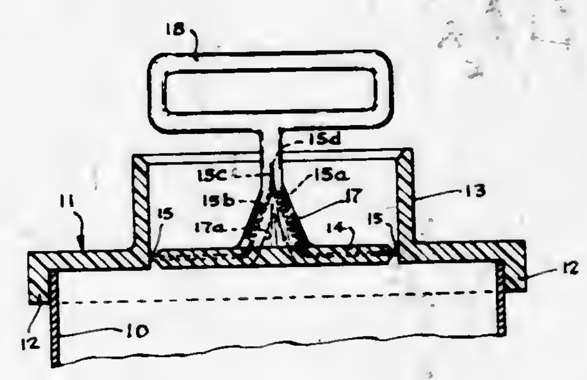
Gene Ballin, 3045 Shore Drive, Merrick, L.I., N.Y.
Continuation-in-part of application Ser. No. 658,933, Aug. 7, 1967, now Patent No. 3,468,445, dated Sept. 23, 1969, which is a continuation-in-part of application Ser. No. 550,809, May 17, 1966, now Patent No. 3,339,771, dated Sept. 5, 1967, and a continuation-in-part of 728,191, May 10, 1968, now abandoned. This application Jan. 31, 1969, Ser. No. 801,916
Int. Cl. A61j *9/00*
U.S. Cl. 215—11 **21 Claims**



An infant-feeding container and cap assembly suitable for assembling by machine and having an insert positioned within the nipple to seal the contents of the container from contact with the nipple during storage with the cap engaging the nipple. In sealed condition, the cap depresses the nipple, which reassumes an erect position upon removal of the cap, thereby unsealing the contents of the container. Means are provided for positively causing the nipple to assume such erect position, exemplified by adhesive on the interior of the cap to assist in orienting the nipple for use or a removable member which pulls a feeding portion of the nipple into a usable position upon removal of the cap from the container.

3,567,061
EASILY OPENABLE SEALED PLASTIC CLOSURE METHOD AND APPARATUS

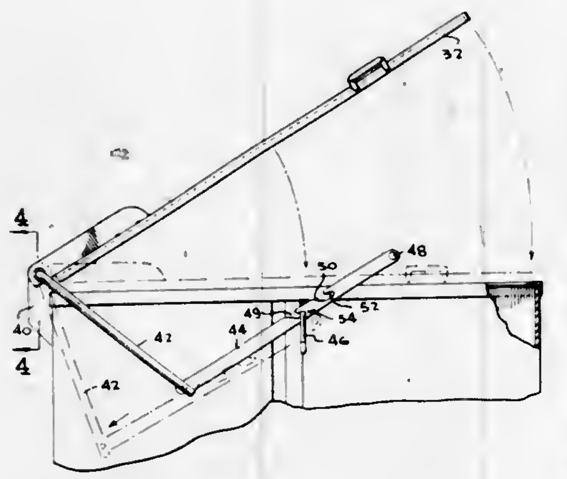
John S. Song, 117 N. Lincoln Ave., Addison, Ill.
Filed July 8, 1969, Ser. No. 839,973
Int. Cl. B65d *17/00*
U.S. Cl. 220—27 **8 Claims**



The "score" line in a plastic wall, provided to define a line of comparatively easy tearing, is brought to a point at one side of an abutment integral with said wall. A handle is provided on the plastic in the area within the score line and immediately adjacent the point. Pulling on the handle applies a force at the point at which a tear will commence and continue along the score line. Because the score line comes to a point outside the plane of the wall it will more readily tend to break at that point rather than merely stretch. This tendency is enhanced by a notching of the score line at the terminus of the point.

3,567,062
REFUSE CONTAINER HAVING SAFETY LID

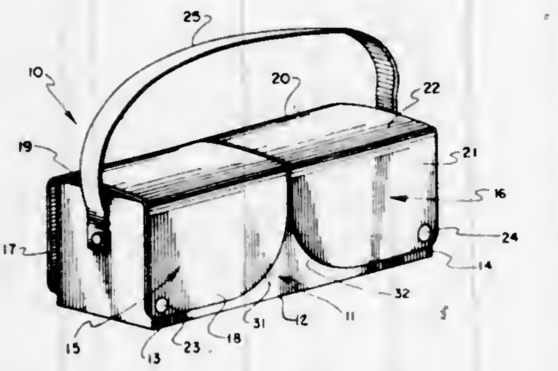
Lawson F. Reed, 1102 W. 11th St., and James D. Kruse, 2511 W. 11th St., Plainview, Tex. 79072
Filed Oct. 7, 1969, Ser. No. 864,435
Int. Cl. B65d *51/18*
U.S. Cl. 220—29 **10 Claims**



A box-type refuse container having lid means hinged to its rear wall with a swinging arm connected to the lid on one end and connected to a latch plate on the other end with the latch plate being mounted for reciprocation in a confining bracket and having slots on its upper surface which can be fitted over a portion of the confining bracket for retaining the lid in an open position so that the weight of the lid serves to latch the lid in the open position. The pivotal connection between the latch plate and the swinging arm is beneath the confining bracket so that the entire container can be pivoted about a central axis parallel to the axis of lid movement so that the lid can open as the container is rotated for emptying but will be returned to a closed position as the container is returned to its normal position. The lid is manually liftable in a normal position so that the latch plate is disengaged from the confining bracket and the lid can then consequently be closed.

3,567,063
SPLIT TOP CONTAINER

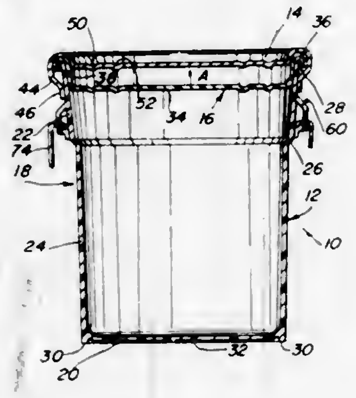
Emil Kovach, 3757 Primavera Ave., Los Angeles, Calif.
Filed Feb. 19, 1969, Ser. No. 800,519
Int. Cl. B65d *51/18*
U.S. Cl. 220—29 **1 Claim**



A container for carrying tape cartridges includes an open top box and a pair of hoods pivotally connected near the bases of opposing box ends. By slight finger pressure the hoods can be easily moved between swung-up positions where they cover the box top and swung-down positions where they uncover the box top and may serve as auxiliary receptacles.

3,567,064
PLASTIC CONTAINER HAVING A MULTIPLE CLOSURE

Roy G. Churan, Oak Lawn, Ill., assignor to Bennett Industries, Inc., Peotone, Ill.
Continuation of application Ser. No. 742,773, July 5, 1968, now abandoned. This application Sept. 26, 1969, Ser. No. 861,512
Int. Cl. B65d *41/02*
U.S. Cl. 220—29 **2 Claims**

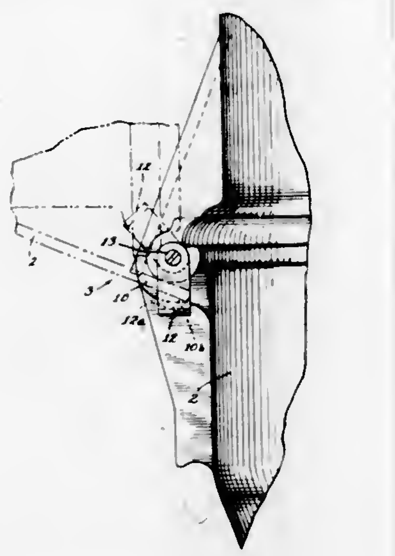


An improved closure arrangement for a molded plastic open head container for use in the shipment and/or storage of hot filled items includes an open head cylindrical plastic container body, a first, relatively thin, resilient, plastic diaphragm closure including an inverted channel provided at the periphery thereof, with the inverted channel being adapted for positioning downwardly over the periphery of the open end of the container body, and an outer closure fabricated of a material substantially more rigid than the plastic material of the diaphragm closure and including inverted channel means provided at the periphery thereof and adapted for positioning downwardly over the container body and diaphragm closure means in order to close the open end of the container body. At least one pressure release opening is provided in the outer closure, and the diaphragm inner closure means is susceptible of flexing in response to pressure differentials created within the closed container such that internal pressure changes are normalized by flexure of the diaphragm closure means, with the substantially rigid outer closure member being retained in its normal strength imparting position.

3,567,065
HINGE STRUCTURE FOR A COOKING-GRILL CONSTRUCTION

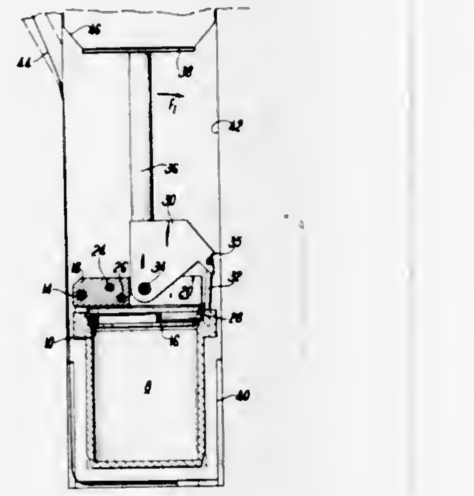
Alfred F. Dinse, Grand Prairie, Tex., assignor to Interlake Steel Corporation, Chicago, Ill.
Filed Mar. 6, 1969, Ser. No. 804,845
Int. Cl. B65d *51/10;* **A47j** *36/12*
U.S. Cl. 220—31 **4 Claims**

A cooking grill of a type having an open top-heated receptacle and a cover to enclose the open top provided with improved hinge means which is separable to permit entire removal of the cover and which is held assembled by improved shiftable keeper means.



3,567,066
CONTAINER CLOSURE SYSTEM

Bernard Mansard, Saint-Cyr-L'ecole, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Dec. 26, 1967, Ser. No. 693,583
Claims priority, application France, Jan. 4, 1967, 89,984
Int. Cl. A47j *27/08, 36/10;* **B65d** *45/00*
U.S. Cl. 220—55 **7 Claims**

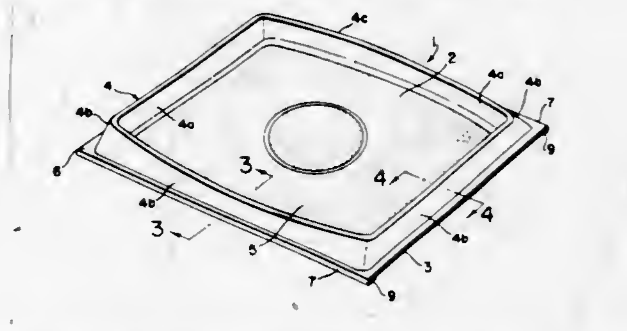


The container closure system comprises a plug with an O-ring for cooperation with a frustoconical opening of the container; the plug is pivotally mounted on an axis at right angle to that of the opening on the body and a locking member is pivotally mounted on the plug about an axis located along a diameter of the plug. The locking member is adapted to engage a resilient bracket carried by the container.

3,567,067
DISPOSABLE SERVING TRAY

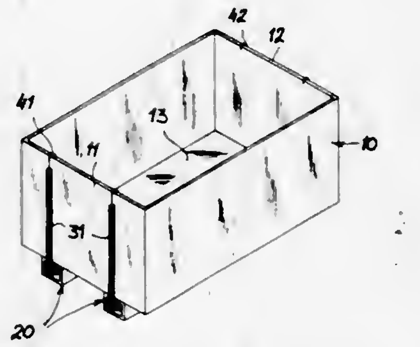
Hugh R. Weiss, Montclair, N.J., assignor to The Pantasote Company of New York, Inc., New York, N.Y.
Filed Jan. 17, 1969, Ser. No. 791,952
Int. Cl. B65d *7/44, 11/22*
U.S. Cl. 220—71 **9 Claims**

Disposable serving trays suitable for serving snacks and dinners to airplane passengers have separately formed portions of a very thin flexible, thermoplastic sheet material shaped to that such portions may be stacked to occupy a minimal volume and are quickly stiffened to permit their use by slidably or adhesively attaching to the under surface thereof a suitable stiffening element, such as a sheet of chipboard. In one form of the invention, the stiffening member is slidably received in channels on opposite sides of the bottom of the tray and in a modified form the upper surface of the stiffening member and the lower surface of the tray are each coated with a dry, nontacky, pressure-sensitive adhesive which adheres to a similar coated surface on contact therewith.



3,567,068
COLLAPSIBLE PALLET

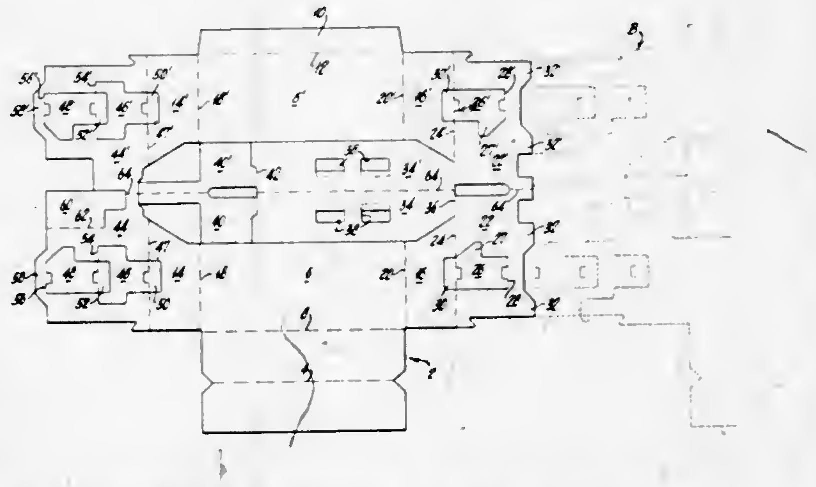
Joseph A. Carfizzi, Wallkill, N.Y., assignor to Collapsible Pallet, Inc., Wallkill, N.Y.
Filed Oct. 4, 1968, Ser. No. 765,256
Int. Cl. B65d *7/42*
U.S. Cl. 220—69 **6 Claims**



Two or more parallel legs or cleats are removably disposed at the underside of a container by means of flexible, elastic straps with extremities projecting from the ends of each cleat, these extremities being provided with hooks or other gripping formations for detachably securing them to the sides or the top of the container.

3,567,069
FULL PROTECTION BOTTLE CARRIER

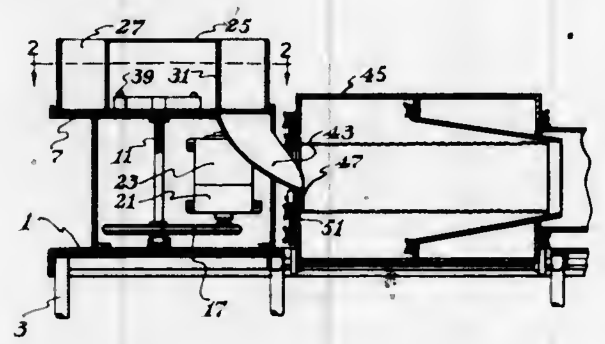
Glen Ray Harrelson, Monroe, La., assignor to Olinkraft, Inc.
Filed Apr. 24, 1969, Ser. No. 818,871
Int. Cl. B65d *5/02, 5/48*
U.S. Cl. 220—113 **11 Claims**



A full protection basket-style bottle carrier having two pairs of riser panels of substantial longitudinal dimension, each riser panel having dimension, each riser panel having at least one lateral divider panel cut therefrom and hinged thereto to define bottle-receiving cells. The innermost edges of the riser panels are obliquely cut to form bottle separating extensions of limited vertical dimension.

3,567,070
FOOD FEEDER

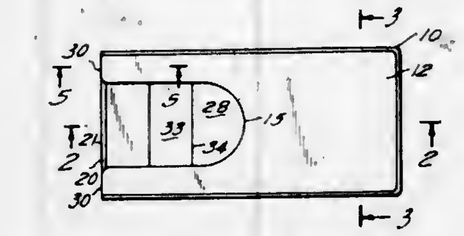
Jerry D. Gordon, 10,749 E. 11th St., Tulsa, Okla.
Filed Apr. 4, 1969, Ser. No. 813,670
Int. Cl. G07f *11/54*
U.S. Cl. 221—86 **1 Claim**



A feeder for a food breader comprises a power-driven conveyor that rotates about an upright axis and that has a plurality of upright compartments for the reception of food, the compartments registering successively with a chute that feeds the breader.

3,567,071
CARD AND LABEL DISPENSER

Gerald J. Benson, 216-16 85th Ave., Queens Village, N.Y.
Filed Sept. 4, 1969, Ser. No. 855,129
Int. Cl. B65g *59/00*
U.S. Cl. 221—307 **6 Claims**

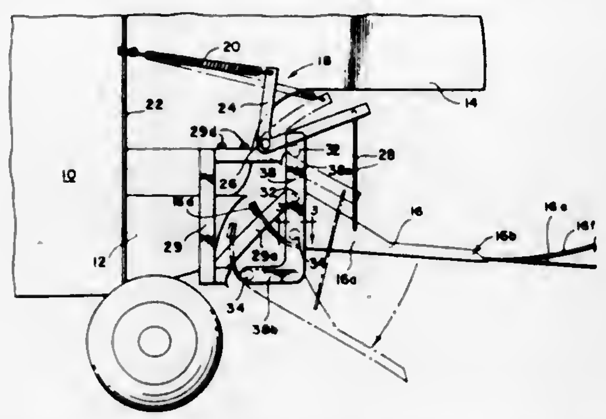


A dispenser for dispensing cards and labels is constructed such as to permit only one card or label at a time to be removed from a slot formed in the forward portion of the dispenser by means of downward finger pressure and concurrent forward finger movement. The dispenser is particularly useful for dispensing cards and labels having adhesive backings, by guiding such cards or labels through the slot and then stripping a protective backing from the card or label downwardly, generally perpendicular to the slot, so that the card or label is readily separated from said backing and can then be affixed to an object. There is also provided means for locking the assembled parts of the dispenser in place and, preferably, means for permitting the dispenser to be partially opened without being disassembled so that a supply of cards or labels can be replenished.

3,567,072
WEIGHING AND AUTOMATIC DUMPING ATTACHMENT FOR COMBINES AND LIKE MACHINES

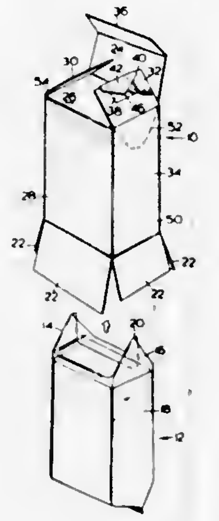
Donald Tenhulzen, R.R. 1, Firth, Nebr.
Filed Dec. 24, 1968, Ser. No. 786,602
Int. Cl. G01g *13/22*
U.S. Cl. 222—77 **11 Claims**

An automatic unloading attachment for a combine or like machine comprises a load-receiving carrier pan which rides in a pair of fixed L-shaped tracks. A linkage mechanism provides resilient support for the carrier pan such that as the weight of the load material collected in the pan increases the pan is lowered along the tracks. Movement of the pan to the elbows in the tracks, dictated by a predetermined load weight, causes pivoting of the pan to unload the material collected therein. The resilient support arrangement for the pan returns the pan to the initial position thereof after unloading. The attachment is mounted on the combine as a single detachable unit.



3,567,073
DISPENSING CONTAINER WITH RUPTURABLE SPOUT

Reginald Friedenthal, 3 Northgate, Ring Road, Crown Gardens, Johannesburg, South Africa
Filed June 16, 1969, Ser. No. 833,626
Claims priority, application South Africa, June 19, 1968, 68/3909
Int. Cl. B65d *5/60, 5/74*
U.S. Cl. 222—88 **16 Claims**



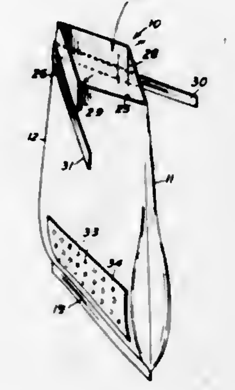
A container is disclosed of the type in which an outer casing of cardboard or the like encloses a plastics bag in which the contents of the container are inserted. The pointed end of a triangular ear formed in the bag when it is folded and sealed projects through an opening in a closure flap in the casing. The closure flap and ear are loosely sandwiched between two other closure flaps so that when the first-mentioned closure flap, which is attached to a breakaway piece from the sidewall of the casing, is removed from between the two other closure flaps, the ear is withdrawn with it. The opening has a cutting edge which ruptures the ear upon withdrawal.

3,567,074
PILLOW-TYPE PACKAGE THAT IS CONVERTIBLE TO A TETRAHEDRONAL PACKAGE FOR MIXING, STORING AND DISPENSING, WITH SPRAY-TYPE DISPENSING MEANS

Bernard Beau Brown, Westfield, N.J., assignor to CPC International Inc.
Filed Oct. 25, 1968, Ser. No. 770,529
Int. Cl. B65d *35/08*
U.S. Cl. 222—107 **6 Claims**

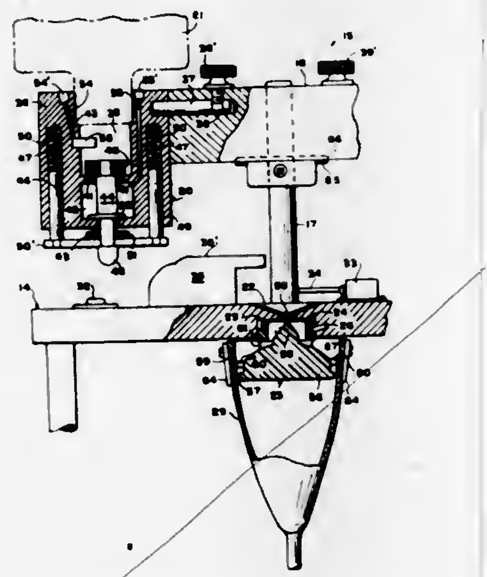
A dispensing package, that is particularly useful for agricultural chemicals such as, for example, liquid or pow-

dered pesticides, is initially constructed so as to retain a substantially flat and easily shippable, compact shape when a small quantity of a chemical or other substance is packed inside. The dispensing package is easily opened for adding water or other substances thereto, and is then readily resealed into a tetrahedronal shape, for use as a shaker and dispenser. A series of orifices is located in a panel of the package. These orifices are initially sealed by a removable strip of pressure-sensitive adhesive tape. The substance packed inside the package is easily dispensed therefrom by removing the tape from the orifices, then holding the package so that the substance can run out of the orifices.



3,567,075
DISPENSING APPARATUS FOR A PLURALITY OF LIQUIDS TO MAKE A RAINBOW COCKTAIL OR THE LIKE

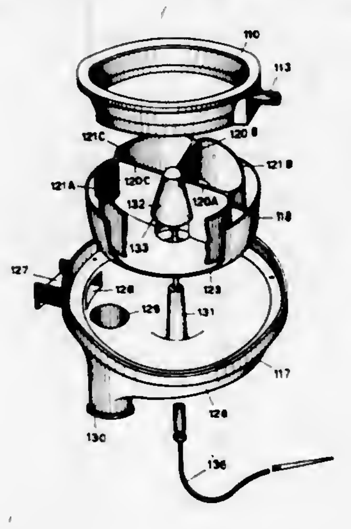
Dino Neri, 34-44 82nd St., Jackson Heights, New York, N.Y.
Filed Aug. 28, 1969, Ser. No. 853,731
Int. Cl. B67d *5/56*
U.S. Cl. 222—129.4 **15 Claims**



A motor-driven Geneva movement indexing device controls a horizontally positioned turret having a plurality of equiangularly spaced stations, at all except one of which is a releasably mounted structure serving as a cap for an inverted supply bottle, as well as a measuring means and a valve means. Each valve means, in turn, is operated by a cam fixed on the frame, to discharge into a funnel over a glass in whose mouth sits a flow spreader means directing the discharge along the inside surface of said glass. There is sufficient dwell at each stop of the turret to assure emptying of the measuring chamber. At normal rest condition of the apparatus, the blank station is over the glass. A push button switch is for starting a cycle of operation. Turret rotation automatically controls a switch to stop operation at the end of one revolution of the turret which is the duration of a cycle.

3,567,076
ROTARY DISTRIBUTOR ASSEMBLY FOR WASHING MACHINES

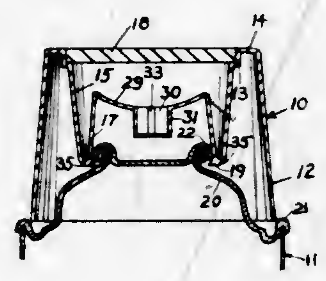
Lino Zanussi, Ronche di Fontanafredda, Italy, assignor to Industrie A. Zanussi S.p.A., Pordenone, Italy
Filed May 8, 1968, Ser. No. 727,645
Claims priority, application Italy, May 20, 1967, Dec. 12, 1967, Feb. 13, 1968, 16337/67;23787/67;12702/68
Int. Cl. B67d *5/60*
U.S. Cl. 222—144 **15 Claims**



A rotary distributor for sequentially dispensing dosage units of detergents in a washing machine including a plurality of sectoral compartments adapted to hold each a different kind of detergent, with the distributor also serving as a waterflow intercepting means and means for imparting a predetermined direction to a water jet impinging into the distributor for sweeping away the detergent towards the washing tub of the machine. Means are also provided for transferring the drive, unidirectionally, from the shaft of the programming timer of the machine to the rotary distributor, along with means for discharging the water left in the individual compartments of the distributor on completion of a washing cycle.

3,567,077
DIRECTIONAL CLOSURE FOR A CONTAINER

Richard F. Hendrickson, Erie, and Roderick V. King, Girard, Pa., assignors to Sterling Seal Company, Erie, Pa.
Continuation-in-part of application Ser. No. 704,885, Feb. 12, 1968. This application Nov. 12, 1968, Ser. No. 775,040
Int. Cl. B67b *5/00*
U.S. Cl. 222—153 **9 Claims**

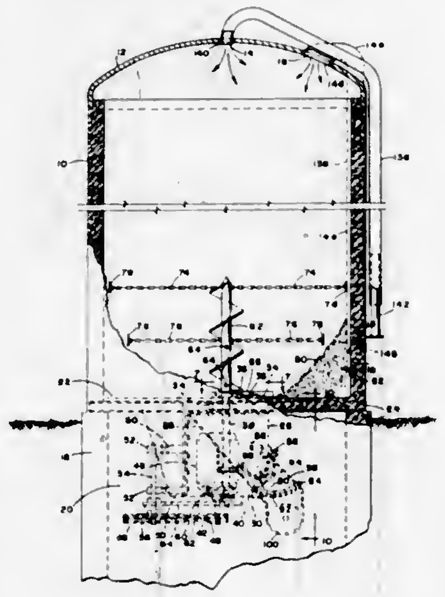


A cap and an aerosol can. The can has a sidewall that terminates adjacent its upper edge in an upwardly facing groove. A can breast extends upwardly from the groove and terminates in a mounting cup having a downwardly facing shoulder. The cap has an outer wall, an inner wall and an intermediate wall, all concentric with each other. The intermediate wall and inner wall are fixed together but weakened so that they can be severed and separated to allow half of the cap to be removed from the can. The inner wall has a bead or rim around its inner periphery. The bead snaps under the mounting cup on the can and holds the inner wall fixed to the mounting cup when the intermediate and outer walls are removed.

3,567,078

BOTTOM DISCHARGE MEANS FOR SILO

John H. Herr, Lebanon, and Aaron Z. Stauffer, Ephrata, Pa., assignors to Flying Dutchman Mfg. & Sales Co., Inc., Lebanon, Pa.
Continuation-in-part of application Ser. No. 634,534, Apr. 28, 1967, now Patent No. 3,424,350. This application Jan. 23, 1969, Ser. No. 793,489
Int. Cl. B67d *5/54*
U.S. Cl. 222—193 **22 Claims**



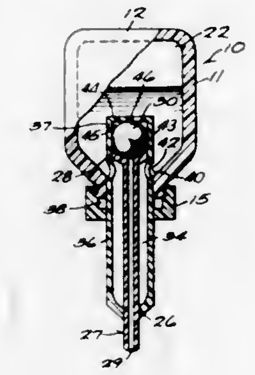
Bottom discharge means for silo having a cylindrical shell provided with a top and bottom, the bottom having a discharge opening adjacent the center, an auger having a coarse pitch and flexible dislodging members which ultimately extend radially are connected to a shaft extending upward through the bottom of the silo shell, and a housing depending from said bottom and provided with a discharge guide sloping downwardly and outwardly to a discharge port having a closure provided with dislodging means when initially moved to open position, one embodiment of the invention having an auger-type removal means communicating with the discharge port and another embodiment having a blower connected by a chute to the discharge port and the closure member serving additionally as a means to regulate the amount of air delivered to the entrance of the fan. Loading and vent means extending to the top of the silo also are provided to prevent the necessity of climbing to the top of the silo at any time during unloading or loading thereof. Additionally, auxiliary unloading means are detachably connectable to the shaft and auger for purposes of removing the remaining, conical-shaped residue of compacted material in the bottom of the silo when the same otherwise is empty.

3,567,079

DISPENSER CONTAINER WITH METERING NECK

Cleone H. Weigand, Fountain City, Wis.
Continuation-in-part of application Ser. No. 588,160, Oct. 20, 1966, now abandoned. This application Aug. 8, 1968, Ser. No. 751,314
Int. Cl. B65d *37/00*
U.S. Cl. 222—213 **11 Claims**

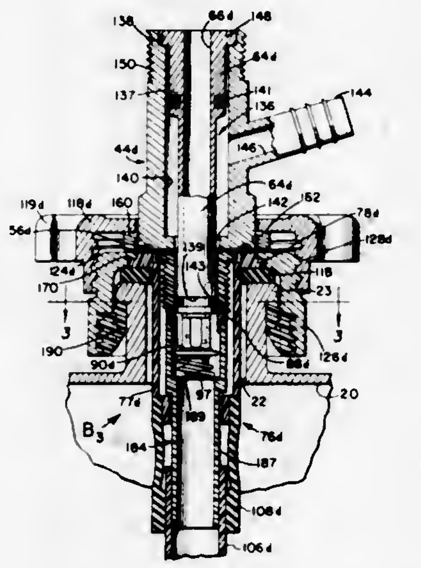
A compressible or yieldable fluid container with an elongated neck in the form of a metering chamber receives a piston or ball which is urged through the metering chamber by compression of the container wall. The length of the metering chamber and thus the quantity of fluid to be discharged may be varied by axial adjustment of a tubular valve stem located within the metering chamber. The outer end of the hollow valve stem projects from the metering chamber and serves as the container outlet. The inner end of the valve stem has a valve seat to receive the free piston and limit travel of the piston. In one embodiment fluid flow through the metering chamber is controlled by minor and major pistons connected in tandem by a piston rod. In some embodiments a vacuum chamber at the inner end of the metering chamber retards initial piston movement and premature leakage until the metering chamber is filled with the measured charge and the charge is dispensed.



3,567,080

TAPPING DEVICE FOR BEER KEGS AND THE LIKE

Mack S. Johnston, Rolling Hills, Calif., assignor to Johnston Enterprises, Inc., East Kalispell, Mont.
Original application Oct. 18, 1966, Ser. No. 587,627, now Patent No. 3,422,448, dated Jan. 14, 1969. Divided and this application Jan. 13, 1969, Ser. No. 790,742
Int. Cl. B65d *83/00*
U.S. Cl. 222—400.7 **30 Claims**



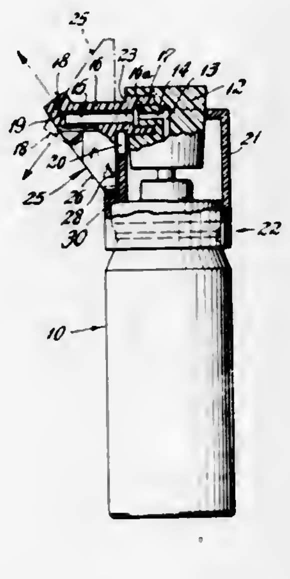
The tapping device includes a keg adapter releasably connected from without the keg in the opening of the keg and having separate liquid and gas passages therethrough for the respective transfer of liquid from the inside to the outside of the keg. Valves are disposed in each of the liquid and gas passages. A collar, including a threaded ring underlying the keg flange, overlies a flange on the keg adapter to clamp the latter in the keg opening. A dispensing coupler having a depending probe is releasably secured to the keg adapter with the probe opening the normally closed valve in the liquid passage when the coupler and keg adapter are assembled.

3,567,081

MULTIDIRECTIONAL AEROSOL DISPENSER

Philip Meshberg, Fairfield, Conn.
Filed Jan. 30, 1969, Ser. No. 795,251
Int. Cl. B65d
U.S. Cl. 222—402.17 **5 Claims**

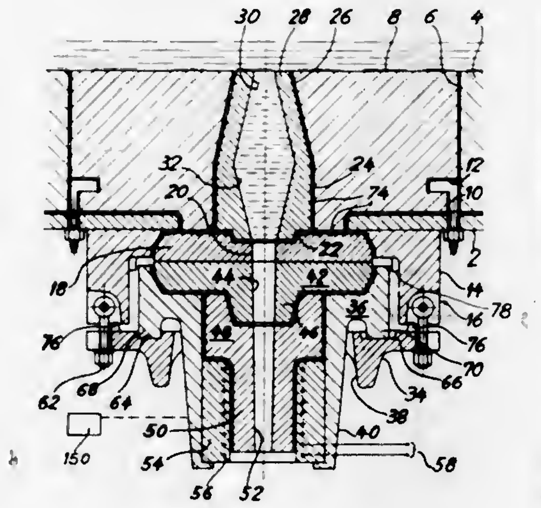
A simplified multidirectional aerosol dispenser for dispensing the aerosol in a plurality of directions from a container without turning the container from a substantially vertical position, said dispenser having a rotatable cylindrical dispensing tube having an angular end surface, said tube being provided with a dispensing passage opening in said angular end surface, and a manipulating member secured to the dispensing tube for rotating said tube and having a surface extending in the direction of said passage to indicate the direction of the dispensing of the aerosol. Means can be provided for preventing inadvertent rotation of the dispensing tube or inadvertent actuation of the actuating button.



3,567,082

CASTING INSTALLATION

Bernhard Tinnes, Zollikon, Switzerland, assignor to Metacon AG, Zollikon, Switzerland
Filed Feb. 20, 1968, Ser. No. 706,976
Claims priority, application Switzerland, Feb. 24, 1967, 2739/67
Int. Cl. B22d *37/00*
U.S. Cl. 222—561 **9 Claims**

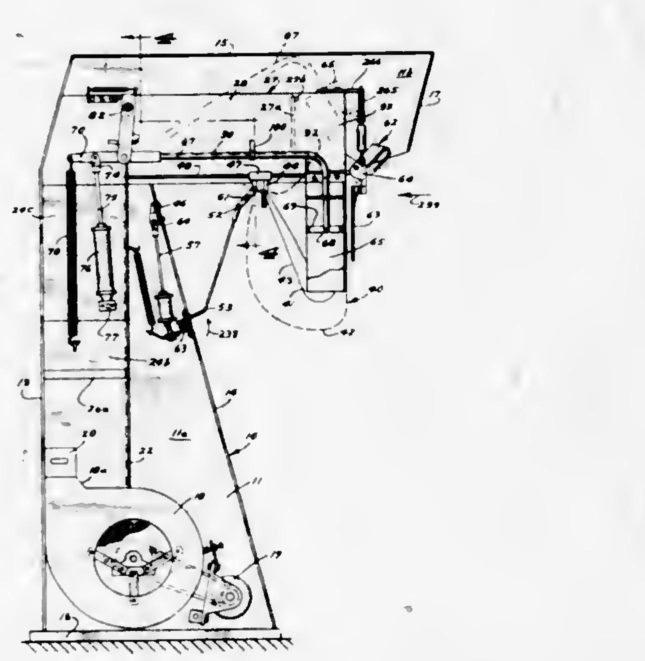


A casting installation comprising a container for a molten metal and provided with control slide means disposed at the region of the bottom opening of the container. The control slide means incorporate a housing and a cover member, with a slide member movably mounted between such housing and cover member. Further, a slide plate is provided for said slide member, said slide plate having a throughflow opening. Means are provided for guiding said slide member in a substantially linear path, such linear guiding means being guide groove means or guide ledge means provided on the cover member. Positioning element means provided at the cover member and the housing engage one another, in order to maintain the path of sliding movement for the slide member which is determined by said linear guiding means in a plane containing the axis of material throughflow.

3,567,083

PANTS TOPPER APPARATUS

Calvin E. Piilola, Minneapolis, Minn., assignor to The Unipress Company, Incorporated, Minneapolis, Minn.
Filed Oct. 9, 1969, Ser. No. 865,111
Int. Cl. D06c *15/00, 5/00*
U.S. Cl. 223—73 **14 Claims**

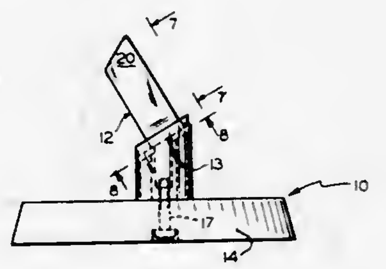


Pants topper apparatus having a buck assembly including an inflatable bag, a fly clamp assembly, a pair of pleat pressing assemblies, a fan and heater assembly and control mechanism for controlling the operations of the fly clamp assembly, the expansion of the waist of the pants, the pleat pressing assemblies and the application of steam and air to the pants. Each pleat pressing assembly includes a pleater plate control arm that is moved by a piston cylinder combination, and through spring and bracket mechanism, first is swung downwardly in an arc and then moved rearwardly a short distance.

3,567,084

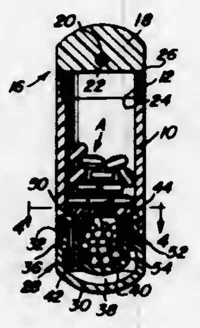
DISPLAY SUPPORT DEVICE

Frank P. DeWitt, Skaneateles, N.Y., assignor to Shoe Form Co., Inc., Auburn, N.Y.
Filed Feb. 27, 1969, Ser. No. 802,997
Int. Cl. A47f *5/00, 7/00*
U.S. Cl. 223—120 **1 Claim**



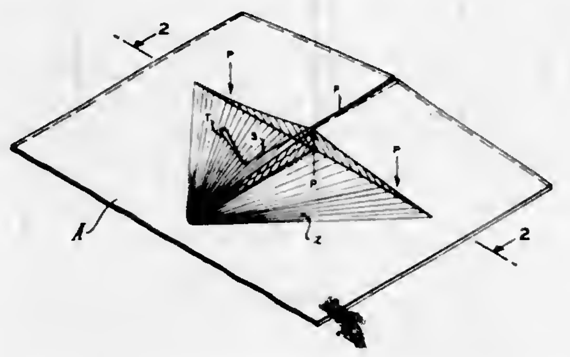
A support for a form in the shape of a human body portion for displaying a garment has a clamp for embracing a portion of the form to hold it erect. The clamp has a downwardly projecting dovetail flange. A pedestal, secured to a flat base, has a complementary dovetail groove in its upper surface which is slanted at a large angle to the horizontal. The flange and groove are each similarly tapered from a wide upper end to a narrower lower end so that the clamp and pedestal can be locked together by sliding the flange into the groove.

3,567,085
NECK-SUPPORTED PILL CONTAINER
James G. Flores, 717 National Ave., Sheboygan, Wis.
Filed Dec. 2, 1968, Ser. No. 780,468
Int. Cl. A45f *3/00*
U.S. Cl. 224—5 **3 Claims**



A pill container and carrier unique in that it embodies a vial having attachable and detachable upper and lower screw caps. The upper cap is provided with a flexible suspension element which encircles and is hung from the wearer's neck and is slidingly connected to the upper cap. The lower screw cap has a built-in cuplike well with a perforated cover communicating with the pill container and closing the well. This well is charged with moisture absorbing desiccative granules which function to keep the pills dry for efficacious use.

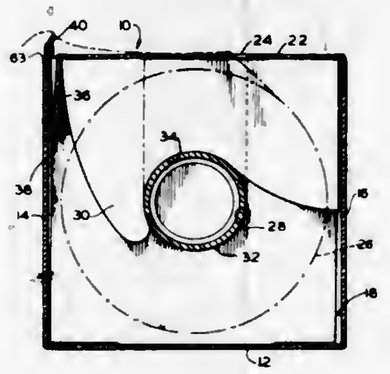
3,567,086
METHOD OF FRACTURING SHEET MATERIAL
John D. Wark, Freeport, and Henry A. Holzwarth, Bayside, N.Y., assignors to Monsanto Company, St. Louis, Mo.
Filed Nov. 29, 1968, Ser. No. 780,076
Int. Cl. B26f *3/00*
U.S. Cl. 225—2 **5 Claims**



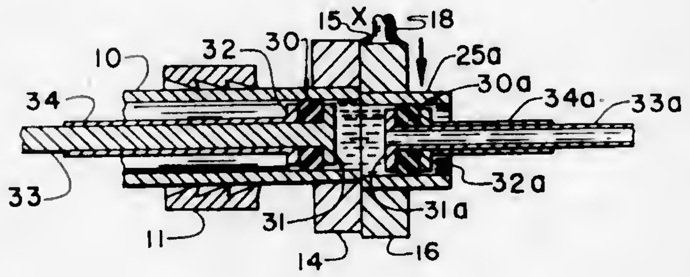
A process for fracturing sheet material, particularly sheets of polymer material that include as an ingredient reinforcing filler material, such as particles of siliceous compounds which are useful in resisting abrasion; this process includes scribing the sheet along the line of desired fracture, and subjecting the sheet to opposing forces of pressure, especially along the score line, thereby causing a stressing of the sheet in this vicinity and effecting its fracture along said score line. This process is especially useful in a sustained operation wherein the sheet is progressively moved into the instrumentalities for scribing and applying pressure, thereby effecting a continuing fracture of the scored sheet. An embodiment of the apparatus for performing the fracturing operation includes a scribing instrument aligned with a sheet elevating device, such as a skid, cooperating with a pair of offset rollers laterally of the skid for creating the opposing forces necessary for effecting stressing of the sheet and its fracture along the score line.

3,567,087
PLASTIC CUTTER BLADE FOR WRAPPING FILM CUTTER BOX
Richard F. Schramm, St. Louis, Mo., assignor to Speed Equipment Incorporated, St. Louis, Mo.
Filed Feb. 3, 1969, Ser. No. 796,079
Int. Cl. B26f *3/02*
U.S. Cl. 225—43 **7 Claims**

A plastic cutter blade for a dispenser box for dispensing sheet materials from a roll of flexible film, aluminum foil, and the like. The box receives a roll of sheet material with the web extensible over the cutter blade. The cutter blade is specially formed of plastic and is supported upon a foldable front tab of the box top, which is hinged behind the front wall of the box with the cutter blade extending slightly above the box. The plastic cutter blade has specially formed shoulders, one shoulder being formed by a slot with a shoulder between two legs, said shoulder resting upon the tab extension of the box top in squared relation for a firm adhesion and support thereto, while a second shoulder defined by a squared edge of one of the legs rests upon the top edge of the front of the box in bearing relation to relieve strain upon the tab extension member of the box top supporting the cutter blade. The blade is formed of serrated teeth and is adapted to be simply molded or cast.



3,567,088
APPARATUS FOR SHEARING RIGID WALL TUBES
George L. Andersen, Franklin County, Ohio, assignor to Colorado Manufacturing Corporation, Colorado Springs, Colo.
Filed June 24, 1969, Ser. No. 835,934
Int. Cl. B23d *21/00*
U.S. Cl. 225—103 **1 Claim**

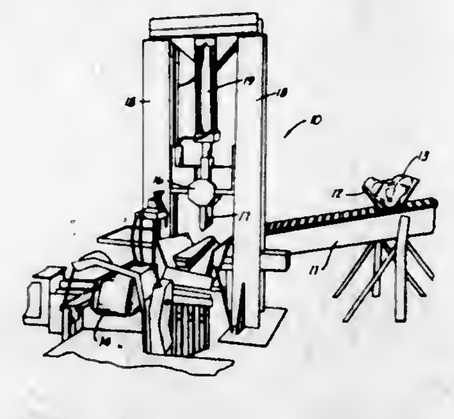


A method and apparatus for shearing or breaking a metal tube or the like by confining and supporting the tube on both its inner and outer surfaces and on either side of a given shear plane, and then applying a shear force to the supported tube sufficient to break it transversely along the shear plane.

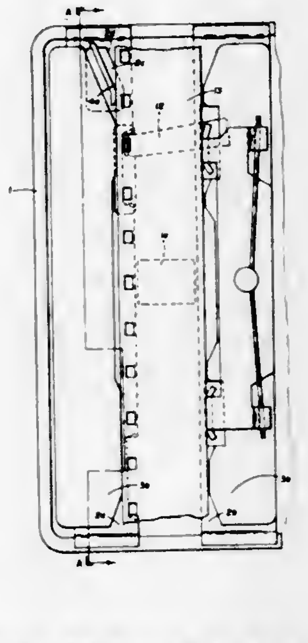
3,567,089
ENGINE BLOCK BREAKING APPARATUS
George R. Klempner, and Sam Rosenberg, Louisville, Ky., assignors to Foundry Suppliers, Inc., Louisville, Ky.
Filed Sept. 12, 1968, Ser. No. 759,454
Int. Cl. B26f *3/00*
U.S. Cl. 225—104 **1 Claim**

Disclosed is an apparatus in which a movable breaking or splitting tool moves between adjustably spaced supports on which may be positioned a junked engine block which is to be "cleaned," that is, in which the steel, aluminum and cast

iron components of the engine are to be separated. The movement of the splitting blade through the engine block breaks the block longitudinally, separating the pistons, crankshaft and oil pan from the engine.



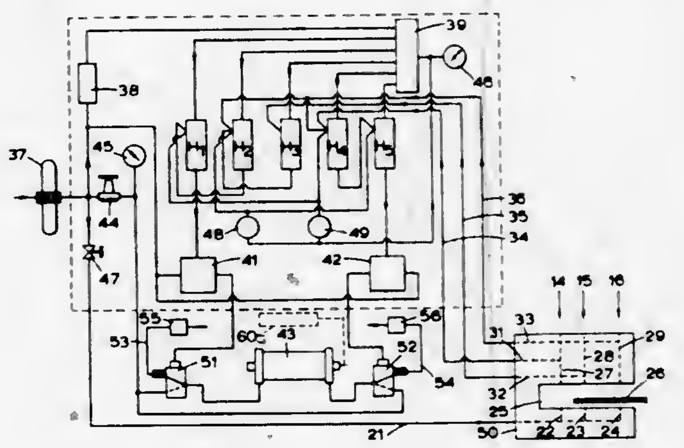
3,567,090
CINEMATOGRAPHIC APPARATUS
Hermann Claar, Stuttgart-Hedelfingen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 1, 1969, Ser. No. 811,751
Claims priority, application Germany, Oct. 10, 1968, 1,802,215
Int. Cl. B65h *25/00*
U.S. Cl. 226—11 **10 Claims**



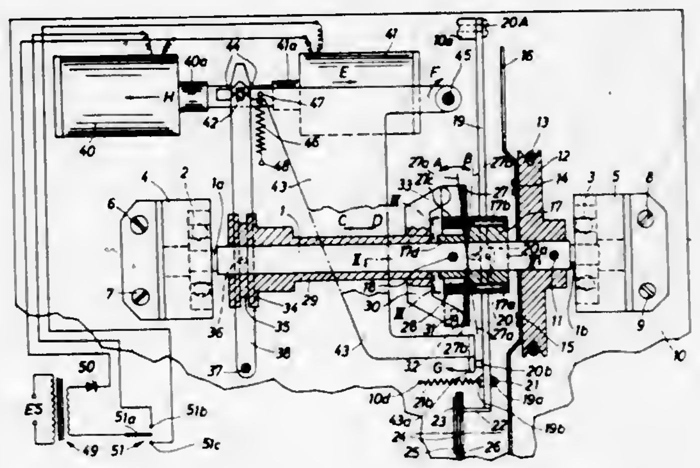
A cinematographic apparatus having a film transport claw engageable with film ahead of the film gage is provided with a drag claw beyond the film gate to automatically remove the trailing end portion of a projected film from the film gate. The drag claw becomes operative to engage the film, in response to movement of a film-sensing member disposed for contact with the film ahead of the film transport claw, only when film projection has been completed.

3,567,091
ARRANGEMENTS FOR CONTROLLING THE LATERAL POSITION OF A WEB OF MATERIAL
Duncan J. Woolard, Sevenoaks, Kent, England, assignor to Mount Hope Machinery Company, Taunton, Mass.
Filed Dec. 30, 1968, Ser. No. 787,898
Claims priority, application Great Britain, Aug. 6, 1968, 37,491/68
Int. Cl. B65h *25/08*
U.S. Cl. 226—18 **14 Claims**

An apparatus for controlling the lateral position of a web of material, having a sensing head with three pneumatically operated sensing elements each of which senses the presence or absence of the web in the head. First and second sensing elements are nominally disposed with one longitudinal edge of the web therebetween and the third sensing element is disposed inwardly of the element nominally sensing the presence of the web so as to do likewise. Signals from the first and second elements are fed to a control means which activates an adjusting device to maintain the web in a desired lateral position while signal from the third sensing element indicating absence of the web is used to inhibit the operation of the adjusting device.



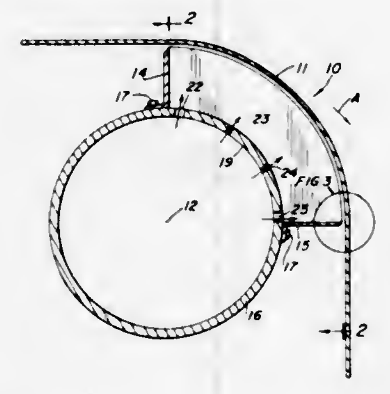
3,567,092
CINEMATOGRAPHIC APPARATUS
Hans Heinin, Munich; Erich Filsinger, Unterhaching; Wolfgang Geisslinger, and Heidemar Radl, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 5, 1969, Ser. No. 830,593
Claims priority, application Germany, June 7, 1968, 1,772,602
Int. Cl. G03b *1/22*
U.S. Cl. 226—66 **22 Claims**



A mechanism for actuating the pulldown in a motion picture projector wherein the pulldown is movable in parallelism with the film path by a rotary radial cam and at right angles to the film path by a rotary axial cam tiltable about an axis which is normal to and intersects the common axis of the two cams to thereby effect stepwise forward or rearward transport of motion picture film. Such tilting is caused by axial movements of a sleeve which surrounds the common drive shaft of the cams and is coupled to the axial cam by a pin-and-slot connection. The sleeve is movable axially in opposite directions by a lever which is coupled to the cores of two electromagnets each of which is energizable independently of the other. A centering lever automatically returns the sleeve and the axial cam to a neutral position when the two electromagnets are deenergized whereby the axial cam is disengaged from the pulldown to permit rapid rewinding of film or prolonged projection of the image of a selected film frame.

3,567,093
FLUID CUSHION TURNING ROLL FOR MOVING WEB

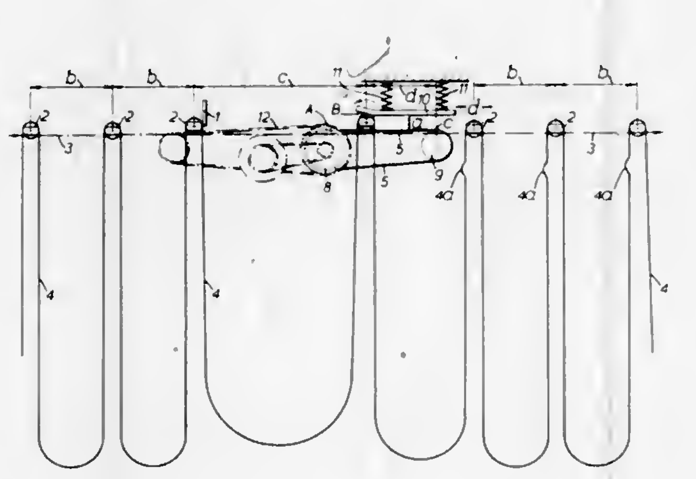
Lloyd W. Johnson, Union Lake, Mich., assignor to Michigan Oven Company, Romulus, Mich.
Filed June 3, 1969, Ser. No. 829,851
Int. Cl. B65h *17/32*
U.S. Cl. 226—97 **5 Claims**



A fluid cushion turning roll for supporting a longitudinally moving web around an arcuate turn, comprising a pair of radial side plates at the opposite ends of the turn, an array of arcuate-edged baffle members extending between the side plates, and a base member closing off the bottoms of the baffle members to define a plurality of narrow arcuate pressure chambers across the inside of the turn. A constant-pressure fluid supply supplies air or other gas to all of the pressure chambers, through limiting orifices in the base member, affording a fluid cushion supporting the web out of engagement with the solid elements of the turning roll.

3,567,094
APPARATUS FOR PARTIALLY ELIMINATING MARKS IN FESTOONED SHEET MATERIALS

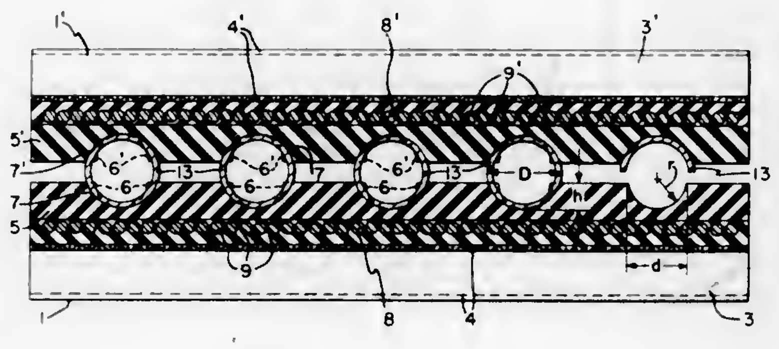
Tomas Murath, Krahenwinkel, Hannover, Germany, assignor to Vereinigte Schmirgel - und Maschinenfabriken A. G., Hannover-Hainholz, Germany
Filed Jan. 18, 1968, Ser. No. 698,770
Claims priority, application Germany, Mar. 15, 1967, V33255
Int. Cl. B65h *23/34*
U.S. Cl. 226—105 **4 Claims**



A device for eliminating marks in materials which are made in continuous lengths, such as paper which, during their manufacturing processes are suspended in loops from carriers travelling on a conveyor. The device includes a transporting mechanism comprising friction faced endless transporter belts operable independently of the conveyor which is arranged to temporarily lift the carriers from the conveyor into contact with a pressure-applying plate member positioned to exert pressure on the carriers. This pressure causes the carriers to rotate the material relative thereto so that folds or creases are prevented.

3,567,095
BELT STRUCTURE

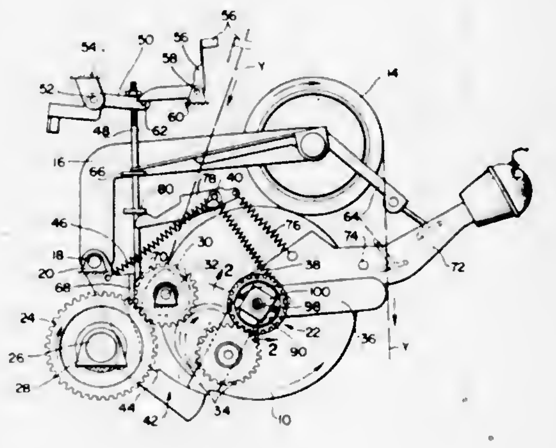
Joseph C. Geist, 6401 Cleveland Ave., Lincoln, Nebr.; William S. Korff, 9215 Valley Stream Road, Clarence, N.Y., and John F. McGibbon, 3300 N. 56th St., Lincoln, Nebr.
Filed Dec. 19, 1968, Ser. No. 785,149
Int. Cl. B65h *29/12*
U.S. Cl. 226—172 **10 Claims**



A flexible endless belt for use as at least one of the belts in a belt drive assembly of the type in which two belts cooperate to drive and convey elongated articles in the direction of travel of the belts by engaging opposite sides of the article. The belt includes a drive cover, a tension section, and an article-engaging cover of compressible material which includes one or more grooves therein of various cross-sectional configurations which extend longitudinally of the belt. The grooves have at least one cross-sectional dimension smaller than the conveyed article so that the article is wedged in the groove by forcing the article therein. In the most common form of the invention both belts of the assembly are provided with grooves into which opposite sides of the conveyed article are wedged. The invention is particularly useful for conveying extruded aluminum tubing without slippage or damage during its fabrication.

3,567,096
FEED ROLL MECHANISM

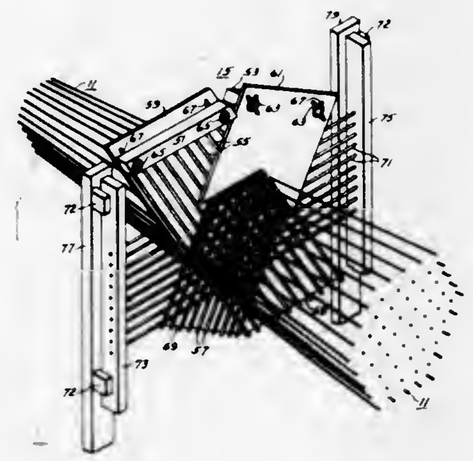
Richard Brian McDermott, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed Aug. 1, 1968, Ser. No. 749,502
Int. Cl. B65h *17/20*
U.S. Cl. 226—188 **3 Claims**



A positive drive strand-handling mechanism for advancing one or more strands of yarn about a feed roll. The mechanism has provision for stopping the feed roll by disengaging a train of gears in the event of strand breakage, and for absorbing shock when the gears are engaged to again advance the strand. The shock-absorbing means is a gear on a common shaft with the feed roll, the gear having slots substantially encircling the shaft with means including resilient elements in the slots for absorbing shock and drivingly connecting the gear and the shaft.

3,567,097
STRAND GUIDING MEANS

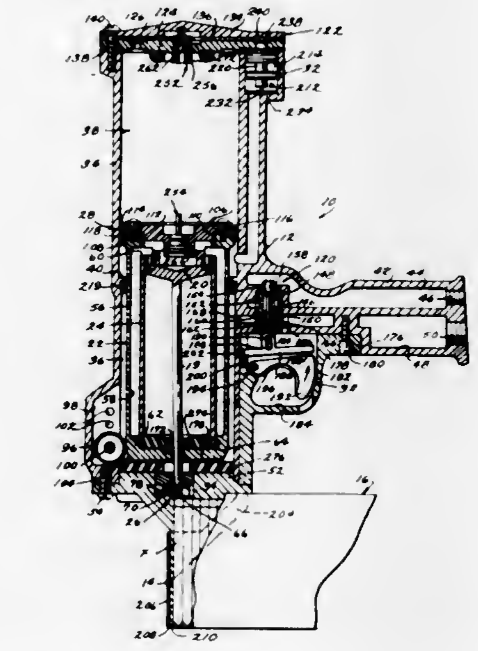
Stephen R. Baker, Oley, and Michael F. Harter, Bethlehem, Pa., assignors to Bethlehem Steel Corporation
Filed June 19, 1968, Ser. No. 738,313
Int. Cl. B65h *23/32;* **B21d** *43/16;* **B54h** *27/00*
U.S. Cl. 226—199 **10 Claims**



Two series of parallel rods are arranged adjacent each other in a crossed pattern to define guide openings through which wires may pass to a closing die. The rods may be rotatably journaled to reduce wear and may also be mounted in a floating frame to provide transverse movement.

3,567,098
FASTENER DRIVING APPARATUS OPERABLE UNDER PRESSURE CONDITIONS GREATER THAN LINE PRESSURE

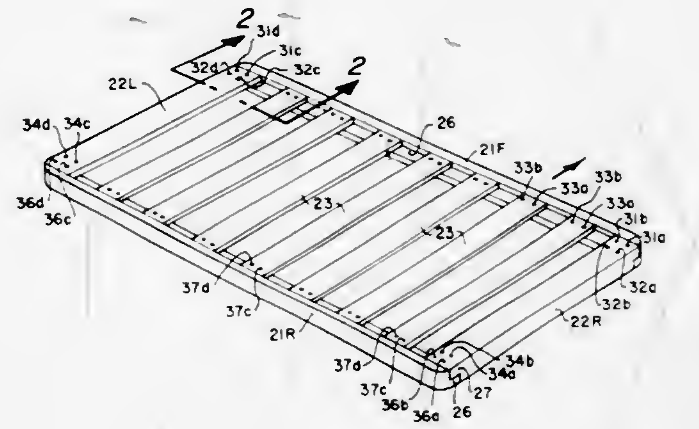
George A. Maynard, East Greenwich, R.I., assignor to Bostitch Division of Textron, Inc., East Greenwich, R.I.
Filed Dec. 23, 1966, Ser. No. 604,435
Int. Cl. B25c *5/10;* **B25j** *13/02;* **B25i** *5/06*
U.S. Cl. 227—5 **21 Claims**



A fastener driving apparatus in which the fastener driving means in the form of a piston and piston rod construction is mounted within a cylinder which is movable from a first position into a second position by fluid pressure in the reservoir of the apparatus, while the fastener driving means is maintained in a fastener receiving position. Movement of the cylinder from the first position to the second position establishes a negative pressure beneath the driving piston and/or a pressure equal to reservoir pressure or greater than reservoir pressure above the driving piston so that when the fastener driving means is released it will move from the fastener receiving position into a fastener driven position under differential pressure conditions which are greater than reservoir pressure above the piston and atmospheric pressure below the piston. The apparatus is actuated by a work contacting member and a trigger member through an interlock means which effects movement of an actuating valve into an actuating position in response (1) to the simultaneous movement of the work contacting and trigger members into their operative positions, (2) to the movement of the work contacting member into its operative position when the trigger member is in its operative position or (3) to the movement of the trigger member into its operative position when the work contacting member is in its operative position. The interlock means comprises an elongated interlock member having a transversely extending slot formed in the central portion thereof through which a pivot pin carried by the housing is disposed, one end of the interlock member having a lost motion connection with the work contacting member and the other end of the interlock member having a lost motion connection with the trigger, the interlock member including an actuating valve engaging portion intermediate the ends thereof.

3,567,099
BEDSPRING FRAME MACHINE

Thomas F. Winters, Clear Lake Highlands, Calif., assignor to Powers Wire Products Co., Inc., El Monte, Calif.
Filed Nov. 1, 1968, Ser. No. 772,491
Int. Cl. B27f *7/02*
U.S. Cl. 227—100 **6 Claims**

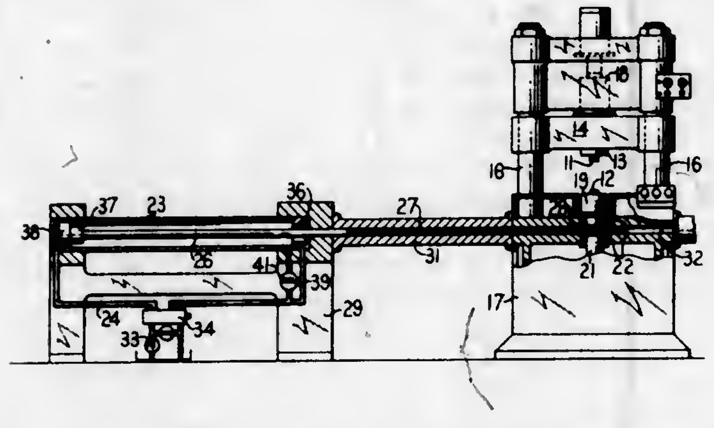


A machine for making wooden frames for box springs has a support to hold the wood pieces in proper position and to advance the pieces in stages through the machine. As the joints between a transverse piece and a plurality of longitudinal pieces pass over an anvil, a head carrying a corresponding plurality of pneumatic nailing machines is depressed to bring the nailing machines into contact with the work and to trigger the same. Means is also provided to oscillate some of the nailing machines to set more than one nail at each joint.

3,567,100
FRICTION-WELDING APPARATUS AND METHOD

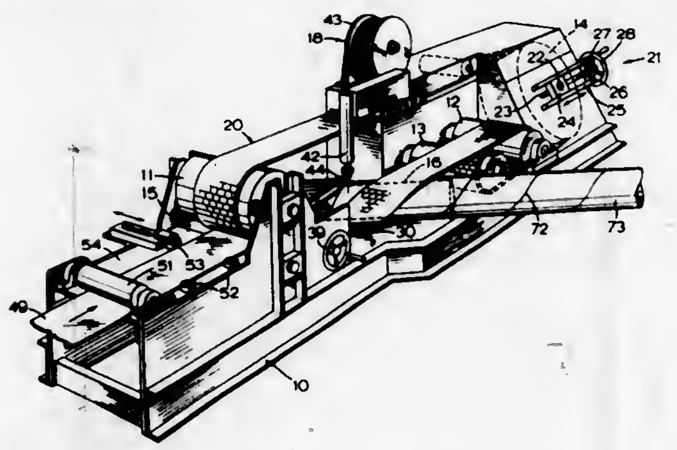
Charles G. Farmer, Edelstein, and Calvin D. Loyd, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed May 13, 1968, Ser. No. 728,646
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **11 Claims**

Friction-welding apparatus comprising a rack and pinion for translating force from a unidirectionally, linearly acting hydraulic motor into rotational force and applying the resultant rotational force to one of a pair of relatively rotatable weld pieces. Programming means regulate operation of the hydraulic motor to precisely determine energy input to a weld interface between the weld pieces.



3,567,101
PRODUCTION OF SPIRALLY WOUND PIPE

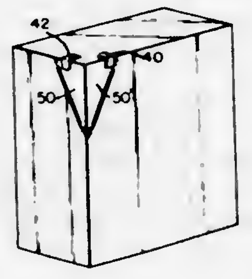
Uno A. Ranne, Laval Des Rapides, Quebec, Canada, assignor to The Robert Mitchell Co., Limited, Montreal, Quebec, Canada
Filed Feb. 23, 1968, Ser. No. 713,560
Claims priority, application Canada, Jan. 2, 1968, 9,003
Int. Cl. B23k *1/20*
U.S. Cl. 228—15 **8 Claims**



Apparatus for forming spirally wound pipes including a cantilever mandrel forming a core having an array of freely rotatable spherical bearings mounted in spaced relation on the periphery thereof to provide a surface on to which a strip of metal is helically fed, and a continuously moving belt forming the strip of metal on the bearings of the mandrel and feeding the formed pipe axially off the mandrel.

3,567,102
DISPENSING CARTON

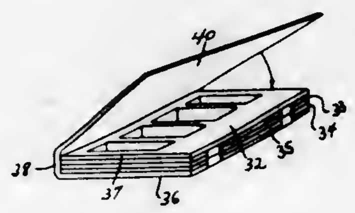
Ruth S. Miller, Hyattsville, Md. (2715 Cortland Place NW. 22, Washington, D.C. 20008)
Filed June 6, 1969, Ser. No. 830,998
Int. Cl. B65d *5/72, 83/00*
U.S. Cl. 229—7 **5 Claims**



A dispensing carton in which a reclosable pouring opening located at one top corner is held closed by bendable fasteners which also aid in opening the corner for pouring the contents from the carton.

3,567,103
COMPOSITE SPACER AND LINER MEMBER FOR SHIPPING CONTAINERS

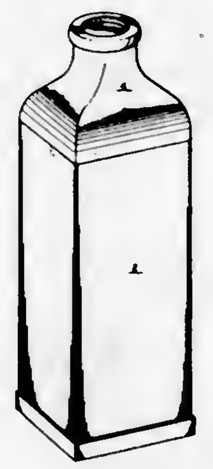
Robert F. Seifert, 2961 Exon Drive, Cincinnati, Ohio
Filed Apr. 23, 1969, Ser. No. 818,493
Int. Cl. B65d *5/56*
U.S. Cl. 229—14 **4 Claims**



A foldable, multiply article spacer, and liner member produced from a cut-and-scored blank and comprising a series of apertured article spacer panels foldable into a stack with the apertures in registry, a liner panel connected to and foldable upon an end spacer panel in the stack and mechanical fastener means securing together a common side of the panels in the stack.

3,567,104
COMPOSITE CONTAINERS

Vincent Arslanian, and Stafford D. Collie, Kansas City, Mo., assignors to Phillips Petroleum Company
Filed July 1, 1969, Ser. No. 838,267
Int. Cl. B65d *5/58*
U.S. Cl. 229—14 **5 Claims**

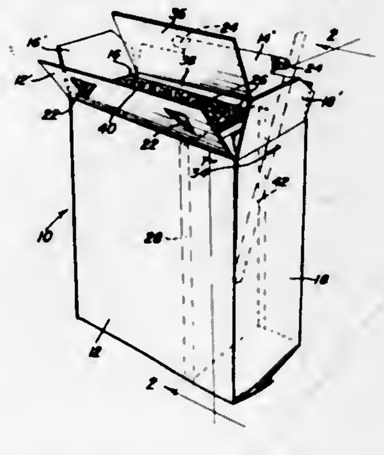


Molded plastic and paperboard container parts rigidly, fixedly attached together to form a composite container.

3,567,105
COMBINED FOOD AND DRINK CONTAINER

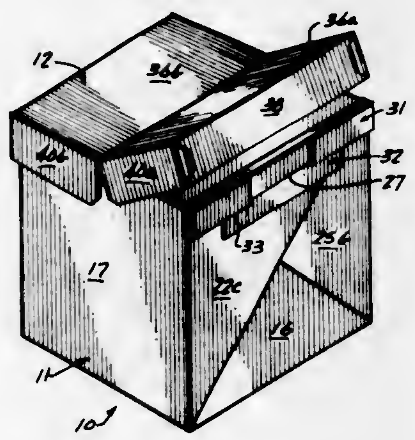
Bill E. Mc Farlin, R.R. Northeast Williston, Williston, N. Dak.
Filed June 26, 1969, Ser. No. 836,845
Int. Cl. B65d *5/48, 5/58*
U.S. Cl. 229—15 **8 Claims**

A container including parallel opposite sidewalls and parallel opposite end walls disposed at generally right angles relative to the sidewalls. The container includes a partition spaced between and generally paralleling a first pair of the walls and extending between and connected to the other pair of walls for folding with the first pair of walls toward collapsed positions paralleling the latter. Further, an open ended flexible wall container is disposed and supported between the partition and a first wall of the first pair of walls and the portions of the other pair of walls disposed between the partition and first wall.



3,567,106
CONTAINER CONSTRUCTION

Wilbur G. Anderson, Grand Rapids, Mich., assignor to Packaging Corporation of America, Evanston, Ill.
Filed May 31, 1968, Ser. No. 733,389
Int. Cl. B65d *5/24*
U.S. Cl. 229—31 **8 Claims**

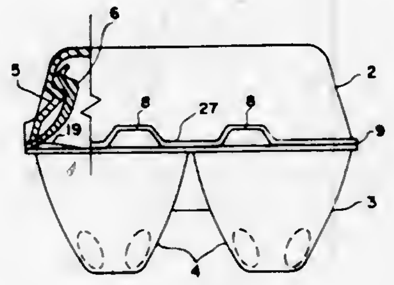


A container is provided for use in the bulk handling of a comminuted product. The container includes a receptacle formed from a single blank of foldable sheet material. The receptacle comprises a bottom panel and upright wall panels delimiting said bottom panel and connected thereto by a continuous foldline. Adjacent edges of successive wall panels are interconnected by corner members. Each corner member terminates at the continuous foldline and is provided with foldable sections which are adapted to be folded upon one another and overlie the exterior surface of one of the successive wall panels. The one successive wall panel is provided with a foldable extension which interlockingly engages the foldable corner member sections and retains same in overlying relation with respect to the wall panel exterior surface.

3,567,107
EGG CARTON

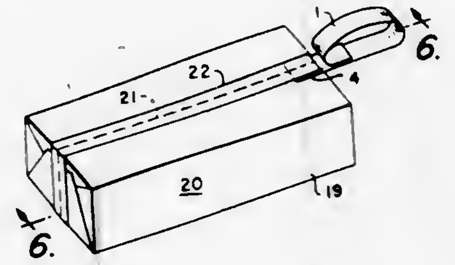
Kenneth W. Artz, Mohnton, Pa., assignor to W.R. Grace & Co., Duncan, S.C.
Filed Apr. 24, 1969, Ser. No. 819,004
Int. Cl. B65d
U.S. Cl. 229—44 **6 Claims**

A molded, one-piece egg carton having an egg-receiving tray, a lid hingedly attached to one side of the tray, a locking tab hingedly attached to the other side of the tray, and a locking bar on the interior surface of the front panel of the lid whereby when the locking tab is rotated and held so that the lid will close over it, the tab and bar cooperate to lock the lid to the tray.



3,567,108
PULL TAB, LABEL AND HANDLE

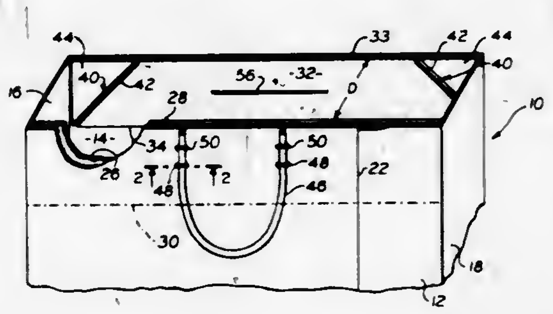
Juliana M. Corridon, 7805 Takoma Ave., Takoma Park, Md.
Filed Feb. 3, 1969, Ser. No. 795,852
Int. Cl. B65d *5/46, 25/22, 75/56, 83/06*
U.S. Cl. 229—52 **5 Claims**



A means for carrying, labeling and opening a package is provided by a strip of material, such as paper, which is formed into a loop carrying indicia thereon and adhered to the package at one end. A strip of adhesive tape is also adhered to the loop and the package. The package may then be carried by the loop and opened by pulling on the loop.

3,567,109
HANDLE ASSEMBLY FOR FLEXIBLE BOX

Leonard E. Canno, New York, and William H.F. Grob, Babylon, N.Y., assignors to Equitable Bag Co., Inc., Long Island City, N.Y.
Filed June 30, 1969, Ser. No. 837,490
Int. Cl. B65d *33/12*
U.S. Cl. 229—54 **5 Claims**

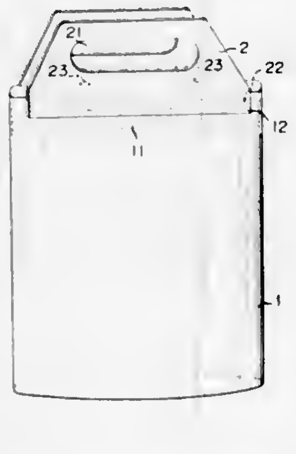


For "flexible boxes" that have lower ends similar to bags and upper ends that are made like folding boxes, this invention provides a construction having a handle which is permanently connected to one of the panels at the top of the flexible box and that is "upside-down" as compared to handles of shopping bags. Because of this upside-down orientation, the handle can be attached to the box panel by a machine, and the handle is in a position in which it is out of the way when the flexible boxes are flat and stacked.

3,567,110
SEALED BAG HAVING A PAIR OF HANDLES ATTACHED TO TWO FOLDED END PORTIONS AND RETAINED THEREAFTER THE CONTENTS ARE DISPENSED

Rinnosuke Susuki, Tokyo; Hiroshi Hoshi, Chiba-ken; Shinichi Araki; Takashi Ohshita, Tokyo, and Shinzo Miyamoto, Saitama-ken, Japan, assignors to Raion Yushi Kabushiki Kaisha, Tokyo, Japan

Filed June 2, 1969, Ser. No. 829,419
Claims priority, application Japan, June 3, 1968, 43/46316
Int. Cl. B65d *33/06*
U.S. Cl. 229—54 **4 Claims**

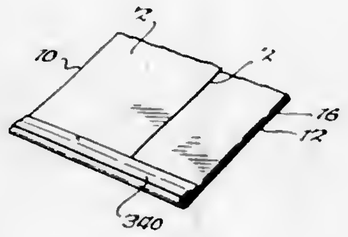


By first folding inwardly one closed end of a tube made of a synthetic resin to form opposing folded end portions, thereafter thermally bonding or adhesively attaching a thick piece of plate made of a synthetic resin to each of said end portions either on the inside or outside of the fold or between the two sheets of the tube constituting the fold, then forming a grip hole in each of the attached two pieces of plate (said grip hole may be formed in advance), thereafter packing desired contents in said tube from the open end on the other side of the tube, and then sealing this open end, there is provided a bag having a pair of grip handles which are retained on the bag after the portion of the tube material located between the folded two end portions is cut apart to dispense the contents.

3,567,111
MULTIPLY PAPER BAG

Robert O. Baxter; Clint R. Hollis, and Carlton F. Evans, Camden, Ark., assignors to International Paper Company, New York, N.Y.

Filed Apr. 24, 1969, Ser. No. 818,909
Int. Cl. B65d *33/02*
U.S. Cl. 229—57 **10 Claims**

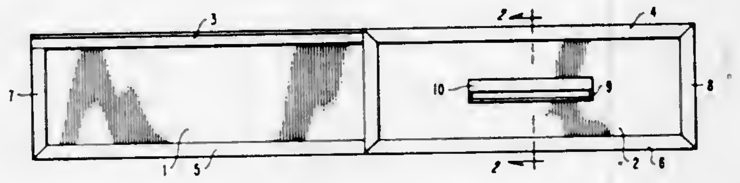


A multiply paper bag in which the inner wall of the inner ply is coated with a heat sealable moistureproof material and the end of the bag is folded, sealed and taped to form a leak-proof closure. Apparatus for the manufacture of such bags having means for advancing bag blanks one after the other along a path, means along the path for heating the bottom end of the blank to soften the thermoplastic coating, means for applying a sealing force to the softened thermoplastic coating, means for holding the seal while the thermoplastic coating cools and hardens, means for embossing the bag blank along a fold line for folding the bag blank end along the fold line and for folding the folded portion into the sidewall of the blank and means for applying, coating and adhesively securing a tape to the folded portion and the sidewall of the blank.

3,567,112
MAIL RECEPTOR ASSEMBLY

Josephine Helen Wittekind, 13810 S. Vermont St., Gardena, Calif.

Filed Mar. 12, 1969, Ser. No. 806,549
Int. Cl. A47h *33/00*
U.S. Cl. 232—1 **2 Claims**



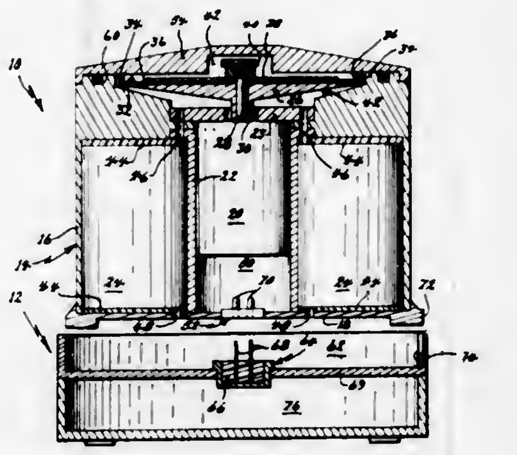
The instant invention involves an adjustable mail receptor assembly essentially comprising two slidably connected sections wherein one section includes an opening adapted to receive mail. The sections are connected by channel means integral therewith whereby the width of the entire assembly can be varied.

The receptor is put in place by raising the lower window, placing the receptor in place on the lower window frame and dropping the lower window until it rests on the receptor.

3,567,113
MINIATURE, PORTABLE, SELF-POWERED, HIGH SPEED, CLINICAL CENTRIFUGE

Marion J. Stansell, and Oskar G. Langner, San Antonio, Tex., assignors to the United States of America as represented by the Secretary of Air Force

Filed Mar. 18, 1969, Ser. No. 808,118
Int. Cl. B04b *9/04*
U.S. Cl. 233—24 **5 Claims**



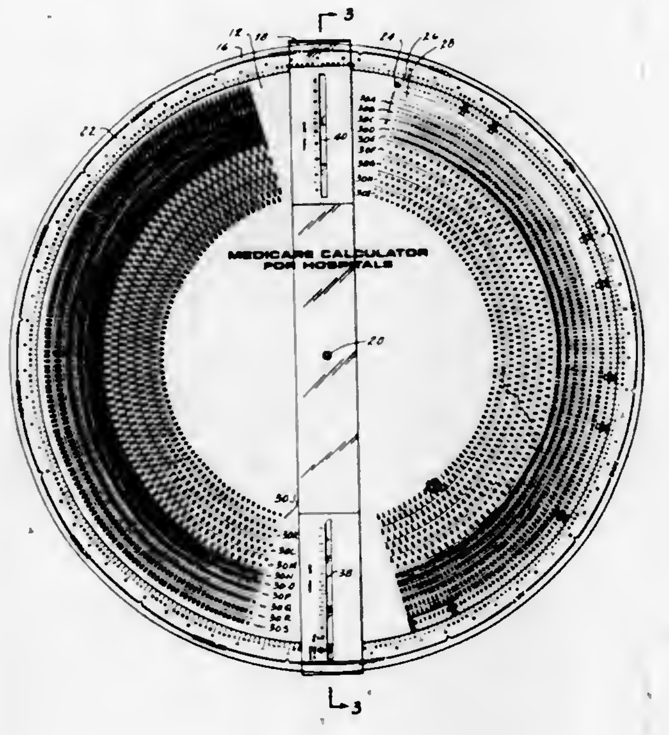
A portable, miniature, self-powered, high-speed, clinical centrifuge having a housing, a motor, an energizing means, a rotor head and a rotor head cover. The energizing means for the motor is capable of being charged by a removable charger. Operation of the centrifuge rotates the rotor head at a high speed thereby separating blood cells from blood plasma within a capillary tube located within said rotor head. A timer regulates the length of time the centrifuge is in operation.

3,567,114
MEDICARE CALCULATOR

Burke Frees, 2323 Anna Ave., Clearwater, Fla.

Filed Dec. 26, 1968, Ser. No. 787,022
Int. Cl. G06c *3/00*
U.S. Cl. 235—88 **5 Claims**

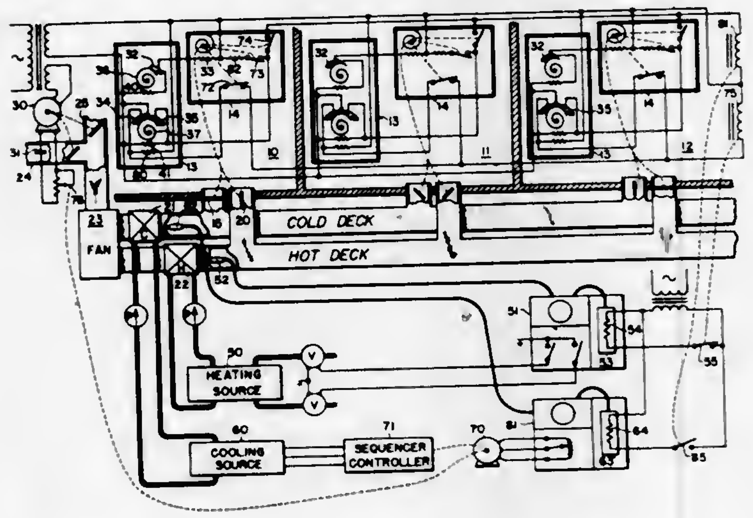
A medicare calculator comprising three stacked discs—a middle disc and two smaller outer discs—and a U-shaped indicator, all of which are concentrically rotatably mounted on a rivet at their centers. Numerical information is printed on the disc such that when an outer disc is suitably aligned with the middle disc, proper placement of the indicator reveals the number of days a patient was under medical care, the patient's cost for the care, the total Medicare cost, and the days on which a patient is to be reviewed and examined. One side of the calculator is for calculating Medicare expenses for hospitals and the other side for calculating Medicare expenses for extended care facilities.



3,567,115
ZONE TEMPERATURE CONTROL SYSTEM

Lorne W. Nelson, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 19, 1969, Ser. No. 825,899
Int. Cl. F24f *3/08*
U.S. Cl. 236—1 **9 Claims**

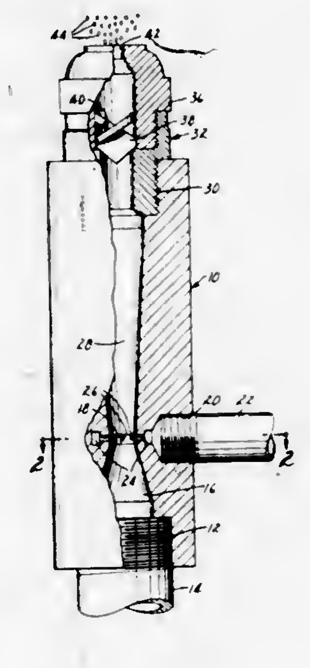


A zone temperature control system having a thermostat in each zone for controlling a supply of temperature changing medium to that zone. The thermostat having a first electrical output for modulatingly controlling the flow of medium to its zone and a second electrical output which can be selected when that zone has the greatest conditioning load to modulatingly control the temperature of the medium delivered to the plurality of zones from a central source.

3,567,116
ATOMIZING METHOD AND APPARATUS

James A. Lindlof, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 18, 1968, Ser. No. 784,697
Int. Cl. A01g *15/00*
U.S. Cl. 239—2 **6 Claims**

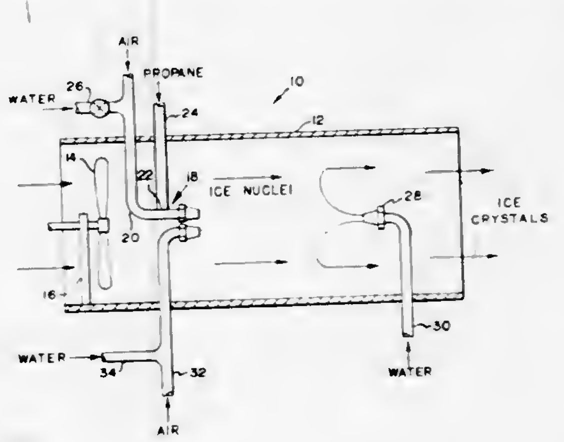


A method for atomizing a liquid which comprises the steps of (1) forming a dispersion of minute gas bubbles in a flowing enclosed pressurized liquid, said liquid and gas being the continuous and dispersed phases respectively, and (2) subsequently forcibly expelling the dispersed system through an hydraulic atomizing nozzle into an ambient atmosphere to provide an expanding stream of minute droplets. The preferred apparatus for carrying out the method of the invention is a venturi tube fitted at one end with an hydraulic atomizing nozzle, the compressed gas being introduced into the liquid at the throat of the venturi.

3,567,117
ICE NUCLEI FORMATION

William E. C. Eustis, Cambridge, Mass., assignor to Hedco, Inc., Bedford, Mass.

Filed Aug. 29, 1969, Ser. No. 854,102
Int. Cl. A01g *15/00*
U.S. Cl. 239—2 **9 Claims**



A method of making snow by controlling the size and life of ice nuclei generated in a snow-making machine. Ice nuclei are generated by homogeneous nucleation in a tunnellike housing through injection of propane or other refrigerant into a stream of moist air. The relative humidity about the ice nuclei stream is controlled relative to the temperature and humidity of the atmosphere to prevent or inhibit evaporation of the ice nuclei for such time as to ensure statistically effective mixing with adjacent liquid phase water droplets which are supercooled by the air mass. The ice nuclei formed infect the water droplets and they release their latent heat to the air to form snowlike particles.

3,567,118
ENTRAPPED ESSENCES IN DRY COMPOSITE FIBER BASE PRODUCTS GIVING A STRONG FRAGRANCE WHEN WET IN WATER

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 727,047, May 6, 1968, now abandoned , and a continuation-in-part of 654,044, July 5, 1967, and a continuation-in-part of 567,856, July 26, 1966, now Patent No. 3,520,949, dated July 21, 1970. This application Sept. 5, 1968, Ser. No. 757,636

Int. Cl. A61l *9/04*

U.S. Cl. 239—6 **15 Claims**

Composite fiber materials are adapted for odorizing, deodorizing, sanitizing and cleansing purposes by treating the fibrous material with a coating of a hydrophilic acrylate or methacrylate containing an appropriate essence, bactericide, cleansing agent or the like. Both natural and synthetic fibers can be treated with a solution of the hydrophilic polymer. Entrapment of the chemical agent can be prolonged by using a copolymer of the hydrophilic monomer with a minor amount of a hydrophobic monomer.

3,567,119
ENHANCED DIFFUSION OF ODOR VAPOR FROM POLYMERS

Godfrey Wilbert, Seminary Hill Road, Carmel, N.Y., and Thomas Brown, 3767 S. Park Ave., Blaspell, N.Y.

Filed Oct. 6, 1969, Ser. No. 864,184

Int. Cl. A61k *21/12;* **A61l** *9/04;* **C11b** *9/00*

U.S. Cl. 239—6 **10 Claims**

This invention describes improved methods for the incorporating of fragrance compounds or oil bouquets and/or topical antifungal or antibacterial agents, insect repellent compounds and certain odoriferous medicaments into polymeric or natural materials so that the fabricated product possesses the properties imparted by the additive or additives for a long period of time. The efficiency of incorporating these additives in the materials mentioned above is improved by the use of surfactants and the effectiveness and duration of the additive or additives in the fabricated product is enhanced by employing antioxidants and/or ultraviolet radiation absorbers.

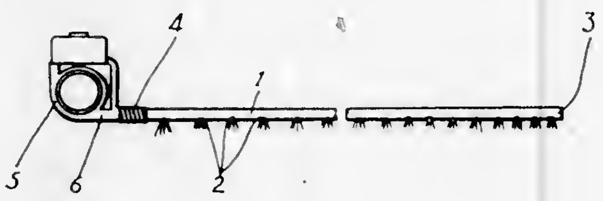
3,567,120
METHOD FOR SPREADING POWDER AND DEVICE THEREFOR

Nakao Suda, Sado-gun, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 23, 1968, Ser. No. 723,449

Int. Cl. A01n *17/02;* **A62c** *1/12*

U.S. Cl. 239—8 **6 Claims**



A method for spreading powder in which air under pressure carrying a pulverulent treating agent in the form of powder and/or granular material is forced into a soft and light tubular pipe from one end or both ends thereof and discharged or spread downwardly through a plurality of nozzles disposed spaced apart from each other longitudinally of the tubular pipe.

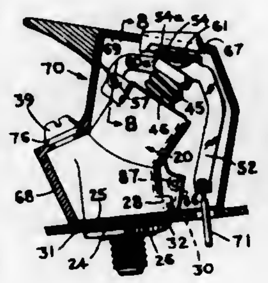
3,567,121
MANUAL AND FOOT-OPERATED DISPENSING HEAD ASSEMBLY FOR FLUID-DISPENSING SYSTEMS

Richard C. Dreibelbis, Fair Lawn, N.J., assignor to H & H Thermostats, Inc., Cedar Grove, N.J.

Filed Feb. 28, 1969, Ser. No. 803,304

Int. Cl. E03b *9/20;* **B67d** *5/54*

U.S. Cl. 239—29.5 **13 Claims**



A combination manual and foot-operated dispensing head assembly for fluid-dispensing systems including an inner body and support member which carries a normally closed control valve for regulating the dispensing of fluid from said dispensing system and further provides means to pivotally mount an actuating assembly including a bracket means operatively associated with the control valve, the bracket means being disposed to permit independent or simultaneous movement thereof either by a manually operated push button means or a foot-operated lever means connected thereto whereby the control valve will be moved to open position so as to permit a regulated flow of fluid to be dispensed by said dispensing head assembly. The dispensing head assembly additionally having a split outer casing disposed about and coacting with the inner body and support member to customize the dispensing head assembly to prevent easy access to the inner body member and support member and its associated bracket means, yet allows access with suitable tools when repairs or replacement of parts in the dispensing head assembly are required.

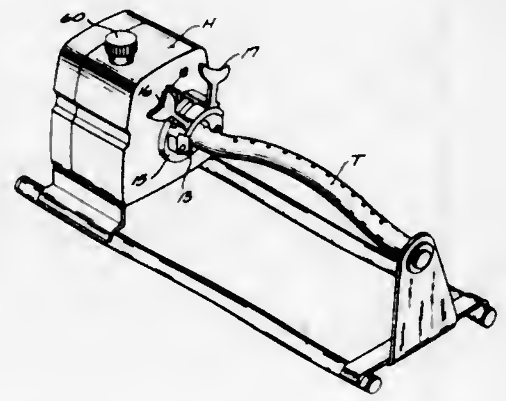
3,567,122
WATER SPRINKLER HAVING COUNTER MEANS FOR AN OSCILLATING DISTRIBUTING TUBE OF UNIFORM SPEED

George L. Congdon, Fort Atkinson, and Fred W. Kufrin, Janesville, Wis., assignors to Western Industries, Inc., Milwaukee, Wis.

Filed July 16, 1969, Ser. No. 842,123

Int. Cl. A01g *27/00*

U.S. Cl. 239—69 **10 Claims**



A water sprinkler having an oscillating water tube that moves with a uniform velocity through an arc of adjustable length, including means for counting the number of oscillations of the distributing tube and depositing a predetermined amount of water per unit area of ground regardless of water pressure or the length of oscillatory swinging movement of the water tube. The means for oscillating the tube insures that it moves with uniform speed and insures that a known density of water deposit can be programmed regardless of the pressure of the water or area of ground to be covered.

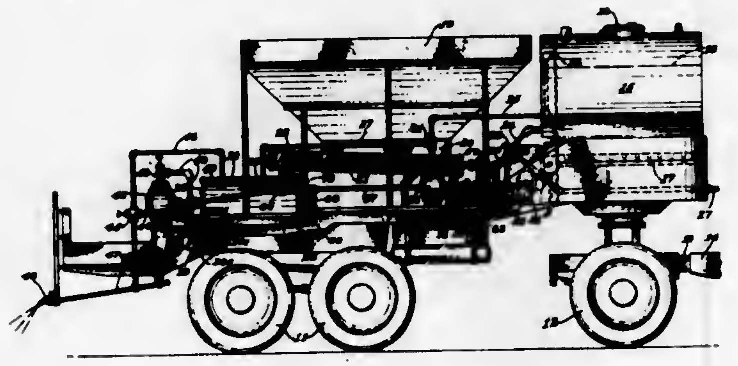
3,567,123
PORTABLE ROAD SURFACING PLANT

Jack M. Mitchell, 642 N. 17th Ave., Phoenix, Ariz.

Filed July 9, 1969, Ser. No. 840,392

Int. Cl. B05b *1/20*

U.S. Cl. 239—159 **3 Claims**



A portable road-surfacing plant for storing, combining, mixing and applying at high temperatures predetermined proportions of asphalt and rubber.

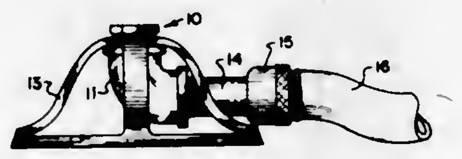
3,567,124
SPRINKLER UNIT

Adrian L. Jones, 2157 East 3380 South, Salt Lake City, Utah

Filed Dec. 23, 1968, Ser. No. 786,272

Int. Cl. B05b *15/02*

U.S. Cl. 239—118 **5 Claims**



A sprinkler unit having a body with an outwardly extending flange and an upstanding ring which acts as a nozzle guard. The nozzle has a freely rotating, angled pin in the center thereof to provide even distribution of water to the area immediately adjacent to the nozzle and angled peripheral orifices to distribute water therethrough to areas more remote from the nozzle.

3,567,125
SPRAYING AND IRRIGATION EQUIPMENT

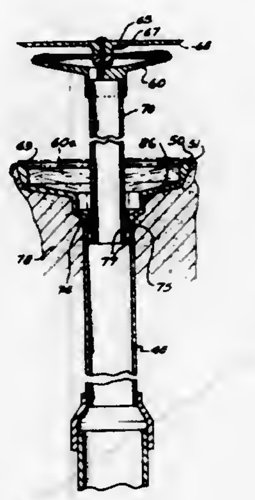
Henderson D. Houghton, 825 North Fifth West, Lehi, Utah

Filed June 28, 1968, Ser. No. 741,192

Int. Cl. B05b *15/10*

U.S. Cl. 239—204 **5 Claims**

The equipment comprises a novel spray head unit adapted to form a fog or fine misty spray at moderate liquid pressures by reason of high internal turbulence in the approach channel to the controlled gap where the liquid is broken up. Adaptations include below-ground head units which are self-elevating and normally elevated heads designed to form a frost-preventing mist above the tops of fruit trees and other vegetation in freezing weather. The equipment is useful to form snow or ice, e.g. for ski areas, to extinguish fires, etc.



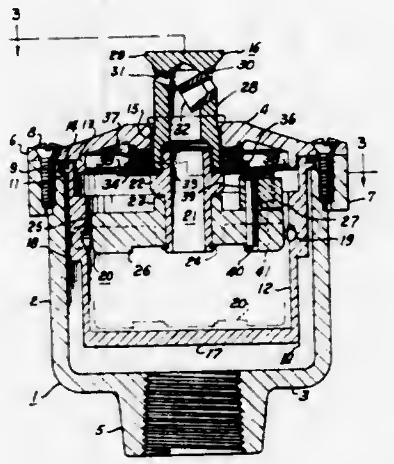
3,567,126
ROTARY SPRINKLER HAVING IMPULSE-TYPE TURBINE

Leo A. Martini, Garland, Tex., assignor to Telsco Industries, Garland, Tex.

Filed Feb. 18, 1969, Ser. No. 800,112

Int. Cl. B05b *3/02*

U.S. Cl. 239—206 **2 Claims**



Rotary sprinkler of the underground, popup-type having a water turbine of the impulse type for imparting intermittent or step-by-step rotation to a nozzle.

3,567,127
CONTINUOUSLY OPERATING SPRINKLER HEAD WITH RECIPROCATING UP AND DOWN MOTION-PRODUCING ROTATION

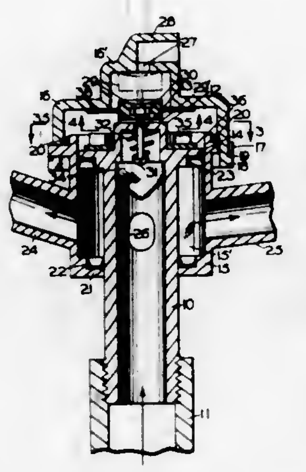
Paul H. Raumaker, and William H. Stout, 233 N. Jessup St., Portland, Oreg.

Filed Apr. 18, 1969, Ser. No. 817,472

Int. Cl. B05b *3/04*

U.S. Cl. 239—237 **5 Claims**

A sprinkler head with nozzle arms is supported for rotation and restricted up and down movement. Pressure of water delivered tends to move the sprinkler head downwardly. An upper chamber in the sprinkler head has a top outlet port and a lower inlet port. Downward movement of the sprinkler head closes the top outlet port causing pressure to build up in the upper chamber which results in raising the sprinkler head. This reopens the upper outlet port allowing the sprinkler head again to move downwardly and repeat the cycle.

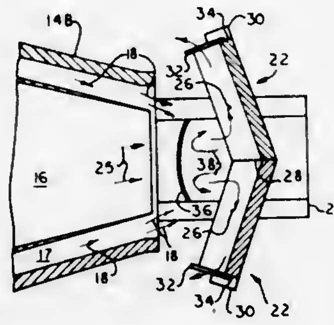


Each time the cycle is repeated the sprinkler head receives partial rotation through engagement with inclined elements.

3,567,128
THRUST REVERSING APPARATUS

George R. Urquhart; Dale W. R. Lawson, Bonita, and Jack H. Hilbig, Chula Vista, Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed July 2, 1969, Ser. No. 838,541
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.29 **20 Claims**



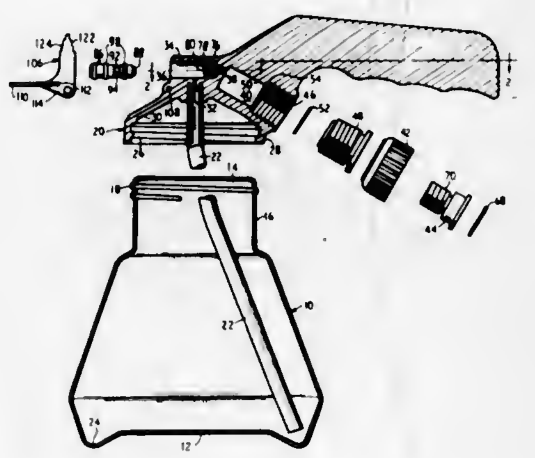
Apparatus includes shroud positioned at rear of jet nozzle to surround and control gas stream. Shroud includes fixed portions defining lateral passages between them and pivoted doors stowed to close passages and complete shroud. When doors deploy, their trailing edges meet within shroud contour to block and deflect gas laterally. Perpendicular retractable end plates at leading edges divert gas forwardly to create reverse thrust. Back pressure from reverser tends to cause back flow into ejector barrel surrounding nozzle in area upstream of fixed portions. Retractable fences are mounted on fixed portion inner faces to intercept and redirect back flow while allowing air flow through ejector barrel in region of fixed portions. Doors are controlled to any degree of deployment for fully modulated thrust control in flight, particularly useful for tactical military aircraft.

3,567,129
SPRAYING DEVICES

Wesley David Martin, New South Wales, Australia, assignor to G. G. Benjamin & Company Pty, Limited, New South Wales, Australia

Filed June 23, 1969, Ser. No. 835,409
Int. Cl. B05b *7/30*
U.S. Cl. 239—318 **10 Claims**

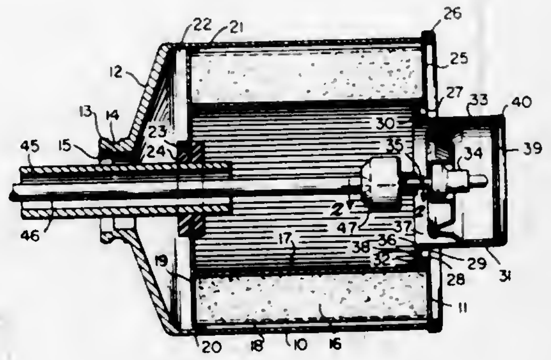
This invention relates to a combined jet nozzle and control valve assembly for particular use in devices using fluid pressure for aspirating a liquid or powder from a container and directing it from the jet nozzle. By combining the jet nozzle and control valve in the manner of the invention a mechanically simpler and more easily operable device than previously known ones is obtained. The device of the invention comprises a jet nozzle and control valve assembly including a housing adapted to be detachably secured to a container and having an aperture for communication with the interior of said container, a passage through said housing having said aperture communicating therewith and adapted to be connected at one end to a source of fluid pressure, a jet nozzle located in the other end of said passage and having a fluid passage therethrough in communication with said source of fluid pressure, and a further passage in communication between said fluid passage and said aperture, a control valve located in a valve passage in said housing adjacent said one end of the first-named said passage, said control valve comprising a member slidable in said valve passage and having a hole formed therethrough for alternative movement into and out of coaxial register with and between said fluid passage and said source of fluid pressure and having a flat portion thereon engageable with a resilient sealing member on the adjacent end of said jet nozzle in all slidable positions of said control valve.



3,567,130
DIFFUSER

Earl T. Holt, Gastonia, N.C., assignor to Wix Corporation, Gastonia, N.C.

Filed Aug. 7, 1969, Ser. No. 848,265
Int. Cl. B05b *9/00*
U.S. Cl. 239—326 **10 Claims**

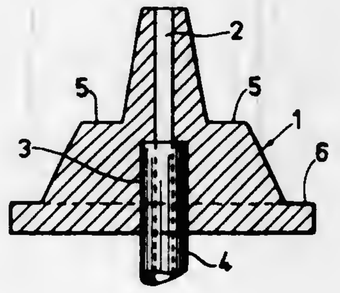


A diffuser having a pleated paper filter element within a closed body having only ingress and egress openings therein, an aerosol can containing a liquid under pressure, the liquid being a germicide, insecticide, deodorant, or the like and associated with the closed body. A nozzle associated with the aerosol can and operated by an operator is inserted into the closed body which is placed in position in an air circulating system whereby the contents of the aerosol can will be sprayed in the form of a fine mist or fog onto the filter element and where it will be diffused into the air circulating through the diffuser and carried into the system for distribution in a closed area.

3,567,131
NOZZLE FOR AEROSOL CONTAINERS AND OTHER SPRAY DEVICES

Ernst Claes Kare Loenegren, 2 Raustigen, Saltsjo-Duvnas, Sweden

Filed Sept. 19, 1967, Ser. No. 668,845
Claims priority, application Sweden, Sept. 23, 1966, 12831/66
Int. Cl. B05b *7/32*
U.S. Cl. 239—337 **3 Claims**

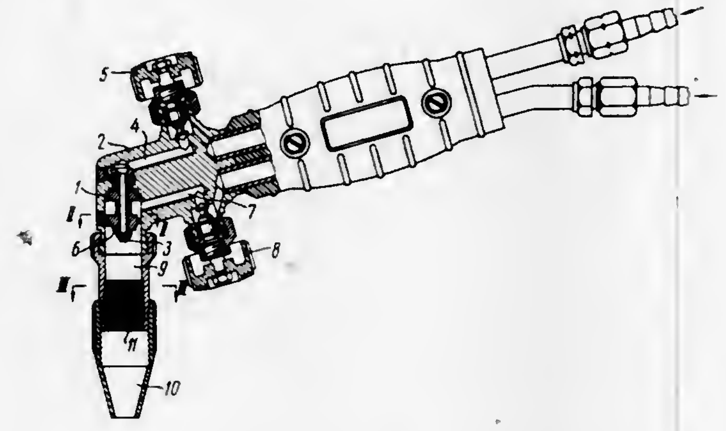


A spray nozzle for aerosols and other spray devices adapted for spraying an antifreeze agent and/or a lubricant into a lock, hinge, or the like. The nozzle comprises a generally conical member having an axially extending passageway for the discharge of material, and the nozzle toward its discharge end has diametrically opposed wedge-shaped portions removed therefrom so as to provide a cross-sectional width in one direction which is significantly less than that in a cross-sectional plane at right angles to the first, thereby providing a discharge end which may be readily inserted into a lock or the like but which nevertheless has sufficient strength to resist deformation.

3,567,132
GAS TORCH FOR WELDING PREFERABLY FUSIBLE MATERIALS, SUCH AS PLASTICS AND FOR SOLDERING SOFT ALLOYS

Andrei Nikolaevich Shashkov, Lomonksovsky prospekt, 23, kv. 550; Jury Ivanovich Nekrasov, Novo-Rogozhskaya ul, 5, kv. 125; Leonid Petrovich Guskov, Boitsoraya ul. 10 Korp 8, kv. 43; Nina Lvovna Frolova, 3, Peschanaya ul, 1, kv. 139; Vladimir Nikoaevich Potapov, ul. Junykn Lenintser, 69, kv. 50, and Jury Konstantinovich Rodin, ul. Kolyaeva, 4, kv. 15, Moscow, U.S.S.R.

Filed Aug. 12, 1968, Ser. No. 752,038
Int. Cl. B05b *7/04*
U.S. Cl. 239—405 **2 Claims**

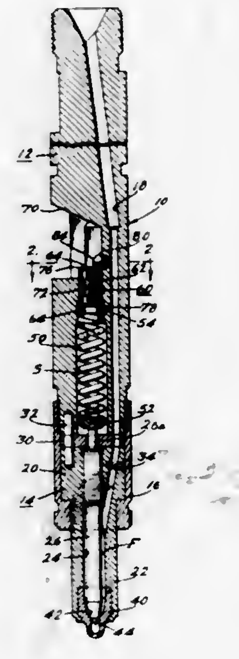


A gas torch comprises a hollow housing with channels for feeding combustible gas and air to a mixing chamber within the housing. Inside the housing and facing the channels is a nozzle communicating with the gas channel. The periphery of the nozzle is provided with spirallike projections disposed downstream of the air channel to effect primary eddying of the air. At the outlet end of the housing is an outlet nozzle and an additional vortex generator is disposed between the nozzles, the latter vortex generator being formed by threads on the inside walls of the housing.

3,567,133
PRESSURE ADJUSTING MEANS FOR FUEL INJECTION NOZZLES

Walter J. Gewinner, Springfield, Mass., assignor to Ambac Industries, Inc., Springfield, Mass.

Filed June 25, 1968, Ser. No. 739,878
Int. Cl. B05b *1/30*
U.S. Cl. 239—533 **5 Claims**

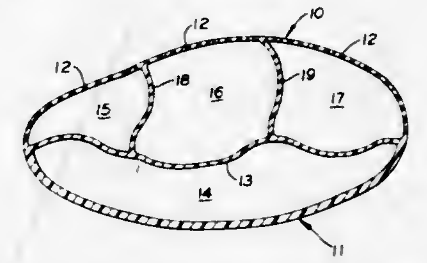


A fuel injection nozzle assembly comprising an elongated holder, a nozzle mounted at one axial end of the holder, a valve element mounted in an axial bore in the nozzle, means defining a spring chamber in said nozzle assembly for mounting therein a compression spring normally biasing the valve element to a closed position, pressure-adjusting means for said spring for selectively regulating the pressure at which the valve opens comprising an adjusting screw member mounted in a threaded axial bore in the holder engaging one end of said compression spring and a locking screw member engaging in a threaded opening extending transversely of said threaded axial bore adapted to engage said adjusting screw to lock the same in a predetermined adjusted position.

3,567,134
DUAL PURPOSE HOSE

Moyer W. Smith, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio

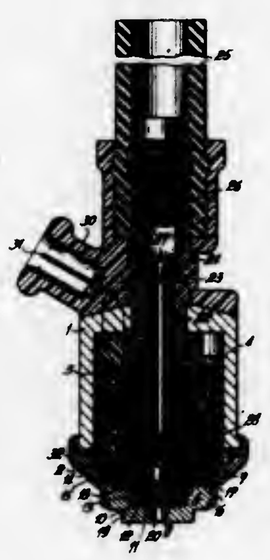
Filed Sept. 9, 1969, Ser. No. 856,356
Int. Cl. B05b *15/00*
U.S. Cl. 239—547 **6 Claims**



A flexible hose for selectively delivering fluid in different conditions, as for example, a stream of water for sprinkling or a multiplicity of fine jets or sprays for gradually soaking the soil. The hose has a flexible main partition wall with lateral partition walls extending therefrom to an adjacent perforate part of the outer hose wall. The main and lateral partition walls assume a substantially semicylindrical shape in conformance with the perforate part of the outer hose which is normally cylindrical when fluid is conducted along the opposite side of the main partition wall, and the main partition wall assumes a substantially flat shape and draws another part of the outer hose wall into substantial conformance therewith when fluid is conducted along the near side of the main partition wall, with the lateral partition walls forming separate compartments along said near side.

3,567,135
ELECTROMAGNETICALLY OPERATED FUEL INJECTION VALVE

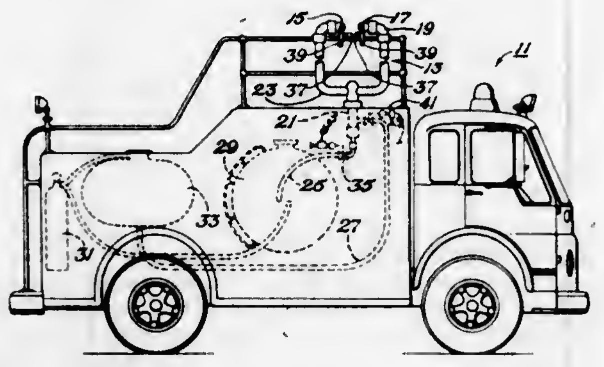
Horst Gebert, Stuttgart-Feuerbach, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Jan. 24, 1969, Ser. No. 793,648
Claims priority, application Germany, Jan. 30, 1968, P1,601,395.9
Int. Cl. B05b *1/30*
U.S. Cl. 239—585 **10 Claims**



An electromagnetically operated fuel injection valve wherein the armature has an annular sealing surface surrounded by an annular chamber and is normally biased against the rear side of a nozzle. The chamber receives fuel by way of one or more channels which extend from the peripheral surface of the armature toward the bottom surface of the channel so that their projections into the plane of the sealing surface are tangential to the chamber. This causes fuel which enters the chamber to circulate therein whereby the magnitude of the axial component of movement of the fuel determines the rate at which the fuel enters the orifice of the nozzle when the electromagnet is energized to retract the armature from the nozzle.

3,567,136
FULLY ROTATABLE TURRET FOR DELIVERING PLURALITY OF FIRE EXTINGUISHING AGENTS

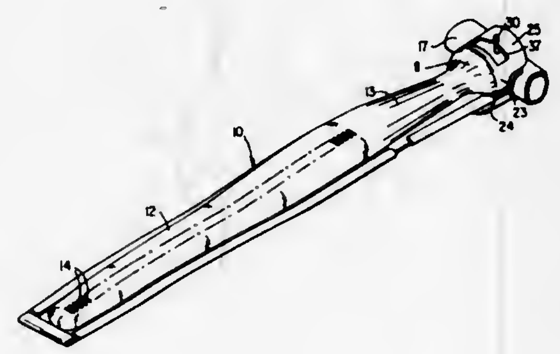
George A. Garrett, Fort Worth, Tex., assignor to Fire Control Engineering Company, Fort Worth, Tex.
Filed June 26, 1969, Ser. No. 836,697
Int. Cl. B05b *15/08*
U.S. Cl. 239—587 **7 Claims**



This specification discloses a turret for fire fighting equipment capable of delivering a plurality of fire extinguishing agents onto a fire, characterized by having a plurality of nozzle means connected respectively with a plurality of separate conduit means; a single support means adapted for effecting any segment of rotation, including 360° and more of rotation for the turret; and a plurality of concentric mounting and sealing means within the single support means. The concentric mounting and sealing means are each connected with respective ones of said conduit means to carry the respective fire extinguishing agents without admixing thereof and without entanglement of the respective conduit means. Also disclosed are specific elements; such as, the stationary external jacket serving as the single support means; the rotatable head; the respective conduit means; the swivel joints serving as the mounting and sealing means; the twin nozzles; and the disengageable locking means for effecting unitary operation of the twin nozzles, or allowing them to be operated separately.

3,567,137
GAS BURNER

Adrian V. Cavestany, Pasadena, and Harold R. Bissell, Jr., Hacienda Heights, Calif., assignors to Carrier Corporation, Syracuse, N.Y.
Filed Aug. 29, 1969, Ser. No. 854,080
Int. Cl. B05b *1/20, 1/00*
U.S. Cl. 239—600 **2 Claims**



The open intake end of the gas burner body is contoured for arcuate abutting engagement of not more than 180° with the supply manifold. A pin extends upwardly from the manifold into a slot formed in the upper side of the burner end and extending in a direction transversely of the manifold. The pin and slot, in conjunction with the arcuate engagement, provide the sole means to position and maintain the burner in accurate registration with the manifold orifice. Upon partial rotation of the burner about the manifold, it may be manually removed from the manifold.

3,567,138
USE OF SCREENING FOLLOWING MICRONIZING TO IMPROVE TIO$_2$ DISPERSIBILITY

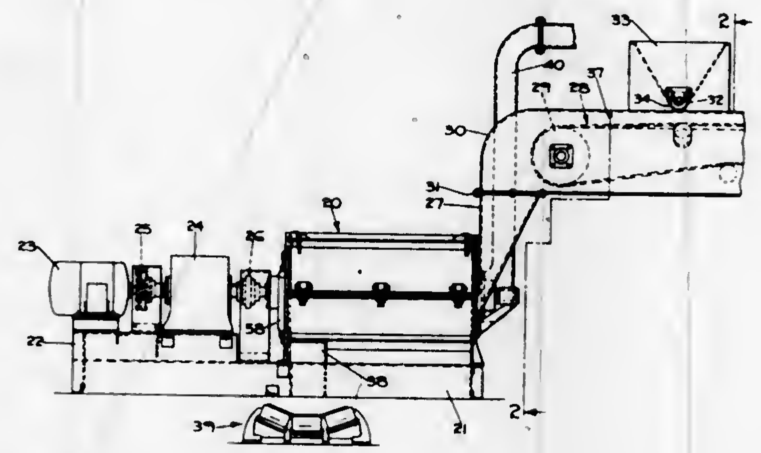
David P. Fields, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Feb. 8, 1968, Ser. No. 703,899
Int. Cl. B02c *13/00, 19/06, 19/12*
U.S. Cl. 241—5 **2 Claims**

TiO_2 pigments are specially prepared to give them ease of dispersion in organic media, especially plastics, by subjecting the dry pigment to fluid energy milling and then forcing the milled product through a screen.

3,567,139
METHOD OF MULLING

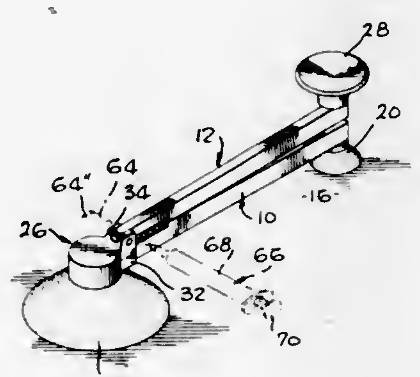
Karl H. Andrae, Columbus, Ohio, assignor to Jeffrey Galion Manufacturing Company
Original application Dec. 27, 1963, Ser. No. 333,936, now Patent No. 3,430,874, dated Mar. 4, 1969. Divided and this application June 7, 1968, Ser. No. 735,393
Int. Cl. B02c *15/08, 21/00*
U.S. Cl. 241—17 **5 Claims**

Method of mulling material in which the material is continuously delivered to and discharged from a receptacle. The material is dispersed in the receptacle and is distributed on the inner cylindrical mulling surface of the receptacle to be mulled on the mulling surface as the material continuously flows through the receptacle.



3,567,140
HYPODERMIC SYRINGE DESTRUCTION METHOD AND DEVICE THEREFOR

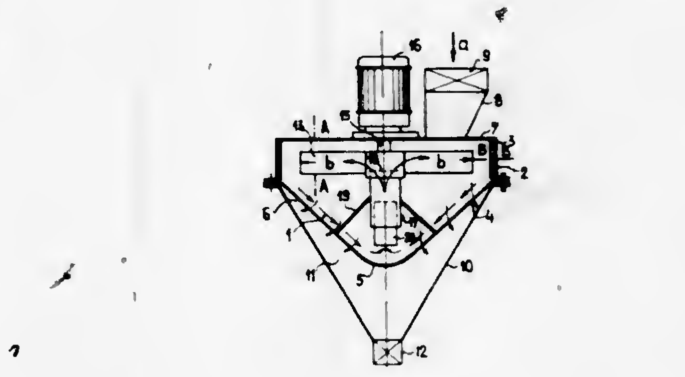
Melvin T. Paulson, 420 Eton Drive, Burbank, Calif. 91504
Filed Sept. 9, 1968, Ser. No. 758,232
Int. Cl. B02c *1/04, 19/12, 19/14*
U.S. Cl. 241—25 **12 Claims**



A method of and a manually operable destruction device for irreversibly disabling both the tubular metal needle portion and the pliable or rigid tubular plastic syringe portion of a disposable hypodermic syringe commonly known and referred to hereinafter as a hypodermic needle. A pair of pivotally connected levers have respective flat surfaces for flush engagement for irreversibly flattening the needle portion, and respective ridged surfaces for engaging the syringe portion and irreversibly deforming it so as to disable its fluid containment function as by creating an aperture therein. A pin projects from one of the levers adjacent its ridged surface for stopping and holding relatively large syringe portions against rolling out of the ridged surface region during deformation, and has a sharp point for piercing an overlapping bulge of a syringe portion caused by deformation. Interchangeable mounting means are provided for removable securement of the device to a surface of a table or counter.

3,567,141
MILL FOR GRINDING HARD MATERIALS

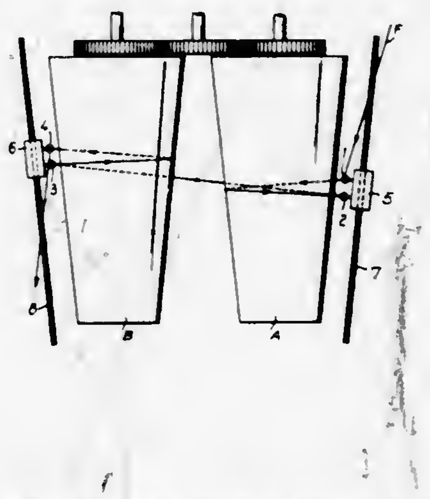
Olbracht Sylvester Zbraniborski; Henryk Zielinski, and Helmut Kilian Skiba, Zabrze, Poland, assignors to Instytut Chemicznej Prezerobki, Wegla, Zabrze, Poland
Filed July 22, 1968, Ser. No. 746,536
Claims priority, application Poland, July 25, 1967, P121,870
Int. Cl. B02c *19/00*
U.S. Cl. 241—48 **4 Claims**



A mill for grinding material in which a rotating element throws the material against a hard lining element, the material being circulated over a separating screen spaced from the lining element and thence back to the rotating element.

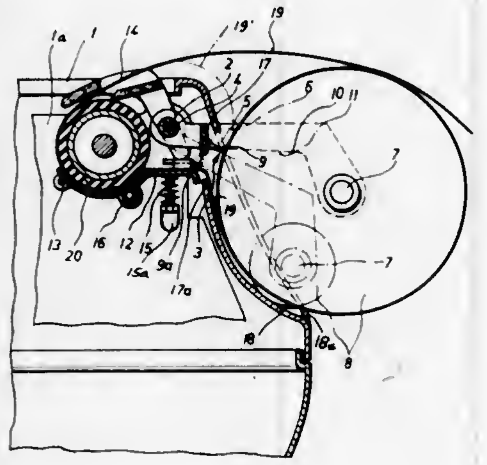
3,567,142
DEVICE FOR ADJUSTING THE TENSION OF YARN FED TO A YARN COMSUMING MACHINE

Bernard-Francois Helffer, Les Vergers, France; Jean-Pierre A. Raisin, Troyes, and Eugene J. Voisin, Les Verges, France, assignors to Institut Textile De France, Boulogne S, Seine, France
Original application May 17, 1966, Ser. No. 550,715, now Patent No. 3,451,603, dated June 24, 1969. Divided and this application Feb. 18, 1969, Ser. No. 800,207
Int. Cl. B65h *51/08*
U.S. Cl. 242—47.08 **5 Claims**



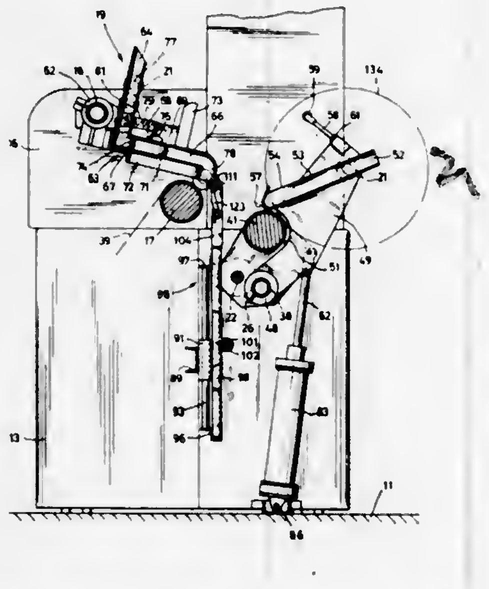
A device for feeding a high-stretch yarn to a yarn-consuming machine at a constant speed and tension in which a delivery yarn guide supplies the yarn at an uncontrolled tension to a pair of rollers driven at different speeds over which the yarn is looped, which rollers impart to the yarn a constant speed and a tension which is higher than the decrimping tension and subsequently ease the imparted tension so that the yarn assumes a hysteresis characteristic relative to the stretch/load curve of the yarn produced by the application of the imparted tension so as to achieve a delivery tension but which may be varied without the production of appreciable variation in length of the yarn.

3,567,143
PAPER GUIDING ARRANGEMENT FOR A BUSINESS MACHINE
Alfred Hesse, and Karl-Heinz Rosing, Wilhelmshaven, Germany, assignors to Olympia Werke A G, Wilhelmshaven, Germany
Filed Nov. 12, 1968, Ser. No. 775,003
Claims priority, application Germany, Nov. 25, 1967, O12903
Int. Cl. B41j *15/04;* **B65h** *19/00*
U.S. Cl. 242—55 **10 Claims**



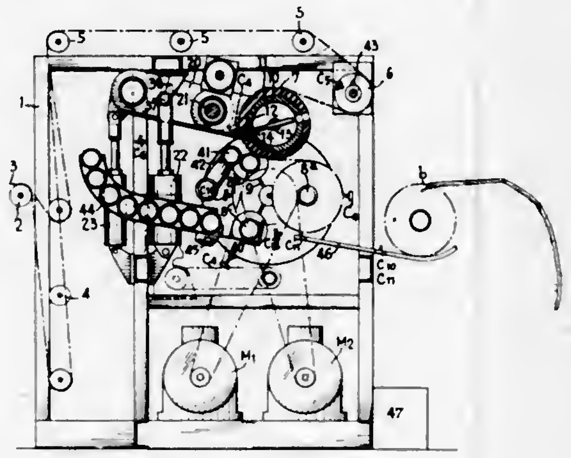
A paper roll supplies a paper band through an inlet opening in the housing of a business machine to a platen which transports the paper band back towards the top of the paper roll. When the diameter of the paper roll is small, the paper band is curved and tends to reenter the inlet opening which is prevented by a closure means mounted on the carrier of the paper roll and substantially closing the inlet opening when the carrier is displaced due to the reduction of the diameter of the paper roll.

3,567,144
APPARATUS FOR WINDING SHEET MATERIAL
Jurgen Dambroth, Landesgut Wienebuttel, Germany, assignor to Famatex G.m.b.H., Postfach, Germany
Filed Jan. 14, 1969, Ser. No. 790,934
Claims priority, application Germany, Jan. 19, 1968, 1,710,576
Int. Cl. B65h *35/04*
U.S. Cl. 242—56 **25 Claims**



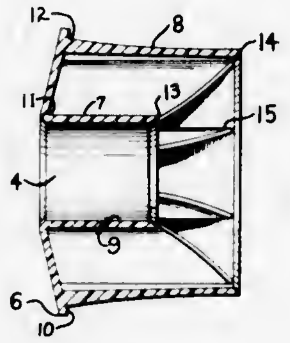
Two parallel spaced rollers form a nip or seat in engagement with which the sheet material is wound on a roll rod. A roll rod guide is at each end of the roller pair and is pivotable with the downstream roller to move a roll rod between a rolling position in the nip, a cutting position and a discharge position. Moveable cutting means are coupled to the roller drive and cut the sheet in the vicinity of the nip.

3,567,145
METHOD AND APPARATUS FOR WINDING UP SUCCESSIVE SEGMENTS OF A CONTINUOUSLY DELIVERED STRIP
Michel Ernoult, Croix, and Pierre Pennel, Wasquehal, France, assignors to Les Plastiques De Roubaix and Anciens Etablissements Repiquet, Bobigny, France
Filed Sept. 18, 1968, Ser. No. 760,631
Claims priority, application France, Sept. 19, 1967, 121,430
Int. Cl. B65h *35/04*
U.S. Cl. 242—56 **11 Claims**



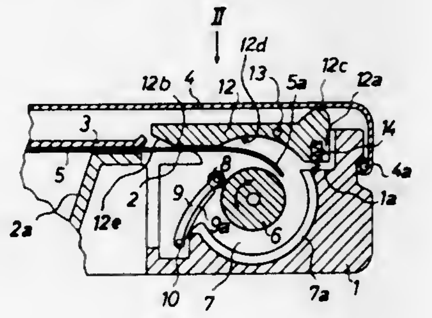
A strip-winding machine for winding on mandrels segments cut from a continuously delivered strip of material, the strip being cut at the end of the winding on a given mandrel by means of a blade carried by a movable blade carrier, which is applied onto a rotating empty mandrel into the surface of which the blade can penetrate, so that at the end of the cutting the transverse leading edge of the strip is automatically pressed by the blade against the surface layer of the mandrel, ensuring the initiation of the winding on the empty mandrel by maintaining for a short time the strip clamped between the mandrel and the movable blade carrier.

3,567,146
END CORE FOR ROLLS OF PAPER
Herbert Arenson, Shawnee Mission, Kans., assignor to United States Caster Corporation, Overland Park, Kans.
Filed June 2, 1969, Ser. No. 829,311
Int. Cl. B65h *75/02*
U.S. Cl. 242—68.6 **8 Claims**



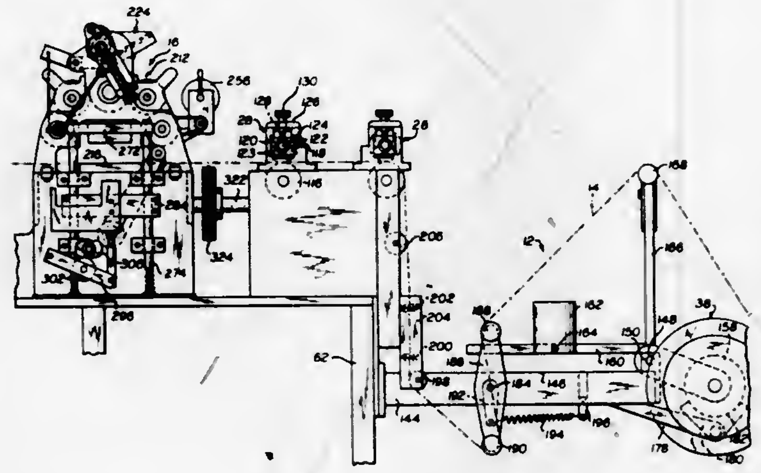
An end core for mounting in opposite ends of a roll of paper for rotatably supporting same has concentric inner and outer substantially cylindrical walls connected at one end by an end wall with a portion extending beyond the outer wall to form an annular flange. The end wall, flange and inner and outer walls have a radial slot extending longitudinally of the core. Reinforcing members are circumferentially spaced and extend radially between the inner and outer core walls with a pair of the reinforcing members being in facing relation with facing surfaces aligned with the slot. The core structure and slot permit contraction for insertion into a roll of paper and then expansion of the core into tight engagement with the inner convolution of the paper roll.

3,567,147
PHOTOGRAPHIC APPARATUS WITH AUTOMATIC FILM THREADING MECHANISM
Dieter Engelsmann, Unterhaching; Rolf Schroeder, and Heinz Ernst, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Feb. 6, 1969, Ser. No. 797,023
Claims priority, application Germany, Feb. 14, 1968, P 16 22 173.1
Int. Cl. G03b *1/04*
U.S. Cl. 242—71.1 **17 Claims**



A still camera wherein the inlet of the takeup chamber is adjacent to the discharge end of a film channel. A two-armed lever is pivotally mounted in the camera body behind the takeup chamber so that one of its arms defines with the discharge end of the channel a narrow gap for automatically directing the leader of roll film toward and through the inlet of the takeup chamber. The latter accommodates a rotary takeup reel and a deflecting device which causes the leader to convolute itself around the reel in response to actuation of the film transporting mechanism.

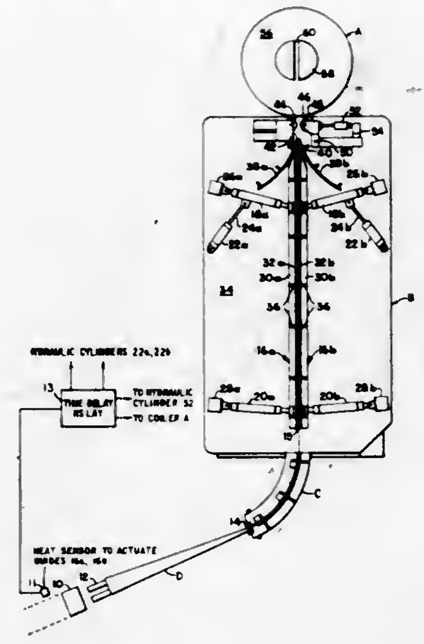
3,567,148
CONSTANT TENSION PAPER SUPPLY MECHANISM
Gerald J. Ottavan, Ridgefield, N.J., assignor to Allamatic Corporation, Cliffside Park, N.J.
Filed June 13, 1968, Ser. No. 736,768
Int. Cl. B65h *77/00*
U.S. Cl. 242—75.43 **6 Claims**



A paper supply mechanism especially adapted for supplying pressure sensitive adhesive backed label material, which supply mechanism includes a constant tension means comprising a self-adjusting brake which compensates for loss of paper roll mass, and a tension indicating means.

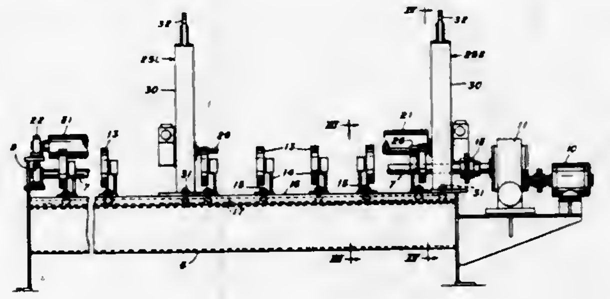
3,567,149
AUTOMATIC STRIP COILER
Calvin C. Williamson, Costa Mesa, Calif., assignor to Soule Steel Company, San Francisco, Calif.
Filed Oct. 16, 1968, Ser. No. 767,947
Int. Cl. B21c *47/04, 47/32*
U.S. Cl. 242—78.1 **4 Claims**

An automatic strip coiler with a twist guide for turning the strip on edge and into an elongate strip guide. The strip guide is openable to form a looping box. The coiler has a rotating flywheel table with a split drum mounted thereon. An infrared sensor connected to a time delay mechanism opens



the guide chutes to form a looping box when the strip end enters the split drum. At the same time, the flywheel table accelerates the split drum to commence winding the strip.

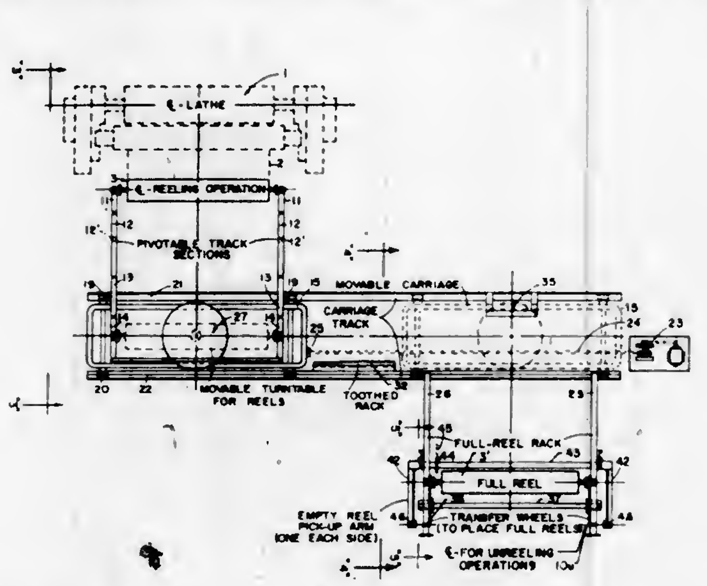
3,567,150
BUNDLE TIGHTENER
John F. Nelson, Concord, Calif., assignor to United States Steel Corporation
Filed Mar. 7, 1969, Ser. No. 805,215
Int. Cl. B21c *47/02*
U.S. Cl. 242—78.1 **14 Claims**



Apparatus for tightening a bundle of flexible steel mat by applying torque to its center as it is wound by rolling on a supporting cradle so that successive convolutions of the mat will be snugly engaged about the bundle, the torque being applied by members that have gripping engagement with opposite edges of the mat at the center of the bundle. The gripping members which apply the torque are rotated by rotary air motors that form part of a mechanical drive and are mounted for vertical floating movement so that they move upwardly with the center of the bundle as its vertical spacing with respect to the supporting cradle increases with the diameter of the bundle. Provision is made for increasing the torque developed by the air motors as the bundle increases in size, this being accomplished by a vertical cam which operates a control valve to increase the pressure of the air supplied to the motors as the torque applying members move upwardly with the center of the bundle.

3,567,151
HANDLING SYSTEM FOR VENEER REELS
Allan E. Williams, Mellen, and Royal C. Cady, Highbridge, Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed June 12, 1969, Ser. No. 832,806
Int. Cl. B21c *47/24*
U.S. Cl. 242—79 **11 Claims**

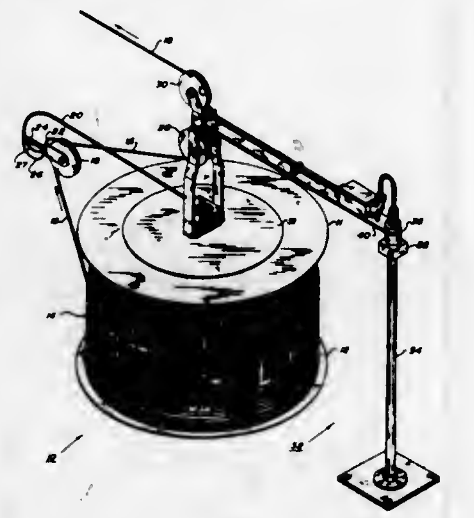
An automatical operating track and conveyor system for handling wood veneer reels. The system includes a turntable on a laterally movable carriage such that a full reel may be turned 180° for suitable "unreeling" positioning, power operated transfer wheels for lifting a full reel into the final



"unreeling" position, power operated lifting arms for moving empty reels onto an empty track, and means to convey and return an empty reel back to the "reeling" position for receiving veneer from the log cutting lathe.

3,567,152
UNREELING MECHANISM FOR WIRE AND TUBING

Raymond A. Heisler, 657 Dakota Trail, Franklin Lakes, N.J.
Filed Sept. 9, 1969, Ser. No. 856,301
Int. Cl. B65h *49/00*
U.S. Cl. 242—128 **10 Claims**

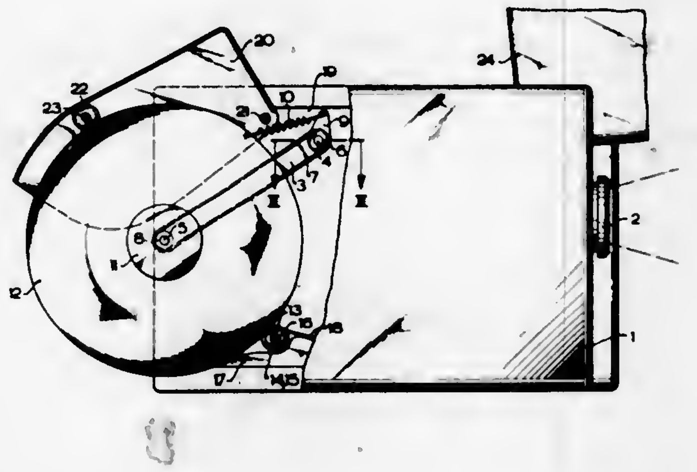


An unreeling mechanism adapted to permit determined lengths of tubing, wire and the like to be intermittently drawn from a supply reel while retaining the remaining coils on the reel in their wound condition. A feeding arm is disposed to rotate around a support, and is adapted to receive the strand from the coil and in response to the tension in the strand being delivered, disengages a brake so as to permit the feeding arm to rotate around the reel. There is additionally provided an automatic shutoff switch which is actuated by an excessive pull on the delivering strand to cause a shutdown of the processing line and/or a signal to be actuated.

3,567,153
WINDING DEVICE FOR TAPES

Dietrich Becker; Fritz Krumbein, Stuttgart-Moehringen, and Gerhard Boerner, Boeblingen, Germany, assignors to Zeiss Ikon Aktiengesellschaft, Stuttgart, Germany
Filed Jan. 23, 1969, Ser. No. 793,286
Claims priority, application Germany, Feb. 17, 1968, P 15 74 644.8
Int. Cl. B65h *59/38;* **G03b** *1/04;* **G11b** *15/32*
U.S. Cl. 242—186 **5 Claims**

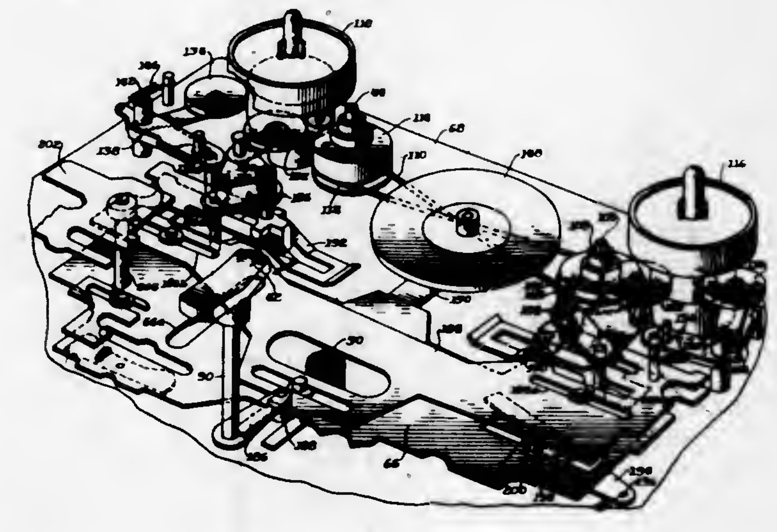
A tape winding device for picture projecting, picture producing, sound recording and sound reproducing apparatus in which the tape is always moved with uniform speed regardless of the diameter of the tape spool on the winding core. This is accomplished by a friction clutch



operatively connected with the drive of the winding core in such a manner that the frictional power of the friction clutch is gradually increased with the increasing diameter of the tape spool forming on said winding core.

3,567,154
TAPE RECORDER

Gordon E. Bradt, Wilmette; John W. Hipelius, Skokie; Leslie W. Johnson, Chicago; Zbigniew Mychal, Chicago, Ill., and George B. Shields, Waltham, Mass., assignors to Bell and Howell Company, Chicago, Ill.
Filed June 19, 1968, Ser. No. 738,274
Int. Cl. B65h *63/02;* **G11b** *15/32*
U.S. Cl. 242—190 **21 Claims**



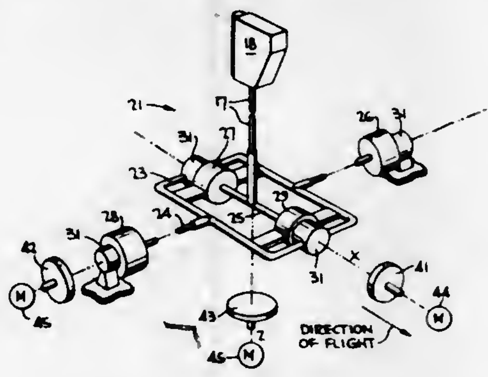
The disclosed tape recorder has a program mechanism for automatic preselection of the tape play cycle to provide forward, forward-reverse and continuous playing of the tape between the storage reels.

A primary control slide is shifted to either side of a neutral position by drive means that is powered from a unidirectional motor. Drive members at opposite ends of a center pivoted, rotatable rocker arm are alternatively pivoted upwardly into a plane of engagement with the control slide according to a desired direction of movement of the slide.

A manually operable selector knob is rotated in opposite directions from a center position to initiate tape transport in the selected direction after which it is promptly restored to its center position by control mechanism of the recorder. Mere depression of the selector knob places the recorder in a neutral or quiescent condition regardless of the programmed operating mode.

3,567,155
GRAVITY GRADIENT ATTITUDE CONTROL SYSTEM

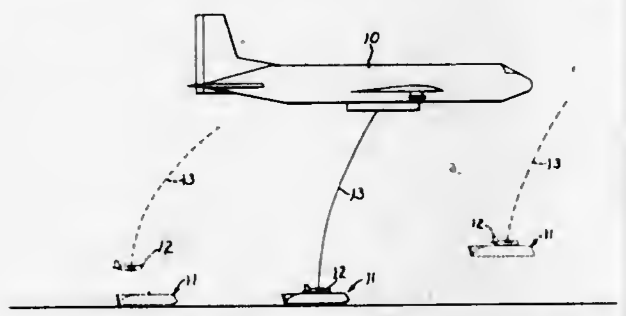
James A. Gatlin, Bowie; Henry C. Hoffman, Baltimore; Henry W. Price, College Park, and Benjamin G. Zimmerman, Forest Heights, Md. Administration the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 20, 1968, Ser. No. 785,620
Int. Cl. B64g *1/00*
U.S. Cl. 244—1 **11 Claims**



A system for controlling and stabilizing the attitude of an artificial earth satellite includes a gravity gradient member mounted in a gimbal arrangement to have 2° of freedom. The angular deviation of the gravity gradient member and the satellite relative to the local vertical and the spacecraft angle command input signal selectively drive a plurality of inertial momentum wheels, one for each of the three spacecraft axes, provided to dampen the gravity gradient member librations. The gravity gradient member is controlled so that the equilibrium position of the longitudinal axis thereof is maintained in alignment with the local vertical in response to signals indicative of the rate of change of movement thereof with respect to the remainder of the satellite and a signal indicative of the angular deviation of the satellite position from the angle command.

3,567,156
AIRCRAFT AND VEHICLE COMBINATION

Davis L. Bauer, Hatton, Wash. (Star Route, Connell, Wash., 99326)
Filed Oct. 9, 1969, Ser. No. 865,025
Int. Cl. B64d *5/00*
U.S. Cl. 244—2 **8 Claims**

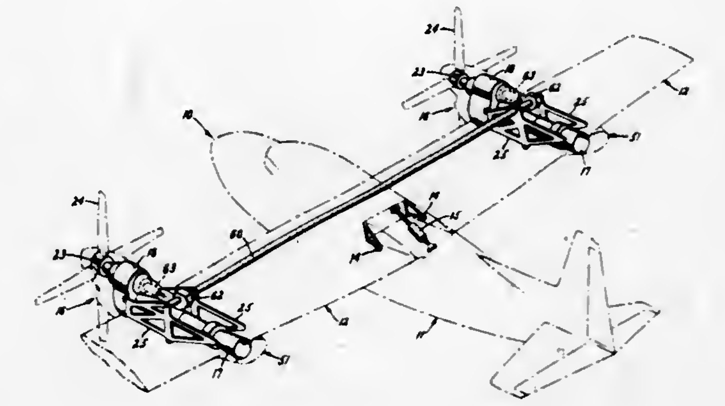


A primary aircraft has an enlarged interior recess within which one or more surface vehicles can be received. Reception of surface vehicles is accomplished during flight of the primary aircraft. The surface vehicles are selectively attached to a secondary aircraft suspended by cable and retrieved into the primary aircraft along with the vehicle.

3,567,157
AIRCRAFT PROPULSION MOUNTING ARRANGEMENT

Paul J. Dancik, Broomall, Pa., assignor to The Boeing Company, Seattle, Wash.
Original application Dec. 30, 1966, Ser. No. 606,310, now Patent No. 3,439,888, dated Apr. 22, 1969. Divided and this application Dec. 11, 1968, Ser. No. 798,842
Int. Cl. B64c *29/00, 27/28*
U.S. Cl. 244—7 **10 Claims**

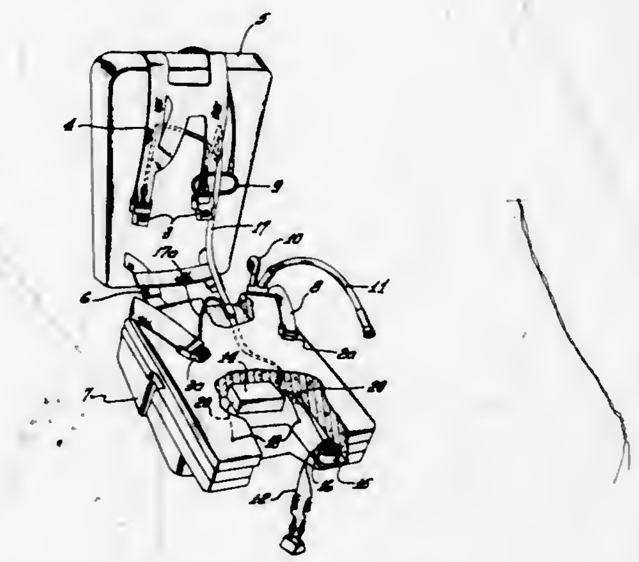
A v/STOL aircraft having a wing and propulsion mounting arrangement wherein a propulsion unit is secured to a rotatable wing, which wing is capable of moving between a substantially vertical position and a substantially horizontal position. The propulsion unit, in turn, is adapted to move in con-



junction with the wing or relative to the wing so that the wing and the engine may be rotated together or separately during transition from vertical to forward flight and vice versa.

3,567,158
AUTOMATIC SYSTEM

Jan R. Coyle, San Dimas, Calif. (P. O. Box 297, Milford, Utah 84751)
Filed Feb. 19, 1969, Ser. No. 800,486
Int. Cl. B64d *25/10*
U.S. Cl. 244—122 **9 Claims**



An automatic system in which a device is automatically actuated upon immersion of a water activated switch.

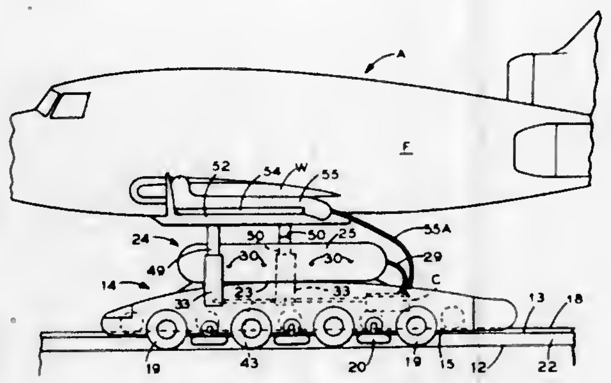
Such a system which is energized by a normally inactive battery.

Such a system in which the device is a canopy release buckle.

3,567,159
EMERGENCY AIRCRAFT LANDING DEVICE

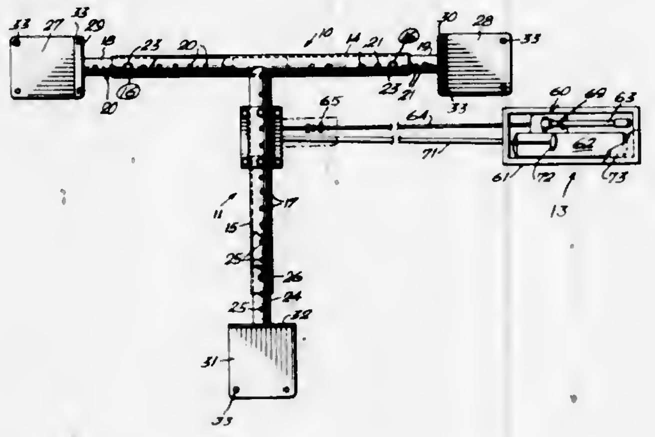
Larry Klein, 3856 Bronx Blvd., Bronx, N.Y. 10467
Filed Oct. 31, 1968, Ser. No. 772,147
Int. Cl. B64f *1/00*
U.S. Cl. 244—114 **3 Claims**

A landing device for emergency use by aircraft having damaged or inoperable landing gear wherein a vehicle or buggy is propelled along a given path for receiving the aircraft, together with a first cushion system for initially receiving the wing portions of the aircraft and a second cushion



system for thereafter receiving the fuselage portions of the aircraft in a transfer operation from the first cushion system.

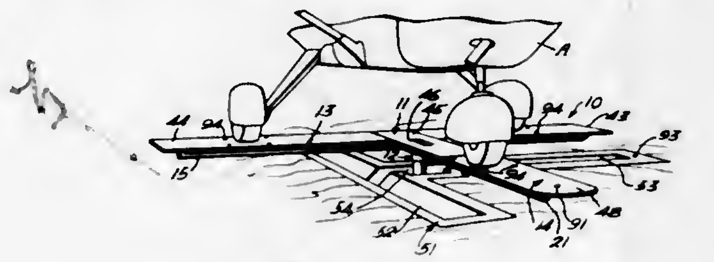
3,567,160
AIRCRAFT WEATHERVANING DEVICE
Earl G. Adams, 2130 N.W. 13th St., Fla., and Edmund L. Eveleth, 10901 S.W. 180th St., Miami, Fla. 33157
Continuation-in-part of application Ser. No. 656,533, July 27, 1967. This application Apr. 3, 1969, Ser. No. 813,253
Int. Cl. B64f *1/12*
U.S. Cl. 244—115 **6 Claims**



An aircraft weathervaning device having a supporting framework rotatably journaled with respect to a fixed cylinder and movable axially between a first position against the ground, whereat the aircraft is moved into place and secured, and a second position a few inches above the ground whereat the supporting framework, together with the aircraft, is free to turn in weathervane fashion always to face into the wind. The supporting framework is in the form of a T-bar having adjustable arms terminating in wheel pads adapted to receive and have lashed thereto the wheels of a tricycle landing gear. The T-bar supporting framework can readily be modified into an H-bar configuration for supporting a circular deck to accommodate movable wing aircraft.

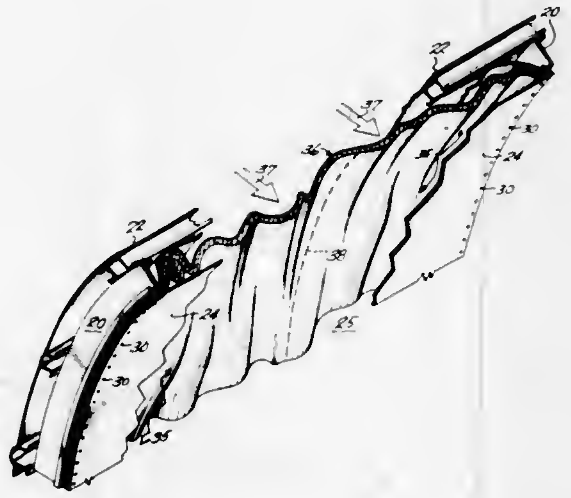
3,567,161
WEATHERVANING TIE-DOWN DEVICE FOR AIRCRAFT
Earl G. Adams, 2130 N.W. 13th St., Fla., and Edmund L. Eveleth, 10901 S.W. 180th St., Miami, Fla.
Continuation-in-part of application Ser. No. 813,253, Apr. 3, 1969. This application June 17, 1969, Ser. No. 834,120
Int. Cl. B64f *1/12*
U.S. Cl. 244—115 **10 Claims**

A weathervaning tiedown device for tricycle landing gear light aircraft is described, comprising an aircraft supporting framework and mechanism for elevating and lowering the supporting framework between a position at ground level, whereat an aircraft can be moved into place for tie down, and an elevated position, whereat it is free to rotate with the weathervaning aircraft. The supporting framework comprises a flat T-shaped deck for placement for tie down of the aircraft. The elevating mechanism comprises a foundation in the form of a below-level trough receivable within which is



the understructure of the framework in such a manner as to permit underside portions of the flat framework deck to rest flush against the ground when in lowered or ground level position.

3,567,162
FIRE STOP INSULATION
James M. Lea, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 9, 1968, Ser. No. 783,461
Int. Cl. B64c *1/10*
U.S. Cl. 244—121 **2 Claims**



An aircraft wall-fuselage construction containing an insulation material which material is formed in an accordion pleated or corrugated fashion and positioned with its ridges towards the interior wall and exterior wall or fuselage alternately. When a rupture, crack or puncture is caused in the wall structure by an aircraft crash, the insulation will unfold, cover and shield the caused opening so that flames, smoke and harmful fluids, etc. cannot enter the interior of the aircraft. A layer of fire-resistant material has been added to the insulation so that a fire-stop shielding quality is obtained.

3,567,163
GUIDANCE SYSTEM
Robert B. Kepp, Orlando, Fla., and Raymond C. Shreckengost, Rockville, Md., assignors to Martin-Marietta Corporation, Middle River, Md.
Filed Oct. 8, 1964, Ser. No. 402,661
Int. Cl. F41g *7/10*
U.S. Cl. 244—3.14 **14 Claims**

A missile guidance system comprising an optical system for receiving spectral energy from both a target and a missile, said optical system having an optical boresight axis, means in said optical system for separating target spectral energy from missile spectral energy, a target camera tube coupled to said optical system for developing an electrical signal representative of said target energy, a missile camera tube coupled to said optical system for developing an electrical signal representative of said missile energy, a TV monitor, means for feeding both said target energy signal and said missile

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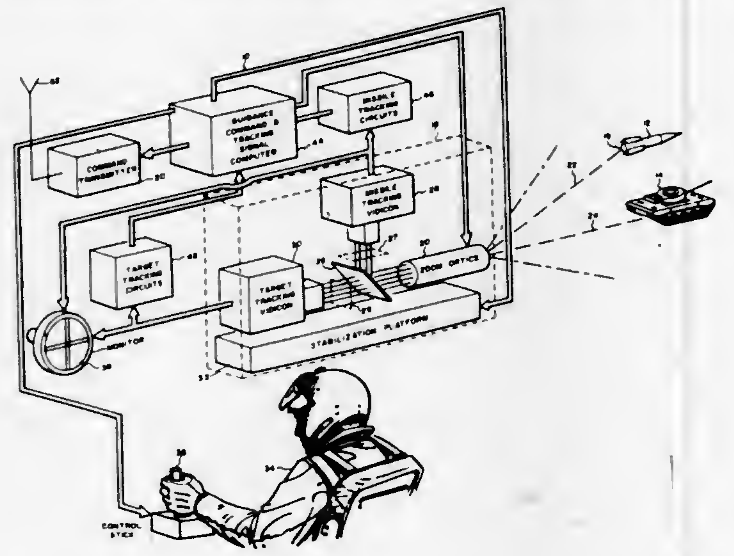
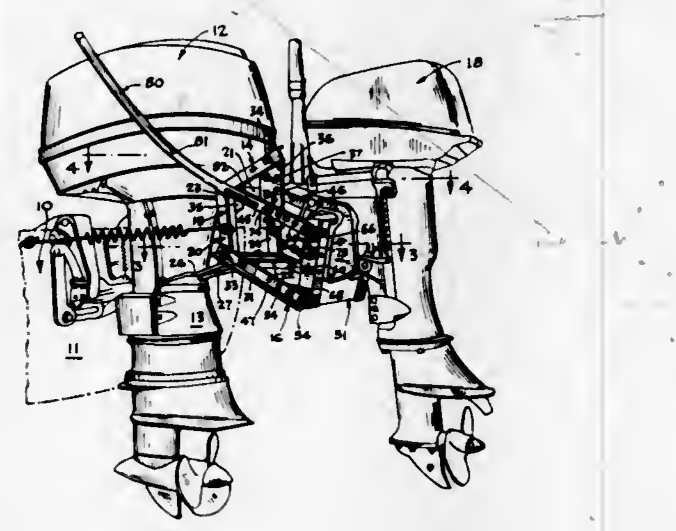
energy signal to said TV monitor, a target tracking circuit for developing a difference signal representative of the difference in the line of sight position of said target from said boresight axis, means coupling said target energy signal to said target tracking circuit, a missile tracking circuit for developing a difference signal representative of the difference in the line of sight position of said missile from said boresight axis, means coupling said missile energy signal to said missile tracking circuit, means for comparing said difference signals to produce an error signal, and means for transmitting said error signal as a correction signal to said missile.



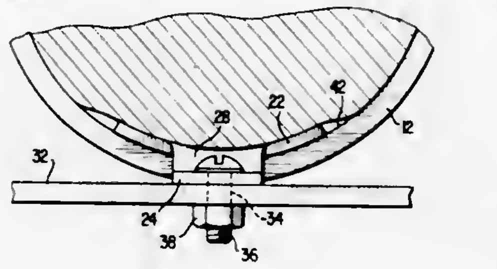
3,567,164
OUTBOARD MOTOR SUPPORT
Ruben V. Hakala, Waukegan, Ill., assignor to Henry J. Schueneman
Filed Feb. 10, 1969, Ser. No. 797,859
Int. Cl. B63h *21/26*
U.S. Cl. 248—4 **3 Claims**



An outboard motor support means which is particularly adapted for attachment to a primary outboard motor mounted on a boat transom and which has a fixed support section with a movable support section pivotally mounted thereon having means for supporting an outboard motor, and with the movable support section having a lever means extending forwardly toward the boat for pivotally moving the movable support section, thereby effecting vertical movement of the outboard motor into or out of the water. A latch means is also provided for holding the movable support section and the outboard motor in a selected vertical position.

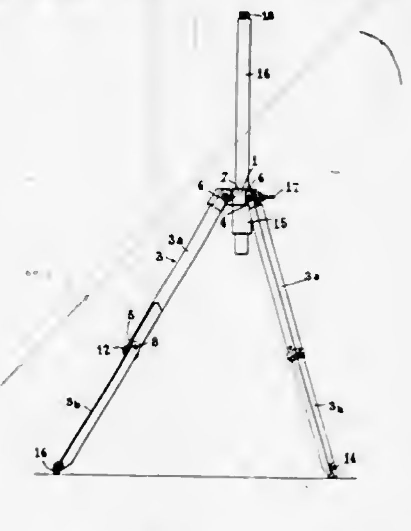
Spring means are also preferably provided which connect the opposite sides of the fixed support section of the outboard motor support means to the opposite end portions of the boat transom to automatically center the outboard motor mounted thereon when the steering mechanism is unattended and maintain the boat traveling along a straight course.

3,567,165
SECURING MEMBER FOR A CLAMP
James C. White, P. O. Box 5454, Greenville, S.C. 29606
Filed Dec. 20, 1968, Ser. No. 785,598
Int. Cl. F16l *3/14*
U.S. Cl. 248—68 **4 Claims**



A securing member for a circular conduit-enveloping clamp wherein the securing member has a curvilinear saddle which engages a portion of the inner clamping surface of the clamp and a pair of leg portions integrally formed with the saddle and extending from opposed side edge portions thereof in a first downwardly and subsequently outwardly direction therefrom such that the leg members engage the surface onto which the clamp is to be secured, and an aperture in one of the leg members for receiving a fastener.

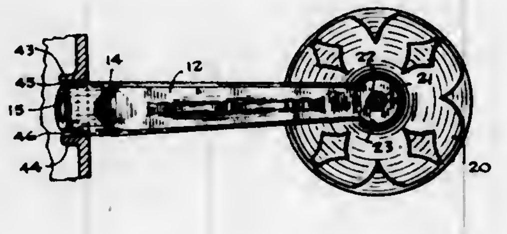
3,567,166
STENOTYPE TRIPOD
Francoise Grandjean, Paris, France, assignor to Stenotype Grandjean, Societe Anonyme, Paris, France
Filed Feb. 15, 1968, Ser. No. 705,768
Claims priority, application France, Nov. 20, 1967, 128,844
Int. Cl. F16m *11/38*
U.S. Cl. 248—170 **1 Claim**



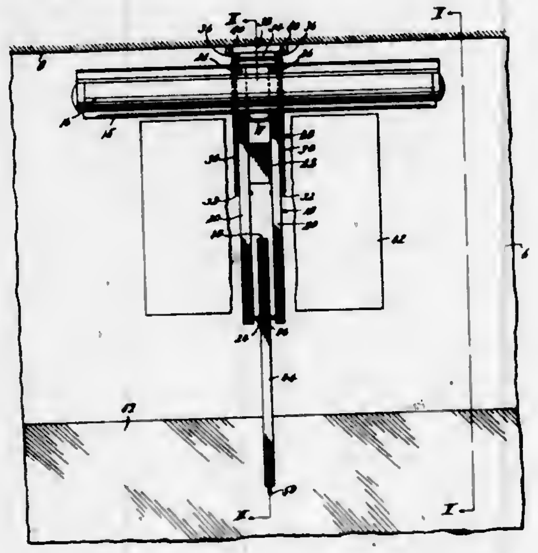
A detachable stand for supporting a machine such as a stenotype, which comprises a socket, fastening means for securing the stenotype to said socket, three legs pivotally connected by their upper ends to said socket, each leg comprising an upper section and a lower section consisting of channel elements having their aperture facing inwards and pivotally interconnected so that they can assume, in an operative position of said stand, either a first position in which said pair of leg-forming sections are in mutual alignment and such that when said stand is placed on the floor the stenotype is at a proper level for an operator sitting on a chair, or another position in which said lower section is folded into said upper section and such that when said stand is placed on a table, the stenotype is at a proper height for a standing operator.

3,567,167
FREELY ENGAGEABLE SUPPORT MEMBER
Walter Koziol, Russell, Ill., assignor to Charmglow Manufacturing Company, Antioch, Ill.
Filed Jan. 28, 1969, Ser. No. 794,500
Int. Cl. A47g *29/00;* **A47f** *5/00*
U.S. Cl. 248—223 **3 Claims**

A freely engageable support member which can be inserted and retained in a hole by means of an engaging end with a lip insertable in the hole and contacting the inner adjacent wall surface of the hole while a center section of the engaging end rests by weight of gravity in the hole and on a portion of the wall forming the lower part of the hole. An outer flange extends downwardly from the center section and contacts the outer surface of the wall adjacent the hole, the lip and the flange preventing the support from falling outwardly when placed in the hole with the support having an object attached to its end opposite the engaging end, the weight of which causes the lip and flange to contact the inner and outer sides of the wall surrounding the hole.



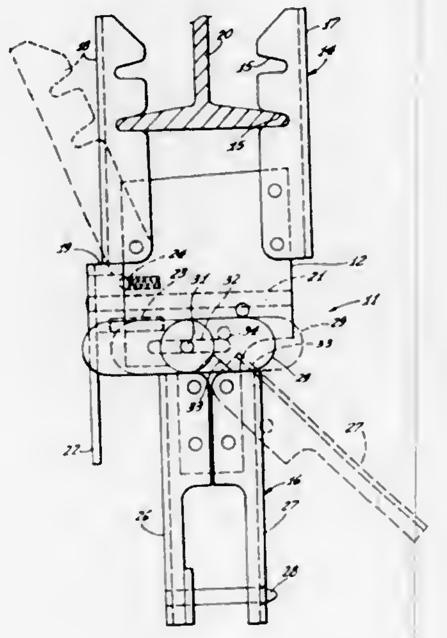
3,567,168
OVERHEAD PROJECTION SCREEN HOLDER
Ambrose M. Jennings, Box 176, Basehor, Kans.
Filed Sept. 11, 1968, Ser. No. 759,109
Int. Cl. G03b *21/56*
U.S. Cl. 248—284 **8 Claims**



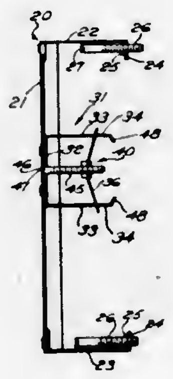
A holder for mounting a projection screen against a wall in such a manner that the top of the screen may be moved outwardly from said wall to incline the screen, said holder consisting of an arm adapted to lie vertically against a wall, a link pivoted at its upper end to said wall above said arm, and at its lower end to the midpoint of said arm, on horizontal axes parallel to the wall, whereby said arm may be inclined outwardly from the wall with its lower end engaging the wall, the upper edge of the screen being attached to the upper end of said arm, and a generally vertical bar attached to the lower end of said arm and extending downwardly therefrom, whereby said arm may be manipulated, the lower edge of said screen being attachable to the lower end of said bar.

3,567,169
CONNECT-DISCONNECT FIXTURE
Thomas M. Frederick, Palos Verdes, and Leslie W. Baxter, Cypress, Calif., assignors to Northrop Corporation, Beverly Hills, Calif.
Filed Jan. 12, 1970, Ser. No.
Int. Cl. B66d *3/00*
U.S. Cl. 248—317 **4 Claims**

An attach-detach fixture including means enabling the fixture to be releasably secured to overhead structure while retaining large components such as plates, pahels etc. thereon in a releasable, suspended and locked relation including means precluding the possibility of electrolytic action between components carried by the fixture and overhead structure to which the fixture is attached.



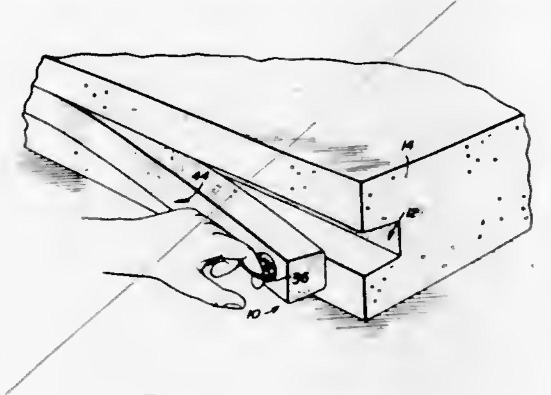
3,567,170
BRACKET FOR MOUNTING A DISPLAY SCREEN
Percy Frederick Albee, Jr., Barrington, and Eric Scott, Lincoln, R.I., assignors to Q-Panel Corporation
Filed Dec. 11, 1968, Ser. No. 783,018
Int. Cl. A47g *1/16*
U.S. Cl. 248—475 **4 Claims**



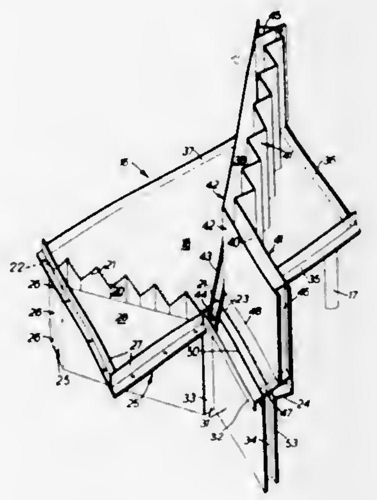
A bracket having legs to engage a wall or other substantially vertical surface with jaws intermediate the legs which grip a map rail on a blackboard or any protrusion such as moldings that project from a wall surface including means to provide a rigid base for mounting a screen or similar visual display.

3,567,171
KEY FORM
Robert L. Slominski, Point Mountain Road R.D. 2, Washington, N.J. 07882
Filed July 11, 1968, Ser. No. 744,077
Int. Cl. E01c *11/04*
U.S. Cl. 249—9 **4 Claims**

A key form for concrete made of a flexible plastic composition and employed to form a keyway or depression in poured concrete. Removal of the form is facilitated by means of handles flush in the form. A method for forming a keyway includes the nailing of the key form to an inward surface of a concrete form. After removal of the concrete form and subsequent removal of the key form, a keyway is revealed.



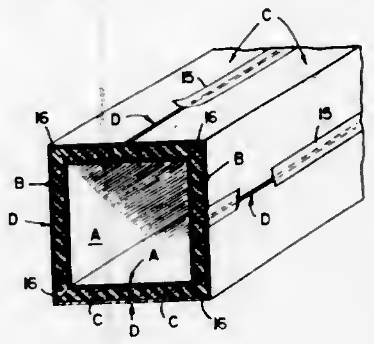
3,567,172
STAIRCASE UNIT AND MOULD FOR MAKING SAID UNIT
John Desmond Peacock, Gerrards Cross, and Ian Sim Wilson, Oakley Green, near Windsor, England, assignors to Concrete Limited
Filed May 20, 1968, Ser. No. 730,347
Claims priority, application Great Britain, Apr. 26, 1968, 20069/68
Int. Cl. B28b *7/22*
U.S. Cl. 249—14 **8 Claims**



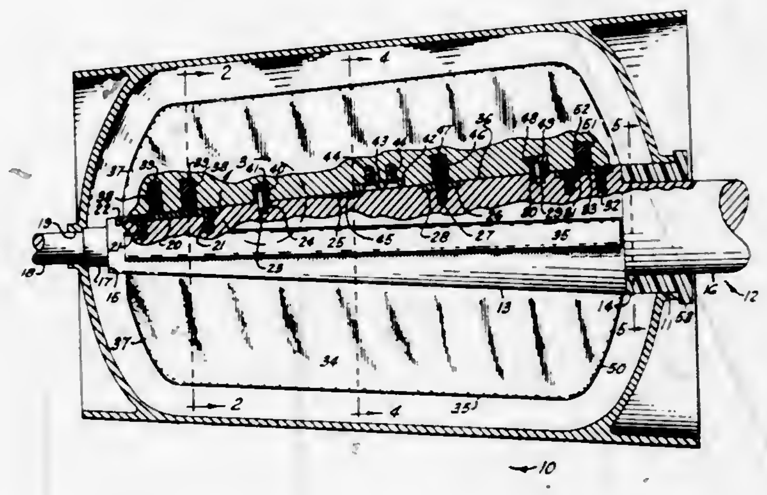
The present invention relates to mould means for making a precast staircase unit comprising an integral assembly of two staircase flights, a half-landing and a supporting spine wall.

3,567,173
CORE MANDREL FOR MAKING HOLLOW PLASTIC BODIES
Fred D. Peterson, San Mateo, Calif., assignor to Peterson Products of San Mateo, Inc.,, Belmont, Calif.
Filed June 16, 1967, Ser. No. 646,588
Int. Cl. B29c *1/12*
U.S. Cl. 249—183 **4 Claims**

A mandrel for use in making hollow reinforced plastic parts, which diametrically shrink during the curing cycle. The mandrel has an inner rigid core structure around which is laminated a thick layer of foam rubber to which is bonded sections of aluminum foil with their adjoining edges separated by longitudinal gaps to act as expansion joints and permit the metal sections to move closer together under influence of the diametral contraction of the plastic during its curing cycle.

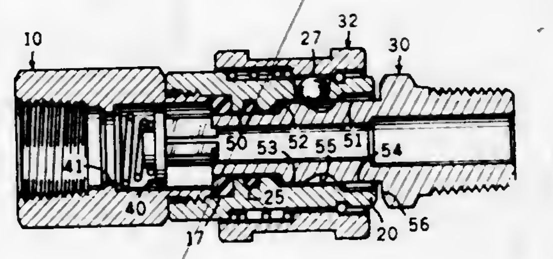


3,567,174
BREAKDOWN CORE FOR FORMING A CAVITY IN A SOLID PROPELLANT GRAIN
Garland K. Grace, Huntsville, Ala., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Filed Mar. 18, 1968, Ser. No. 713,634
Int. Cl. B29c *1/00*
U.S. Cl. 249—186 **1 Claim**



A breakdown core for forming a cavity in a solid propellant grain, that is larger in diameter than the opening in the aft end of a rocket motor case, and wherein the core comprises a body and a plurality of vanes or fins that are selectively connected to the body by the utilization of permanent magnets.

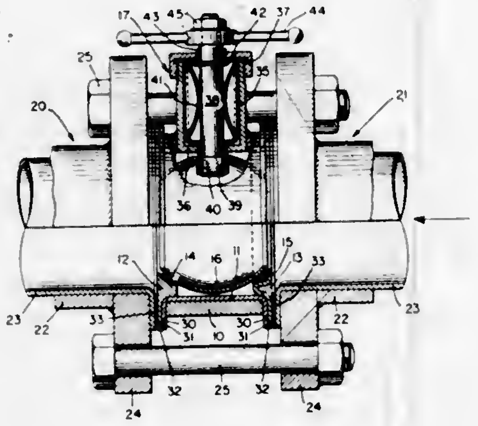
3,567,175
QUICK RELEASE COUPLING
Joseph S. Sciuto, Jr., Crestwood, Mo., assignor to Stile-Craft Manufacturers, Inc., St. Louis, Mo.
Filed Oct. 8, 1968, Ser. No. 765,854
Int. Cl. F16l *37/28*
U.S. Cl. 251—149.6 **11 Claims**



This fluid system coupling includes a stepped female adapter fitting, socket portions of successively increasing diameter adapted to accommodate interchangeable male plugs of different size. The plugs, which include stepped nose and tail sections, are sealed by the same O-ring. A detent ball-locking means is provided which locks either of the plugs into coupled relation with the adapter fitting. The adapter fitting includes a resiliently mounted valve means actuated by the plug. The mounting of the plugs is such as to preclude tilting within the adapter fitting. Stop means within the adapter fitting limit the insertion of each plug beyond a predetermined point.

3,567,176
BALL VALVE ASSEMBLY WITH STEM ACTUATOR SEAL

Herbert G. Johnson, 17 N. Drexel Ave., Havertown, Pa. 19083
Filed Dec. 20, 1968, Ser. No. 785,662
Int. Cl. F16k *5/14*
U.S. Cl. 251—174 **7 Claims**

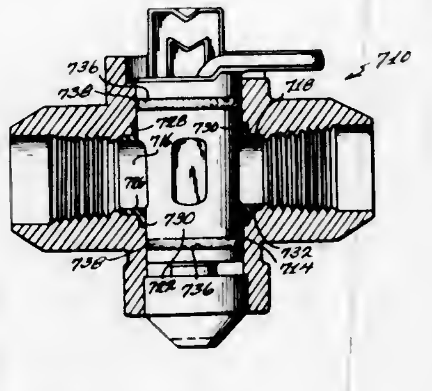


This application discloses a ball valve assembly in which a valve ball is preloaded between annular seals, at least one of which is carried by a resilient structural conduit member, specifically in a groove of the resilient member, the sides of the groove seat fitting the ball surface to provide a fail-safe seal when the sealing ring is worn down, the valve being especially suitable for lined and fully sealed pipes adapted to carry corrosive, radioactive, or otherwise harmful or dangerous fluids and having a fully sealed valve operator which is preferably urged tight by internal fluid pressure.

3,567,177
ROTARY PLUG VALVE

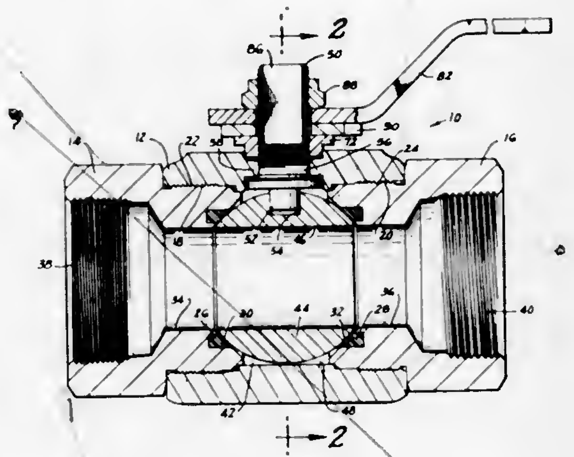
Frank H. Mueller, Decatur, Ill., assignor to Mueller Co., Decatur, Ill.
Original application Apr. 3, 1967, Ser. No. 627,832, now Patent No. 3,467,356, which is a division of application Ser. No. 328,731, Dec. 6, 1963, now Patent No. 3,333,812. Divided and this application May 27, 1969, Ser. No. 828,309
Int. Cl. F16k *5/16*
U.S. Cl. 251—188 **8 Claims**

A tapered rotary plug valve having a resilient rubberlike cover secured to the circumference of an axial section of the valve seat surrounding the seat port so as to contact the opposed surface of the valve plug.



3,567,178
VALVE STEM PACKING AND BEARING ASSEMBLY

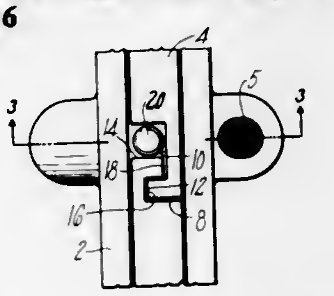
Norman A. Nelson, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,745
Int. Cl. F16k *41/16;* **F16j** *15/10*
U.S. Cl. 251—214 **9 Claims**



A valve stem packing and bearing assembly for plug valves having a rotatable valve stem for inducing actuation of an internal valve element between the open and closed positions thereof. The body of the valve is provided with a stem passage having an internal restriction defined by an annular internal flange. A rotatable valve stem having a shoulder defined at the lower portion thereof extends through the stem passage. A pair of annular sealing members are disposed within the stem passage, one on either side of the annular internal flange and serve to establish seals between the valve stem and the stem passage portion of the valve body and to serve as thrust bearings. The sealing members are deformed upon assembly from originally flat cross-sectional configuration to a tapered configuration that causes pressure acting from within the valve to urge both of the seals in a direction tending to increase the sealing ability thereof.

3,567,179
BUTTERFLY VALVE SEALING MEANS WITH INTERLOCKING MECHANISM

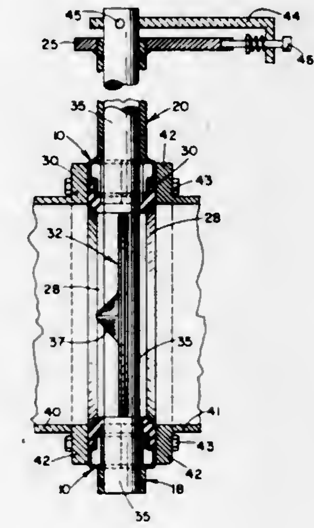
Edward W. Radtke, Bloomfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 3, 1969, Ser. No. 803,538
Int. Cl. F16k *1/22;* **F16j** *9/24*
U.S. Cl. 251—306 **5 Claims**



An improved butterfly seal is provided by the combination of a split ring or piston ring type seal disposed in the groove around the periphery of a butterfly disc, the ring preferably having means for interlocking its ends, and a pin disposed radially in the disc periphery and protruding outwardly from the groove and into the interlocking means of the ring or into a space between the ends of the ring or into a space in the ring to prevent rotation of the ring in the disc groove.

3,567,180
FABRICATED VALVE AND METHOD OF MAKING THE SAME

Hubert L. Williams, Hinsdale, Ill., assignor to Crane Co., Chicago, Ill.
Filed Sept. 19, 1969, Ser. No. 859,412
Int. Cl. F16k *1/22;* **B21d** *51/00*
U.S. Cl. 251—306 **7 Claims**

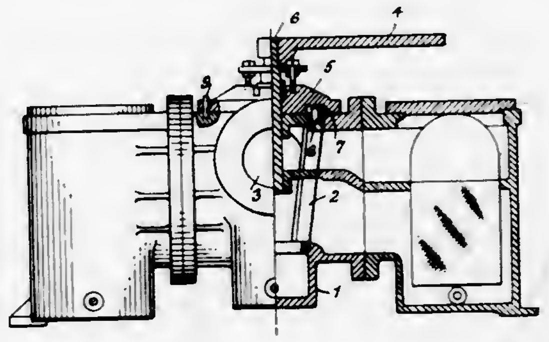


This invention relates to a fabricated hollow annular body for use as a valve body or the like and to a method of producing the same. The valve body is formed by one or more stamping operations on a piece of metal to form a half section which is annular or ring like in form. Two such half sections are placed in back to back relation and welded together to form the hollow annular valve body. Journalling members are welded in place on the valve body and a valve shaft carrying a valve disc is mounted by the journalling members for rotation.

3,567,181
MEANS FOR FACILITATING THE ASSEMBLY OF PLUG VALVES

Frederick Kraissl, Jr., 244 Kinderkamack Road, North Hackensack, N.J. 07601
Filed Mar. 13, 1969, Ser. No. 806,857
Int. Cl. F16k *5/02*
U.S. Cl. 251—309 **2 Claims**

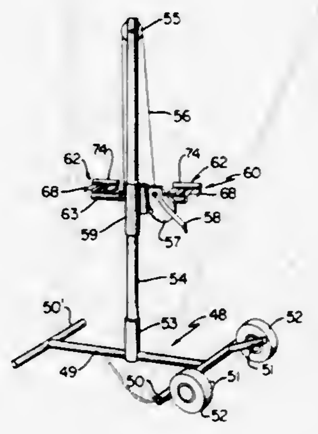
A means for facilitating the assembly of plug valves wherein interfitting elements, adjustable relatively to one another, are provided on the plug and on a cover-plate therefor to insure the correct assembly of the valve. In one embodiment, such elements comprise an arcuate groove or rescess of slightly greater length than a true



quadrant provided in a face of the cover plate, and a pin on the valve plug entering the recess. An additional positioning means consists of a dowel pin entering the cover plate and valve housing.

3,567,182
LIFT BRACKET ASSEMBLY FOR CAMPERS

Richard S. Steele, Broomfield, Colo., assignor to Colorado Leisure Products, Inc., Broomfield, Colo.
Filed Feb. 28, 1968, Ser. No. 708,938
Int. Cl. B60p *1/22*
U.S. Cl. 254—4 **5 Claims**

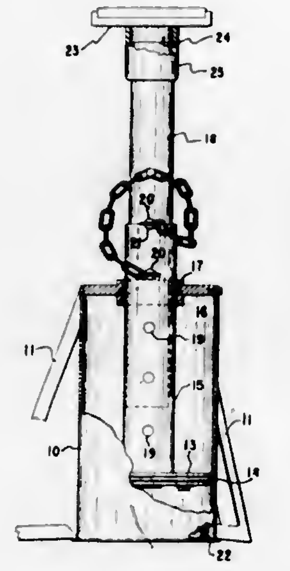


In a camper jack assembly, permanent brackets or braces are secured in load balanced relation to opposite sides of the camper in such a way as to reinforce the camper body in lifting and lowering the camper onto and from a truck bed. The permanent brackets are adapted to be engaged by conventional jacks for direct lifting, or to work in cooperation with spaced temporary brackets forming part of a separate jack assembly in which the temporary brackets straddle the permanent brackets and the camper body is once again reinforced by the permanent brackets in lifting and lowering the camper.

3,567,183
PNEUMATIC JACK

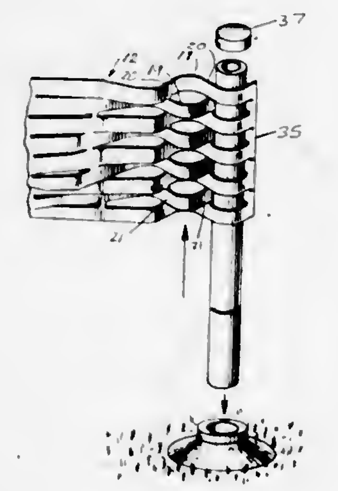
Francis D. Voss, P.O. Box 212, Emerson, Nebr. 68733
Filed June 20, 1968, Ser. No. 738,598
Int. Cl, B66f *3/24;* **F16c** *1/26;* **F16j** *15/18*
U.S. Cl. 254—93 **2 Claims**

A pneumatic jack having a piston of the general shape of a central segment of a sphere. The piston rod extends through a guide which is formed with internal surfaces having an arcuate or tapered axial cross section. Adjustment of the length of the piston rod is accomplished by a telescoping device which includes a transverse pin extending through one part of the piston rod and setting in a notch in the other part, thus aligning the two parts for insertion of a second pin.



3,567,184
SAFETY FENCE

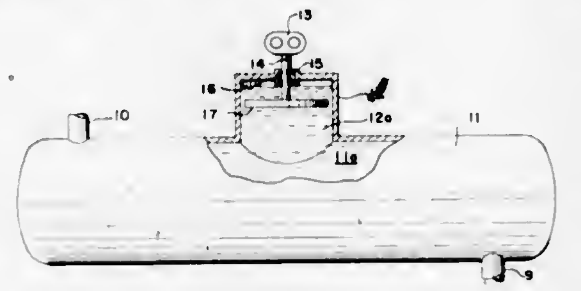
Raymond W. Yancey, 880 Oak Spring Drive,
Libertyville, Ill. 60048
Division of application Ser. No. 767,303, Oct. 14, 1968, and a continuation-in-part of application Ser. No. 849,233, July 18, 1969, which is a continuation of Ser. No. 767,286, Oct. 14, 1968. This application Sept. 19, 1969, Ser. No. 859,255
Int. Cl. E01f *15/00*
U.S. Cl. 256—13.1 **12 Claims**



An easily erectable fence having impact absorbing energy dissipating characteristics which make the fence particularly useful as a roadway barrier. The fence includes a sheet of fencing material which is formed from an initial sheet having a plurality of transverse rows of longitudinally aligned openings defining longitudinally extending ribbons therebetween with the initial sheet being reduced in size by deforming the ribbons to provide alternating longitudinally spaced crests and troughs that are interconnected by webs having a multiplanar torsional deformation. The crests on the ribbons are aligned with troughs on adjacent ribbons to define passages in the fencing material that are perpendicular to the ribbons, so that the fence can be erected by merely sliding the fencing material over vertically disposed fence posts. The fence may be constructed of a suitable metallic material or of a suitable thermoplastic or thermosetting resinous material.

3,567,185
FLUID RESONATOR SYSTEM

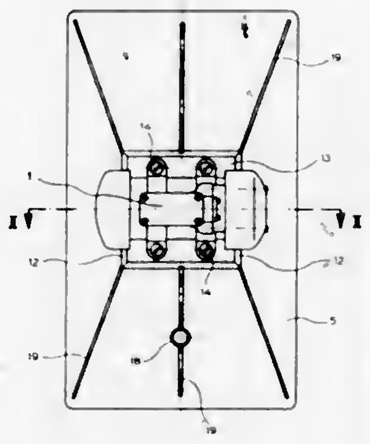
Fredrick W. Ross, Del Mar, Howard E. McKinney, La Jolla, and Ivan S. Bjorklund, San Francisco, Calif., assignors to Shell Oil Company, New York, N.Y.
Filed Oct. 3, 1968, Ser. No. 764,797
Int. Cl. B01f *11/02*
U.S. Cl. 259—1 **8 Claims**



A sonic treatment vessel for liquids is arranged so that a body of liquid confined therein is functionally divided so that one portion of the body of liquid serves as a mass and the remainder serves as a spring in a resonant vibratory system so that resonant frequency vibrations generated therein distributes pressure energy substantially equal throughout the liquid.

3,567,186
APPARATUS FOR COMPACTING CONCRETE MIXTURES BY VIBRATIONS IN FORMS

Heinz Niepelt, Karlsruhe-Waldstadt, Germany, assignor to Maschinenfabrik Ettlingen Friedrich Pfeiffer K.G., Ettlingen, Baden, Germany
Filed Dec. 24, 1968, Ser. No. 786,677
Int. Cl. B01f *11/00*
U.S. Cl. 259—1 **11 Claims**

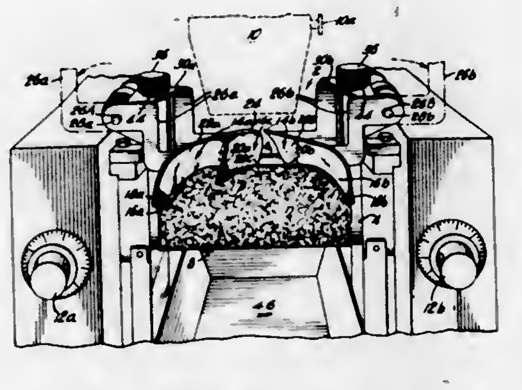


A vibrating apparatus which is adapted to be rigidly but removably attached to a concrete form for compacting a concrete mixture therein, especially for producing large concrete pipes, comprising a vibrator, a rigid supporting bracket secured to the vibrator and adapted to be applied directly upon the concrete form to transmit the vibrations thereto, and a vacuum hood secured to the supporting bracket and forming an enlargement thereof in lateral directions. When this hood is evacuated after being applied upon a surface of the concrete form, it will hold the supporting bracket together with the vibrator in a fixed position on the concrete form.

3,567,187
ROLL MILL SCRAPER BLADES

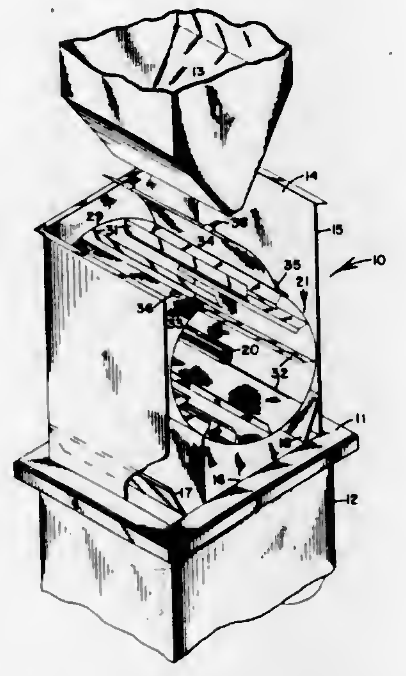
Michael P. Antalek, Fishkill, and Raymond J. Tetrault, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Dec. 20, 1968, Ser. No. 785,581
Int. Cl. B01f *15/00*
U.S. Cl. 259—2 **22 Claims**

In cooperation with a roll mill having a spaced apart feed roll and a kneading roll forming nip rolls for blending two or more ingredients into a homogeneous mixture, a pair of cooperating scraper blades which continuously remove the ingredients after passing thru the space between the nip rolls, from the surface of the feed roll and return a newly exposed surface of the ingredients to the center of the feed roll.



3,567,188
APPARATUS FOR CHARGING A SOLID PROPELLANT MIX WITH METALLIC FIBERS

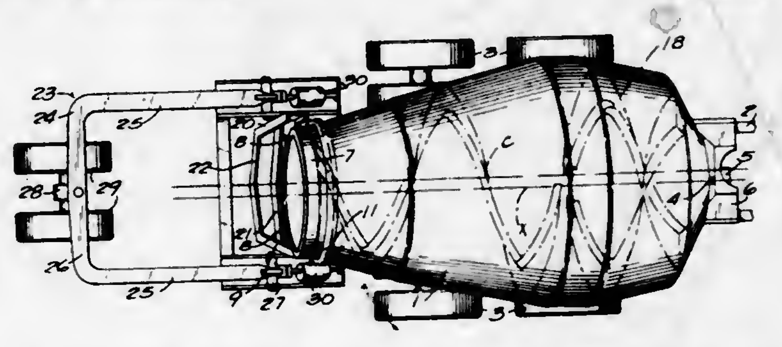
Marvin H. Cooper, James C. Miller, and Walter E. Buckner, Huntsville, Ala., assignors to Thiokol Chemical Corporation, Bristol, Pa.
Filed Jan. 9, 1964, Ser. No. 336,837
Int. Cl. B01f *3/18*
U.S. Cl. 259—3 **1 Claim**



1. An apparatus for charging a solid propellant mix, comprising an open-end housing that is adapted to be positioned on the open throat of a mixer for the mix, said housing including a base plate having an opening therein conforming to the open throat of the mixer, a pair of spaced parallel diverging rectangular-shaped deflectors secured to said base plate within said housing and with the lower longitudinal edges thereof extending through the opening in said base plate, a rotary drum comprising a pair of disc-shaped end plates and a reticulated and circular wall secured at its opposite edges to the peripheral edges of said end plates, diametrically opposed bearing plates secured to the outer surface of said housing, a shaft extending through said bearing plates, said housing and said end plates centrally thereof and longitudinally of said drum for rotatably mounting said drum within said housing transversely thereof, an electric motor having a gear train secured thereto mounted on said base plate so that a flexible operational coupling between said gear train and a pulley on said shaft outwardly of one of said bearing plates will cause said drum to be rotated at a constant and even rate of speed, a plurality of equally-spaced, rectangular-shaped baffles, each baffle having the inner longitudinal portion thereof laterally inclined in relation to the main longitudinal portion with the outer longitudinal edge thereof secured to said wall, an access door hingedly mounted in said wall and fasteners mounted on said access door and said wall for retaining said access door in closed position.

3,567,189
TRUCK MIXER WITH OFFSET DRUM AXIS

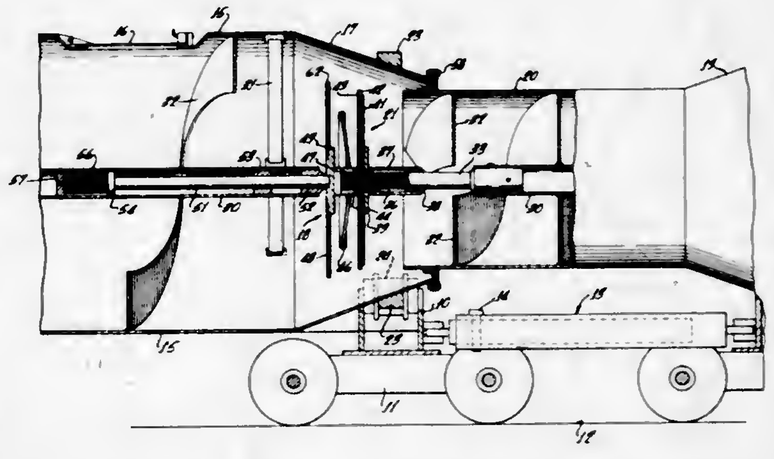
William H. Buelow, Brookfield, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Dec. 23, 1968, Ser. No. 786,182
Int. Cl. B28c *5/18*
U.S. Cl. 259—176 **7 Claims**



A truck mixer has a mixing drum mounted with its axis of rotation offset laterally of the centerline of the truck. The drum is offset in the direction opposite that in which the concrete ingredients are moved while being mixed and, since mixing is generally done in transit, the offset mounting has the effect of maintaining the center of gravity of the ingredients more nearly on the centerline of the truck during mixing and thereby minimizing lateral instability of the truck mixer in transit.

3,567,190
DRUM CAR AND COUPLING APPARATUS FOR CARRYING AND FEEDING CONCRETE IN TUNNELS

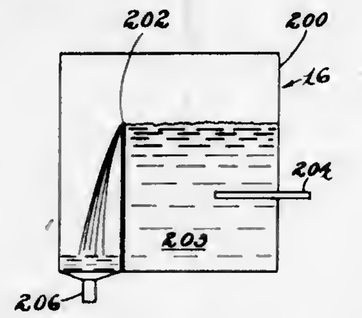
Ray D. Moran, 1313 N. Raymond Ave.,
Fullerton, Calif. 92631
Filed Dec. 12, 1968, Ser. No. 783,183
Int. Cl. B28c *5/18*
U.S. Cl. 259—177 **17 Claims**



A plurality of agitator and feeding drums are mounted on trucks for movement along railroad tracks into tunnels or the like, each drum having a forwardly-moving gate at each end thereof. The front gate (or door) of each drum is adapted to be locked by a nut and handwheel during movement of the drum along the tracks. The back gate of each drum is adapted to be shifted forwardly in response to coupling or telescoping movement of the forward end of an adjacent drum. Spring means are provided to effect automatic closing of the back gate in response to uncoupling of the agitator drums, following which the front gate of each drum may be locked by the above-indicated nut and handwheel.

3,567,191
FLUIDIC FUEL SYSTEM WITH BACK PRESSURE CONTROL

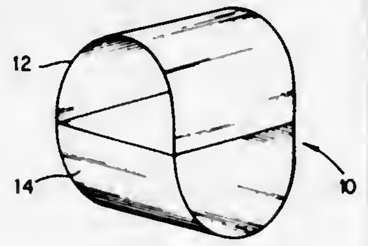
Donald F. Morgan, Horseheads, N.Y., assignor to The Bendix Corporation
Filed July 15, 1969, Ser. No. 841,840
Int. Cl. F02m *69/04*
U.S. Cl. 261—36 **11 Claims**



A fuel system having fluid logic components is provided with means of maintaining fluid back pressure within the fluid logic element at a constant level regardless of the attitude and operative situation of the fuel system. A preferred embodiment of the back pressure maintaining means comprises a narrow reservoir maintained behind a weir into which all fluid exhaust and vent passages are connected at an inlet point below the top of the weir. Fluid discharge in excess of the reservoir volume spills over the weir into a return line where it is returned to the fuel tank.

3,567,192
VESSEL PACKING ARTICLE

Frank Kerze, Jr., Bethesda, Md., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 13, 1968, Ser. No. 736,723
Int. Cl. B01f *3/04*
U.S. Cl. 261—94 **4 Claims**

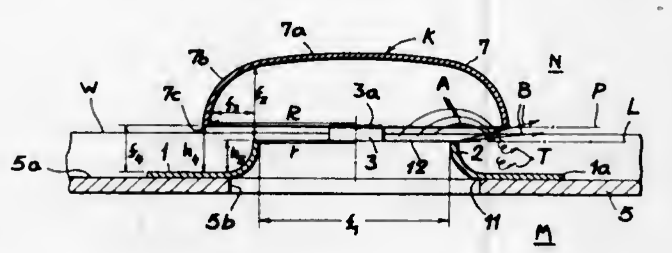


An article of manufacture for use as vessel packing in heat and mass transfer applications.

3,567,193
CAP OR BELL FOR BUBBLE-CAP PLATE OR TRAY COLUMNS

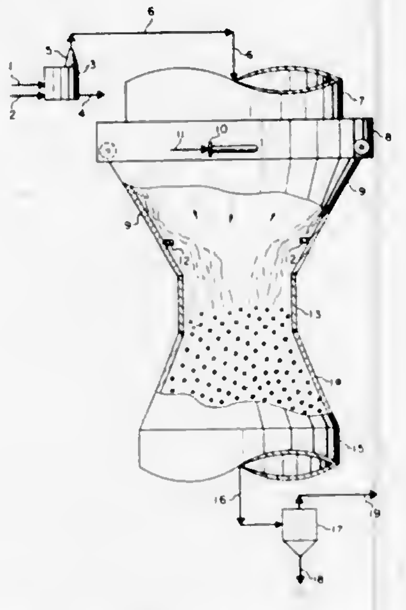
Wolfgang Diery, Krailling, Walfried Witter, Pullach, and Joachim Lenich, Munich, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany
Filed Nov. 18, 1968, Ser. No. 776,444
Claims priority, application Germany, Nov. 17, 1967, P 16 19 719.6; Aug. 5, 1968, P 17 69 917.1
Int. Cl. B01f *3/04*
U.S. Cl. 261—114 **12 Claims**

A bubble-cap assembly for a tray of a rectification column, a washing column or a distillation column. The assembly consists of a chimney plate mounted upon the tray with its chimney registering with an opening in the latter and covered by a cap or bell spaced thereabove. A number of angularly spaced tongues extend at right angle to the tray and connect the chimney plate with the bell.



3,567,194
WET APPROACH VENTURI SCRUBBER

Indravadan S. Shah, Forest Hills, and Alexander Kirschner, Brooklyn, N.Y., assignors to Chemical Construction Corporation, New York, N.Y.
Filed June 20, 1969, Ser. No. 835,157
Int. Cl. B01f *3/04*
U.S. Cl. 261—118 **19 Claims**

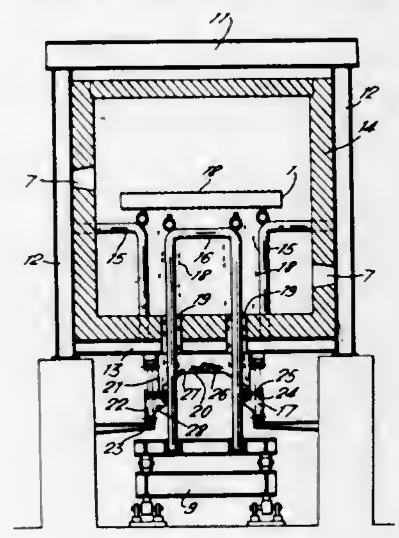


A venturi-type gas scrubber is provided which features a liquid projection lip in the approach section of the venturi. Scrubbing liquid is passed downwards on the wall of the approach section and is projected into the accelerated gas stream by the lip, which terminates outside of the dimension of the throat section, so that the scrubbing liquid penetrates the gas stream through the entire throat section. In a preferred embodiment, the lip is removable and is disposed on a ring, with an additional frusto-conical baffle depending downwards from the lower surface of the lip adjacent to the ring and terminating inside the inner dimension of the lip. A central conical baffle may be provided, to define an annular venturi scrubbing passage.

3,567,195
WALKING BEAM CONTINUOUS HEATING FURNACE

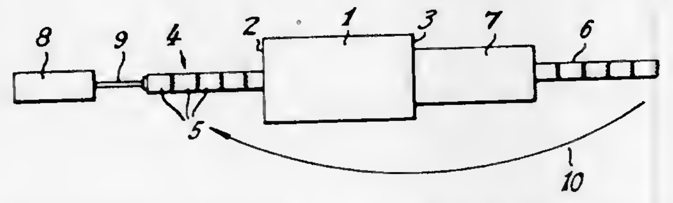
Keiji Kakuta, Yoshio Kawashima and Sukeharu Endo, Yokohama-shi, and Yukinaga Katahashi, Machida-shi, Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 24, 1968, Ser. No. 723,836
Claims priority, application Japan, June 26, 1967, 42/40,549; Dec. 12, 1967, 42/104,328
Int. Cl. F27d *3/12*
U.S. Cl. 263—6 **4 Claims**

A continuous heating furnace of walking beam type wherein a suitable number of walking beams of Rahmen structure are arranged in parallel in the direction of the movement of the object to be heated along with a suitable number of fixed beams of Rahmen structure, both of said type of beams being constructed by fixing a required number of hair-pin beams to a plurality of longitudinally placed beams and wherein cooling water in both of said types of beams is made to flow in one direction only.



3,567,196
HIGH TEMPERATURE FURNACE AND CONVEYOR THEREFOR

Frederick James Edwards, Hebron, Morpeth, Northumberland, and Norman Hughes, Ponteland, New Castle upon Tyne, England, assignors to Thermal Syndicate Limited, Wallsend, Northumberland, England
Filed Feb. 6, 1969, Ser. No. 799,552
Claims priority, application Great Britain, Feb. 6, 1968, 5,878/68
Int. Cl. F27b *9/14*
U.S. Cl. 263—6 **12 Claims**

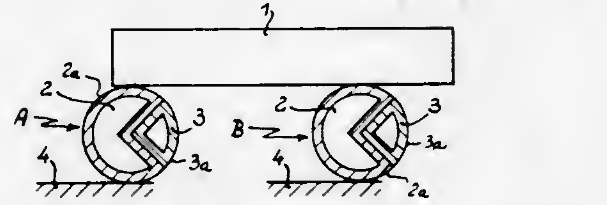


The invention relates to a high temperature furnace in particular for application in excess of 1000° C. comprising a heating chamber, guide means extending through the heating chamber from a chamber inlet to a chamber outlet, a plurality of separate slats of graphite or other refractory material adapted to rest in edge-to-edge abutting relationship on the guide means to define a supporting surface for an article or articles to be conveyed through the heating chamber, advancing means upstream of the chamber inlet for intermittently advancing an abutting array of such separate slats over the guide means and through the heating chamber, and means downstream of the chamber outlet for removing slats and returning them to a position intermediate the advancing means and the chamber inlet.

3,567,197
METALLURGICAL FURNACE AND METHOD OF TRANSPORTING COMMODITIES THEREIN

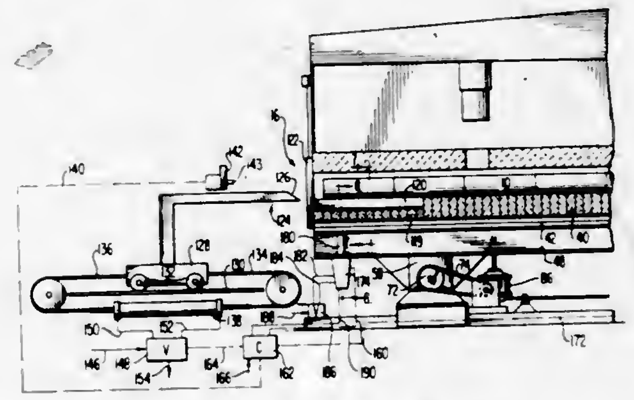
Rüdiger Knaak, Neuss, Germany, assignor to Koppers-Wistra-Ofenbau Gesellschaft mit beschrankter Haftung, Dusseldorf, Germany
Filed Apr. 8, 1969, Ser. No. 814,415
Claims priority, application Germany, Apr. 9, 1968, P 17 58 139.4
Int. Cl. F27b *9/14*
U.S. Cl. 263—6 **23 Claims**

A metallurgical furnace wherein a support carries several parallel beams which extend between the inlet and the outlet of the heating chamber. Each beam comprises two longitudinally extending portions each of which extends the full length of the respective beam and both of which are movable angularly with reference to the support. One portion of each beam is also movable forwardly (toward the outlet) and backwards (toward the inlet) relative to the other portion of the respective beam. Ingots, slabs, billets or like metallic blanks are placed onto the beams while the beams assume such angular positions that the blanks come to rest on the other portion of each beam; the beams are thereupon rotated to transfer the blanks onto the one portion of each beam and such one portion is then moved forwardly to transport the blanks toward the outlet. The procedure can be repeated as often as necessary by rotating the beams to transfer the blanks onto the other portion of each beam, by moving the one portion of each beam backwards, by rotating the beams to transfer the blanks onto the thus retracted one portion of each beam, and by moving the one portion of each beam forwardly.



3,567,198
RETRIEVER MEANS FOR WALKING BEAM FURNACE

Charles B. Gentry, Grand Rapids, Mich., assignor to Granco Equipment, Inc., Grand Rapids, Mich.
Filed Nov. 14, 1969, Ser. No. 876,860
Int. Cl. B65g *25/04;* **F27b** *9/14*
U.S. Cl. 263—6 **17 Claims**

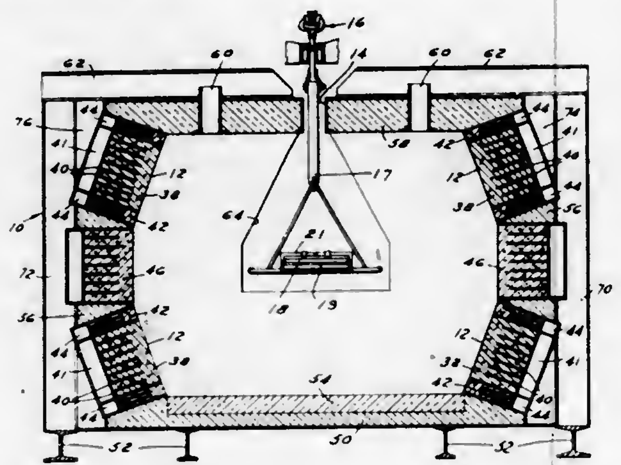


This disclosure relates to a walking beam furnace for heating billets and a retriever for the heated billets. The walking beam has a power means with a speed reducing drive and a lower speed is employed while removing the heated billets from the end of the furnace. The retriever device has a forward wedging surface which forces the billets upwardly as the retriever device is moved into the furnace. The billet falls onto the retriever and the billet and retriever are then withdrawn from the furnace.

3,567,199
APPARATUS FOR BRAZING ALUMINUM RADIATORS

Artemas F. Holden, 2195 S. Milford Road, Milford, Mich. 48042
Original application Nov. 9, 1966, Ser. No. 593,091, now Patent No. 3,456,331. Divided and this application Feb. 3, 1969, Ser. No. 823,210
Int. Cl. F27b *9/14*
U.S. Cl. 263—6 **10 Claims**

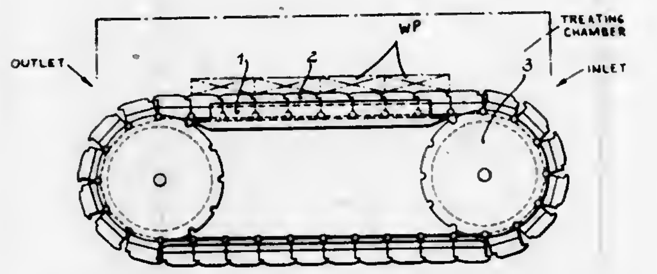
A radiant heat furnace for brazing aluminum parts having complex shapes and components of different gage material such as automobile radiators and utilizing directed heating panels and directed cooling air flows to obtain proper heat absorbtion and transfer rates in the components thereby obtaining proper brazing temperatures throughout the assembly being brazed.



3,567,200
HEAT-TREATING OF WORKPIECES

Rüdiger Knaak, 17 Heinestrasse, 4040 Neuss, Germany; Hans Christoph Pohl, 29 Mittelstrasse, 4041 Norf, Germany; Günter Hepp, 159 Dieckerstrasse, 4200 Oberhausen, Germany; Christian Brockmann, 2 Franziskanerstrasse, 4300 Essen, Germany; Wilhelm Schwietering, 84 Karl Meyer Strasse, 4650 Gelsenkirchen, Germany; and Hans Jakubzik, 42 Burgstrasse, 4680 Wanne-Eickel, Germany

Filed Mar. 6, 1969, Ser. No. 804,896
Int. Cl. F27b *9/24*
U.S. Cl. 263—8 **30 Claims**

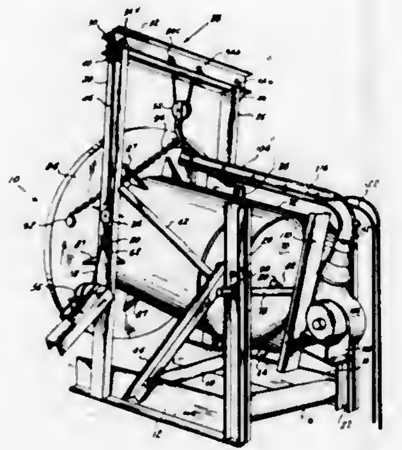


The invention relates to the heat-treating of workpieces. A furnace chamber has an inlet and an outlet and includes a lower zone and an upper heat-treating zone. Elongated tubular guide means extends from the inlet to the outlet in the lower zone and its upper wall portion which faces the upper zone is provided with a longitudinally extending slot. Carriers are located and guided for movement within the tubular guide means in an upright position and provided with workpiece-supporting portions which extend through the slot into the heat-treating zone to support a workpiece. Return guide means is provided for guiding the carriers for return movement from the outlet to the inlet of the chamber.

3,567,201
FURNACE FOR MELTING SCRAP METAL

William R. Beckett, 409 5th Ave. NE.,
Clarion, Iowa 50525
Filed Oct. 23, 1968, Ser. No. 769,853
Int. Cl. C21b *11/00*
U.S. Cl. 266—33 **8 Claims**

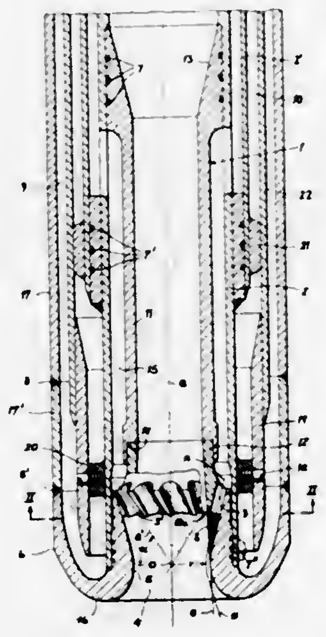
A furnace for melting scrap metal which includes a steel barrel lined with a high refractory substance to form a crucible that is directly fired. This furnace is movably mounted relative to a supporting frame wherein the furnace is susceptible of being tilted with the melted material therein so that said material can be poured in its melted state directly out of the crucible into a suitable receptacle or mold. A dampered blower system used with this furnace is utilized to keep the fuel cool until it enters the heating assembly. This furnace is portable intact for use in different locations if desired.



3,567,202
DEVICE FOR INJECTION BY TOP-BLOWING INTO A METAL BATH

Robert Mercatoris, Luxembourg, Luxembourg, and Joseph Nepper, Saarbrucken, Germany, assignors to Acieries Reunies de Burbach-Eich-Dudelange S.A., Luxembourg, Luxembourg

Filed Oct. 2, 1967, Ser. No. 672,107
Claims priority, application Luxembourg, Oct. 4, 1966, 52,104
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 **9 Claims**

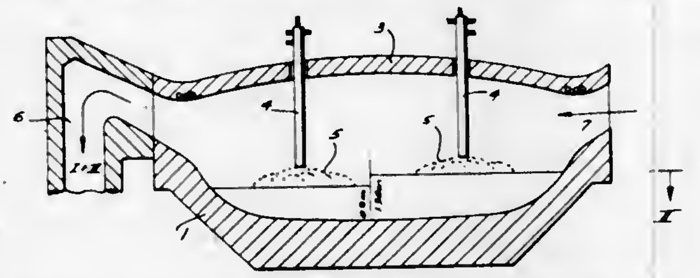


In refining a ferrous melt in a metallurgical furnace, a primary stream of oxidizing fluid is trained upon the bath surface from a lance which also has means for emitting a secondary stream of oxidizing fluid, the latter enveloping the primary stream and swirling around it, with or without injection of solid particles entrained by the primary stream.

3,567,203
METHOD AND APPARATUS FOR PRODUCING STEEL

Walter Hess, Essen, Germany, assignor to Rheinische Stahlwerke, Essen, Germany

Continuation-in-part of application Ser. No. 478,618, Aug. 10, 1965. This application Aug. 13, 1968, Ser. No. 756,342
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 **9 Claims**

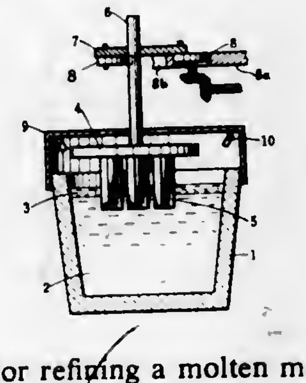


A hearth furnace in which burner means extending into the furnace chamber produce flame cones by burning a mixture of fuel and oxygen for melting and refining steel-forming material located in a hearth portion of the furnace chamber, and in which heated air passed from regenerative chambers into the furnace chamber is guided about the flame cones and onto the material melting in the hearth portion.

3,567,204
APPARATUS FOR REFINING MOLTEN METAL

Ryo Ando and Tsutomu Fukushima, Yokohama-shi, Eiichi Hiraguchi, Toyoda-gun, and Kokichi Hagiwara, Yokohama-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Original application July 25, 1967, Ser. No. 655,921. Divided and this application May 5, 1969, Ser. No. 821,877
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 **3 Claims**



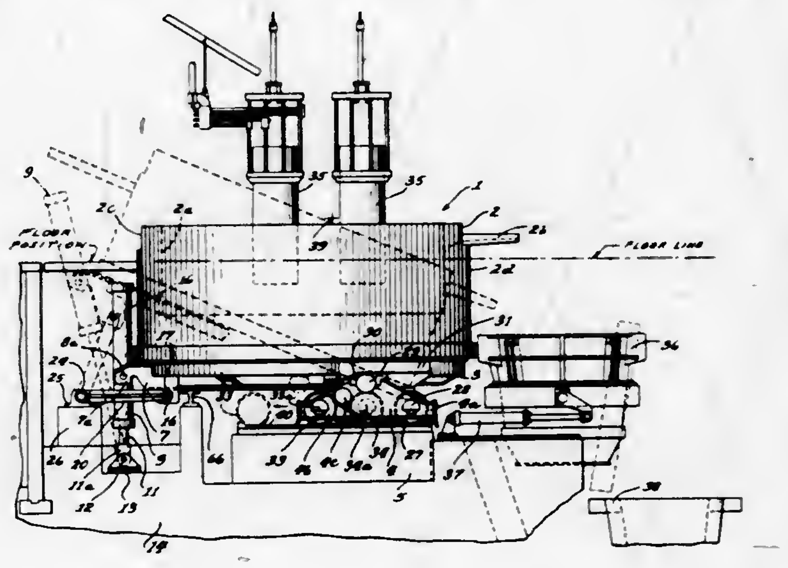
An apparatus for refining a molten metal such as molten pig iron. The molten metal which contains impurities is poured into a vessel such as a suitable ladle. A purifying agent which reacts with the molten metal to eliminate at least part of the impurities thereof is added to the molten metal. Then the molten metal to which the purifying agent has been added is stirred only in the region of the surface of the molten metal. The adding of the purifying agent to the molten metal and the stirring thereof takes place after the molten metal has been poured into the vessel during a period of time when parts of the body of molten metal within the vessel are still in motion. In the case of pig iron this period of time has a duration of at least one hour.

The apparatus includes the vessel into which the molten metal is poured up to a given elevation in the vessel, and a stirring means which is situated over the vessel and extends into the molten metal therein, this stirring means including at least one stirrer which extends downwardly into the vessel through the surface of the molten metal to an elevation which is only slightly less than the above given elevation where the surface of the metal is located. The extent to which the stirrer extends to an elevation lower than this latter given elevation is less than one third of the latter given elevation.

3,567,205
TILTING MECHANISM FOR MOLTEN METAL RECEPTACLE

Frank K. Armour, Flossmoor, and Arthur J. Benke, Willow Springs, Ill., assignors to Interlake Steel Corporation, Chicago, Ill.

Filed May 22, 1968, Ser. No. 731,088
Int. Cl. C21c *5/50*
U.S. Cl. 266—36 **8 Claims**

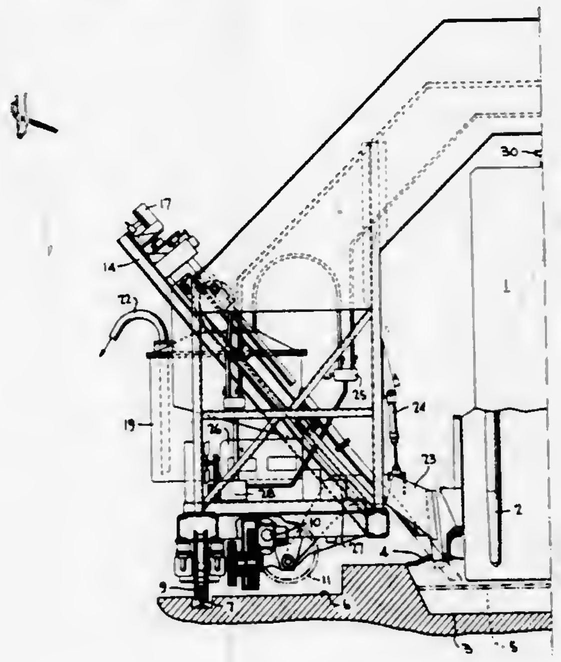


A receptacle for containing molten metal having use as a furnace for heating the metal. The receptacle has improved mechanism for tilting the receptacle for pouring to discharge the molten metal from it. The tilting mechanism combines a rolling carriage supporting the receptacle at one end and a power cylinder supporting it at the other end. Actuation of the power cylinder combines rolling movement of the carriage with tilting of the receptacle.

3,567,206
APPARATUS FOR DISCHARGING OF MOLTEN METAL FROM ELECTROLYSIS FURNACES

Gudmund Heggstad and Johan Nikolai Ström, Hoyanger, Norway, assignors to A/S Ardal og Sunndal Verk, Sorkedalavelen, Norway

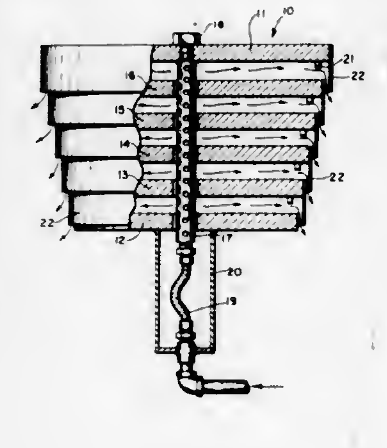
Filed Jan. 24, 1968, Ser. No. 700,258
Claims priority, application Norway, Jan. 24, 1967, 166,543
Int. Cl. F27d *3/06*
U.S. Cl. 266—38 **2 Claims**



An apparatus for discharging of molten metal from electrolysis furnaces wherein the discharging is effected by sucking the metal from the furnace bath into a crucible, comprising, a gantry structure having a pair of interconnected legs which span a row of the furnaces and are adapted to run along either side thereof and transversely beyond the ends thereof, at least one of the gantry legs is provided with an oblique guide structure extending outwardly and inwardly relative to the other leg, such guide structure being provided with crucible supporting means adapted to move the crucible along the length of the guide structure.

3,567,207
AIR CUSHION SPRING

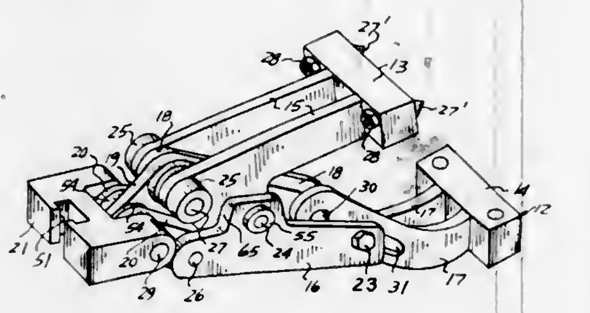
Richard E. Foster, 5342 Sycamore Drive,
Baton Rouge, La. 70805
Filed Feb. 26, 1969, Ser. No. 802,342
Int. Cl. F16f *5/00*
U.S. Cl. 267—65 10 Claims



Shock absorbing support systems for vehicles are described. The systems involve, inter alia, a group of horizontal plates between which a film or volume of air is maintained. The system enables the passenger to literally ride on air without loss of vehicular traction and control.

3,567,208
TOGGLE ACTION JAW TYPE GRIPPER

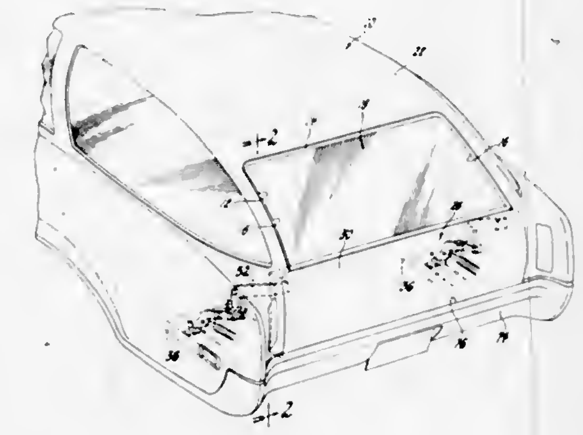
Leland F. Blatt, Grosse Pointe, Mich.
(24121 Mound Road, Warren, Mich. 48091)
Filed June 6, 1969, Ser. No. 831,122
Int. Cl. B23q *3/08*
U.S. Cl. 269—32 8 Claims



A toggle action jaw type gripper pivotally mounting upon a body an inner jaw for movements in a first path, and pivotally mounting a cooperative outer jaw for movement in a compound wide angle path, the latter determined by the use of a pivot link pivoted to the body and to the inner jaw arms, and upon which the outer jaw is pivotally mounted, together with a pair of arm plates pivoted to the body and having a pin and slot flexible connection with said outer jaw. The inner jaw and the arm plates are simultaneously actuated by reciprocating a clevis guidably in the body which is linked to said inner jaw and to said arm plates.

3,567,209
VEHICLE BODY

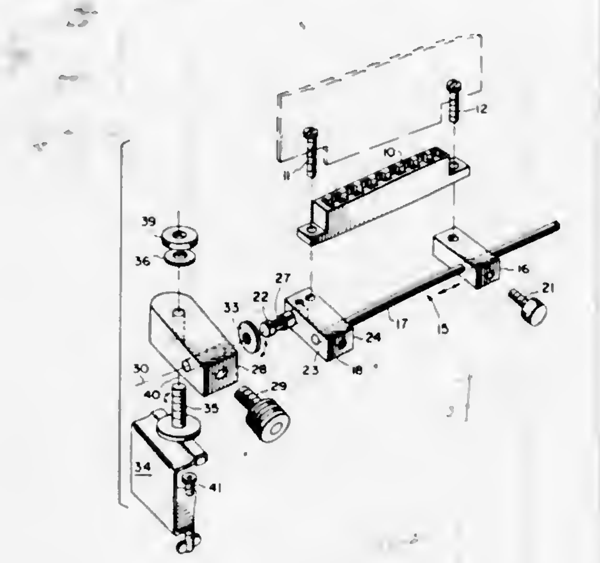
Michael W. Lathers, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 16, 1969, Ser. No. 816,719
Int. Cl. B60j *5/10*
U.S. Cl. 296—50 7 Claims



A station wagon includes a tailgate window for opening and closing the upper portion of the rear opening and a tailgate for opening and closing the lower portion of the opening. The tailgate is supported by arms extending inwardly of the body and pivoted to the chassis rails for movement about a horizontal axis transverse of the body. When the tailgate moves to open position, it moves between the load floor and the bumper structure. A counterbalance arrangement supports the tailgate in its open position.

3,567,210
PREFORMED CIRCUIT CARD HOLDER

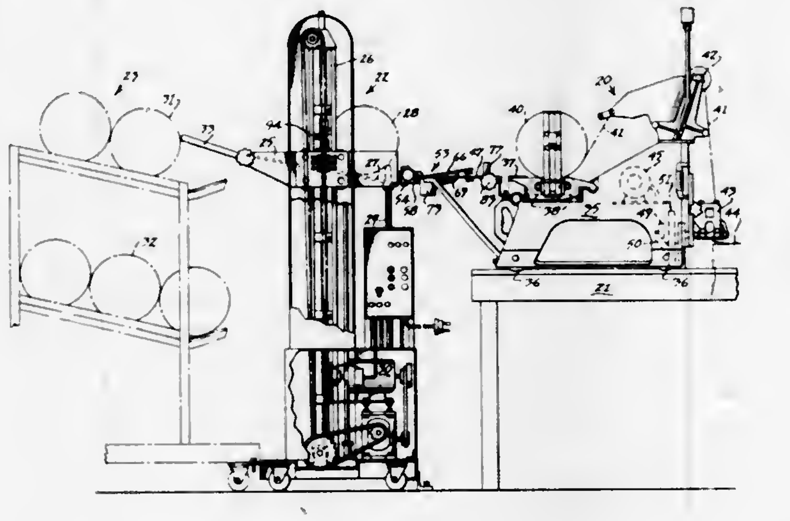
Manuel Chevillon, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 31, 1968, Ser. No. 772,329
Int. Cl. B25b *1/22*
U.S. Cl. 269—73 5 Claims



A work-holding apparatus for holding preformed circuit cards while they are being worked upon. Multidirectional movement of the work-holding portion of the apparatus permits adjustment of the position of the work piece. Adjustable jaws permit preformed circuit card connectors of various sizes to be removably mounted thereon in order to retain preformed circuit cards of various size.

3,567,211
CLOTH ROLL CARRIER AND LOADING ACTUATOR

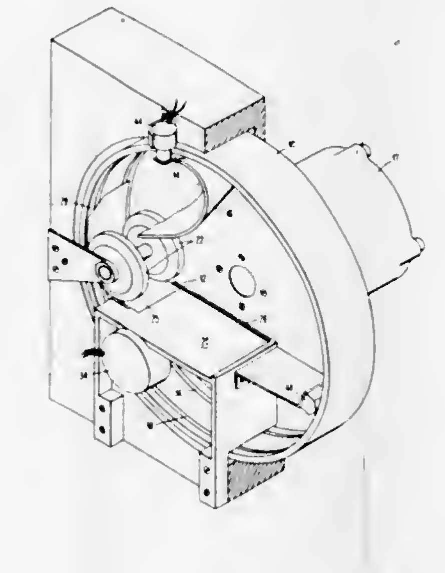
Thomas W. Martin, Sr., Nashville, Tenn., assignor to Cutters Machine Company, Inc., Nashville, Tenn.
Filed June 10, 1969, Ser. No. 831,872
Int. Cl. B65h *29/46*
U.S. Cl. 270—31 9 Claims



A roll loading actuator including a cloth roll loading unit having means for discharging a roll from the unit upon actuation of a signal, a roll carrier moveable toward and away from the loading unit having an actuator adapted to actuate the signal means for discharging a load from the loading unit upon the roll carrier, and means for deenergizing the signal actuator as long as a cloth roll is in position on the roll carrier.

3,567,212
REVOLVING DRUM DOCUMENT TRANSPORT

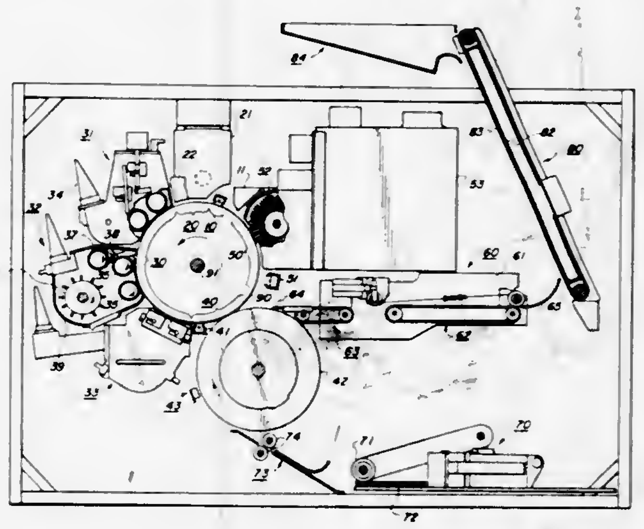
Albert L. Hiatt, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 24, 1969, Ser. No. 860,529
Int. Cl. B65h *29/58*
U.S. Cl. 271—51 8 Claims



A rotary drum document transport comprising a hollow cylindrical rotating drum, a document cornering station, and a document diverter. The document is cornered and inserted on the interior of the drum and carried thereon by centrifugal force. The document diverter strips the document from the drum interior and directs it to a receiver for stacking.

3,567,213
CONTROL APPARATUS FOR REGISTER STOPS AND GRIPPER FINGERS

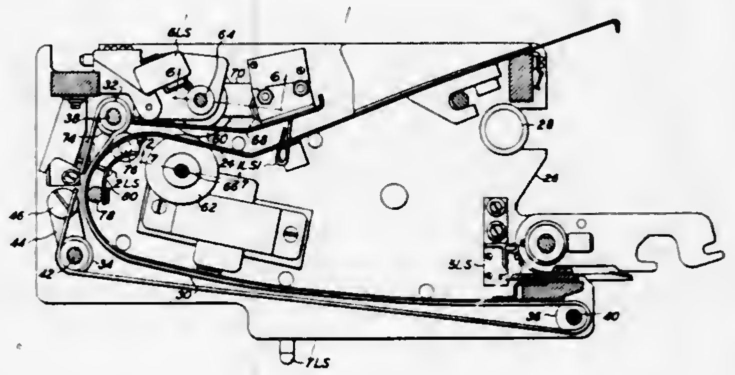
Paul R. Lagonegro, Henrietta, and Paul D. Keller, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed June 4, 1969, Ser. No. 830,236
Int. Cl. B65h *5/14, 29/06*
U.S. Cl. 271—3 4 Claims



An apparatus for selectively controlling the operation of register stops and gripper fingers on a transfer drum in a reproduction apparatus having a non-rotating cam and a rotatable follower which are located external to the transfer drum. The cam is selectively movable between an inoperative position which is remote from the transfer drum and an operative position which is immediately adjacent the transfer drum. The follower rotates with the transfer drum and operates the register stops and gripper fingers on the drum in response to the shape of the cam only when the cam is in its operative position. The cam is moved into its operative position while the transfer drum continues to rotate by a solenoid which pivots an arm against the cam and moves it into engagement with the follower.

3,567,214
SHEET FEEDING AND SEPARATING APPARATUS

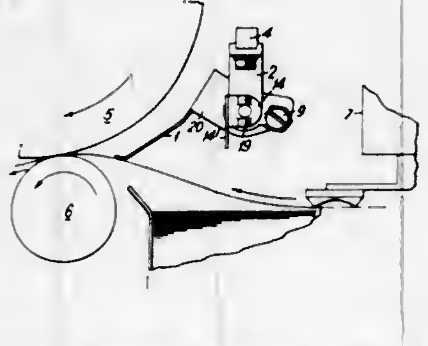
Melvin G. Crandell, Walworth, and Donald L. Pease, Marion, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed June 10, 1968, Ser. No. 735,669
Int. Cl. B65h *3/46*
U.S. Cl. 271—10 10 Claims



A sheet feeding and separating assembly including a conveyor roll, reject roll and an urging roll. The conveyor roll is driven in a sheet feeding direction while a cooperating reject roll is driven in a sheet rejecting direction through a slip clutch to ensure forwarding only single sheets. Motion of a sheet beyond these rolls inactivates the drive to the conveyor roll so that the reject roll will counter-rotate the conveyor roll after the passage of the fed sheet. The introduction of the next sheet into the nip is effected through an urging roll which moves into and out of driving contact with the topmost sheet of the stack under the influence of the rotation of the conveyor roll.

3,567,215
SHEET HANDLING APPARATUS

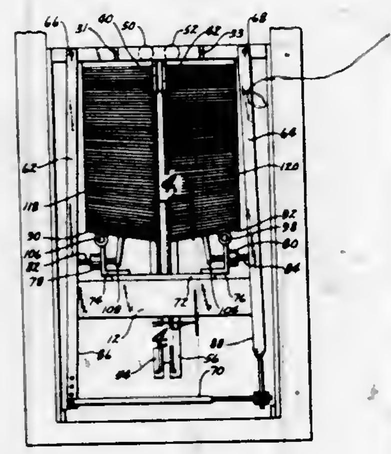
Albert G. R. Gates, London, England, assignor to
Gestner Limited, London, England
Filed June 26, 1968, Ser. No. 740,305
Claims priority, application Great Britain, June 28, 1967,
29,957/67
Int. Cl. B65h *7/02*
U.S. Cl. 271—56 **10 Claims**



This invention provides a device for preventing the creasing of sheets in sheet handling apparatus. The device includes a surface which is positioned in the path of sheets through the apparatus and which thereby causes each sheet to undergo bowing deformation about an axis transverse to its direction of travel, thereby preventing creasing in a direction substantially parallel to the direction of travel. The surface may be deflected by contact with one or more strong sheets but is biased towards its operative position. In one embodiment either one or two different values of biasing force may be employed.

3,567,216
AUTOMATIC LEVELLING DEVICE FOR A FEEDING UNIT ON AN OFFSET PRINTING MACHINE OR THE LIKE

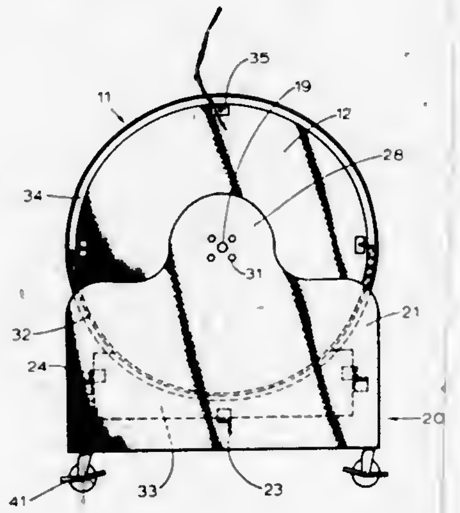
Richard F. Zeller, 2741 51st St.,
Des Moines, Iowa 50310
Filed Dec. 13, 1968, Ser. No. 783,499
Int. Cl. B65h *1/08*
U.S. Cl. 271—62 **4 Claims**



An automatic stock levelling device for the feeding unit on an offset printing machine or the like including a vertically disposed frame means adapted to be detachably secured to the machine at the feed end thereof. A support means is vertically movably mounted in the frame means and is progressively raised during the printing operation by the machine feed tray. A pair of pivotal stock support plates are pivotally mounted about a horizontal axis on the support means and are automatically maintained at an angle to the horizontal sufficient to maintain the top of the stock material in a level condition. A pair of substantially vertically disposed spaced apart guide elements are pivotally secured at their upper ends to the frame means and are positioned at opposite sides of the support plates. The distance between the upper ends of the guide elements is less than the distance between the lower ends thereof. Each of the support plates are operatively connected to one of the guide elements by a pin means extending therebetween so that the plates will be progressively pivoted towards the horizontal as the feed tray progressively raises the support means due to the decreasing distance between the guide elements. The progressive pivotal movement of the plates to the horizontal insures that the upper stock member will be in a level condition regardless of the amount of stock on the plates. A modified form of the device is also disclosed and includes a pair of pivotal stock support plates which are pivotally mounted about a horizontal axis on the support means and which are automatically maintained at an angle to the horizontal sufficient to maintain the top of the stock material in a level condition. A single inclined guide element is mounted on the machine at one side of the stock support plates. One of the stock support plates has a cam follower mechanism movably mounted thereon which engages the guide element to cause the stock support plate to be progressively pivotally moved to a horizontal condition as the machine feed tray is raised during the printing operation. A linkage means interconnects the stock support plates to co-ordinate the pivotal movement thereof. Means is also provided to provide the proper tension on the stock material and consists of a substantially inverted cone-shaped member which is vertically movable and rotatably mounted adjacent one side of the stock positioned on the stock support plates.

3,567,217
METHOD AND APPARATUS FOR COLLATING SHEET COPIES FROM A DUPLICATING DEVICE

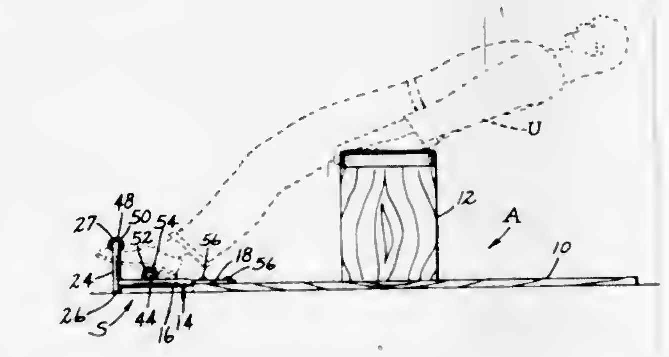
Penelope J. Fink, Lemon Grove, and James R. Warren, Chula Vista, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
Filed July 18, 1968, Ser. No. 745,734
Int. Cl. B65h *31/00*
U.S. Cl. 271—86 **2 Claims**



A method and apparatus for manually collating sheet copies from a reproduction machine is disclosed. The apparatus comprises a rotatable drum having a multiplicity of copy-receiving bins about its circumference. The drum is rotatably mounted on a platform and so sized that desired ones of the bins therein can be aligned with the output station of a duplicating device by manual rotation of the drum. Spring-biased detent means are provided to yieldably secure the drum in any one of its discrete angular positions. The disclosed method includes the steps of manually moving a selected one of a plurality of copy receiving bins along a circular path into copy-receiving relation to a reproduction machine discharge station, operating the machine to eject a predetermined number of copies into the selected bin, and terminating the production of copying while manually rotating the next of a selected bins into copy-receiving relation to the machine.

3,567,218
BENDING EXERCISING DEVICE

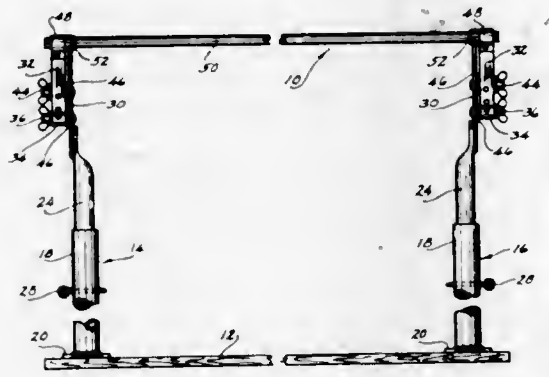
Edwin S. Johnson, Rte. 2, Benson, Minn. 56215
Filed May 29, 1968, Ser. No. 733,167
Int. Cl. A63b *23/02*
U.S. Cl. 272—58 **1 Claim**



The disclosure includes a base, a seat carried by the base, an outer roller carried by said base outwardly thereof together with an inner roller carried by the base inwardly of said outer roller and lower than the same relative to the base.

3,567,219
UNIVERSAL PHYSICAL EXERCISING DEVICE

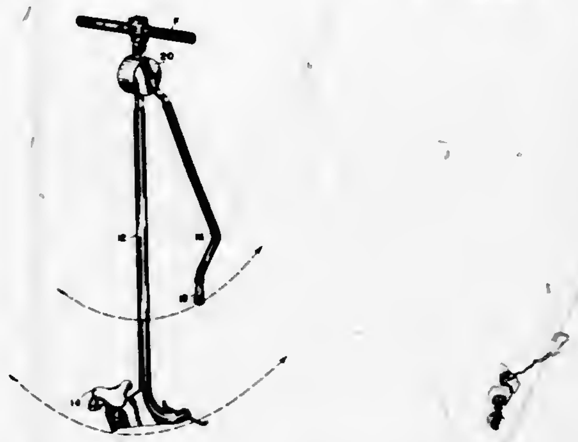
Timothy G. Foster, R.R. 2, Maquon, Ill. 61458
Filed May 16, 1969, Ser. No. 825,312
Int. Cl. A63b *21/02, 21/10, 21/32*
U.S. Cl. 272—83 **5 Claims**



A physical exercising device that enables a person to perform a variety of body exercises. Laterally-spaced parallel bars, supported upon flexible cantilever arms, are engaged by the person while performing the exercises. Means are provided to adjust the space between the bars by pivoting the arms and securing them in position, and means are also provided to regulate the degree of flexibility of the arms so as to adjust the resistance offered to the person employing the device.

3,567,220
PLAYGROUND SWING ACTUATOR

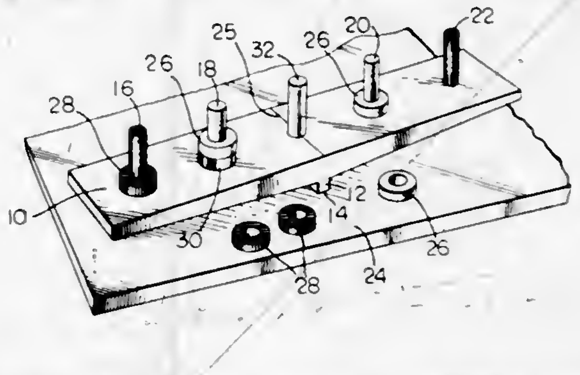
James W. Cox, P.O. Box 193,
Upper Lake, Calif. 95485
Original application June 29, 1964, Ser. No. 378,746, now abandoned. Divided and this application Nov. 30, 1967, Ser. No. 704,964
Int. Cl. A63g *9/16*
U.S. Cl. 272—89 **4 Claims**



A playground swing having a first depending arm on which is mounted a rider supporting seat and a second depending arm positioned to be accessible to a rider occupying the seat. A mechanical linkage between the two arms, which mechanical linkage affords a motion amplification or reduction between the two arms so that the rider can control his swinging movement by application of force on the second depending arm.

3,567,221
BALANCING GAME AND TEACHING AID

William Emerson Stults, Fort Wayne, Ind., assignor to Sargent-Welch Scientific Company, Skokie, Ill.
Filed May 2, 1968, Ser. No. 726,151
Int. Cl. A63f *9/00;* **G09b** *19/02*
U.S. Cl. 273—1 **12 Claims**

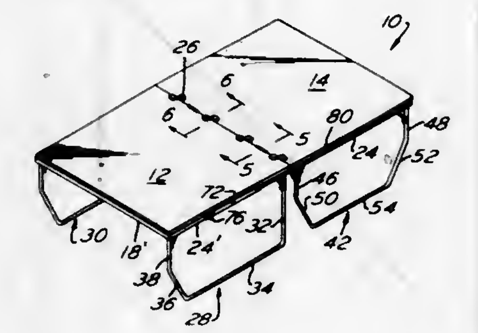


The invention concerns a balance bar having a fulcrum on the bottom which will support the bar in a horizontal position when it is loaded evenly on opposite sides of the center line. The bar has a plurality of pins extending upwardly from the top surface and spaced evenly from each other and from the center of the bar. Weight elements are receivable on the pins to form the means for playing a game and also for demonstrating arithmetical and physical principles. Each of the pins on each side of the fulcrum point is either a respective color or shape, and the weight elements include at least one of each such color or shape.

3,567,222
COLLAPSIBLE TABLE TENNIS TABLE

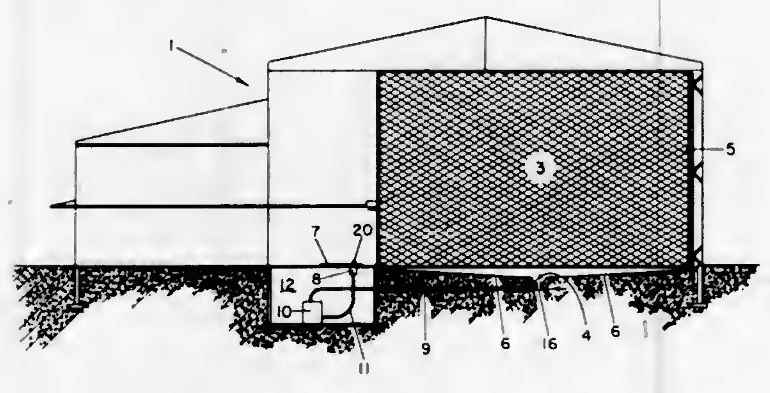
Jerome Robins, Philadelphia, Pa., assignor to Wallace Products, Inc., Philadelphia, Pa.
Filed May 27, 1968, Ser. No. 732,444
Int. Cl. A63b *61/00*
U.S. Cl. 273—30 **5 Claims**

A collapsible table tennis table is disclosed having pivotable table halves. One table half may be positioned so that it acts as a backboard when playing solo. Reinforcement brackets are provided between the table top and its frame so as to absorb the weight of the upright table half used as a backboard. When collapsed, it may be wheeled to any desired location for storage. The table halves are constructed by connecting the table top to its frame by use of glue and/or screws. The table top frames are preferably rectangular aluminum extrusions.



3,567,223
GOLF RANGE BALL HANDLING MEANS

Joseph A. Gentiluomo, 1456 Belmont Ave.,
Schenectady, N.Y. 12308
Filed Jan. 20, 1967, Ser. No. 610,557
Int. Cl. A63b *69/36*
U.S. Cl. 273—35 **7 Claims**

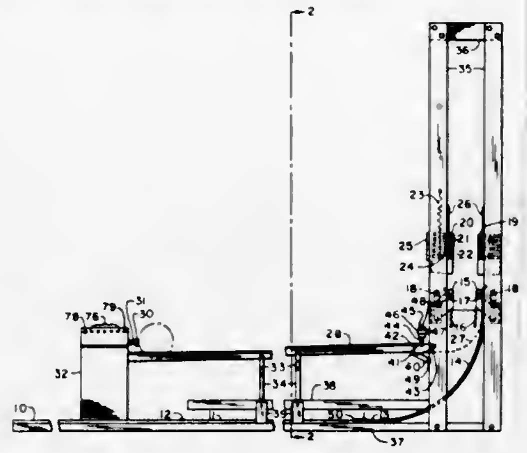


This invention relates to a golf range ball handling means. The novel combination features a discrete ball dispensing means located below golf tee area level so as to yield a neat appearing tee area. The ball dispensing means located in the basement area provides accessibiltiy to said means and allows for balls to be checked and replaced, when necessary, without interrupting range play. The invention in entirety consists of an inclined floor, a ball retreiving gutter, a ball return means to return balls to said ball dispensing means, and a ball elevating means to elevate balls from said ball dispensing means to the ball teeing means for golfers usage.

3,567,224
BOWLING PRACTICE GAME APPARATUS

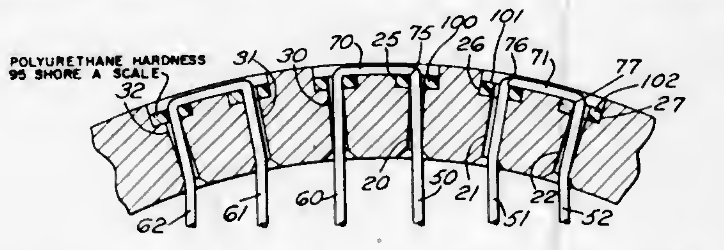
Robert L. Forgacs, 1618 N. Evangeline,
Dearborn Heights, Mich. 48127
Filed Mar. 29, 1968, Ser. No. 717,155
Int. Cl. A63d *5/00, 5/02*
U.S. Cl. 273—41 **8 Claims**

A bowling practice game apparatus having a transversely movable plurality of ball sensors on a substandard length alley spaced substantially the same distance from the foul line as the marker spots on a standard alley. Indicator lights are illuminated in response to actuation of the sensors to provide a hypothetical pinfall indication approximating actual pinfall for both first and second balls. A mechanism is provided which prevents reverse rolling balls from actuating the sensors. A curved ramp, an optional one way gate and an energy absorber at the end of the alley cooperate to return the ball to the bowler.



3,567,225
RACKET INCLUDING STRING ENGAGING ELASTOMERIC BUSHINGS AND PADS

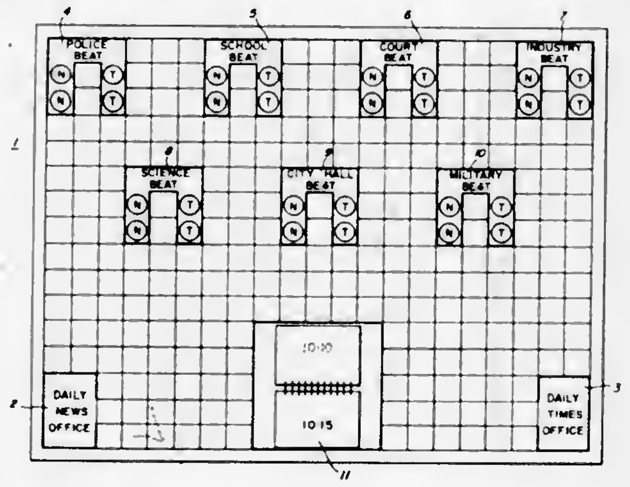
James E. Hollis, Providence, R.I., assignor to
Brancroft Racket Company
Filed Mar. 26, 1968, Ser. No. 716,208
Int. Cl. A63b *51/02*
U.S. Cl. 273—73 **3 Claims**



A strung game racket in which the primary strings are borne on the surfaces which are resiliently-cushioned by elastomeric bushings and pads to amplify string recovery power under heavy strain as well as to prevent string abrasion at points of concentrated surface loading.

3,567,226
APPARATUS FOR PLAYING A GAME SIMULATING NEWSPAPER REPORTING AND PUBLISHING

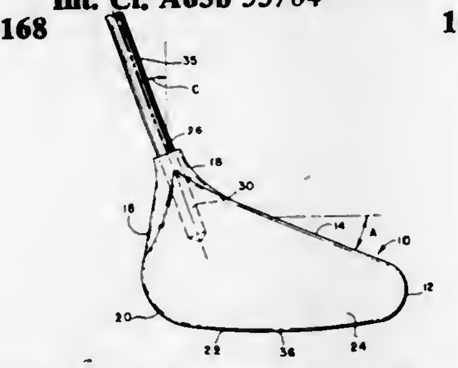
Gilbert T. Matthews, 2943–B N. Flanwill Blvd.,
Tucson, Ariz. 85716
Filed Dec. 13, 1968, Ser. No. 783,492
Int. Cl. A63f *3/02*
U.S. Cl. 273—134 **1 Claim**



A game is disclosed which simulates the competition and fortuity encountered in the day-to-day gathering and dissemination of news by newspaper organizations. A primary board includes a plurality of newspaper offices and a plurality of "beats" set forth on a grid as well as a "timer" comprising a pad with a specific time printed on each page such that increments of game time pass as each page is turned. An auxiliary board is utilized to keep track of the stories gathered by two or four players. A specially marked die, a deck of story cards, a deck of scoop cards, and a number of indicator pieces and discs are utilized in playing the game according to prescribed rules.

3,567,227
GOLF PUTTER WITH TWO TRIANGULARLY SHAPED HITTING FACES

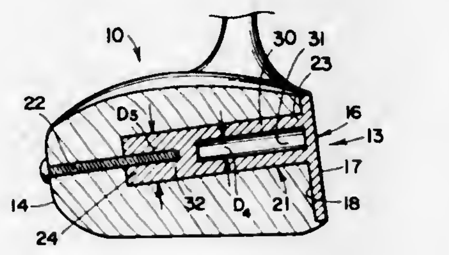
Allen T. Panks, 106 E. 12th Ave.,
Sault Ste. Marie, Mich. 49783
Filed Aug. 13, 1968, Ser. No. 752,246
Int. Cl. A63b *53/04*
U.S. Cl. 273—168 **10 Claims**



A golf putter head is symmetrical about its vertical center plane and has generally triangularly shaped side faces, defined generally by a rounded sole portion, a sloped top surface, and a heel and back portion. The included angle between the shaft axis and the top portion is approximately 132°, and the angle between the top portion and a plane tangential to the curved sole portion in the general area of the center of the sole portion is approximately 22°. The heel and toe are rounded. The side faces are flat and slightly sloped to give a slight lofting tendency to the ball. The location of the shaft and the shape of the head are such as to give good results if the ball is hit on almost any area of the hitting face, thus minimizing the importance of striking the ball accurately with the "sweet spot" of the club. The design of the head gives a better perspective to the user when looking down from the putting position, facilitates use by different persons at different angles and distances, eliminates or minimizes the importance of a sweet spot, and tends to eliminate bounce in the ball when hit.

3,567,228
HIGH ENERGY GOLF CLUB

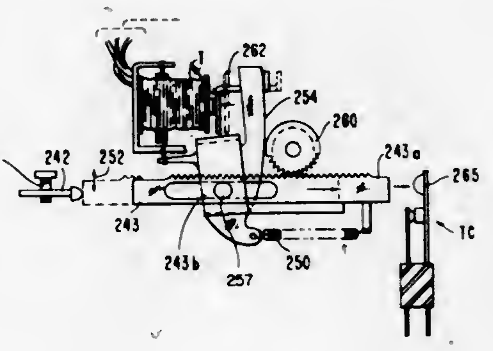
John Nord Lynn, 4624 Gable Drive,
Encino, Calif. 91316
Filed Oct. 9, 1968, Ser. No. 766,059
Int. Cl. A63b *53/08*
U.S. Cl. 273—169 **1 Claim**



A golf club head has a face plate incorporated in its striking face. Rigidly secured to the face plate is a rod that extends towards the club rearward wall. The plate and rod are constructed from metal characterized by a high modulus of elasticity so that upon impact with a golf ball less deformation is experienced by the club head. As a consequence, energy that other would be absorbed by the club head and thereby wasted becomes available for transmission to the golf ball in order to stroke it through longer distances.

3,567,229
TRANSCRIBING APPARATUS WITH VARIABLE AUTOMATIC RECALL FACILITIES

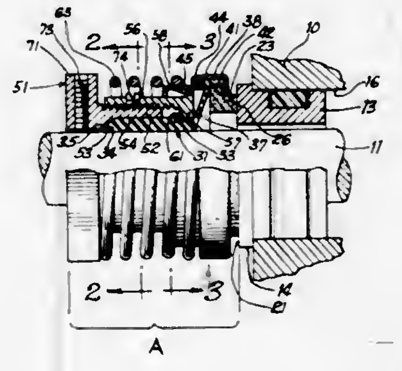
Charles L. Ridings, Bruno F. Wehmer, and Walter F. Wing, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 19, 1968, Ser. No. 699,253
Int. Cl. G11b *5/00*
U.S. Cl. 274—1 **9 Claims**



The invention concerns dictating transcribing apparatus using a magnetic belt record media and having a variety of automatic and semiautomatic features. The transcribing unit has an associated head set and foot control and is arranged for loading and unloading of the magnetic belt from the front of the unit. Various operating controls are also provided on the front of the transcribing unit. Transcribing operations are under control of a foot pedal and include starting and stopping of the belt movement, a measured review which is repeatable, a forward review, and other operations required for transcribing. The unit features automatic recall structures and circuits for relatively repositioning the sound head and belt up to five (5) words of prior dictation following release of the foot control in a playback operation in order to repeat the words when started again. A rack and timer cooperate with relay circuits to control the extent of recall.

3,567,230
SHAFT SEAL

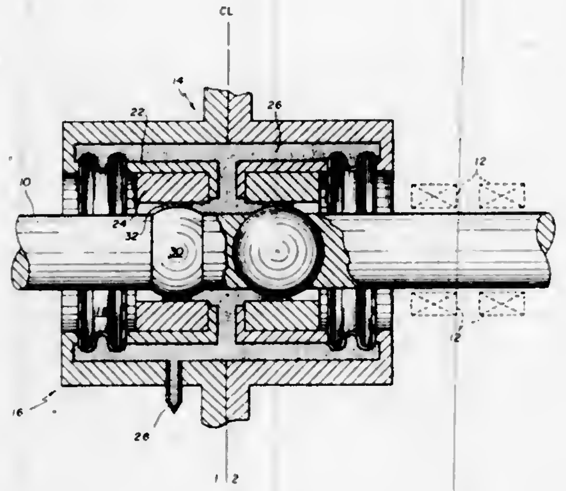
Norbert W. Gits, 6417 Blackhawk Trail,
Indian Head Park, Ill. 60525
Filed Sept. 25, 1969, Ser. No. 861,006
Int. Cl. F16j *15/36*
U.S. Cl. 277—89 **8 Claims**



A rotatable seal for sealing a shaft with respect to an enclosure from which the shaft extends to preclude leakage from or into the enclosure along the shaft and rubbing surfaces are provided on the rotating seal and the enclosure respectively. In particular, an improved packing is provided to achieve fluid tightness of the seal with respect to the shaft, together with means to adjustably compress the packing into such tight relation by simple, effective means.

3,567,231
ROTARY SEAL ASSEMBLY

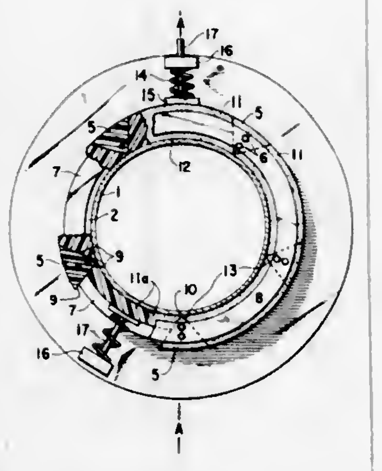
William C. Albert, Waldwick, N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J.
Filed Dec. 4, 1968, Ser. No. 781,166
Int. Cl. F16j *15/40*
U.S. Cl. 277—135 **2 Claims**



A sealing assembly for a rotating member extending in two mediums of differing pressures, including one or more bushings extending over the rotating member with a non-wetting liquid disposed in a space between the bushings and the rotating member to provide a seal between the mediums.

3,567,232
ROTARY SEAL

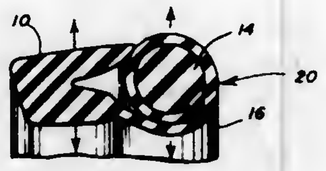
Ray M. Rickerson, Conroe, Tex., assignor to Cities Service Company
Filed Oct. 30, 1968, Ser. No. 771,762
Int. Cl. F16j *15/16*
U.S. Cl. 277—148 **8 Claims**



A low pressure rotary seal having a plurality of sealing segments and spacers which encircle an essentially cylindrical member and which obstruct an oversize opening through which the cylindrical member extends into a chamber enclosure. Either the cylindrical member or the enclosure may rotate. The sealing segments are radially movable with respect to the axis of the cylindrical member, have parallel end edges and an arcuate inner edge which conforms to the periphery of the member. The sealing spacers are fixedly mounted wedges which are located between the segments and have end edges which are parallel to and in slidable contact with the end edges of adjacent segments. Automatic compensation for wear is effected by continuously urging the segments into contact with the cylindrical member.

3,567,233
GASKET MEANS FOR PIPE

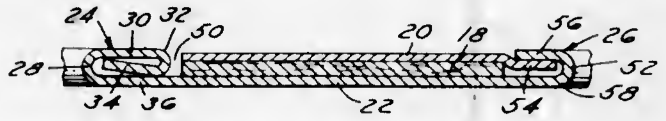
Fred C. Stepanich, R.R. 1, Cherryvale, Kans. 67335
Filed July 11, 1968, Ser. No. 744,040
Int. Cl. F16j *15/02;* **F16l** *21/02*
U.S. Cl. 277—177 **6 Claims**



A flexible, resilient gasket for the joints of concrete or pipes made of other material includes a chevron portion and an extending sleeve which is rolled up and compressed between the spigot end and bell end of a pipe joint making a fluid tight joint.

3,567,234
GASKET CONSTRUCTION

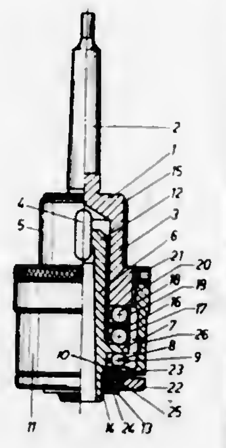
Robert R. Skrycki, Grosse Ile, Mich., assignor to McCord Corporation, Detroit, Mich.
Filed Sept. 3, 1969, Ser. No. 854,957
Int. Cl. F02f *1/00*
U.S. Cl. 277—235 **9 Claims**



A gasket for use between the cylinder head and block of an engine having a core of compressible rubber-asbestos composition laminated between two thin metal sheets. The metal sheets are of slightly different thickness. Around the edge of the gasket openings registering with the cylinders in the block the thicker metal sheet is reversely bent upon itself to present a combusition seal flange of three metal thicknesses. Around the bolt openings in the gasket the thicker metal sheet is bent over the edge of the thinner metal sheet so that the compressed thickness thereof is slightly less than the compressed thickness of the gasket around the combustion sealing flanges for the cylinders.

3,567,235
TOOL HOLDERS

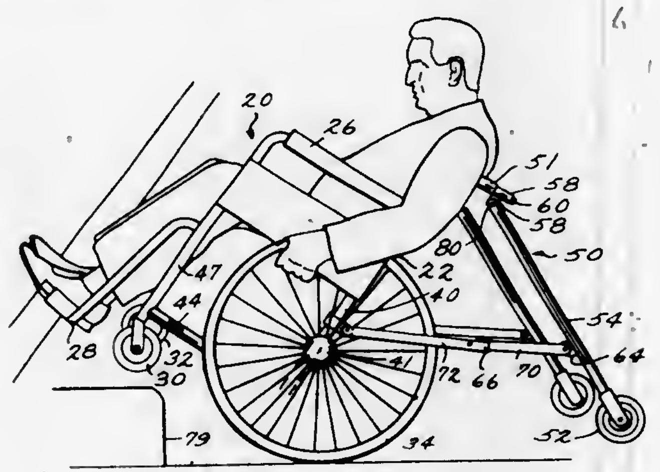
Hans Wiederkehr, Ifangstrasse 107, Rumlang, Switzerland
Filed Oct. 17, 1968, Ser. No. 768,402
Claims priority, application Switzerland, Oct. 18, 1967, 14,552/67
Int. Cl. B23b *31/02*
U.S. Cl. 279—16 **6 Claims**



A tool holder for use with machine tools having means for permitting the axis of rotation of the tool to become offset from the axis of rotation of the tool holder. This is accomplished by providing a coupling plate with ball bearings on either side between the driving part and the driven part of the tool holder. The tool holder maintains the offset axes in absolute parallelism with each other.

3,567,236
WHEELCHAIR ATTACHMENT

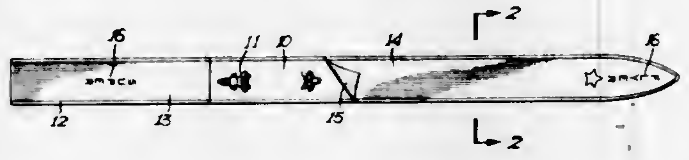
Samuel T. Powers, Tijeras, N. Mex., assignor to Lovelace Foundation for Medical Education and Research, Albuquerque, N. Mex.
Filed Nov. 25, 1968, Ser. No. 778,458
Int. Cl. B62b *5/02*
U.S. Cl. 280—5.32 **7 Claims**



Wheelchair attachments ordinarily installed in pairs for enabling patients confined to wheelchairs to easily negotiate obstacles, such as curbs, in a conventional wheelchair having two small front wheels and two large rear wheels which the patient manually rotates to propel and maneuver the wheelchair. Each attachment includes an extendible wheels, or dolly, which is connectable to the wheelchair through supporting member and which can be manually extended backward by the patient to a locked position. When both dollies of a pair of attachments are in this extended and locked position, the wheelchair can be tilted backwards manually to rest in a stable, tilted position on the two large wheels and the extended dollies or wheels with the two small front wheels, or casters, elevated. Curbs and other obstacles can then be simply negotiated in this tilted position by manually rotating the two large wheels so as to climb the obstacle.

3,567,237
SKI COVERING

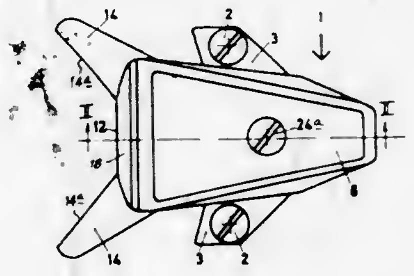
Herbert Bernette Miller III, Minneapolis, Minn., assignor to A-Line Company, Minneapolis, Minn.
Continuation-in-part of application Ser. No. 738,956, June 21, 1968. This application Oct. 29, 1968, Ser. No. 771,481
Int. Cl. A63c *5/12*
U.S. Cl. 280—11.13 **2 Claims**



A tough protective covering secured to the upper surface of the runner member of the ski by a pressure-sensitive adhesive to form a scuff resistant membrane over the runner member. The protective covering may be transparent, colored, or contain a wood grain figure. In certain instances, additional symbols, letters, words, or other indicia may be applied to the ski covering and the combination covered with a transparent covering. The covering alleviates the problem of continually refinishing the upper surface of the ski.

3,567,238
FRONT JAW OF SAFETY BINDING FOR SKIS

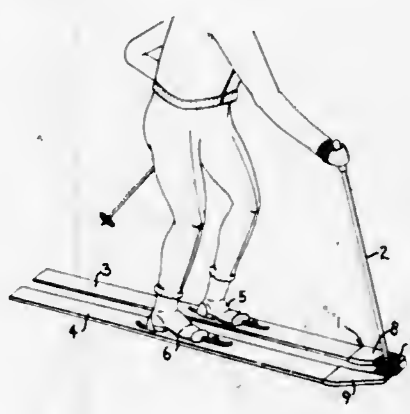
Rudolf Brunner, Munich, Germany
(23 Wankstrasse, 8011 Baldham, Germany)
Filed Mar. 19, 1969, Ser. No. 808,545
Claims priority, application Germany, Mar. 27, 1968, P 17 03 068.1
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 **14 Claims**



In the front jaw of a safety binding for skis in which a jaw body is swingable laterally relative to the ski from an operative position where it is yieldably retained and a pair of diverging holddown arms project rearwardly from the body at opposite sides of a central supporting face thereon to engage lateral areas of the toe portion of a ski boot when the toe end of its sole abuts such face; the holddown arms are in the form of a rigid unit releasably secured with respect to the jaw body, as by a screw and slot connection, to permit adjustment of such rigid unit forwardly and rearwardly with respect to the jaw body and the supporting face thereon. Preferably, the rigid arm unit is connected to the jaw body by way of an intermediate member presenting the central supporting face and being vertically adjustable on the jaw body.

3,567,239
SKIING INSTRUCTIONAL DEVICE

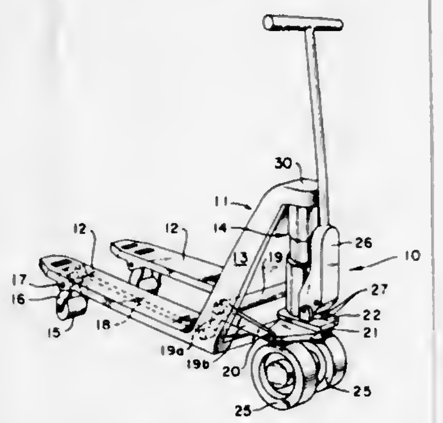
Donald M. Kitterman, 4100 Riverside St., Kansas City, Mo. 64105
Filed Feb. 26, 1969, Ser. No. 802,454
Int. Cl. A63c *11/00*
U.S. Cl. 280—11.37 **10 Claims**



A skiing instructional device consisting of cooperative members on the forward end of each of a pair of skis and having loosely engaging connecting portions with openings adapted to receive a pointed end of the ski pole for separably connecting same and preventing the forward ends of the skis from moving or spreading apart.

3,567,240
DUAL RATE JACK SYSTEM FOR LIFT TRUCKS

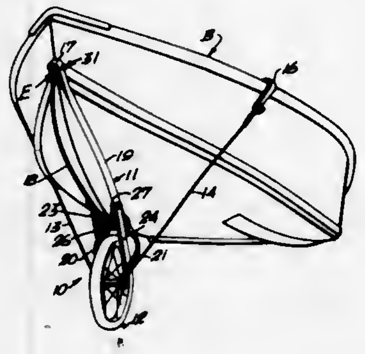
Samuel M. Brassington, 1101 Kenwal Road,
Concord, Calif. 94521
Filed Apr. 11, 1969, Ser. No. 815,460
Int. Cl. B66f *9/06*
U.S. Cl. 280—43.12 **10 Claims**



A jacking system for lift trucks and the like which employs a rolling diaphragm and a piston unit to achieve a dual jacking rate, a fast rate in an unloaded condition and a slower rate, with increased mechanical advantage, for loaded conditions on the jacking system.

3,567,241
DETACHABLE BOAT WHEELING DEVICE

John A. Foschino, 44 E. Pleasant Ave.,
Maywood, N.J. 07607
Filed Feb. 24, 1969, Ser. No. 801,487
Int. Cl. B60p *3/10*
U.S. Cl. 280—47.32 **2 Claims**

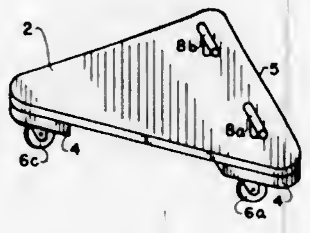


A detachable boat wheeling device comprising a carriage framework of bent metal bar stock defining at one end a bight having through pin connection means for straddling and interconnection with a boat prow eye, and extending into opposed, coextensive spaced prow supporting side portions the lower ends of which are bent downwardly and support between them a wheel. Cables extending upwardly of each side of the framework terminate in hooks attachable over the gunwale at each side of a boat.

3,567,242
WHEELED COASTER DEVICE

Larry F. Miller, 366 Tolbert St.,
Wadsworth, Ohio 44281
Filed June 26, 1969, Ser. No. 836,866
Int. Cl. B62b *11/00*
U.S. Cl. 280—87.04 **7 Claims**

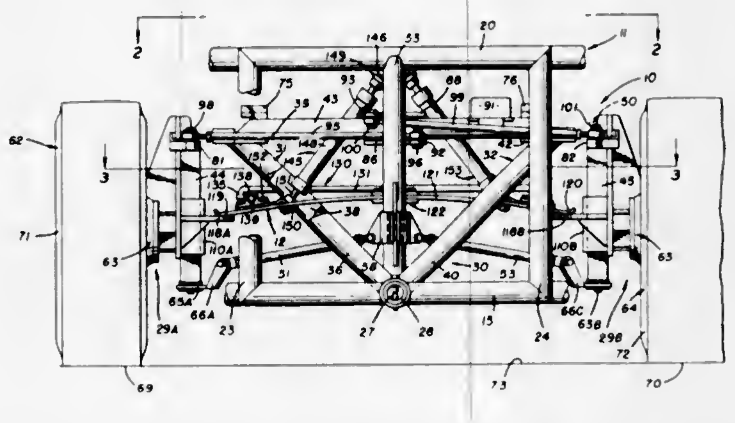
A coaster device is composed of a platform beneath which are mounted three wheels, arranged in the form of a triangle. Two of the wheels are each provided with separate steering means while the third wheel is free to pivot about its vertical axis. The platform is preferably triangular and is of sufficient size and strength to support one or more persons in a sitting or kneeling position.



Casters are preferably used for the wheels. The caster stems for the two steerable wheels are each keyed to one end of a tubular shaft extending vertically through the platform. A suitable handle is attached to the other end of each shaft.

3,567,243
VEHICULAR UNDERCARRIAGE AND SUSPENSION

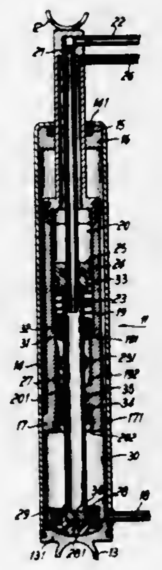
John B. Ruhlin, Akron, Ohio, assignor to The John G. Ruhlin Construction Company, Akron, Ohio
Filed July 2, 1969, Ser. No. 838,441
Int. Cl. B62d *7/00*
U.S. Cl. 280—96.2 **20 Claims**



An undercarriage and suspension system for a vehicle. The vehicle chassis has a longitudinal roll axis delineated by a mounting beam. An axle is rotatably connected to the mounting beam and a pillar is dependingly supported from a pivot means on each lateral end of the axle. One end of a pair of control rods, each adjustable for length, is connected to each pillar in spaced relation below the pivot means, and the opposite ends of the control rods are individually secured to the chassis at selective locations upwardly of the mounting beam but at least beneath the center of gravity of the sprung mass of the vehicle. Spindle means on each pillar support the wheels and, for steering, each pillar may be rotatable about its own axis by the rods connected between steering arms on the pillars and a compensating member rotatably mounted on the axle. In order to provide the effect of independent suspension, the spindle means are secured to sleeves slidably supported on the pillars. An equalizer beam is rotatably mounted on the axle about an axis generally transversely of the pillars and is operatively connected between the sleeves mounted on those pillars. A spring means is also operatively connected between the sleeves and the chassis, and, in some embodiments a spring means may be operatively connected between the sleeves and a stanchion rotatably secured to the mounting beam.

3,567,244
LEVEL REGULATING UNIT

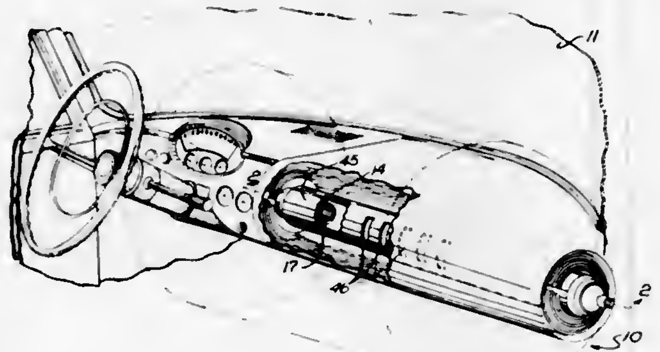
Hans-Jürgen Hoffmann, Hohenlimburg, and Manfred Löhr, Letmathe, Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed Nov. 20, 1968, Ser. No. 777,394
Claims priority, application Germany, Nov. 23, 1967, P 16 30 067.7
Int. Cl. B60g *17/04*
U.S. Cl. 280—124 **14 Claims**



A level regulating unit for pneumatic or hydro-pneumatic springs, especially for automotive vehicles having a chassis assembly and a wheel assembly movable in substantially vertical direction toward and away from each other thereby increasing the gas pressure of the springs during movement of the assemblies toward each other and reducing the gas pressure during movement of the assemblies away from each other. The level regulating unit includes a pair of telescopically arranged members respectively connected to the chassis and the wheel assembly for movement in vertical direction therewith and defining a working space communicating with the fluid space of the springs, and control means for connecting the working space to a high pressure space when the telescoping members move in one direction relative to each other, or to a low pressure space during movement of the members in the opposite direction.

3,567,245
VEHICLE SAFETY APPARATUS

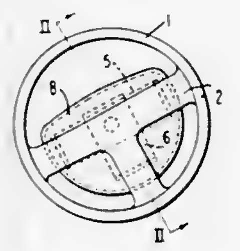
George A. Ekstrom, Southfield, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed May 17, 1968, Ser. No. 730,024
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 **21 Claims**



A vehicle safety apparatus protects an occupant of a vehicle during a collision. The safety apparatus includes a confinement which is inflated by the flow from a fluid reservoir and, when inflated, restrains movement of an occupant of the vehicle during the collision. The reservoir includes an opening therein and a plug member is located in the opening. The plug member has a fluid passageway extending therethrough and means for blocking the flow of fluid from the reservoir through the fluid passageway. An explosive is located in the fluid passageway and on detonation provides for flow of fluid through the fluid passageway from the reservoir to the confinement.

3,567,246
SAFETY STEERING WHEEL

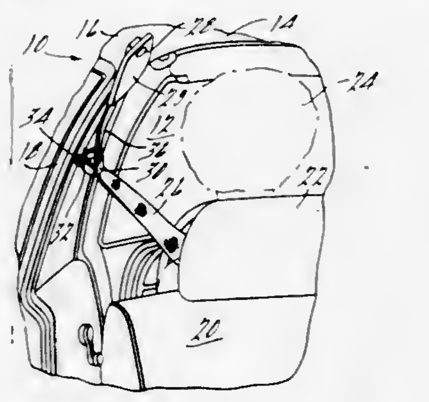
Karl Wilfert, Gerlingen-Waldstadt, and Béla Barényi, Stuttgart-Vaihingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Sept. 18, 1968, Ser. No. 760,399
Claims priority, application Germany, Sept. 19, 1967, D 54,151
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 **8 Claims**



A safety steering wheel for motor vehicles, particularly for passenger motor vehicles, in which the system "steering wheel-steering wheel spokes" is constructed relatively form-rigid and is arranged at the upper end of a steering column by the interposition of a yielding intermediate structure which is constituted by an elastically yielding transmission member yielding in the direction of the steering column, and an energy-dissipating element is associated with this transmission member.

3,567,247
VEHICLE SHOULDER HARNESS ARRANGEMENT

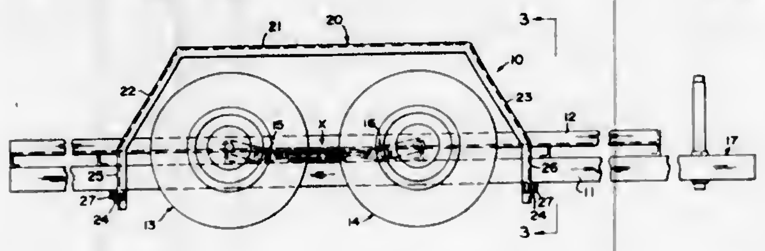
William J. Sobkow, Livonia, and Emile P. Grenier, Ann Arbor, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed July 24, 1969, Ser. No. 844,429
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 **8 Claims**



A motor vehicle shoulder harness type occupant restraint arrangement including an outboard belt segment having one of its ends secured to vehicle body structure above and rearward of a forward facing passenger seat. A first fastener element carried by and movable along the length of this belt segment is adapted to be releasably engaged by a fixed second fastener element located within the vehicle passenger compartment at a point forward of and below the belt segment anchoring point. In the event of rapid vehicle deceleration causing a seated passenger to move forward against the belt segment, the resultant belt segment loading would cause the fastener elements to separate.

3,567,248
TRAILER WITH MULTIPOSITION FENDERS

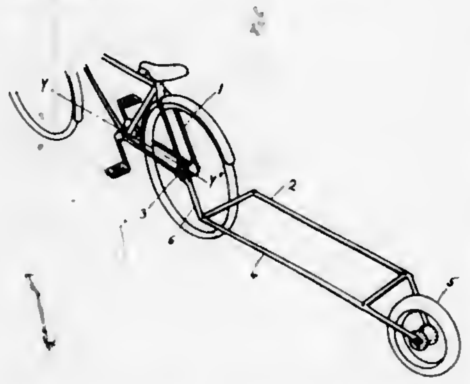
John N. Nuzum, Barberton, Ohio, assignor to Travel-Safe Trailer Mfg., Inc., Akron, Ohio
Filed Apr. 30, 1969, Ser. No. 820,526
Int. Cl. B62d *25/16*
U.S. Cl. 280—154 **3 Claims**



The trailer includes a frame having longitudinally extending side members thereon, support wheels operatively attached to the frame and positioned laterally beyond the frame, and individual fender means provided for each of the support wheels in the trailer. These fenders are carried operatively by the trailer frame and are adapted to be positioned operatively above the support wheels for the trailer and to be swung laterally outwardly to inoperative position to facilitate loading and unloading of the trailer.

3,567,249
ONE-WHEELED CYCLE TRAILER AND HITCH THEREFOR

Russell S. Robinson, 277 Main St., Farmington, Conn. 06032
Filed Mar. 18, 1969, Ser. No. 808,058
Int. Cl. B62d *53/00*
U.S. Cl. 280—204 **10 Claims**

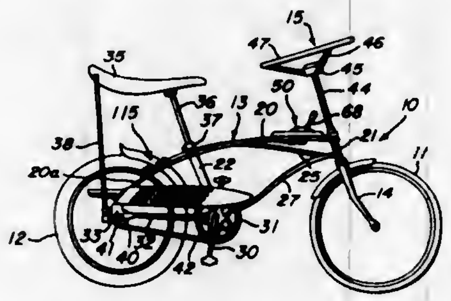


A one-wheeled trailer for a cycle has a single tongue which extends forwardly along one side of the rear wheel of the cycle and is connected to the cycle at a point laterally offset from such rear wheel and near its central axis. A hitch for connecting the tongue to the cycle permits the tongue to pivot relative to the cycle about turning and pitching axes, but prevents relative movement about a roll axis. The hitch includes a quick disconnecting means.

3,567,250
BICYCLE WITH IMPROVED BRAKE SYSTEM

Donald A. Wolf, Dayton, Ohio, assignor to The Huffman Manufacturing Company, Dayton, Ohio
Filed Mar. 12, 1969, Ser. No. 806,470
Int. Cl. B62j *27/00*
U.S. Cl. 280—289 **6 Claims**

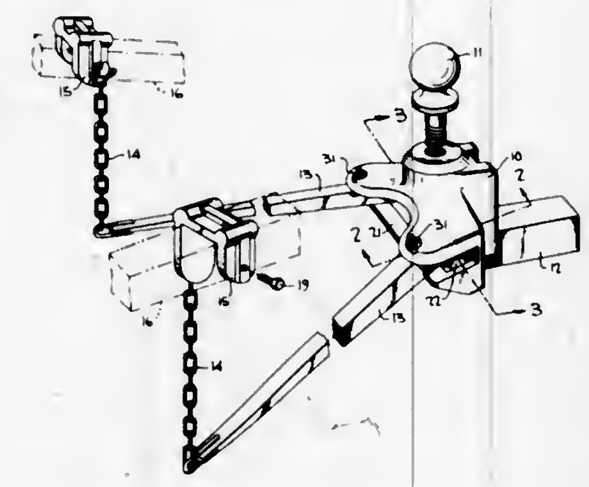
A bicycle has a brake actuator including a housing mounted on twin upper tubes of the frame below an automotive type steering wheel or a handlebar. A pivotable lever is supported by the housing between the tubes and is connected by a shielded cable to caliper brakes for the rear wheel of the bicycle. The lever is effective to lock



the rear wheel against rotation for providing a parking brake. The housing may also support a second pivotable lever connected to actuate a speed change mechanism.

3,567,251
EQUALIZING TRAILER HITCH

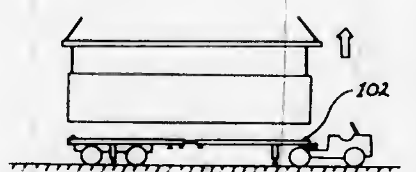
John Broocks Dalton, Warsaw, Ind., assignor to Big Boy Products, Inc., Winona Lake, Ind.
Filed May 13, 1969, Ser. No. 824,167
Int. Cl. B62d *53/00*
U.S. Cl. 280—406 **6 Claims**



A trailer hitch coupling usable with equalizing bars pivotally mounted therein, the coupling having wedge means therein for both maintaining the bars securely within the coupling and for accommodating different sizes of equalizing bars.

3,567,252
VEHICLE FORMED BY COUPLABLE CONTAINER MEANS WITH DEMOUNTABLE COUPLABLE ADAPTER FRAMES

Ronald L. Zubko, Levittown, Pa., assignor to Strick Corporation, Fairless Hills, Pa.
Filed Dec. 12, 1968, Ser. No. 783,380
Int. Cl. B62d *53/06*
U.S. Cl. 280—415 **3 Claims**



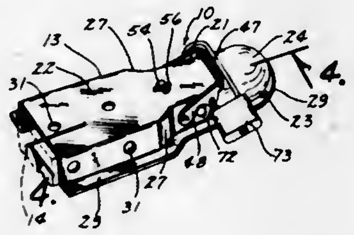
A vehicle for use in an intermodal containerized cargo system comprised of a freight carrying substantially rectangular container means vertically coupled to two adapter or chassis frames which are themselves releaseably connected together in horizontal longitudinal end-to-end relationship, a pair of wheeled bogies mounted for sliding longitudinal movement between said adapter frames, and a landing gear and a kingpin mounted on each frame in positions to allow movement of the bogies.

The adapter frames may be coupled together forming a first configuration tandem axle semi-trailer carrying a container means comprising two separate van size cargo containers in end-to-end abutting relationship, may be coupled together forming a second configuration tandem axle semi-trailer carrying a container means comprising two van size cargo containers which are themselves coupled together horizontally in end-to-end relationship to form a unitary dual container which spans both adapter frames, or may be coupled together forming a third configuration tandem axle semi-trailer carrying a container means comprising a single van size cargo container approximately equal in outside dimensions to the container means of the second configuration and spanning both adapter frames.

When the adapter frames form the first and second configurations, the adapter frames may be uncoupled and their containers separated to form two single body, single axle semi-trailers.

3,567,253
VEHICLE COUPLER UNIT

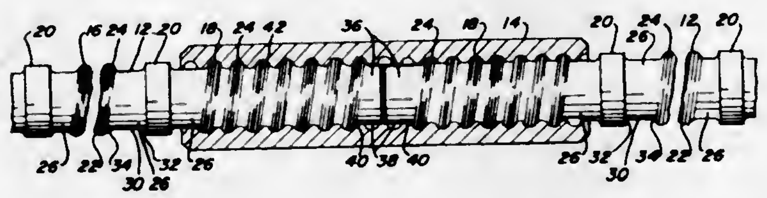
Frank A. De Puydt and Eugene P. Conradi, Des Moines, Iowa, assignors to Dico Company, Inc., Des Moines, Iowa
Filed June 13, 1969, Ser. No. 832,949
Int. Cl. B60d *1/06*
U.S. Cl. 280—512 **7 Claims**



The vehicle coupler unit includes a housing that is formed at one end with a ball-receiving socket and is attachable at its opposite end to a vehicle to be towed. A ball member on the towing vehicle is retained within the socket by a locking member that is pivotally mounted within the housing for movement between coupling and uncoupling positions. A cam member engageable with the locking member is manually actuated in one direction to provide for a movement of the locking member to an uncoupling position and is constantly spring urged in an opposite direction to engage and move the locking member to a coupling position.

3,567,254
DRILL STEEL

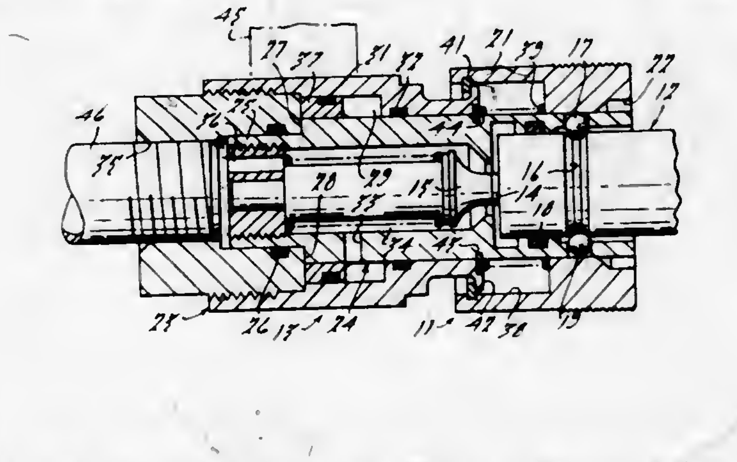
Toimi A. Parssinen, R.F.D. 1–165, Newport, N.H. 03773
Filed Dec. 3, 1968, Ser. No. 780,791
Int. Cl. E21b *17/02*
U.S. Cl. 287—117 **3 Claims**



A drill steel having an improved threading arrangement thereon wherein a plurality of spaced threaded portions are provided on the drill steel element and separated by unthreaded portions so as to allow removing a worn section of the element and recoupling the element with another of said threaded portions.

3,567,255
QUICK ACTING FLUID COUPLING

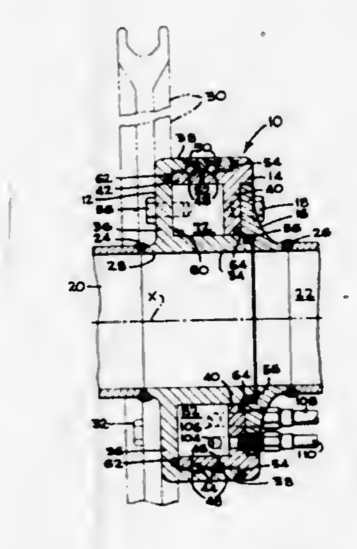
Bryce B. Evans, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.
Filed Nov. 21, 1968, Ser. No. 777,660
Int. Cl. F16l *37/22, 37/28*
U.S. Cl. 285—1 **1 Claim**



A fluid coupling having interfitting male and female bodies. The female body carries radially movable detents to lock the male body in position, the detents being held inwardly by sleeve means. Both bodies have spring-pressed fluid retaining valves which are opened when the bodies interfit but close when they are disconnected. The female body has an outer fixed section connected to the sleeve means and an inner movable section which carries the detents. The outer section is connected by a rigid conduit to the fluid line. To disconnect the coupling, the male body and inner section of the female body are moved with respect to the outer section and sleeve means until the detents are freed. In one embodiment, the sleeve means is manually retractable to release the detents for connecting or disconnecting the bodies. In the second embodiment, the sleeve means is part of the outer female body section, and an annular overcenter spring maintains the two sections of the female body either in a detent locking position or in a position with the detents freed, so that it is unnecessary to manually retract the sleeve means in order to reconnect the bodies.

3,567,256
POWERED SWIVEL PIPE JOINT

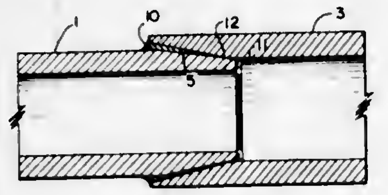
Frank Haley, Upland, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed Dec. 13, 1968, Ser. No. 783,639
Int. Cl. F16l *55/00*
U.S. Cl. 285—119 **8 Claims**



A swivel pipe joint having a fluid-powered motor for rotating one of the joints, two relatively rotatable members with respect to the other, and hence one of the pipe sections, to which the joint might be connected, with respect to the other section. The joint is designed so that either of these members can be rotated while the other is stationary, and provision is made for connecting a sheave, sprocket, gear, or the like to either member for transmitting the rotary motion to another element in addition to the connected pipe section.

3,567,257
TAPERED PIPE JOINT

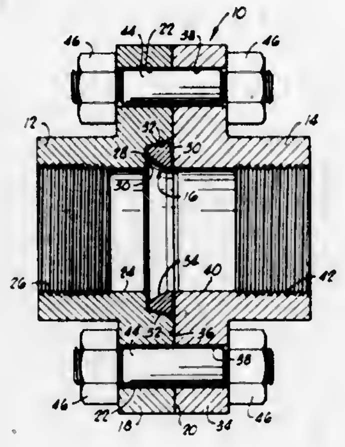
Raymond F. Nowosadko, Norwich, Conn., assignor to The Connecticut Research & Manufacturing Corporation, Norwich, Conn.
Continuation-in-part of application Ser. No. 514,244, Dec. 16, 1965. This application Oct. 11, 1968, Ser. No. 766,831
Int. Cl. F16l *13/00*
U.S. Cl. 285—287 **13 Claims**



A pipe joint wherein a tapered external surface of a pipe end is bonded within a tapered internal surface of a fitting end by a sleeve of solder material extending the length of the tapered surfaces. The angle of the internal taper is greater than the angle of the external pipe taper with respect to the longitudinal axis of the pipe joint so that a line contact is formed between the tapered surfaces. The solder material is in the form of a pre-formed tapered annular insert which is positioned between the tapered surfaces and has a length slightly greater than the lengths of the tapered surfaces. Fillets are formed from the ends of the insert of solder material at each end of the joint.

3,567,258
SEAL ASSEMBLY

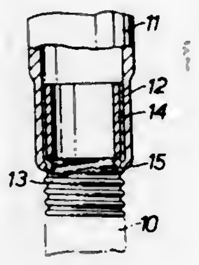
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla. 73129
Filed Mar. 10, 1969, Ser. No. 805,742
Int. Cl. F16l *25/00*
U.S. Cl. 285—334.4 **33 Claims**



A seal ring to form a fluid tight seal between a pair of connecting members particularly useful in high pressure applications, wherein the initial sealing engagement is established by causing various internal mechanical stresses in the seal ring, and wherein the seal ring is disposed between the connectors such that the load caused by tightening the bolts between the connectors is not carried by the seal ring, and such that the seal ring may quickly and easily be removed for replacement or repair.

3,567,259
SHRUNK FIT TUBE COUPLING

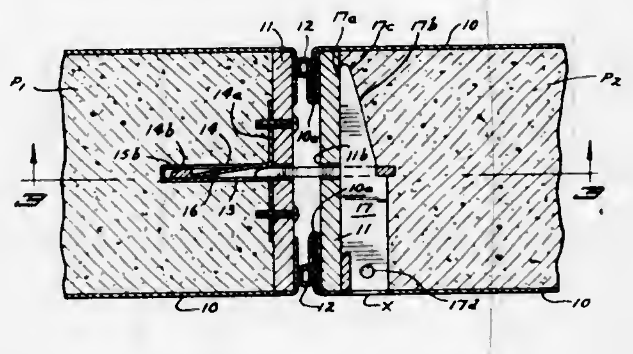
Brian Benson, Winnersh, near Wokingham, and Ian Martin Cleare, High Wycombe, England, assignors to Smiths Industries Limited, London, England
Filed Oct. 3, 1968, Ser. No. 764,776
Int. Cl. F16l *13/10, 47/02*
U.S. Cl. 285—381 **6 Claims**



A union between a fitting and a convoluted plastics hose comprising an irradiated shrink-down material for the fitting and a hollow rigid cylindrical ferrule of nylon or aluminium alloy within a smooth non-convoluted end of the hose whereby the ferrule restrains deformation of the hose end when the fitting is shrunken over it. The convolutions are removed from the hose end and the end is formed with an external diameter equal to the external diameter of the convolutions by stretching the end of the hose over a heated mandrel and applying a tool to the hose end exterior surface. The fitting in its pre-formed expanded state and the hose may be so positioned with respect to one another that after shrinking an end edge of the fitting lies in the space between two neighbouring convolutions. An epoxy resin adhesive layer may be provided between the ferrule and the smooth interior surface of the hose end, or between the fitting and the smooth exterior surface of the hose end, or both.

3,567,260
MECHANISM FOR PULLING TOGETHER AND INTERLOCKING THE EDGES OF INSULATED BUILDING PANELS

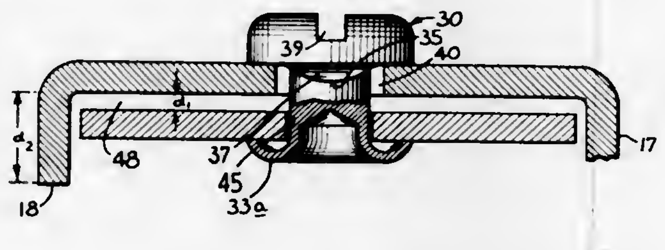
Lannie F. Norris, Hot Springs, Ark., assignor to Norris Dispensers, Inc., Minneapolis, Minn.
Filed Mar. 21, 1969, Ser. No. 809,067
Int. Cl. F16b *9/00*
U.S. Cl. 287—20.924 **3 Claims**



Mechanism for interlocking the edges of a pair of building panels and for drawing said panels together into a sealed relation, which employs in an edge of one of said panels, a wholly enclosed, narrow lock housing extending inwardly from an edge within the core of the first panel, said housing having a resilient locking tongue therewithin and normally extending at an acute angle to a side of said housing with a free edge. The mechanism includes in combination a slidable bolt plate of slightly smaller cross sectional configuration than said narrow channel, wherein said bolt plate is slidable into said channel and in such sliding insertion, cams the locking tongue first outwardly until the locking tongue is positioned in a recessed portion of said bolt plate, thereupon abutting an edge of said bolt plate to securely interlock the same with said housing. The mechanism is further supplemented by an aligned slot in the edge face plate of the second panel to be joined, through which a projecting end of said bolt plate is received and preferably thereafter, an additional wedge member is employed, driven perpendicularly to said bolt plate through an apertured longitudinal portion thereof to by wedge action on said bolt plate, and more particularly on the longitudinal slot thereof, pull or draw the two panels together into a sealed relationship. Multiples of said mechanism are utilized in vertical spaced relation upon the upright edges of panels to be joined, as well as in horizontally spaced relation at the upper edges and lower edges of the upright panels to secure the same to ceiling and floor panels.

3,567,261
ADJUSTABLE SLIP JOINT

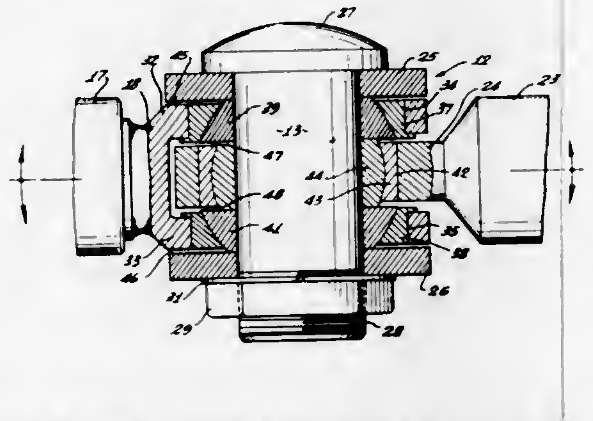
Joseph J. Akczinski, Glen Burnie, Md., assignor to Eastern Products Corporation, Baltimore, Md.
Filed Aug. 6, 1968, Ser. No. 750,608
Int. Cl. F16d *19/00*
U.S. Cl. 287—64 **4 Claims**



A slip joint for adjustably connecting two members together including a rivet of special construction in which the head has a pair of radially alined cam surfaces on the underside and a screwdriver slot on the top so that the rivet can be turned between a tight condition in which the cam surfaces are crosswise with respect to a slot in one of the pieces and a loose condition in which the cam surfaces drop into register with the slot for readjustment of the effective length.

3,567,262
SELF-ALIGNING DOUBLE-BALL JOINT

Edward J. Szkaradek, Santa Ana, and Donald L. Nepp, San Pedro, Calif., assignors to Western Hydraulics, Inc.
Filed May 2, 1969, Ser. No. 821,395
Int. Cl. F16c *11/06*
U.S. Cl. 287—88 **7 Claims**



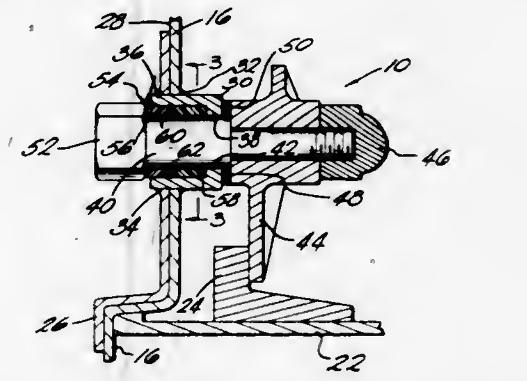
A self-aligning, double-ball joint interconnecting a pair of actuator rods including a clevis on the end of one rod in the opposite legs of which are concave bearing rings in which are mounted split segments of a bearing ball having central openings therethrough. The second actuator rod has a torque on its end providing an enlarged flat eye which is mounted in the clevis and has a bearing ring pressed, swaged or otherwise rigidly secured therein, the ring presenting a concave surface and being swaged about a central bearing ball therein. The bearing ball has a central opening therethrough and the ball and ball segments are rigidly connected together by a through bolt, with spaces provided between the clevis and the tongue therein to permit free relative twisting, as well as rotational movement. The disclosure includes the mounting of the clevis within a second clevis connected to a part to be operated, with the through bolt also passing through the last-mentioned clevis. The clevises are also spaced apart to permit relative twisting movement therebetween.

ERRATUM

For Class 287—117 see:
Patent No. 3,567,254

3,567,263
DOOR LATCH ASSEMBLY FOR SIDE DOOR DISCHARGE BINS

Ralph E. McKinney, Beatrice, Nebr., assignor to Hoover Ball and Bearing Company, Saline, Mich.
Filed Nov. 29, 1968, Ser. No. 779,790
Int. Cl. E05c *3/04, 13/00*
U.S. Cl. 292—241 **5 Claims**



A latch assembly for a hinged side door in a bin for bulk materials wherein a split sleeve is assembled with a latch bolt so that when the door is latched, a tight seal is provided around the latch bolt to prevent leakage of the bin contents.

3,567,264
IMPLEMENT FOR REMOVING INDENTATIONS IN TURF OR ON GOLF GREENS

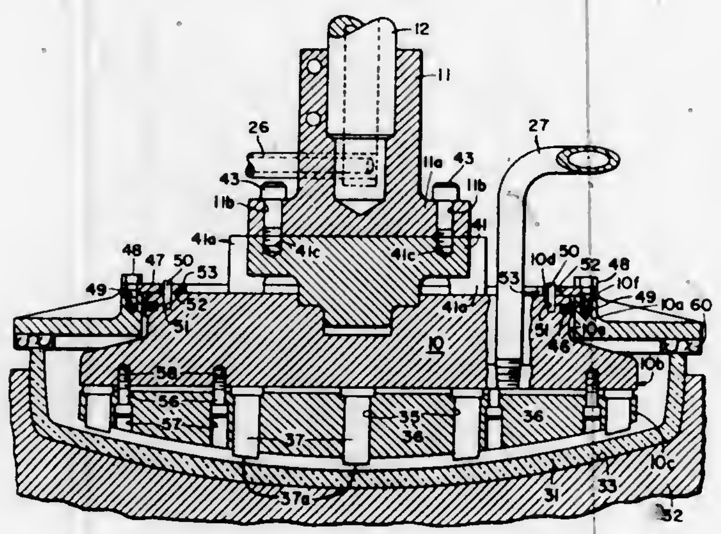
Glen L. Baber, Rte. 2, Chariton, Iowa 50049
Filed Feb. 3, 1969, Ser. No. 795,848
Int. Cl. A01b *1/16;* **A01d** *9/06, 11/00*
U.S. Cl. 294—50.7 **10 Claims**

This implement is designed to remove indentations from turf and ball marks from putting greens, by centering the implement over the indentations and by then pushing downwardly on the handle to move six angular blades downwardly and inwardly in a vertical position through the surface of the turf to converge about the indentation or ball mark, whereby the coaction of the blades about the indentation will relieve compaction of the earth, realign grass and grass roots and force the earth upwardly and inwardly thereabout to raise the turf and fill the indentation.

3,567,265

APPARATUS FOR REMOVING GLASS VIEWING PANELS FROM A MOLD

Wendell S. Blanding, Painted Post, N.Y., and Richard F. Kruger, Saratoga, Calif., assignors to Corning Glass Works, Corning, N.Y.
Filed Apr. 29, 1968, Ser. No. 724,866
Int. Cl. B66c *1/02;* **C03b** *11/00*
U.S. Cl. 294—65 **6 Claims**



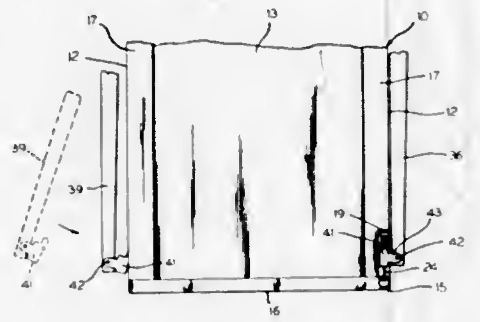
Takeout apparatus for removing articles such as viewing panels for television picture tubes from their forming molds by the use of negative pressure or vacuum and without distortion of such articles. The apparatus comprises a vacuum head having an annular outer member whose bottom surface contacts the sealing edge of each formed panel, and an inner member supporting a plurality of downwardly extending spaced-apart posts or pedestals of varying lengths on the bottom of such inner member, the free ends of such posts being shaped to correspond to selected areas on the inner surface of the face plate portion of each of said panels, said areas being drawn into contact with said ends of said posts when said inner member moves into the interior of each respective panel until said bottom surface of said outer member contacts the sealing edge of the respective panel and vacuum or negative pressure is supplied through the inner member to the interior of such panel. The outer member closely encompasses the outer periphery of said inner member in a snug but slidable relationship therewith and with a substantially airtight seal therebetween. The posts on the bottom of said inner member prevent distortion of the panels when said vacuum is supplied to the interior thereof.

3,567,266

FREIGHT CONTAINER AND GRIPPING AND LIFTING ATTACHMENT THEREFOR

John Bridge, 407 S. Dearborn St., Chicago, Ill. 60605
Filed Oct. 15, 1968, Ser. No. 767,723
Int. Cl. B66c *1/66*
U.S. Cl. 294—67 **6 Claims**

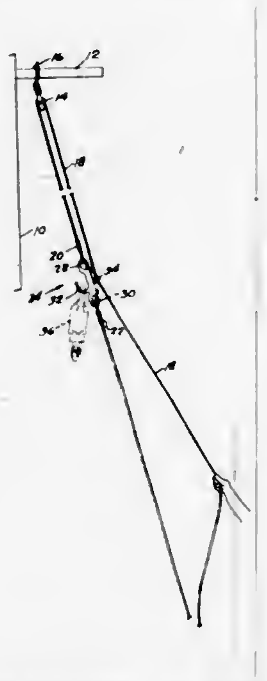
Container for freight having lifting attachments adapted for tong lifting devices. The container has rectangular parallel vertical side and end walls and a reinforcing beam structure extending about the bottom of the container. The side walls have gripping recesses therein spaced longitudinally therealong and forming receptacles for lift members connected with the bottom side beams of the container. Lift blocks, on the lower ends of conventional lift tongs are moved into engagement with the lift members by the tongs, to lift the container vertically upon vertical lifting movements of the tongs. In the principal form of the invention, the lift members are connected with the bottom side beams of the container through flexible draft devices. In another form of the invention, the lift members are directly connected with the bottom side beams of the container and have lifting sockets therein.



3,567,267

HOISTING TOOL FOR HANDLING AND TAGGING LINE

Louis R. Lechner, 13812 Dawson Ave., Apt. C, Garden Grove, Calif. 92640
Filed June 13, 1969, Ser. No. 832,898
Int. Cl. F16g *11/00*
U.S. Cl. 294—78 **3 Claims**



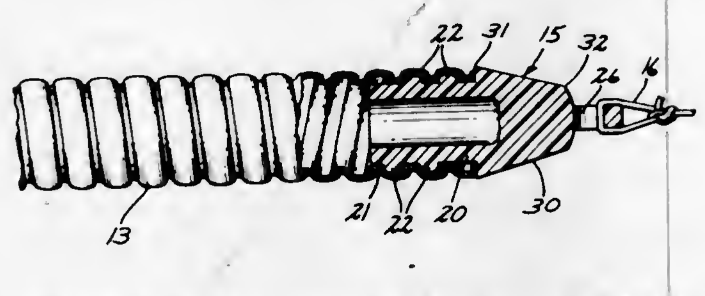
A hoisting tool comprising: a body portion; coaxial snap hooks at each end of said body portion; a tool hook projecting outwardly from one side of said body portion and terminating in a bight running parallel to said body portion, and a tag line hook extending medially from said body portion with its body lying in a plane at right angles to the plane of said tool hook.

3,567,268

FLEXIBLE CONDUIT PULLING MEANS

Donald E. Peterson, Box 218, Medford, Minn. 55049
Filed Dec. 18, 1968, Ser. No. 784,821
Int. Cl. B25b
U.S. Cl. 294—86 **2 Claims**

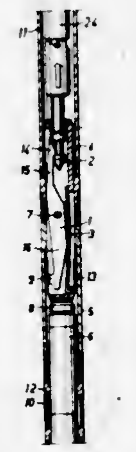
A body having a cylindrical portion with outside threads thereon adapted to threadedly engage a flexible conduit, a shroud or conical portion for protecting the end of the conduit from catching and for directing the end of the conduit into and through the various openings, and an eye at one end adapted to receive a flexible cord therethrough for pulling the conduit.



3,567,269

COUPLING DEVICE FOR CONNECTING THE WIRE WITH THE INNER CORE TUBE IN WIRE LINE CORE DRILLS

Öyvind Jensen, Stockholm, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden
Filed June 25, 1969, Ser. No. 836,331
Claims priority, application Sweden, July 2, 1968, 9,108/68
Int. Cl. E21b *31/00*
U.S. Cl. 294—86.14 **4 Claims**

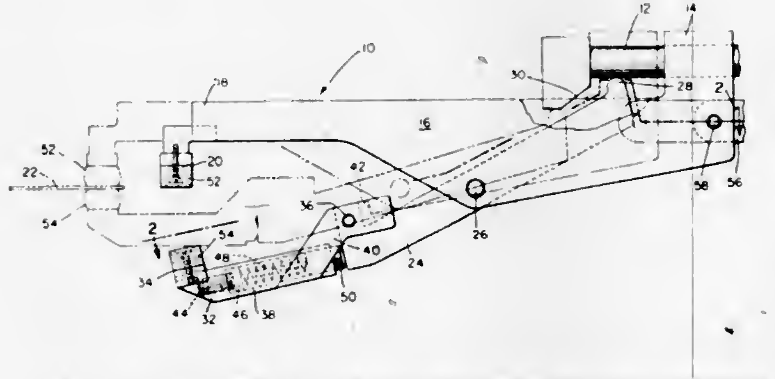


This invention relates to a coupling device for connecting the wire with the inner core tube in wire line core drills, including a locking mechanism comprising at least one lever, one arm of which is intended to engage with a gripper means attached to said wire.

3,567,270

VARIABLE PRESSURE GRAB HAND

Charles C. Halberstadt, Merrillville, Ind., assignor to The Budd Company, Philadelphia, Pa.
Filed Aug. 6, 1969, Ser. No. 847,864
Int. Cl. B66c *1/00*
U.S. Cl. 294—104 **4 Claims**

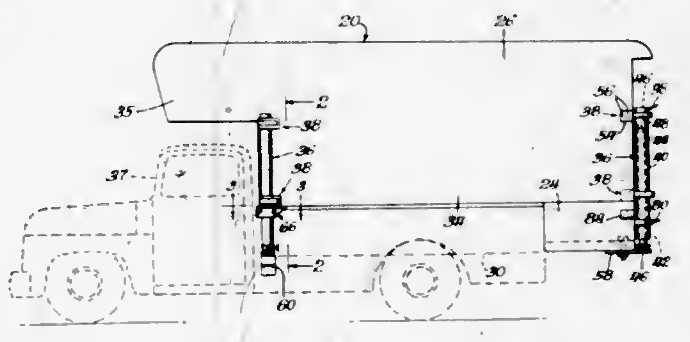


A cam operated grab hand for grasping and holding a work piece for removal of the work piece from a metal working machine. One finger of the grab hand is mounted on and movable with a control arm and the other finger is pivotally secured to the first finger for being pivoted into engagement therewith by a cam secured to the control arm. A spring biasing means may be adjusted to vary the pressure of the grip applied to the work piece by the pivotal engagement of the second finger with the first.

3,567,271

LOADING, UNLOADING AND LEVELING MEANS FOR CAMPERS AND THE LIKE

Frank T. Gostomski, 3019 54th Ave. E., Tacoma, Wash. 98424
Filed Aug. 19, 1966, Ser. No. 573,708
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 **3 Claims**

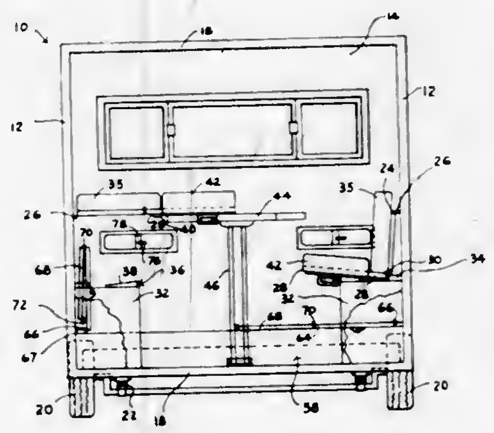


Camper units of the type carried on a vehicle are provided with extensible jacks secured to the camper and have portions movable so that the camper may be raised or lowered or supported on the ground independently of the vehicle. Such camper may be made of independently movable telescoping sections and the jacks arranged to elevate the sections either individually or as a unit.

3,567,272

CONVERTIBLE DINING AND SLEEPING FACILITIES FOR VEHICLES

Lester L. Low, 1120 S. Pacific Highway, Talent, Oreg. 97540
Filed Apr. 3, 1969, Ser. No. 813,174
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 **10 Claims**



A compact mobile vehicle is designed alternatively to provide generous dining and sleeping facilities in a limited space, with a minimum of inconvenience. The vehicle has at one end a dining table flanked by benches, the back and seat portions of which benches can be rearranged to provide an upper bed support, resting on, and affixed to, the table. A lower bed is also provided under the table in a housing of ample capacity to contain the lower mattress, and the bedding of both the upper and lower beds, the housing including a sectional cover which is normally closed and dirt-tight and provides a tread surface for persons seated at the table, but is arranged to be folded back and secured out of the way when the beds are to be used.

3,567,273

SPECIAL VEHICLE FOR FIGHTING DAMAGES IN TERRAINS CONTAMINATED WITH ABC SUBSTANCES

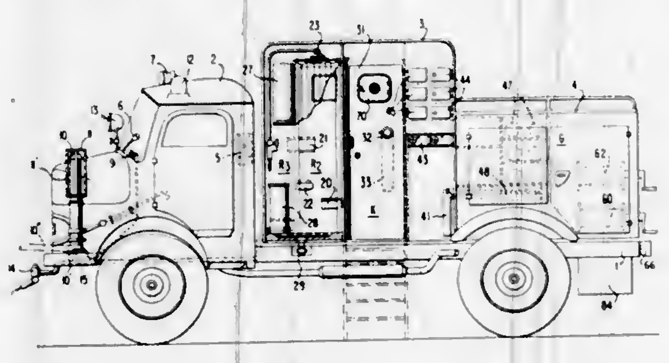
Willy Haas, Nellingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Nov. 17, 1966, Ser. No. 595,180

Claims priority, application Germany, Nov. 17, 1965, D 32,298

Int. Cl. B60r *23/00*

U.S. Cl. 296—24 **10 Claims**



A vehicle for use in areas contaminated with atomic, biological and chemical substances or war materials, having a driver cab provided with built-in communication equipment and devices for determining radiation levels existing in the immediate environment of the vehicle, a center section having radiation-measuring apparatus and one or more devices for cleaning contaminated persons or objects, and a rear body section having water tanks, pumps and other necessary equipment.

ERRATUM

For Class 296—50 see:
Patent No. 3,567,209

3,567,274

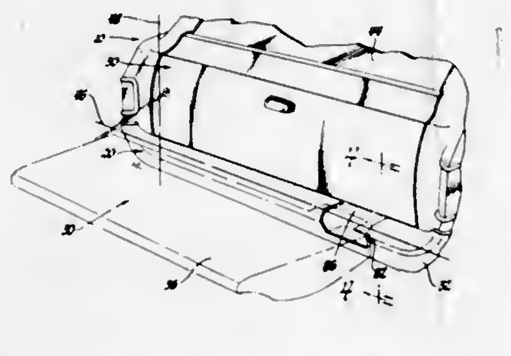
DUAL-ACTION TAILGATE

Vincent D. Kaptur, Jr., and David D. Campbell, Bloomfield Hills, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 28, 1969, Ser. No. 845,244

Int. Cl. B60j *5/10*

U.S. Cl. 296—50 **3 Claims**



A station wagon type vehicle has a dual-action tailgate swingable thereon between open and closed positions either as a door about a generally vertical axis situated at one side of the tailgate opening or as a drop-gate about a generally horizontal axis situated below the tailgate opening, and has a rear bumper structure immediately below the tailgate opening and extending vertically through the horizontal plane of the horizontal swinging axis. The bumper structure includes a narrow notch formed therein to receive in the closed position of the tailgate a portion of a hinge-latch depending from the tailgate below the opening, the notch further providing a step tread in the bumper structure facilitating passenger ingress and egress.

3,567,275

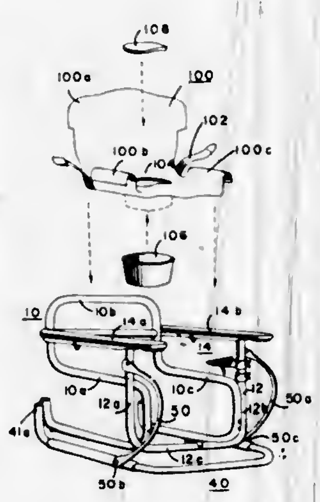
CONVERTIBLE STRUCTURE

Albert M. Bukey, Rte. 1, Alexandria, Ohio 43001

Filed Feb. 10, 1969, Ser. No. 797,911

Int. Cl. A47c *13/00;* **A47d** *1/08, 1/04*

U.S. Cl. 297—133 **17 Claims**



A convertible structure comprising three primary components and a minimum number of secondary components that permits the construction from a first utilitarian device into one of several others with only an insignificant number of changes.

3,567,276

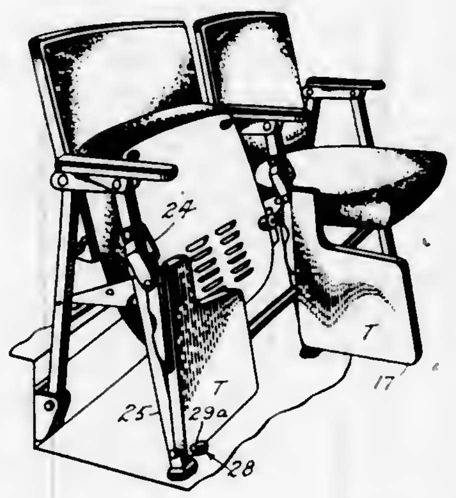
CHAIR WITH FOLDING TABLET ARM

Arthur L. Van Ryn, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed Mar. 24, 1969, Ser. No. 809,531

Int. Cl. A47b *39/00*

U.S. Cl. 297—162 **8 Claims**



A chair with a folding tablet arm especially adaptable for installation on retractable bleachers where the tablet arm is arranged for movement serially through three generally orthogonally related quadrants, the frame being equipped with lock means for maintaining the tablet arm in a stored position, and further serving as a bumper when the chair is completely collapsed and retracted within a storage recess in the bleacher.

3,567,277

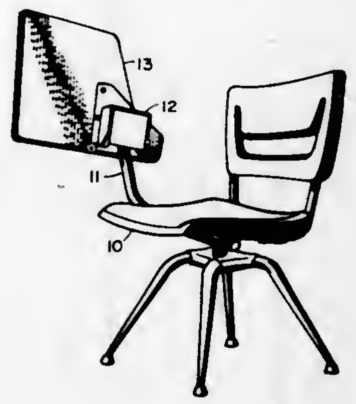
FOLDING TABLET ARM FOR CHAIR

Arthur L. Van Ryn, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed Sept. 24, 1969, Ser. No. 860,487

Int. Cl. A47c *39/00*

U.S. Cl. 297—162 **12 Claims**



A tablet arm is pivotally mounted on a channel hinge which in turn is connected by link members to a fixed bracket carried by a chair support bar, the link members controlling the movement of the hinge to a lower folded position and to an upper tablet arm support position while bracing and locking the hinge in the support position.

3,567,278

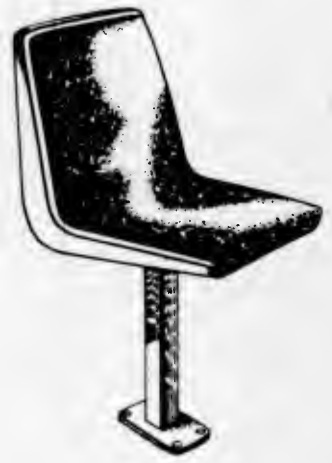
UPHOLSTERED BUCKET SEAT

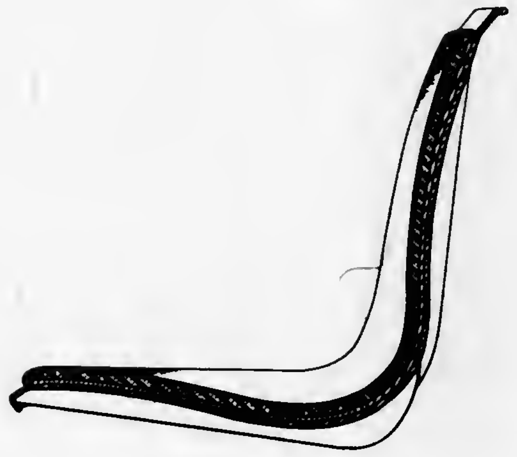
Chester J. Barecki and Arthur J. Hogan, Jr., Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed Apr. 21, 1969, Ser. No. 817,952

Int. Cl. A47c *7/02, 27/16*

U.S. Cl. 297—218 **5 Claims**





A bucket seat is upholstered by employing a contoured rigid support fitting into the bucket portion of the seat, and a resilient or foam pad is bonded to the top surface of the support and a fabric web is stretched around the foam pad and the edges bonded to the rear side of the support. The pad may be extended about the front edge of the seat and the web covering anchored below the seat, or the pad and cover web may be terminated short of the front edge of the seat. Releasable securing means anchor the support with its pad and web upon the bucket seat.

3,567,279

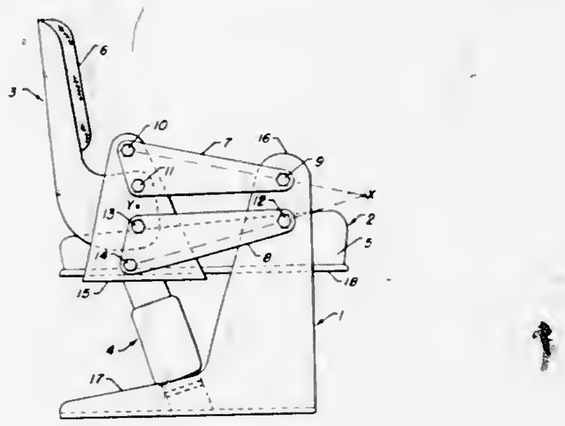
VEHICLE SEAT

Garth O. Hall, New Berlin, and Arthur O. Radke, Milwaukee, Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed July 9, 1969, Ser. No. 840,379

Int. Cl. A47c *3/00*

U.S. Cl. 297—309 **11 Claims**



A seat comprising a base part having a vertically extending portion and a seat part biased apart and connected by upper and lower links on each side. All of the links are pivotally connected to the base part and to the seat part. The upper links slope upward to the rear and the lower links slope downward to the rear, whereby linear extensions of said upper and lower links would converge and intersect generally in the area of the knee of an occupant of the seat. On each side of the seat the vertical component of distance between the rear ends of the upper and lower links is greater than the vertical component of distance between the front ends of the upper and lower links. The seat part may be located forward, even with, or rearward of the vertically extending portion of the base part in different embodiments. In each instance, a back part is preferably connected to the seat part in such a manner that the back part maintains a constant angle of reclination.

3,567,280

RECLINER CHAIR OR SIMILAR ARTICLE OF FURNITURE

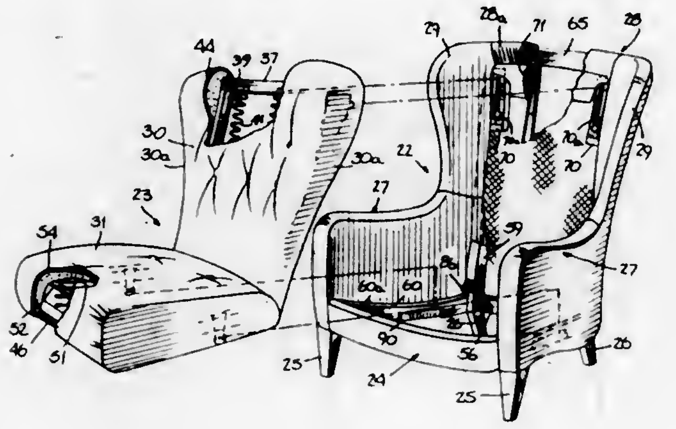
Bruce E. Bradshaw, Ellicott, N.Y., assignor to Jamestown Lounge Company, Jamestown, N.Y.

Filed Oct. 16, 1968, Ser. No. 768,057

Int. Cl. A47c *1/032*

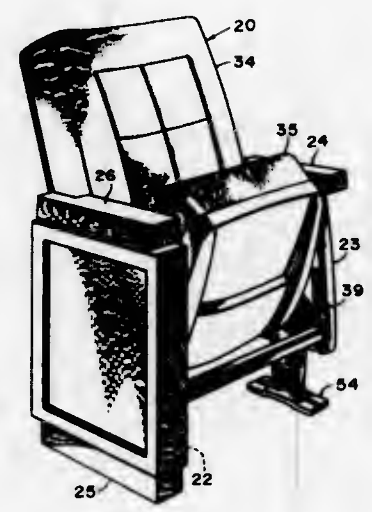
U.S. Cl. 297—318 **19 Claims**

Lounge-type recliner chair having fully upholstered back and seat hingedly connected together and mounted for limited slidable movement as a recliner unit on a wholly independently upholstered main chair frame which includes a fixed seat frame and a high, fully upholstered wing-back. Slidable seat portion of the recliner unit rides on arcuately-shaped matched maple slider elements of the fixed seat frame, and the slidable back portion of the recliner unit has a rearwardly projecting pair of slide follower elements which ride on respectively associated back slide elements which are in direct rearward alignment with the former. See specification for different seat slider and back slider arrangements, all of which provide that the seat slider elements project downwardly, and the back slider elements project only rearwardly, there being no laterally projecting connections between the recliner unit and the fixed chair frame.



3,567,281
LOUNGER CHAIR

Chester J. Barecki, Grand Rapids, and Kenneth W. Hozeski, Grandville, Mich., assignors to American Seating Company, Grand Rapids, Mich.
Filed Apr. 28, 1969, Ser. No. 819,668
Int. Cl. A47c *1/12*
U.S. Cl. 297—333 **5 Claims**

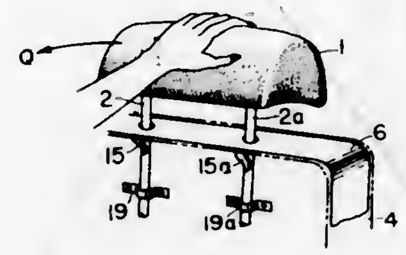


A chair unit wherein a torsion bar is provided adjacent the lower front to always return the chain to an upright position, thereby eliminating springs at the rear of the chair unit which would be in the way of the occupant behind.

3,567,282
VEHICLE SEAT ADJUSTABLE HEAD REST

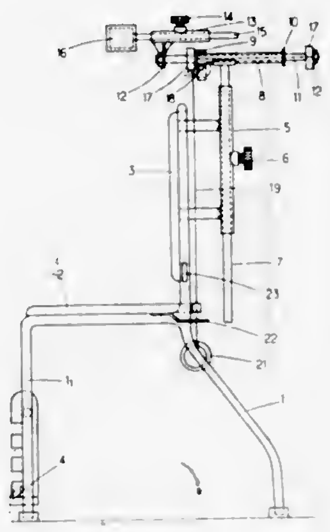
Seizho Ohta, Toyota-shi, and Motokuni Kage, Aichi-ken, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-cho, Toyota-shi, Aichi-ken, Japan
Filed Oct. 2, 1968, Ser. No. 764,487
Claims priority, application Japan, Oct. 4, 1967, 42/84,014
Int. Cl. A47c *7/36, 7/42*
U.S. Cl. 297—410 **3 Claims**

An adjustable head rest for a vehicle seat is formed by a support rod fitted at its upper end into a head rest member and at its lower end into the frame of the vehicle seat. Means are adjustably positionable on the supporting rod for varying the height of the head rest above seat. For such adjustable positioning, recesses are formed along one side of the supporting rod. A retaining member, secured to the vehicle seat, has an edge engageable with one of the recesses and a biasing strip for acting on the opposite side of the supporting rod to bring one of the recesses into engagement with the edge. A guide member for guiding the supporting rod in its longitudinal direction has an edge serving as a bearing point for the supporting rod to be swung against the biasing force of the biasing strip.



3,567,283
APPARATUS FOR CERVICO-DORSAL RE-EDUCATION IN SITTING POSITION

Charles Hebert, 15 Place d'Allier, Moulins, France
Filed Nov. 15, 1968, Ser. No. 776,064
Claims priority, application France, Dec. 1; 1967, 130,520
Int. Cl. A47c *7/36, 7/42;* **A61h** *1/02*
U.S. Cl. 297—410 **9 Claims**



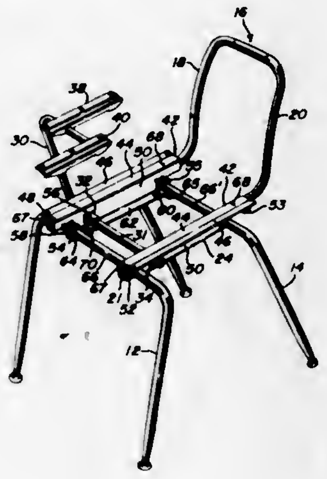
Apparatus for cervico-dorsal re-education in sitting position including a tubular chair fitted with a bottom and a back at right angle in which the back is equipped with a mobile alternate side travel device sliding in a plane perpendicular to the back, said device under the stress of a weight working positively so as to enable the patient to operate said device, with the assistance of a head-holder, according to a double-acting dynamic effect.

3,567,284
CHAIR ASSEMBLY

William C. Miller, New Castle, and Dick E. Shoemaker and Gordon C. Lambert, North Manchester, Ind., assignors to American Standard Inc.
Filed Nov. 14, 1968, Ser. No. 775,622
Int. Cl. A47c *7/02*
U.S. Cl. 297—451 **5 Claims**

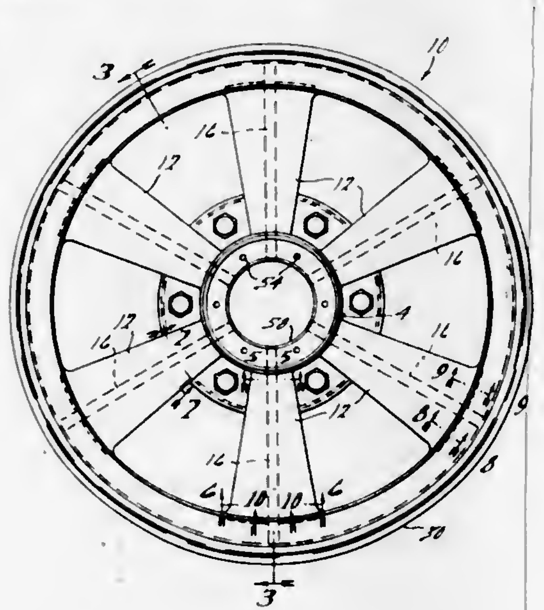
A chair has a pair of spaced parallel aligned Z-shaped brackets formed for receiving the horizontal portions of a pair of inverted U-shaped leg members in slots at either end of the center section of the brackets and receiving the support arm of a tablet table through an aperture in

each center section, and provided with a number of integral tabs which are bent over the lower surface of the back brace tubes and a number of tabs which are bent over the upper surface of the leg members for holding these members in position by forming regions for welding. The back brace tubes extend the full length of the bracket and are received above the horizontal leg members. A seat rests on both brackets and is formed with an overlying front edge which conceals the forward ends of the back brace tubes.



3,567,285
SIMULATED MAGNESIUM BICYCLE WHEEL AND METHOD

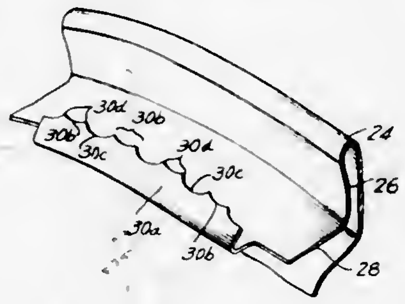
Randall D. Faurot, South Bend, Ind., assignor to Sheller-Globe Corporation, Detroit, Mich.
Filed Feb. 10, 1969, Ser. No. 797,792
Int. Cl. B60f *7/00*
U.S. Cl. 301—37 **4 Claims**



A simulated magnesium bicycle wheel comprised of a hub which may be adapted for fitting with numerous alternative conventional bicycle axles or gear hubs, a plurality of spokes with their ends connected to the hub, rim means connected to the other ends of the spokes for mounting a rubber tire, at least two simulated magnesium plastic covers fitted around the spokes and surrounding both sides thereof, means for attaching said plastic covers together around the bicycle wheel to thereby provide the wheel when viewed from either side thereof with the appearance of magnesium, said covers being made of at least one plastic material selected from the group of high impact polystyrene, acrylonitrile butadiene styrene, polypropylene, polyethylene, vinyl, cellulose acetate butyrate, or cellulose acetate propionate, with said covers being formed by injection molding; and, the method of preparing and using said simulated magnesium bicycle wheel.

3,567,286
WHEEL COVER

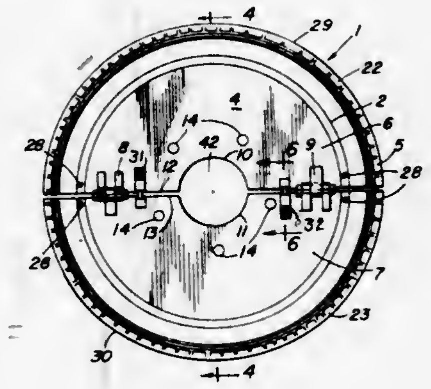
Frederic T. Gibbings, Bloomfield Hills, Mich., assignor to North American Rockwell Corporation, Philadelphia, Pa.
Filed Jan. 14, 1969, Ser. No. 791,004
Int. Cl. B60b *7/02*
U.S. Cl. 301—37 **4 Claims**



An automotive wheel cover having spring fingers projecting generally axially from a continuous generally cylindrical flange, with outwardly bent terminal portions on the fingers terminating in scalloped edges formed by arcuate indentations intersecting in sharp spurs adapted to bite into a generally cylindrical flange on the wheel rim and resist both withdrawal and turning of the wheel cover relative to the rim.

3,567,287
WHEEL AND TIRE ASSEMBLIES

Fayette A. Nutter, 704 E. 5th St., Canton, S. Dak. 57013
Filed Oct. 9, 1968, Ser. No. 766,119
Int. Cl. B60b *19/00*
U.S. Cl. 301—38 **2 Claims**

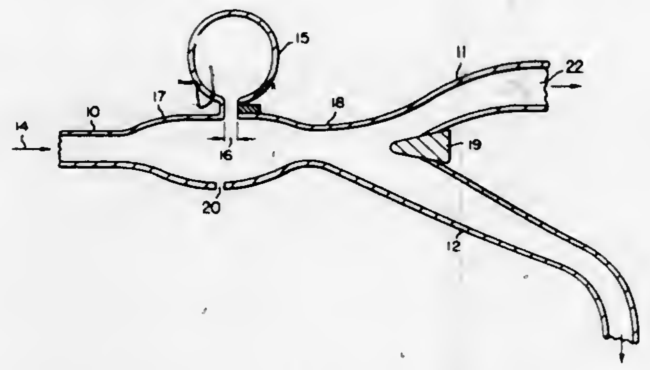


A foldable wheel and tire assembly for vehicles.

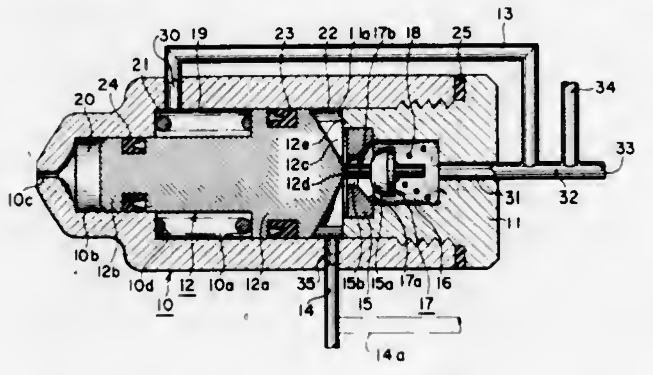
3,567,288
PNEUMATIC FIBER CONVEYING SYSTEM

Dennis E. Wood, Penfield, N.Y., assignor to Curlator Corporation, East Rochester, N.Y.
Filed Feb. 3, 1969, Ser. No. 796,070
Int. Cl. B65g *53/04*
U.S. Cl. 302—28 **16 Claims**

An air jet is used to divert fibers and air from a trunkline into a branch line to feed the fibers to a card or a machine for forming random fiber webs, etc. The branch line may carry the air and fibers through a trumpet section to a moving foraminous condenser on which the fibers will be deposited while the air is sucked by a fan through the condenser and returned to the trunkline to form the air jet. Thus, the amount of fibers at any one time in the trumpet section will control the supply of fibers to the branch line. The trunkline may be of increased diameter just upstream of a branch line to help control the direction of flow of the fibers.



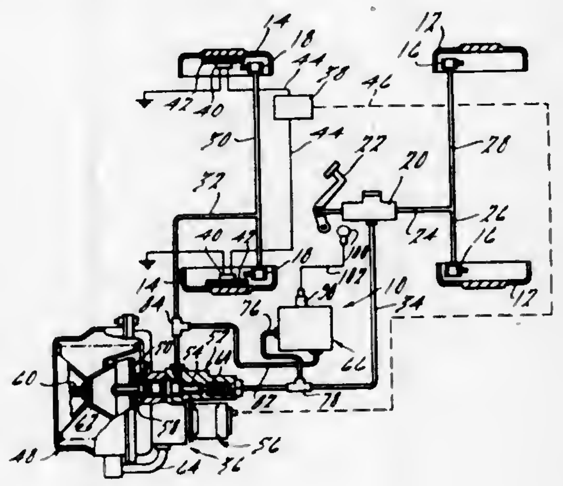
3,567,289
HYDRAULIC BRAKE PRESSURE CONTROL VALVE ASSEMBLY
Tsuneo Kawabe, % Aisin Seiki Company Limited, 1, 2-chome, Asahi-machi, Kariya-shi, Aichi-ken, Japan
Filed May 20, 1969, Ser. No. 826,118
Claims priority, application Japan, May 25, 1968, 43/35,591
Int. Cl. B60t *8/26*
U.S. Cl. 303—6 **7 Claims**



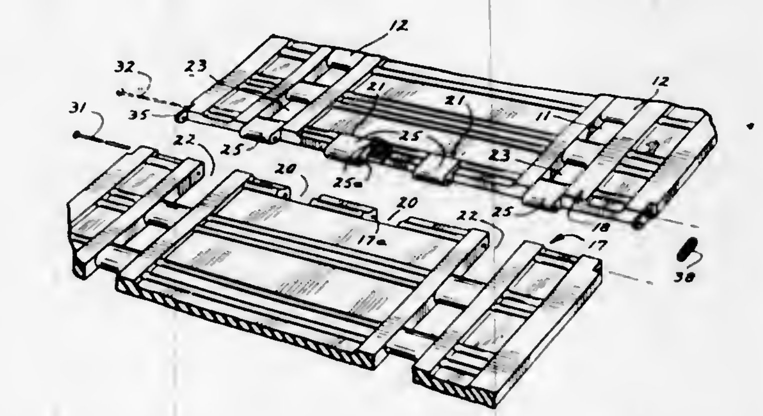
A hydraulic brake pressure control valve assembly comprising a stepped hydraulic piston and a control valve which is on-off controlled repeatedly by the reciprocating movement of said piston and beyond a predetermined hydraulic brake pressure value and for gradually increasing the hydraulic pressure for automotive rear wheels so far as a continued and considerable brake application is being performed, wherein the improvement resides in such a point that the valve and its return spring are mounted within a valve chamber formed in a plug member closing an open end of a cylinder which houses slidably said piston, the latter being arranged and mounted axially in opposition to said valve and its return spring, for making main working parts, especially said piston, easier to manufacture and assemble, in addition to make the whole control valve assembly in a highly compact and simple design.

3,567,290
FAILURE INDICATING DEVICE FOR SKID CONTROL SYSTEM
John V. Liggett, Westland, and Frank L. Moncher, Farmington, Mich., assignors to Kelsey-Hayes Company, Romulus, Mich.
Filed Dec. 9, 1968, Ser. No. 782,388
Int. Cl. B60t *8/06, 17/22*
U.S. Cl. 303—21 **9 Claims**

In a skid control system for controlling the fluid pressure applied to the brakes of at least one wheel of a wheeled vehicle from a source of brake actuating fluid and comprising modulating means having fluid inlet and outlet portions for controlling the magnitude of the brake actuating fluid supply to the brakes, the improvement comprising sensing means for sensing the differential pressure conditions between the fluid inlet and outlet portions of the modulating means, and indicating means providing a signal for the vehicle operator to indicate actuation of the sensing means.



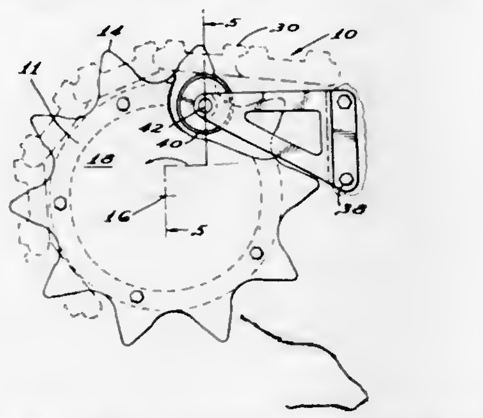
3,567,291
ENDLESS TRACK CONNECTING STRUCTURE
William W. Paulson, Braham, Minn., assignor to Dahlman Manufacturing & Sales, Inc., Braham, Minn.
Filed Apr. 21, 1969, Ser. No. 817,884
Int. Cl. B62d *55/24*
U.S. Cl. 305—37, **2 Claims**



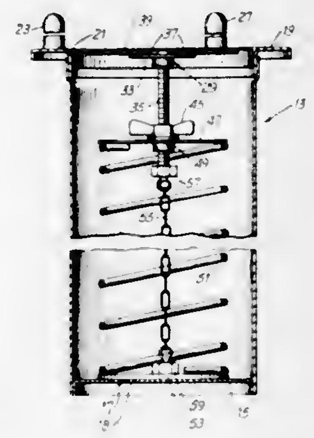
A separable endless track for a motor vehicle comprising a body portion having a pair of opposed free end portions, a plurality of link members, said free end portions respectively having aligned recessed portions to receive said links therein therebetween and to permit said free end portions to abut one another, said end portions and said links respectively being apertured transversely of said track to receive rods therethrough to join said end portions by means of said links and said links conforming in thickness to said recessed portions.

3,567,292
SPROCKET ENGAGEMENT SUPPORT WHEEL FOR AN ENDLESS TRACK
Richard T. Amsden, Oakland, Mich., assignor to the United States of America as represented by the Secretary of the Army
Filed Feb. 19, 1969, Ser. No. 800,422
Int. Cl. B62d *55/12*
U.S. Cl. 305—57 **2 Claims**

A sprocket engagement support wheel mounted adjacent a sprocket wheel which is utilized to drive an endless track. The sprocket engagement support wheel comprises a roller, the diameter of which is small compared to the diameter of the sprocket wheel. The roller is preferably externally coated with an elastomer. The roller functions to eliminate oscillatory motion and vibration in the endless track and permits a smooth and even transmission of power from the sprocket wheel to the track.



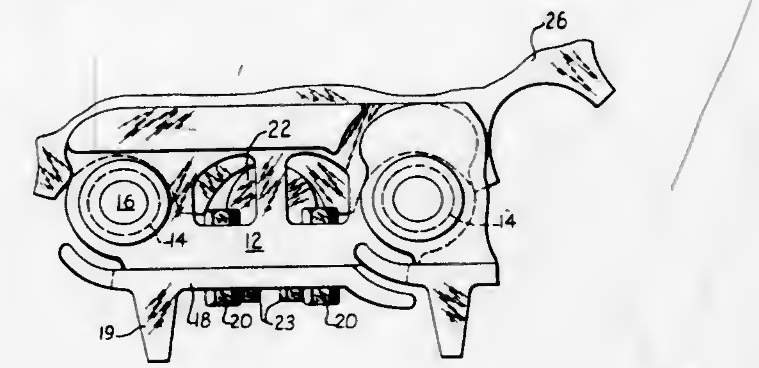
3,567,293
DISPENSING DEVICE
Arthur Salcman, Old Saybrook, Conn., assignor to American Machine & Foundry Company
Filed May 16, 1968, Ser. No. 729,782
Int. Cl. A47f *1/00;* **B65g** *1/16, 11/00*
U.S. Cl. 312—71 **4 Claims**



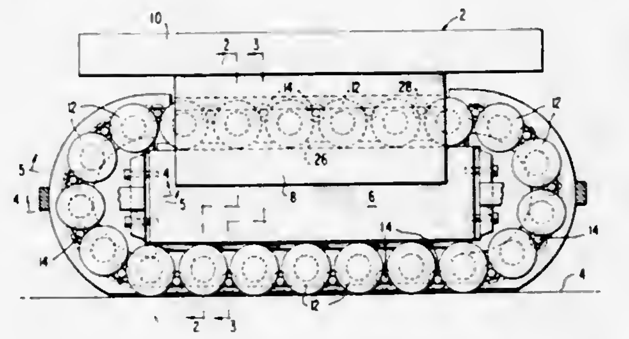
This invention is for a dispensing device having a freely resting shallow head supported on clips spaced at 120° intervals around the periphery of a supporting disk to which the clips are attached. The head is removed simply by applying light pressure to its periphery so that it pivots on two of the three supporting clips after which it can be simply lifted out of the device thereby permitting access to the interior where the adjusting mechanism is located. Adjusting of the dispensing rate takes place simply by loosening a wingnut and rotating the upper spring supporting disk in a clockwise direction to raise the disk and the dispensing rate on a threaded stud or in a counterclockwise direction to lower the dispensing rate. The dispenser of this invention also features a simplified centralizing and locking mechanism.

3,567,294
ARTICULATED CHAIN ASSEMBLY
Fred E. Simpson, Washington, and Eugene J. Hnilicka, Peoria, Ill., Roy E. Mayo, Santa Barbara, Calif., and John S. Ricca, Jr., Bartonville, and Gail G. Avery and Charles E. Wagaman, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 20, 1967, Ser. No. 669,218
Int. Cl. B62d *55/20*
U.S. Cl. 305—57 **13 Claims**

Improved articulated chain assembly for a track-type vehicle wherein mid-pitch driving lugs are located on the assembly substantially equidistant the centers of the articulated joints, and wherein said lugs have a geometric relationship relative to a driving sprocket to permit limited rocking of the assembly on said sprocket.



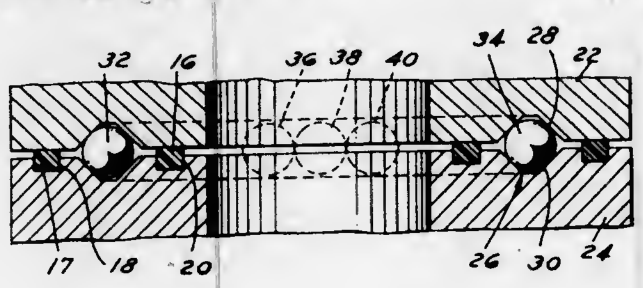
3,567,295
LINEAR RECIRCULATING ROLLER BEARING
Donald F. Wilkes, Albuquerque, N. Mex., assignor to Rolamite Technology, Incorporated, San Francisco, Calif.
Filed Sept. 24, 1968, Ser. No. 762,013
Int. Cl. F16c *29/06*
U.S. Cl. 308—6 **21 Claims**



A bearing for supporting a load for relative movement along a substantially flat surface. The load is supported by means of a plurality of load bearing rollers which are mounted between bearing races having a pair of straight sections and arcuate sections interconnecting the ends of the straight sections to provide a closed loop. Spacer rollers are mounted in the races between the bearing rollers. Each roller has a pair of circular bearing surfaces of different diameters. The bearing races have corresponding bearing surfaces which engage the respective roller surfaces to cause a substantially constant rate of progression of the rollers along the straight sections and through the arcuate sections, so that the rollers do not slide relative to the bearing surfaces or relative to each other. The path of the central axis of the spacer rollers is at a greater distance from the center of curvature of each arcuate section than the load rollers. The circular roller surfaces and the bearing surfaces of each arcuate section cause the velocity of the central axis of the load rollers to be less than along the straight sections, while the veloctiy of the central axis of the spacer rollers is greater than along the straight sections. This is accomplished without changing the speed of rotation of the respective rollers. The bearing also includes an adjustment for varying the effective length of the bearing races in order to impose an initial load between the rollers and the bearing surfaces and thereby to prevent sliding around the entire loop. The rollers are maintained in alignment as they progress around the bearing races by opposed guide surfaces that engage conical surfaces on the rollers adjacent the circular bearing surfaces.

3,567,296
SEAL MATERIAL FOR DYNAMIC APPLICATION

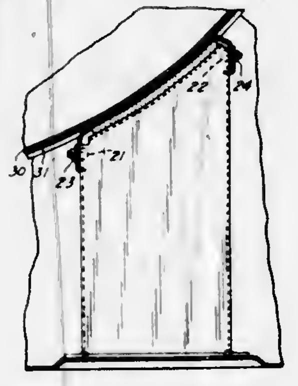
Anthony J. Suchocki, Rochester, Mich., assignor to the United States of America as represented by the Secretary of the Army
Filed June 17, 1969, Ser. No. 834,115
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.1 **3 Claims**



A seal comprising a flexible rod of a polyethylene foam material is disclosed.

3,567,297
BEARING SURFACES WITH IMPROVED LUBRICATING CHARACTERISTICS

Robert D. Triplett and Terry J. Laue, Effingham, Ill., assignors to Fedders Corporation, Edison, N.J.
Filed May 15, 1969, Ser. No. 825,000
Int. Cl. B44c *1/04;* **F16c** *27/00*
U.S. Cl. 308—238 **18 Claims**



A first mating bearing surface is prepared as a pad combining carbon, preferably graphite, with a lubricating synthetic polymer. The opposing bearing surface is coated with a resinous paint so cured as to have a multitude of vortex cells. As the bearing surfaces run against each other, the carbon-lubricating synthetic polymer mixture is transferred, in part, to the vortex structure of the mating surface so as to provide a physically bonded lubricant, of the same composition, which bears against the first surface from which the lubricant was transferred.

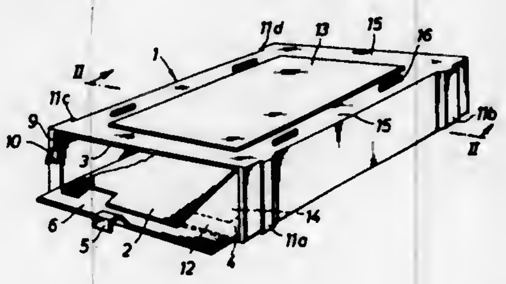
ERRATUM

For Class 312—71 see:
Patent No. 3,567,293

3,567,298
STACKABLE BOX-LIKE CONTAINERS

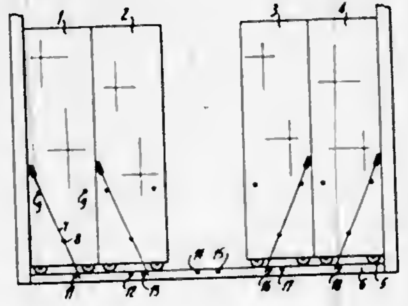
Antonius J. J. Ambaum, Kenzenstr. 16, Steyl, Netherlands; and Peter A. M. Ambaum, Gouv. V. Hovellaan 30; and Wilhelmus J. C. Ambaum, Oude Schans 46, both of Reuver, Netherlands
Filed Oct. 14, 1968, Ser. No. 767,294
Claims priority, application Germany, Oct. 13, 1967, N 20,684
Int. Cl. F16b *12/00*
U.S. Cl. 312—111 **1 Claim**

A container for the storage of documents and the like is described wherein wedge-shaped grooves are provided on each of the longitudinal sides for interconnecting two or more horizontally disposed containers. The grooves face outwardly on one side and inwardly on the opposite side of each container. A raised flat portion and longitudinal humps disposed on the top of the container fit into corresponding reliefs in the bottom of a second container vertically superimposed on the bottom container. A flap may be used to cover the front opening, and an insert can be provided for carrying documents.



3,567,299
MANUALLY SHIFTABLE RAIL MOUNTED SHELF UNITS

Harald O. Lundqvist, 25 Route de Malagnou, Geneva, Switzerland
Filed Nov. 20, 1967, Ser. No. 684,402
Claims priority, application Sweden, Nov. 28, 1966, 16,233/66
Int. Cl. A47b *53/02, 96/00;* **B61d** *15/10*
U.S. Cl. 312—199 **6 Claims**

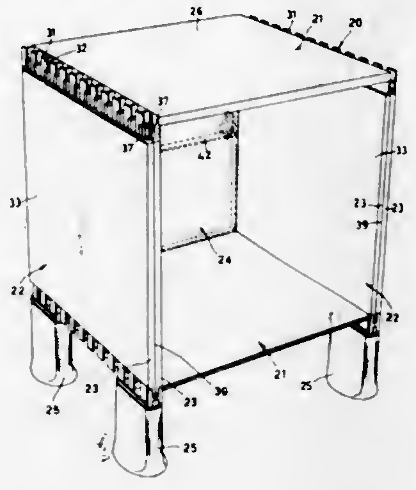


Shelving units are movable along guide rails between selected end portions by means of a lever swingably mounted on a side of each unit and having a lower end portion engageable with selected, variably positionable abutments projecting laterally from one of the rails and an upper end portion providing a hand grip for swinging the lever about its pivot to move the unit by a leverage action. The pivot point of the lever is adjustable along the lever to provide variable leverage.

3,567,300
SHELF STRUCTURE COMPRISING A PLURALITY OF MUTUALLY MESHING ELEMENTS

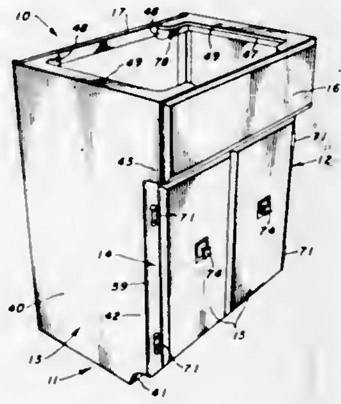
Enzo Mari, P.zale Baracca 10, Milan, Italy
Filed Dec. 19, 1968, Ser. No. 785,305
Claims priority, application Italy, Dec. 30, 1967, 24,591/67
Int. Cl. A47b *47/04;* **A47f** *5/00*
U.S. Cl. 312—257 **8 Claims**

A shelf structure is provided, which can be assembled starting from a number of prefabricated component parts so as to make up a parallelepipedal body. All the component parts are mutually engaged by frictional forces developed in a number of rib-groove and/or mortise tenon joints. The constructional arrangement disclosed herein lends itself well to manufacturing the several component parts with a plastic material, preferably by injection moulding.



3,567,301
DEMOUNTABLE CABINET

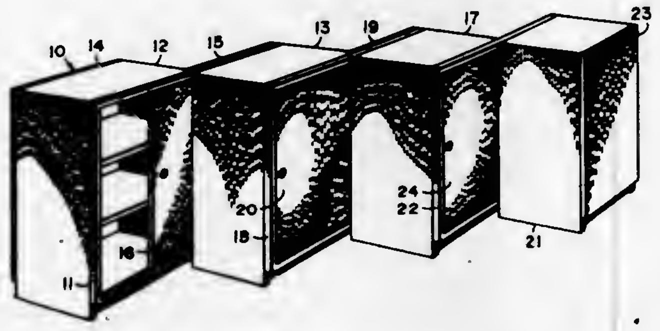
Donald M. Dary, 11732 Holly St., Colton, Calif. 92324
Filed Aug. 14, 1969, Ser. No. 850,195
Int. Cl. A47b *43/0, 47/00*
U.S. Cl. 312—257 **6 Claims**



A box-like base, right and left cabinet sides with forwardly stepped front edges, an upper front panel, a pair of doors hingedly mounted on a front door frame, a rear upper side spacer, said sides shiftably interlocking transversely with said base, said panel, door frame and spacer interlocking in a fore and aft direction with said sides, and internally hidden manually applied fasteners rigidly fixing said cabinet parts in said interlocked relationships.

3,567,302
SLIDING DOOR CABINET CONSTRUCTION

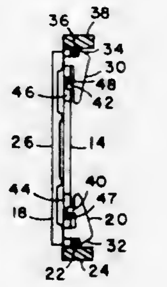
Arthur W. Carlson, Muskegon, Mich., assignor to E. H. Sheldon & Company, Muskegon, Mich.
Filed May 7, 1969, Ser. No. 822,437
Int. Cl. A47b *17/00, 47/00*
U.S. Cl. 312—295 **6 Claims**



A sliding door cabinet construction wherein a uniquely constructed channel-shaped frame is attached to the cabinet adjacent the open front and which slidingly supports a closure door, the frame extending beyond one end side of the cabinet to provide stabilization and afford utilization as by another cabinet.

3,567,303
SELF-LOCKING HANDLE

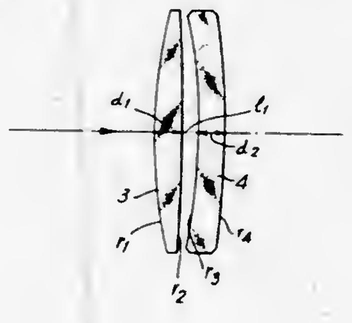
Joseph C. Fox, Richardson, and William B. Stuhler, Garland, Tex., assignors to Collins Radio Company, Dallas, Tex.
Filed Jan. 21, 1969, Ser. No. 792,592
Int. Cl. A47b *95/02*
U.S. Cl. 312—320 **3 Claims**



A flexible self-locking handle for mounting panels or the like to a rack assembly. The handle end portions include means for lockably engaging said rack. By flexing said handle, the end portions are translated inwardly thereby releasing the rack assembly.

3,567,304
BIPARTITE ACHROMATE

Hans Kruger, Neckarsteinach, Germany, assignor to Eltro GmbH & Co., Heidelberg, Germany
Filed Jan. 30, 1969, Ser. No. 795,254
Claims priority, application Germany, Mar. 13, 1968, P 12 81 168.6–51
Int. Cl. G02b *3/00, 9/10*
U.S. Cl. 350—2 **4 Claims**



A bipartite achromate including a collective lens of barium fluoride and a divergent lens of sapphire or magnesium oxide, the Abbe number of the collective lens being higher than that of the divergent lens and the index of refraction being lower.

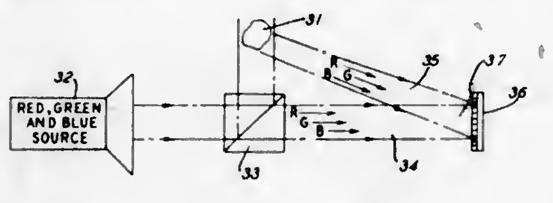
The Abbe number is a function of the refraction indices of the optical materials to be used for the individual lenses.

3,567,305
HOLOGRAM MASKING TECHNIQUES

Robert J. Collier, New Providence, Lawrence H. Lin, Plainfield, and Keith S. Pennington, Basking Ridge, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Oct. 18, 1966, Ser. No. 587,606
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **29 Claims**

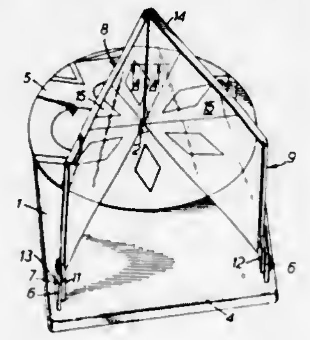
Methods and apparatus are disclosed for increasing the hologram storage capacity of a recording medium.

With the aid of various masking techniques, each hologram is stored in a large group of small areas or volumes dispersed throughout the recording medium; and at least some holograms are stored in different groups.



3,567,306
KALEIDOSCOPIC TOY

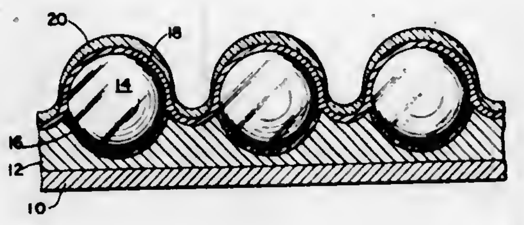
Jakob Richard Spear, Cuffley, England, assignor to J. W. Spear & Sons Limited, Enfield, England
Filed Nov. 25, 1968, Ser. No. 778,718
Claims priority, application Great Britain, Mar. 18, 1968, 12,767/68
Int. Cl. G02b *27/08;* **A68h** *33/22*
U.S. Cl. 350—4 **5 Claims**



A toy using the principle of the kaleidoscope in which, in its preferred form, there is a base member to which is pivotally attached a V-shaped member, the pivots being arranged at the separated ends of said V-shaped member. The apex of said member is supported on a boss upstanding from the base member but can be lifted up from it about said pivots. A plane apertured member, suitably a disc, is engaged over said boss so that it is rotatable about it. The inner surfaces of said V-shaped member are reflecting and reflections of different parts of the plane member can be observed as it is rotated about the boss.

3,567,307
REFLECTIVE MARKERS

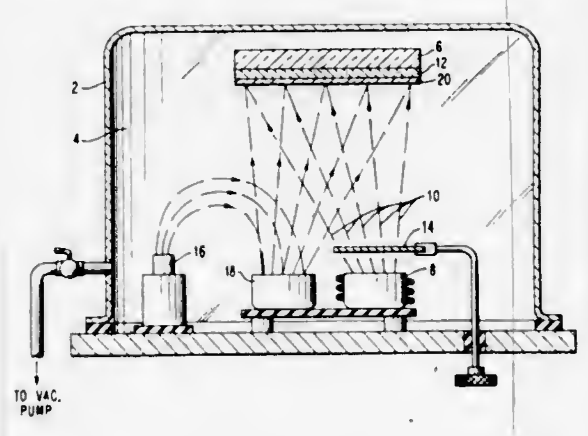
Donald C. Rideout and Luke M. Shuler, Huntingdon, and William H. Riley, Jr., Altoona, Pa., assignors to Prismo Universal Corporation, Huntingdon, Pa.
Original application Dec. 2, 1966, Ser. No. 598,717, now Patent No. 3,496,006, dated Feb. 17, 1970. Divided and this application Oct. 8, 1969, Ser. No. 870,979
Int. Cl. G02b *5/12*
U.S. Cl. 350—105 **5 Claims**



A reflective marker which includes small glass spheres partially embedded in a pigmented binder having a top coating of transparent resin covering the marker which covers the exposed portion of each sphere with a coating that is thicker at the center of the exposed portion of the sphere than at the sides thereof; a relatively thick coating of transparent resin may also be located in the valleys between the glass spheres beneath the top coating; and a transparent thin uniform thickness colored resin coating may be located above the relative thick coating of transparent resin and beneath the top coating.

3,567,308
RARE-EARTH CHALCOGENIDE MAGNETO-OPTICAL ELEMENTS WITH PROTECTIVE LAYERS

Kie Y. Ahn, Bedford, and Siegfried Methfessel, Montrose, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 22, 1966, Ser. No. 603,933
Int. Cl. G02f *1/22*
U.S. Cl. 350—151 **5 Claims**

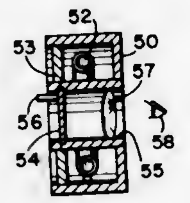


The present invention relates to a novel magneto-optical device composed of a rare-earth chalcogenide.

When such rare-earth chalcogenides are made in the form of crystals or of thin layers, they are subject to deterioration by exposure to the atmosphere. The use of a thin overlying protective layer having optical and magnetic properties compatible with the underlying rare-earth chalcogenide is highly desirable. In one example, Eu_2O_3 is employed as the protective layer for EuO.

3,567,309
GLARELESS LIGHT VIEWING DEVICES

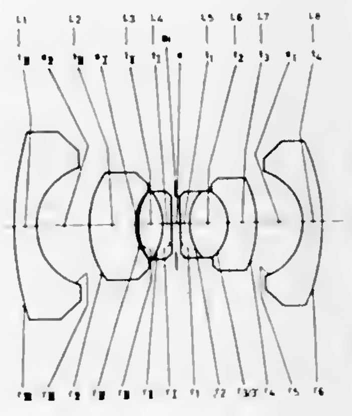
Joseph Jasgur, 700 N. Fairfax Ave., Hollywood, Calif. 90046
Continuation of application Ser. No. 527,663, Feb. 16, 1966. This application Sept. 17, 1969, Ser. No. 866,415
Int. Cl. G02b *27/28*
U.S. Cl. 350—156 **2 Claims**



A viewing device for examining objects incorporating a light source and a first polarizing means positioned in front of the light source to irradiate the object. Reflected light from the object in turn passes back through a second polarizing means positioned in line with a viewing opening and effecting polarization in a direction different from the first polarizing means. The difference in polarization is 90°, controlling glare and highlighting the object being examined.

3,567,310
WIDE ANGLE LENS

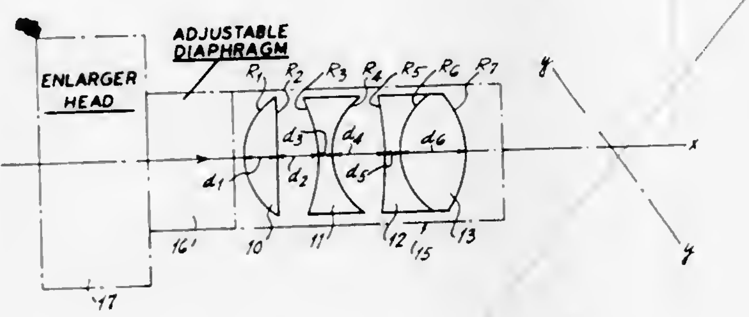
Ludwig Bertele, Heerbrugg, Saint Gall, Switzerland
Filed July 31, 1967, Ser. No. 657,374
Claims priority, application Switzerland, Aug. 2, 1966, 11,226/66
Int. Cl. G02b *9/60, 9/62*
U.S. Cl. 350—176 **9 Claims**



A wide angle objective lens having at least five lens members separated by air spaces, of which two converging lens members, separated by a diaphragm space, are followed on the object side by at least two diverging lens members, and on the image side by at least one diverging lens member, in which the axial air space between the converging lens member on the object side and the preceded diverging meniscus lies between 0.002 F and 0.050 F, and in which the numerical value of the product of the ratio of the difference between the radii of curvature of the bounding surfaces of the said air space to the length of the air space, and the ratio of the radius of curvature of the inner of said bounding surfaces to the radius of curvature of the convex surface of the pair of surfaces concave towards the diaphragm in the converging lens member on the image side, lies between 1.60 and 3.9.

3,567,311
LENS SYSTEM HAVING SELECTIVELY CONTROLLABLE SPHERICAL ABERRATION

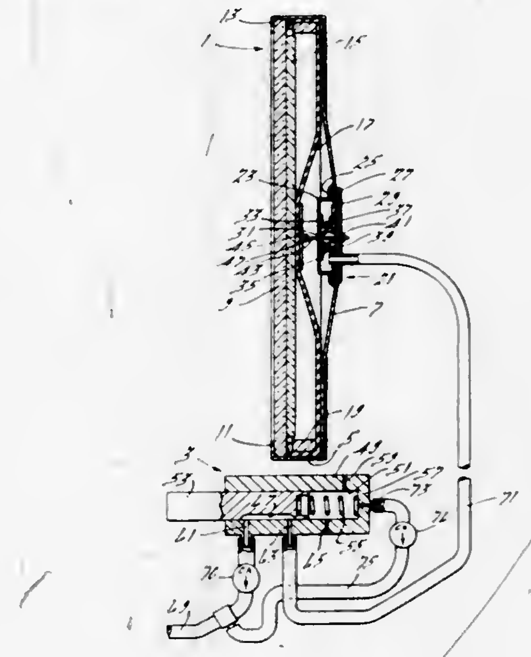
William Terzian, 25 Buckingham Place, Manhasset, N.Y. 10030
Continuation-in-part of application Ser. No. 685,655, Nov. 24, 1967. This application Nov. 20, 1969, Ser. No. 878,419
Int. Cl. G02b *9/14, 13/20*
U.S. Cl. 350—188 **2 Claims**



A lens system for use in a photographic enlarger, in which spherical aberration can be introduced into an image format and in which said aberration can be selectively controlled. The paraxial region of the image format is in focus, and defocusing can be applied in a non-linear manner in an area surrounding the paraxial region. A plurality of lenses are employed having specific and relative focus lengths, radii of curvature, axial thickness, and axial air space between the lenses, and also of particular refractive index and dispersive index.

3,567,312
DAY-NIGHT MIRROR ACTUATION APPARATUS

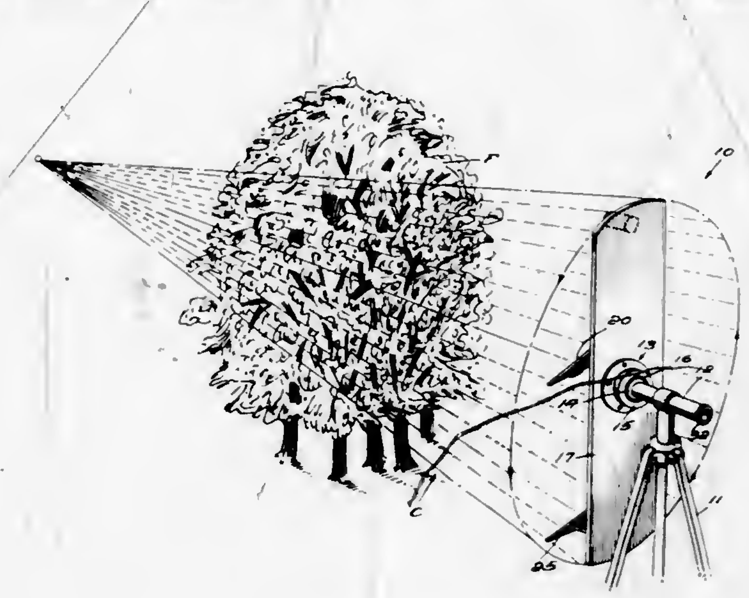
George E. Platzer, Jr., Southfield, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Nov. 1, 1968, Ser. No. 772,611
Int. Cl. G02b *5/08*
U.S. Cl. 350—280 **6 Claims**



Mirror actuating apparatus including a fluid immersed mirror, a pressure operated mechanism for moving the mirror, and a control mechanism for energizing the pressure operated mechanism to move the mirror to one of two positions when the vehicle engine is started.

3,567,313
OPTICAL FOLIAGE PENETRATOR

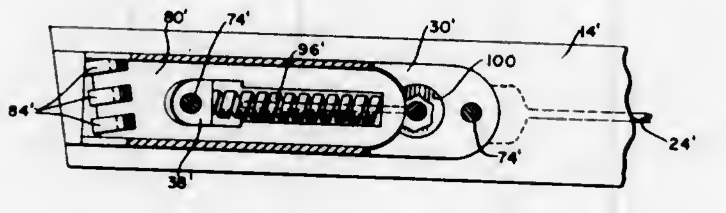
Dwin R. Craig, Gaithersburg, Md., assignor to Ingenuics, Inc., Gaithersburg, Md.
Filed Apr. 4, 1969, Ser. No. 813,415
Int. Cl. G02b *5/08*
U.S. Cl. 350—299 **6 Claims**



A device for permitting optical penetration of foliage by constantly changing the line of sight through the foliage so as to utilize the limited open areas existing in foliage to provide an optical sight path. Mechanically, the device includes a central viewing tube and a pair of mirrors arranged so that the outer mirror can rotate in a relatively wide circle.

3,567,314
CARTRIDGE-TYPE SPRING-LOADED HINGE FOR SPECTACLE FRAMES

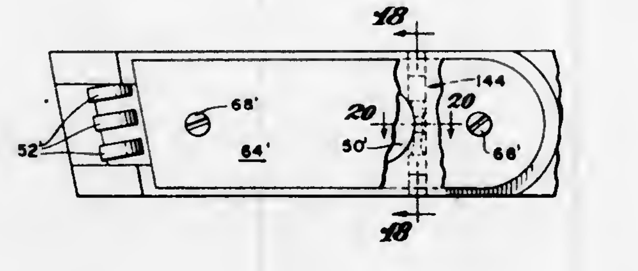
Frederick Speer, 131 Briar Hill Circle,
Springfield, N.J. 07081
Filed June 2, 1969, Ser. No. 829,657
Int. Cl. G02c *5/16, 5/20*
U.S. Cl. 351—113 **3 Claims**



A temple is interconnected with a lens support frame by a cartridge-type spring-loaded hinge, there being two temples in a complete spectacle frame. Each hinge comprises a cartridge received within a recess in the end of a temple. The cartridge includes a housing formed of a base and a cover plate and is assembled as a unit. Interengageable portions are provided on the base and the cover plate for holding the cover plate in operative position. A hinge plate carries hinge connecting means which is connected with cooperating means on the lens support frame. The hinge plate is slidably supported by the housing of the cartridge, and a spring within the cartridge normally biases the hinge plate in one direction. Means is also provided for selectively prestressing the spring.

3,567,315
SPRING-LOADED HINGE FOR SPECTACLE FRAMES AND SYSTEM FOR ADJUSTMENT OF TEMPLE ANGULATION

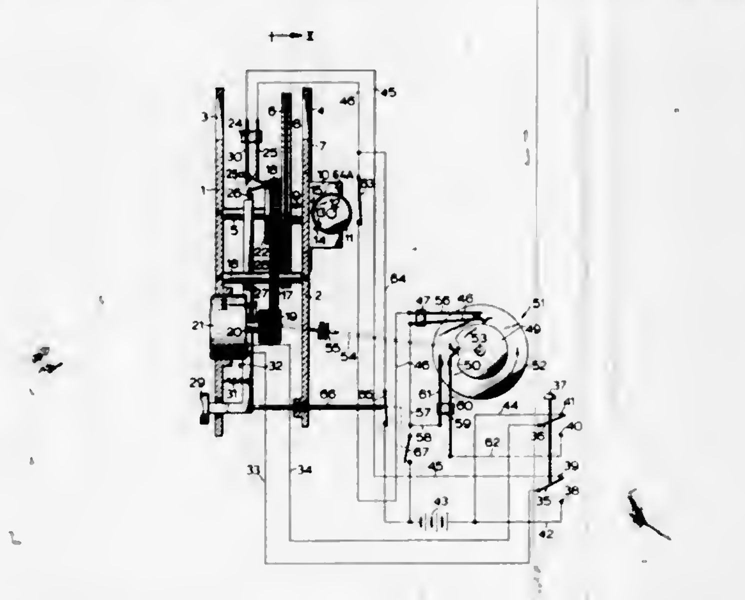
Frederick Speer, 131 Briar Hill Circle, Springfield
Township, Union County, N.J. 07081
Filed June 2, 1969, Ser. No. 829,658
Int. Cl. G02c *5/16, 5/20*
U.S. Cl. 351—113 **5 Claims**



A spectacle temple is pivotally connected to a lens support frame by a spring-loaded hinge. A recess is formed in the outer end of the temple, and an integral projection extends into this recess. A hinge plate is slidably supported in the recess and is biased in one direction by a spring. The hinge plate has a slot which receives the projection. A cover plate is secured in place over the hinge plate which, in turn, is connected with the lens support frame. In certain forms of the invention, adjustment means is provided for selectively prestressing the spring and thereby varying the normal angulation of the temple with respect to the lens support frame.

3,567,316
MOTION PICTURE CAMERA

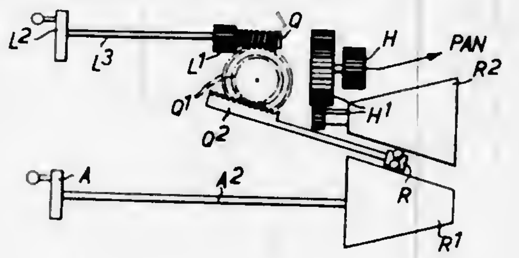
Theo Wilharm, Geradstetten-Hebsack, Germany, assignor to Robert Bosch Elektronik und Photokino G.m.b.H., Stuttgart-Unterturkheim, Germany
Filed Aug. 4, 1969, Ser. No. 847,006
Claims priority, application Germany, Aug. 6, 1968,
P 17 97 031.9
Int. Cl. G03b *1/62, 21/36*
U.S. Cl. 352—91 **10 Claims**



A motion picture camera wherein the shutter is driven by an electric motor which is started in response to depression of a pushbutton and continues to drive the shutter on release of the pushbutton until the shutter assumes its closed position. The motor circuit includes a disconnecting switch which is closed by the pushbutton and opens only on release of the pushbutton and upon completed rotation of the shutter to its closed position. One or more arresting switches in the motor circuit can be opened independently of the pushbutton to automatically arrest the motor but only when the shutter assumes its closed position. This is achieved by the provision of a control switch which bypasses the arresting switches and is closed on release of the pushbutton to thus complete the motor circuit until the disconnecting switch opens.

3,567,317
CAMERA SYSTEMS

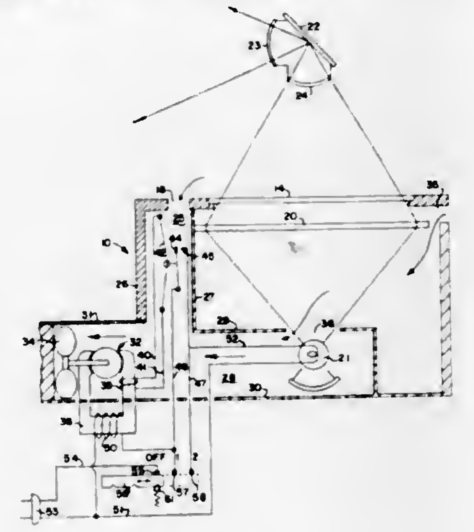
Dexter Robert Plummer, Leicester, England, assignor to The Rank Organisation Limited, London, England
Filed May 17, 1968, Ser. No. 729,976
Claims priority, application Great Britain, May 18, 1967,
23,252/67
Int. Cl. G03b *3/10*
U.S. Cl. 352—139 **19 Claims**



In a television motion picture camera system in which the camera has a zoom objective, a substantially constant portion of the field of view within the camera is traversed for a given demand from a demand unit, during angular movement of the camera, irrespective of the magnification of the camera-objective combination. This is achieved by making the angular drive of the camera variable and sensitive to the magnification of the camera-objective combination.

3,567,318
LAMP ACTUATING MEANS FOR AN OVERHEAD PROJECTOR

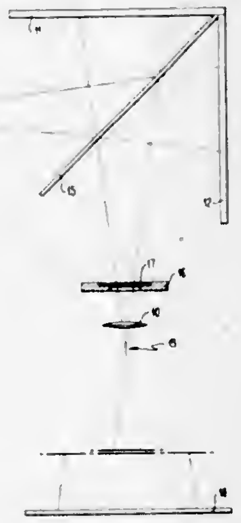
Albert E. Webb, Glenview, Ill., assignor to GAF Corporation, New York, N.Y.
Filed June 17, 1968, Ser. No. 737,650
Int. Cl. G03b *21/20*
U.S. Cl. 353—85 **7 Claims**



The projector includes a chamber and an air inlet opening communicating this chamber with the face of the platen. The inlet opening is arranged to be covered and substantially closed by the transparency member when the latter is placed into operative position on the projector. A fan draws air into the chamber through the inlet opening. In one embodiment, a heat sensitive relay is mounted in the chamber, such relay being adapted to actuate the lamp switch. A reduction in the air flow into said chamber resulting from placement of the transparency member into operative position causes an increase in the temperature in the chamber thereby to actuate the relay and close the switch in the lamp circuit. In another embodiment, a diaphragm is mounted in said chamber and associated with the lamp switch. A reduction in the pressure in said chamber occasioned by placement of the transparency member into operative position causes the diaphragm to expand and close the switch for energizing the lamp.

3,567,319
ILLUMINATION SYSTEM

Charles A. Gaston, Wheaton, Md., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 9, 1968, Ser. No. 766,221
Int. Cl. G03b *21/28*
U.S. Cl. 353—99 **6 Claims**



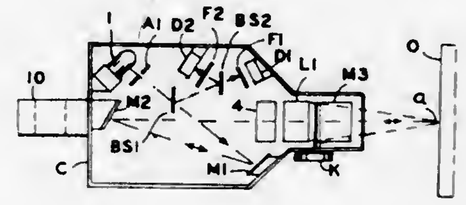
An illumination system for converting diverging light from a light source into converging light without the use of a lens, by utilizing a half-silvered mirror and two retroreflective surfaces.

ERRATUM

For Class 355—8 see:
Patent No. 3,567,344

3,567,320
NON-CONTACT OPTICAL MEASURING PROBE

Anwar K. Chitayat, Plainview, N.Y., assignor to OPTOmechanisms, Inc., Plainview, N.Y.
Filed Dec. 23, 1968, Ser. No. 785,937
Int. Cl. G01c *3/08*
U.S. Cl. 356—4 **11 Claims**

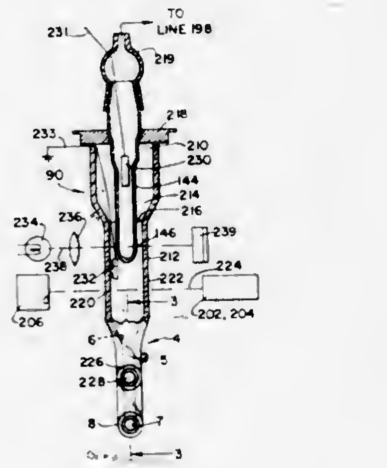


A light beam is passed through a pinhole and focused on the surface of an object. A color dispersing plate provides different wavelength components so that the illumination of one color long wavelength is focused at a greater distance than the average and the short wavelength components are focused at a shorter distance. The reflections from the surface are returned through the same lens and beam splitters to two detectors. One detector is filtered to pass the short wavelength and the other detector is filtered to pass the long wavelength. The detector outputs are then compared.

In a second embodiment, the pinhole is oscillated to change the focal length of the beam. Only one detector is used and the detector output is compared in phase with the oscillation voltage.

3,567,321
BATH FOR CONTAINING AND RECEIVING A PLURALITY OF APERTURE TUBES

Walter R. Hogg, Hialeah, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.
Filed July 22, 1968, Ser. No. 747,782
Int. Cl. G01n *21/26, 27/42*
U.S. Cl. 356—72 **10 Claims**

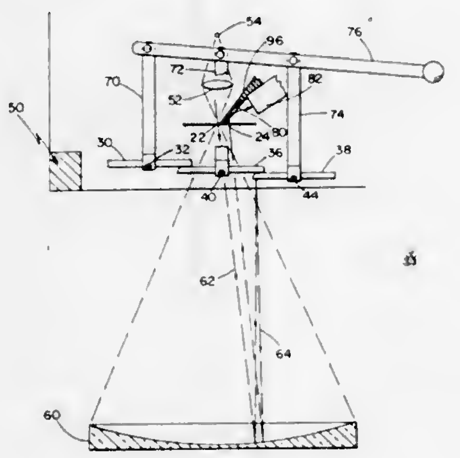


A bath having a pocket portion for retaining testtubelike aperture tubes known in the electronic particle analysis art. The bath has a depending, elongated, fluid passage bore, preferably defined by side walls tracing a segment of an exponential curve. Fluid entrance and exit lines enter the passage bore near its bottom, such that fluid flow upward into the pocket chamber is smooth and without significant turbulence, squirting, or bubbling

The bath, associated aperture tubes, electronic and optical detecting elements provide an improved combination useful in particle analysis.

3,567,322
SPECTROMETER

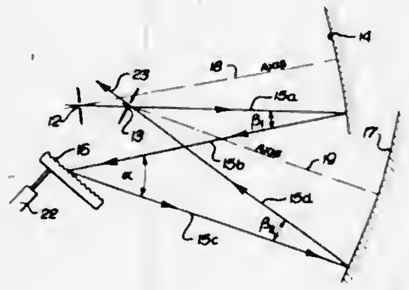
Richard Keith Brehm, Lexington, and Charly Dany Allemand, Newtonville, Mass., assignors to Fisher Scientific Company, Pittsburgh, Pa.
Filed Oct. 27, 1967, Ser. No. 678,618
Int. Cl. G01j *3/06, 3/18*
U.S. Cl. 356—98 17 Claims



An *f*/1 spectrometer has entrance and exit slits, each ten millimeters high and fifty microns wide, which are parallel to one another and spaced three millimeters apart. A parabolic collimating mirror of thirty centimeters focal length reflects light from the entrance slit onto a dispersing mosaic of nine gratings each ruled with 1200 grooves per millimeter. The gratings are mounted on three parallel axes and a drive linkage rotates all the gratings simultaneously through equal angles. The middle grating has an aperture through which light passes between the entrance and exit slits and the collimating mirror. Behind the exit slit is mounted an elliptical reflector that has focal points spaced fifty-eight millimeters apart along an axis at an angle of 34° 40′ to the plane of the entrance-exit slit optics for concentrating light passing through the exit slit on a photomultiplier.

3,567,323
HIGH SPECTRAL PURITY AND IMAGE QUALITY MONOCHROMATOR

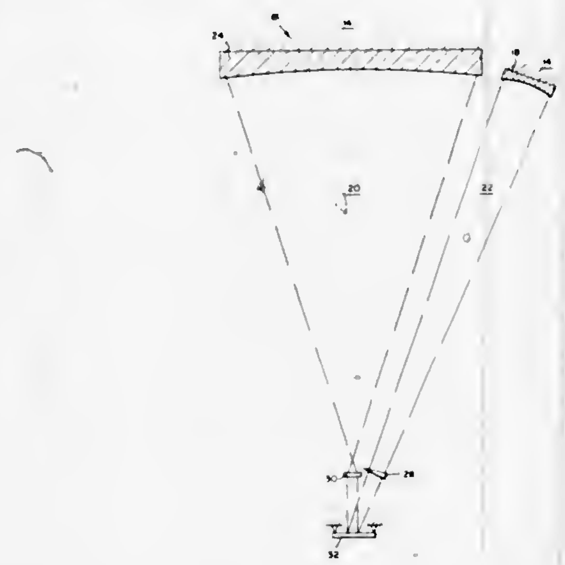
Vernon L. Chupp, San Dimas, and Paul C. Grantz, Pomona, Calif., assignors to Cary Instruments, Monrovia, Calif.
Filed June 13, 1967, Ser. No. 645,746
Int. Cl. G01j *3/18, 3/42*
U.S. Cl. 356—99 15 Claims



This is an improved asymmetric monochromator system, featuring coma cancellation, exceptional image quality, and invariance with wavelength of slit-image curvature. First and second paraboloidal mirrors having noncoincident axes are utilized; the reflections of the beam at the first and second mirrors are mutually asymmetric.

3,567,324
METHOD FOR MEASURING GAS TURBULENCE OVER LONG PATHS

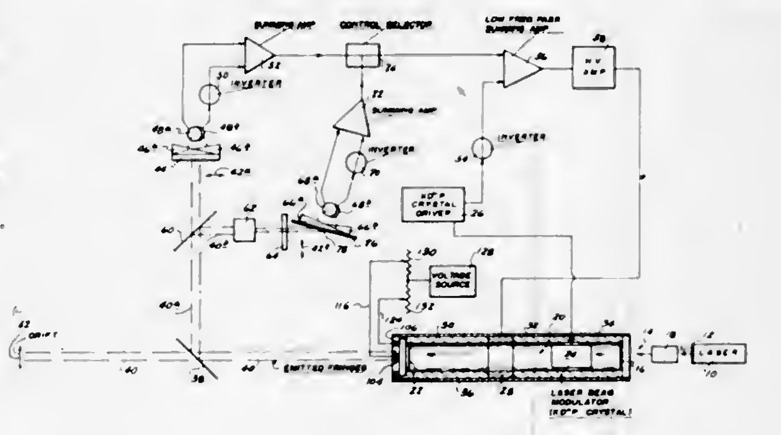
Robert E. Brooks, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Jan. 16, 1968, Ser. No. 698,321
Int. Cl. G01b *9/02;* **G02b**
U.S. Cl. 356—107 3 Claims



The method of this invention measures the optical phase distortions in light due to its passage through turbulent air. The measurements are made by flying an aircraft above or through the turbulence. A ground station directs a laser beam to the aircraft, whereon is mounted a pair of concave reflectors that intercept the laser light and direct it in the form of two beams, to intersect on a photographic plate. The plate is double exposed to the beams to create a differential interferogram. The plate is then developed. The interference pattern containing information about the phase distortions of the turbulent air is created by directing a beam of laser light onto the photographic plate.

3,567,325
SYSTEM FOR STABLE POSITIONING OF INTERFEROMETER MIRRORS

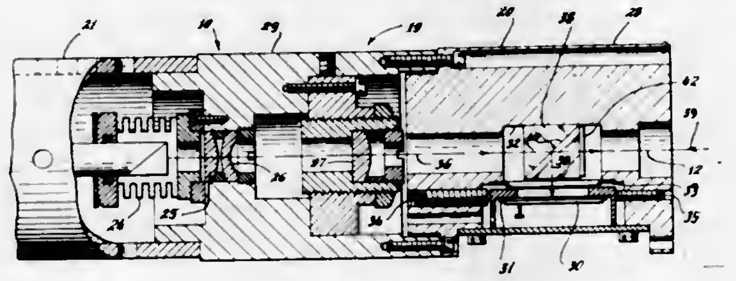
Edward Camp Tibbals, Jr., Boulder, Colo., assignor to Alexander Dawson, Inc., Mahwah, N.J.
Filed Aug. 31, 1967, Ser. No. 664,664
Int. Cl. G01b *9/02;* **H01s** *3/00*
U.S. Cl. 356—112 6 Claims



A mirror of an interferometer cavity is mounted in a frame which is slotted to define integral gimbal rings connected by thin webs which can flex to permit angular displacement of the mirror about orthogonally related axes by applying suitably controlled voltages to piezoelectric crystals acting against the gimbal rings, whereby to angularly position the mirror in a stable manner, and the mirror mounted in such frame is positioned in the longitudinal direction of the cavity relative to the other mirror defining the cavity by means of a spacer member of quartz or other piezoelectric material having a voltage applied thereto which is varied in response to the photoelectric detection of the drifting of the emitted beam from a desired location so as to return the beam to that location.

3,567,326
ALIGNMENT APPARATUS

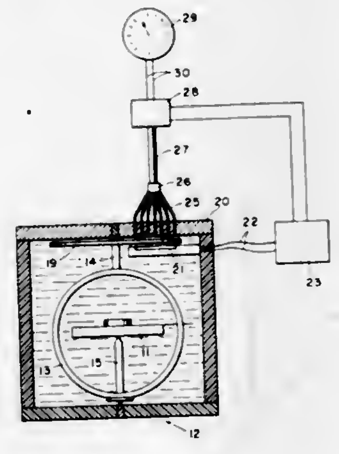
William R. Smith-Vaniz, Darien, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed May 20, 1968, Ser. No. 730,396
Int. Cl. G01b *11/27*
U.S. Cl. 356—114 13 Claims



An alignment apparatus having a laser light source which provides an output beam for projection at a reflective surface remotely positioned at a target object, a locally positioned beam sensing means, and a locally positioned beam reflective means disposed in the beam path for directing a reflected beam at said sensing means includes a beam polarization means disposed between the light source and the remote reflective surface. This polarizing means is adapted for altering the relative polarization of the output and reflected beams in a manner for attenuating interference fringes at the sensing means. The light transmission efficiency of this arrangement is substantially enhanced by utilizing a reflective means having a polarizing surface adapted for transmitting light of a first polarization and reflecting light of a second orthogonal polarization.

3,567,327
MAGNETIC COMPASS DIRECTION INDICATING SYSTEM

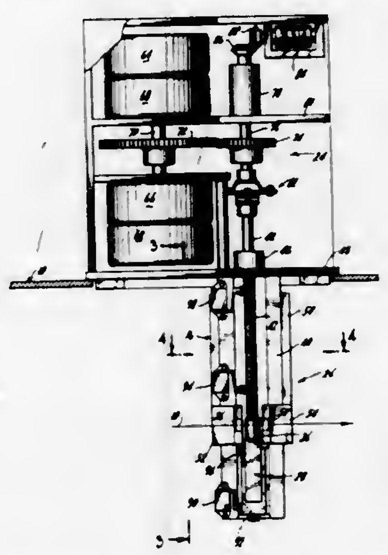
Robert D. Gerard, Palisades, N.Y., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 2, 1967, Ser. No. 680,141
Int. Cl. G01b *11/26*
U.S. Cl. 356—152 8 Claims



An analog signal representing the lubber line heading of a magnetic compass is obtained by projecting a narrow plane of light through an optical wedge, or a spot of light along a slit, and then converting the intensity of the planar light or the position of the spot of light into a directly read compass heading.

3,567,328
SPECIMEN TRANSPORT MOUNT FOR SPECTROPHOTOMETER

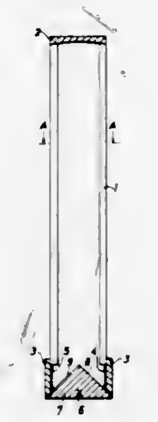
Vernon T. Riley, 2 South Road, Harrison, N.Y. 10528
Filed June 2, 1966, Ser. No. 554,909
Int. Cl. G01j *3/42;* **G01n** *1/00*
U.S. Cl. 356—244 6 Claims



Spectrophotometric analyses of specimens which have been processed by "density gradient centrifugation" can be performed by the apparatus disclosed herein without having to withdraw fractions of the material from the specimen tubes for separate analysis. The apparatus constitutes an attachment for a conventional spectrophotometer and transports the specimens in a specimen tube through the spectrophotometer's beam of light in a controlled scanning movement parallel to an established density gradient in the specimen.

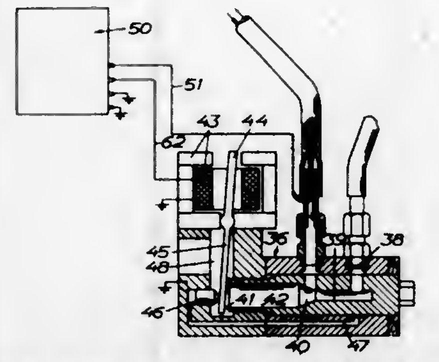
3,567,329
GAS SAMPLE ANALYSIS CELLS

Harry Arthur Willis and Edward Arthur Cudby, Welwyn Garden City, England, assignors to Perkin-Elmer Limited, Beaconsfield, England
Filed Sept. 30, 1968, Ser. No. 763,517
Claims priority, application Great Britain, Sept. 29, 1967, 44,404/67
Int. Cl. G01n *1/10, 21/06, 21/26*
U.S. Cl. 356—246 9 Claims



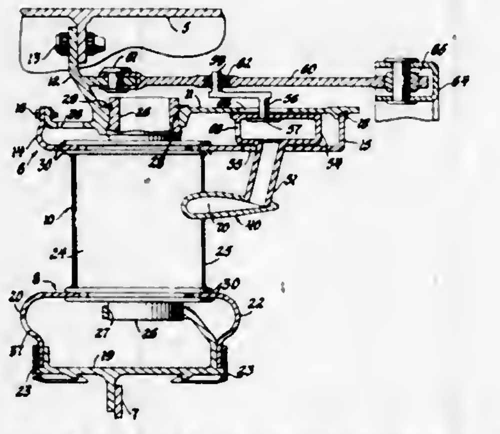
A long gas sample cell (for use in, for example, an infra-red absorption spectrophotometer) of rectangular cross-section has specularly reflecting interior surfaces. Entrance and exit apertures are located generally at the one end of the cell; and a concave mirror at the other end of the tubular cell. The entrance and exit apertures are at least substantially at conjugate image planes relative to the converging mirror, so that radiation entering the entrance aperture (which is preferably at least near an image of the source of the spectrophotometer) is efficiently transferred through the other window. The long reflecting sidewalls of the cell act as a light pipe to increase the effective radiation flux density in the gas sample within the cell, without substantially disturbing the conjugate optical relationship between the apertures relative to the converging mirror. The radiation will therefore pass through the entrance aperture along the length of the cell to the converging mirror and substantially reimaged at the exit aperture, with the interior spectrally reflecting surfaces of the cell acting to "tunnel" more divergent rays and therefore both enchance the flux density within the cell and the total radiation intensity reaching the exit aperture. When the length of the sample space in the analytical instrument is typically limited, the axis of the long cell is arranged perpendicular to this sample space axis and a pair of plane reflectors (for example reflectively coated external surfaces of a right-angle prism) may be positioned, optically either before or after the apertures, to deflect the radiation (at right angles), the apertures in this type of construction being parallel to the longitudinal axis of the cell.

3,567,330
SPEED CONTROL MEANS
Ulf Martin Christian Apelskog, Trollbacken, and Lennart Erik Idoft Gidlund, Tullinge, Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden
Filed Aug. 18, 1969, Ser. No. 850,867
Claims priority, application Sweden, Aug. 27, 1968, 11,529/68
Int. Cl. F01b *25/00;* **F03b** *13/04;* **A61c** *1/10*
U.S. Cl. 415—29 **6 Claims**



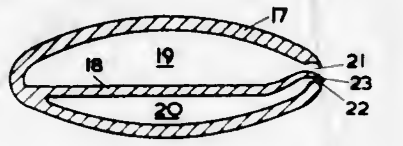
In a rotational speed control means for hand sustained pressure fluid driven grinding, drilling and like machines, preferably for dental work, an upper limit is put on the number of revolutions per minute of the machine from idling and up to full working load by a control valve and a control circuit cooperating to divert or to throttle pressure fluid in the control valve in advance of the machine such as to maintain automatically under any partial load a predetermined selective upper rotational speed limit for the machine.

3,567,331
VARIABLE VANE CASCADES
Leo A. Corrigan and Earle R. Wall, Jr., Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed July 25, 1969, Ser. No. 844,885
Int. Cl. F01d *25/24, 17/00*
U.S. Cl. 415—126 **7 Claims**



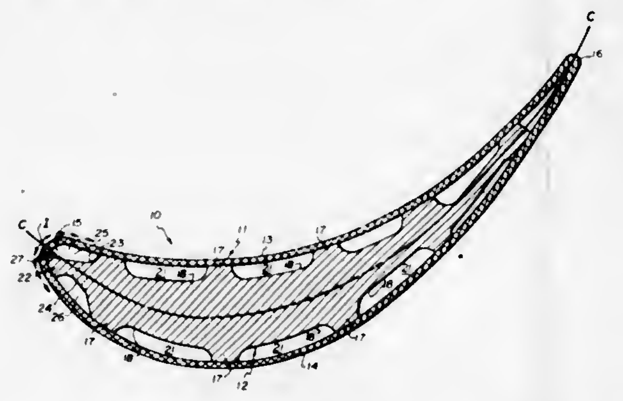
A turbine nozzle includes an annular row of radially directed blades. The area of the nozzle throat is varied by plugs which are movable with or against the direction of flow through the nozzle into the spaces between the blades. The plugs are streamlined members and may be individual members in each interblade path or may be portions of a ring extending around the nozzle axis immediately downstream of the nozzle. Provisions are made for cooling the plugs.

3,567,332
HELICOPTER ROTORS AND THE LIKE
Austin Richard Seed, Farnborough, England, assignor to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Oct. 2, 1968, Ser. No. 764,514
Claims priority, application Great Britain, Oct. 4, 1967, 45,110/67
Int. Cl. B64c *15/10*
U.S. Cl. 416—90 **9 Claims**



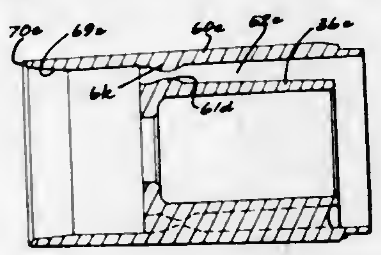
Air is discharged from two adjacent slots extending along the span of a helicopter rotor blade. The air is controlled cyclically by throttle valves disposed circumferentially about the rotor axis so that lift on the blade may be varied in accordance with its rotation, no incidence change being involved. Under certain flight conditions when the air demand is small (e.g. in hovering flight), the air flow to one of the slots is blanked off, the throttle valves being suitably profiled to effect this while still regulating flow to the other slot. Preferably the slots are of differing widths and the wider one is that which is blanked off. Three or more slots may be used if desired by suitable arrangements of air passages and valve profiles.

3,567,333
GAS TURBINE BLADE
Angelo De Feo, Totowa Boro, N.J., assignor to Curtiss-Wright Corporation
Filed Jan. 31, 1969, Ser. No. 795,424
Int. Cl. F01d *5/18*
U.S. Cl. 416—90 **1 Claim**



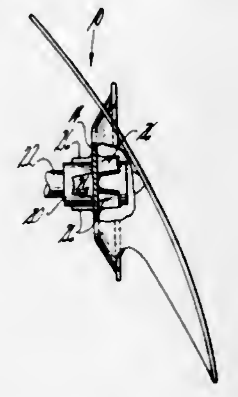
An improved transpiration cooled turbine blade comprising a sheath of permeable material surrounding a load-carrying strut, the assembly having a generally airfoil configuration with a concave and convex surface joined by a curved leading edge portion and a trailing edge portion. The strut is provided with lands and grooves with a land portion extending into abutment against the sheath to thereby reinforce the sheath against impaction of gas entrained particles. The land portion is offset from an imaginary longitudinal plane containing the camber line in a direction away from the concave surface of the blade so that cooling fluid can bleed through the sheath at the leading edge portion on both sides of the imaginary longitudinal plane.

3,567,334
FLOW-THROUGH PROPELLER
Eldon L. Lorenz, Grand Rapids, Mich., assignor to Michigan Wheel Company, Grand Rapids, Mich.
Filed Sept. 9, 1968, Ser. No. 758,524
Int. Cl. B63h *1/18, 21/26*
U.S. Cl. 416—93 **1 Claim**



A marine propeller assembly of the exhaust flow-through type, having annular exhaust-flow-altering protrusion means extending radially into the flow through exhaust passage, creating a venturi type structure, and having a specially tapered terminal discharge portion, improving performance.

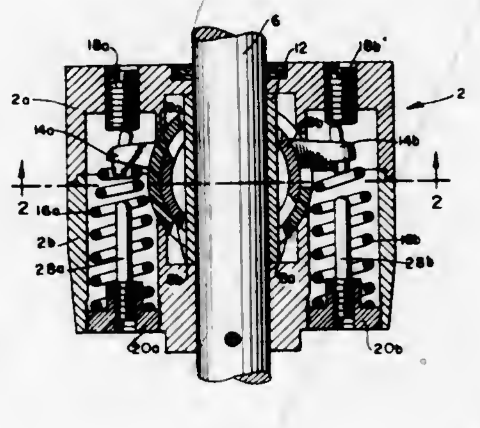
3,567,335
RESILIENT HUB ASSEMBLY AND METHOD OF MAKING SAME
Walter D. David, Torrington, Conn., and Donald F. White, Coram, N.Y., assignors to The Torrington Manufacturing Company, Torrington, Conn.
Filed June 24, 1968, Ser. No. 739,548
Int. Cl. B64c *11/04*
U.S. Cl. 416—134 **4 Claims**



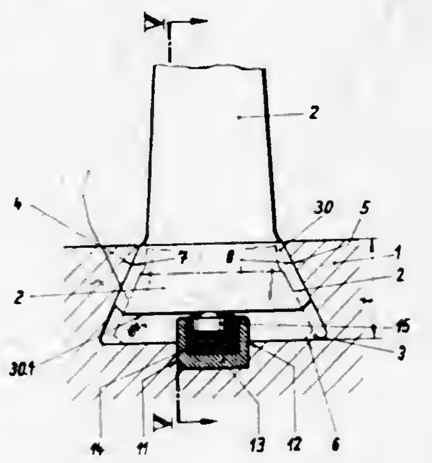
An inexpensive resilient hub assembly for fans and blowers wherein radial member defining hub opening has six integral axially bent tabs extending alternately in one and opposite axial directions. A flexible hub is compressively secured within the tabs and may have a rigid hub compressively secured therewithin and attached to a shaft by a conventional set screw. The method comprises slitting the radial member adjacent a central opening and bending the tabs to axial positions, and entering the flexible hub therewithin for compressive retention. A Teflon reducing sleeve is employed in inserting the hub into the central opening of the radial member.

3,567,336
PROPELLERS
Szabolcs Bartha, Kew Gardens, N.Y., assignor to Alexander Reti, New York, N.Y., a fractional part interest
Filed Apr. 21, 1969, Ser. No. 817,830
Int. Cl. B63h *3/00*
U.S. Cl. 416—136 **13 Claims**

Propeller of the variable-pitch type wherein most efficient operation is ensured at all speeds of the engine drive shaft as a result of individual and direct pitch control provided for the blades associated with the drive shaft, within a predetermined maximum and minimum range. Biasing means are provided, preferably in contiguous hollow areas of two separable portions forming part of the propeller hub, for urging hub members associated with the blades into a normal rest position, and stop means for limiting the movement of the sub members at least in one extreme position wherein the blades are forced by the increasing pressure of the surrounding medium into an off-normal operated position.



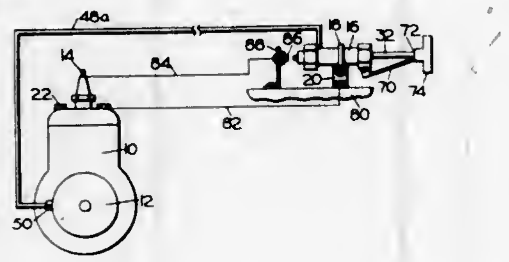
3,567,337
ROTOR FOR TURBOENGINES
Ferdinand Zerlauth and Herbert Flegel, Winterthur, Switzerland, assignors to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed Nov. 27, 1968, Ser. No. 779,374
Claims priority, application Switzerland, July 26, 1968, 11,275/68
Int. Cl. F01d *5/32*
U.S. Cl. 416—221 **10 Claims**



The rotor body is provided with a continuous uninterrupted slot which receives the blades in complementary locking manner. Spacers formed of individual plates space the blades and intermediary locking layers fill in the last spaces to lock the blades in place. The blades are also spring biased against the lateral surfaces of the slot.

3,567,338
AUTOMATIC PUMP SHUTOFF APPARATUS
Jack Edwards, 8217 SE. McLoughlin Blvd., Portland, Oreg. 97202
Filed Sept. 3, 1968, Ser. No. 757,027
Int. Cl. F04b *49/00;* **B65g** *37/00*
U.S. Cl. 417—34 **5 Claims**

The apparatus includes a tubular housing in which a stem is slidably mounted. The stem carries a piston, and a spring is enclosed within the housing to urge the stem to a position such that one end thereof is adapted to engage and electrically ground a spark plug of a pump motor for shutting off the motor. A pressure line from the outlet of the pump is connected into the housing, and pressure from the pump outlet is arranged to retract the piston and hold the stem away from the spark plug. When the pump pressure falls the spring causes the stem to engage the spark plug of the pump motor to shut the motor off and prevent it from running excessively without a load. Gravity operated latch means are engageable with the stem to hold the stem retracted while the pump motor is being started as well as until such time that



pressure builds up to hold the piston retracted, the latch being released automatically when a selected pressure has been built up. The piston has surface O-rings for sealing engagement with the interior of the housing in a rearward direction of the latter and front seals are provided for sealing in a forward direction. The shutoff apparatus of the present invention may be supported on the pump motor or if desired it may be located remotely from the pump motor and operable to electrically ground the spark plug by a connecting wire.

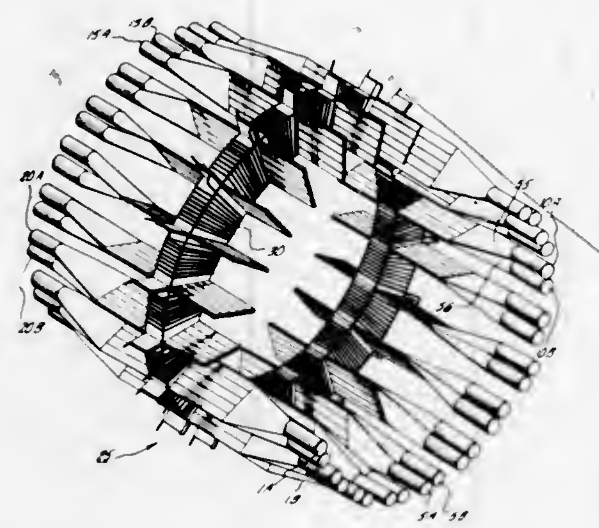
3,567,339
MULTIDUCTED ELECTROMAGNETIC PUMP

T. O. Paine, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Jerry P. Davis, La Canada, and Gerald M. Kikin, Pasadena, Calif.

Filed Apr. 16, 1969, Ser. No. 816,733

Int. Cl. F04b *19/00*

U.S. Cl. 417—50 **10 Claims**



An apparatus for pumping conductive liquids is described which comprises a single toroidal electromagnetic pump structure wherein there are a plurality of pump passages with each passage having a two pump duct sandwich therein. Each pump duct has associated therewith a plural tube header assembly connected to its input and output portions. Each tube of the plural tube header assemblies is electrically insulated from adjacent tubes thereby minimizing the bypass current flow. Current flow through each twin pump duct combination is in a counter flow arrangement to minimize field distortion. The single toroidal pump structure may therefore comprise any convenient number of individual pumps formed within the compact configuration.

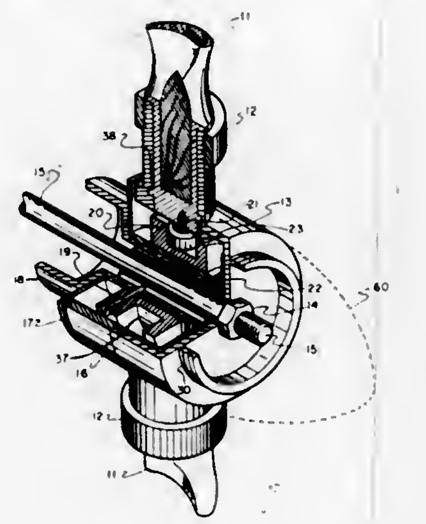
3,567,340
VARIABLE PITCH PROPELLER

Kurt Schneider, Maspeth, and George M. Watson, New York, N.Y., assignors to Kurt Schneider, Maspeth, and George M. Watson, New York, N.Y., fractional part interest to each

Filed May 21, 1968, Ser. No. 730,878

Int. Cl. B63h *3/04*

U.S. Cl. 416—162 **6 Claims**



A variable pitch propeller mechanism which fits over the drive shaft of a conventional single ended power plant and permits blade adjustment adjacent to the output shaft. One end of each propeller blade contains a bearing which is offset from its axis of pitch rotation and which is coupled into an annular slot in an axially sliding bearing ring. The bearing ring contains a cam follower which tracks in both an axial slot and a spiral slot so that rotation of the spiral slot will axially displace the bearing ring so as to move the offset bearings and rotate the propeller blades.

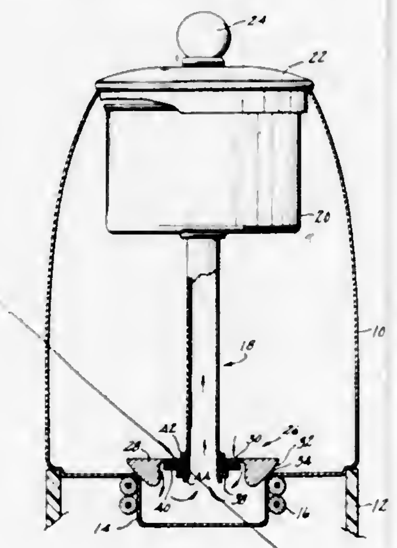
3,567,341
COFFEEMAKER PUMP

Richard J. Ostroski, Trumbull, Conn., assignor to General Electric Company

Filed May 22, 1969, Ser. No. 826,986

Int. Cl. F04b *19/24, 1/18*

U.S. Cl. 417—209 **7 Claims**



An electric percolator with improved pump tube valving wherein a conventional flexible washer that controls water admission is combined with a downward cup-shaped member having reverse flared walls for funneling boiling turbulence to produce quick perking and rapid pulsing or pumping.

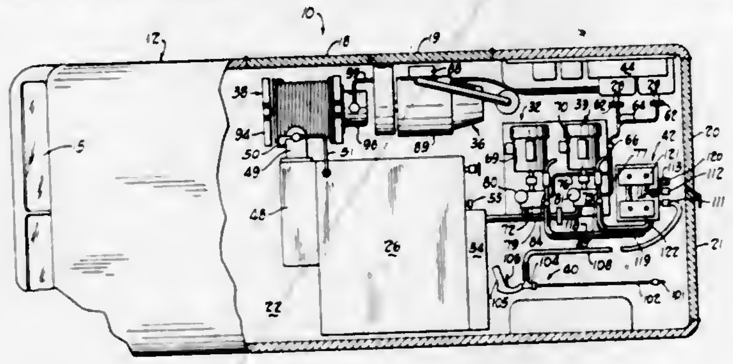
3,567,342
MOBILE CLEANING UNIT

Otto V. Jackson, 600 Hemlock Road, Chagrin Falls, Ohio 44022

Original application Feb. 1, 1968, Ser. No. 702,340, now Patent No. 3,481,544, dated Dec. 2, 1969. Divided and this application Aug. 27, 1969, Ser. No. 853,354

Int. Cl. F04b *21/00*

U.S. Cl. 417—234 **1 Claim**



A mobile cleaning unit for providing a high pressure cleaning spray, comprising a van-type vehicle with a water storage tank, apparatus for selectively mixing liquid cleaner, and power spraying equipment. A separate power generating unit carried in the truck operates the spray. A gasoline motor for the generating unit is started from the vehicle electrical system and is supplied with fuel from the fuel system of the vehicle. The power spraying equipment is also operable from a source of electric current external to the vehicle through a reel and electric cable unit selectively connected through a control switch.

3,567,343
HYDRAULIC PUMP ARRANGEMENT FOR INTERNAL-COMBUSTION ENGINE

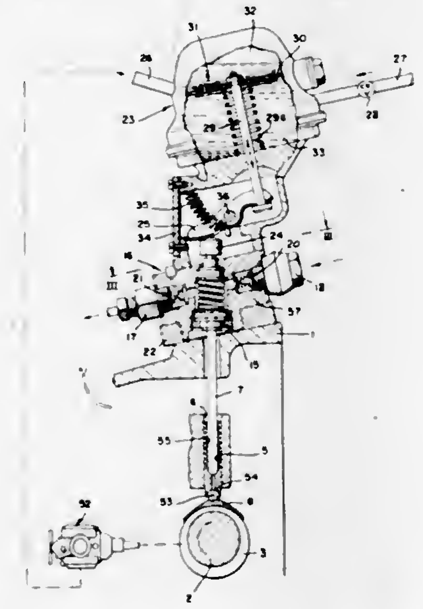
Hans Erdmann, Neu Isenburg, Germany, assignor to Alfred Teves G.m.b.H., Frankfurt am Main, Germany

Filed Feb. 4, 1969, Ser. No. 796,406

Claims priority, application Germany, Feb. 7, 1968, P 16 01 422.5

Int. Cl. F04b *23/04*

U.S. Cl. 417—364 **10 Claims**



An internal-combustion engine has a rod fitted with a cam follower urged into contact with the engine camshaft. This rod actuates a stepped piston of a small hydraulic pump mounted directly on the engine block at the pedestal on which the fuel pump is normally seated. An end of the piston extends through the housing of the pump and is fitted with a plastic cap engaging the rocker arm of the engine fuel pump mounted in turn on the hydraulic-pump housing. The cam follower is an arcuate shoe engaging around a quarter of the surface of the cam and connected to the rod by a ball-and-socket joint.

3,567,344
ILLUMINATING DEVICE FOR ORIGINAL OF AN ELECTROPHOTOGRAPHIC DUPLICATING MACHINE

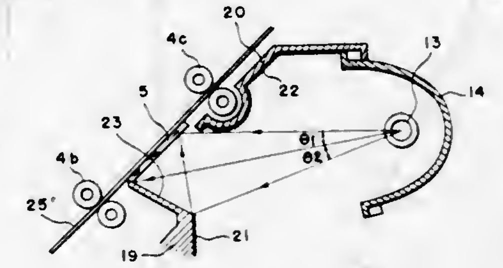
Masaya Ogawa, Osaka, and Yorio Yamanoi and Isao Iizaka, Toyokawa-shi, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 12, 1969, Ser. No. 798,675

Claims priority, application Japan, Feb. 15, 1968, 43/11,375

Int. Cl. G03b *15/02*

U.S. Cl. 355—8 **6 Claims**



An illuminating device for the original in an electrophotographic duplicating machine, which scans and projects an image of an original, illuminated by a light source on a photo-sensitive paper, which device causes the image to be uniformly bright. The image is formed longitudinally on an exposure slit which is disposed at right angles to the scanning direction.

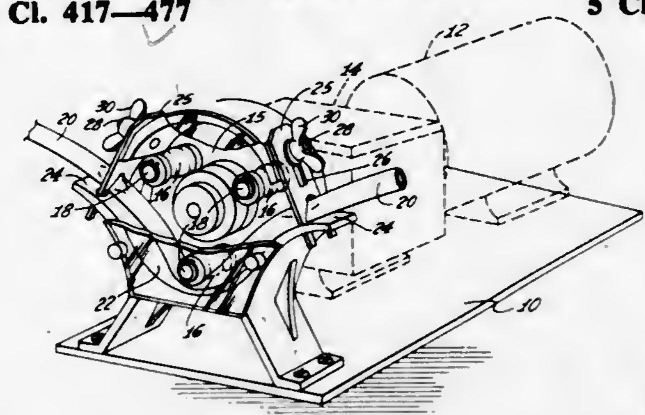
3,567,345
PERISTALTIC PUMP

John W. Ballentine, Manhattan Beach, Calif., assignor to W. S. Shamban & Co., West Los Angeles, Calif.

Filed Feb. 10, 1969, Ser. No. 798,086

Int. Cl. F04b *43/00, 43/08*

U.S. Cl. 417—477 **5 Claims**



In a peristaltic pump wherein spaced impeller rollers on a rotor successively traverse a section of resiliently flexible tubing, the impeller rollers are shaped to flatten a central longitudinal portion of the tubing and to permit the opposite longitudinal edges of the flattened tubing to bulge to avoid excessive stressing of the tubing.

3,567,346
UNIT FUEL INJECTOR WITH MODULATED INJECTION

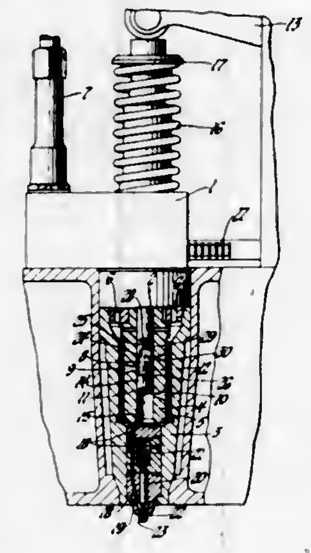
Lee T. Mekkes, Grandville, and Ernest Bader, Jr., Grand Rapids, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 14, 1969, Ser. No. 841,371

Int. Cl. F04b *7/04*

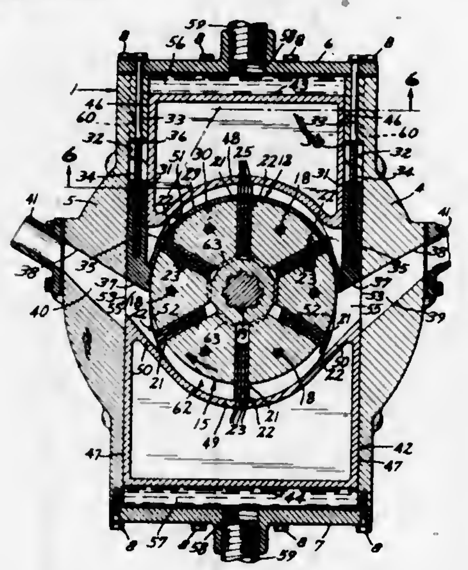
U.S. Cl. 417—494 **2 Claims**

A jerk-type fuel injector-pump unit having a rotatively adjustable plunger and upper and lower main fill and bypass ports in the pumping cylinder, each sequentially closable and openable by spaced helical lands on the plunger to effect beginning and ending of injection during the pumping stroke of the plunger, the groove between the lands being in continuous communication with the pumping cylinder inwardly of the plunger and also having relatively brief communication with a separate by-pass port in the pumping cylinder while both main ports are closed



and the plunger is rotatively adjusted for maximum pump output.

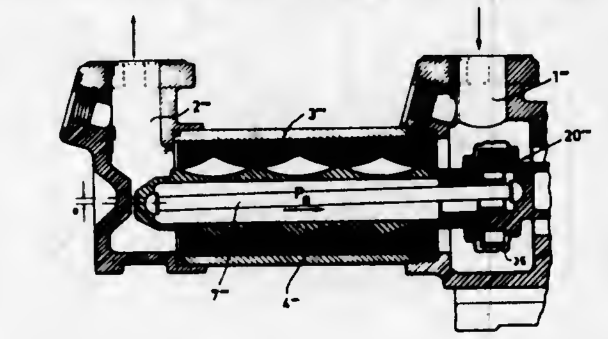
3,567,347
HYDRAULIC PUMP
Wilbert Milo Scott, 808 13th Ave. W.,
Williston, N. Dak. 58801
Filed Mar. 19, 1969, Ser. No. 808,548
Int. Cl. F01c *21/16;* **F04c** *15/04, 29/10*
U.S. Cl. 418—31 **2 Claims**



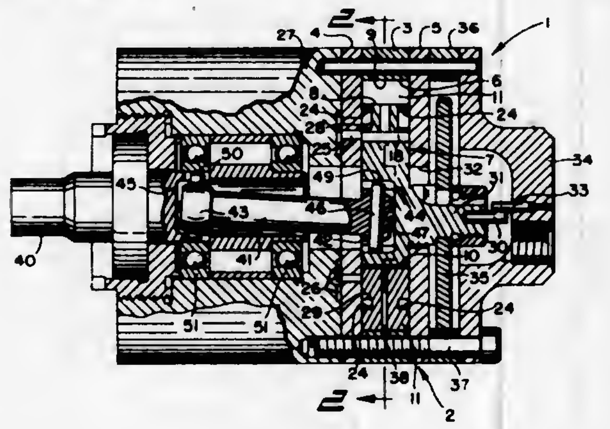
Casing means defining inlet and outlet ports and having a rotor equipped with impeller elements and journaled in the casing means on a fixed axis, the casing means defining a normally stationary semi-cylindrical wall surface in rotary sliding engagement with the rotor. A flow control member defines an arcuate surface diametrically opposed to the semi-cylindrical wall surface and radially movable toward and away from the rotor to define therewith an expansible and contractable pumping chamber, the flow control member including leg portions having impeller engaging surfaces tangent to the semi-cylindrical and arcuate surfaces in all positions of movement of the control member.

3,567,348
SCREW PUMP PROVIDED WITH A RADIALLY MOVABLE ROTOR COUPLING
Bengt A. Benson, Stockholm, Sweden, assignor to
Stenberg-Flygt Aktiebolaget, Solna, Sweden
Filed Apr. 23, 1969, Ser. No. 818,719
Claims priority, application Sweden, Apr. 29, 1968,
5,776/68
Int. Cl. F01c *1/10, 5/00;* **F04c** *1/06*
U.S. Cl. 418—48 **9 Claims**

There is provided a novel type of coupling for use in helical pumps of the type which comprise a single rotor coacting with and eccentrically rotating in relation to a fixed stator, the novel coupling comprising an intermediate connector member which bridges the input and output members of the coupling to transmit torque, and only torque, therebetween, the connector member being especially adapted to permit the use of various arbitrary means for absorbing axial forces occurring in the coupling.

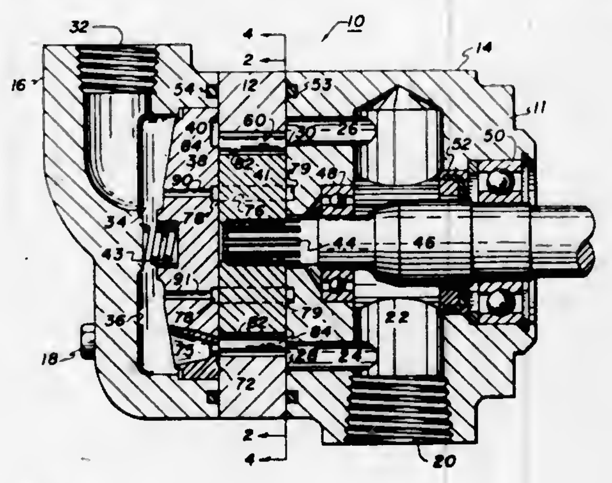


3,567,349
LOW SPEED HIGH TORQUE FLUID VANE MOTOR
John W. Meulendyk, Kalamazoo, Mich., assignor to
Pneumo Dynamics Corporation, Cleveland, Ohio
Filed July 11, 1968, Ser. No. 744,175
Int. Cl. F01c *1/04*
U.S. Cl. 418—61 **11 Claims**



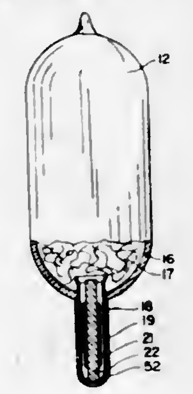
A fluid vane motor in which either the rotor or housing is caused to roll around the periphery of the other through a proper sequencing of pressures to the vane chambers.

3,567,350
POWER TRANSMISSION
Albin J. Niemiec, Warren, Mich., assignor to Sperry
Rand Corporation, Troy, Mich.
Filed Jan. 15, 1969, Ser. No. 791,362
Int. Cl. F01c *19/02*
U.S. Cl. 418—112 **23 Claims**



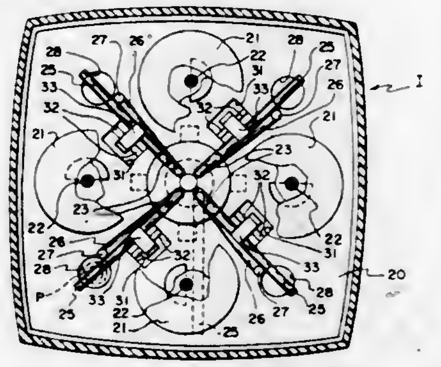
A rotary fluid pressure energy translating device having a vane cam track within which is rotatably mounted a rotor carrying radially sliding vanes to form fluid inlet and fluid outlet zones located between the periphery of the rotor and vane track; and a sealing element disposed within the periphery of said rotor between each vane for creating a seal during the transition of the vanes between the fluid inlet and fluid outlet zones.

3,567,351
PERCUSSIVELY IGNITABLE FLASHBULBS HAVING MEANS FOR DETERMINING THE CONDITION THEREOF
Donald M. Harvey, Rochester, N.Y., assignor to Sylvania
Electric Products Inc., Danvers, Mass.
Filed Mar. 3, 1969, Ser. No. 803,779
Int. Cl. F21k *5/02*
U.S. Cl. 431—13 **5 Claims**



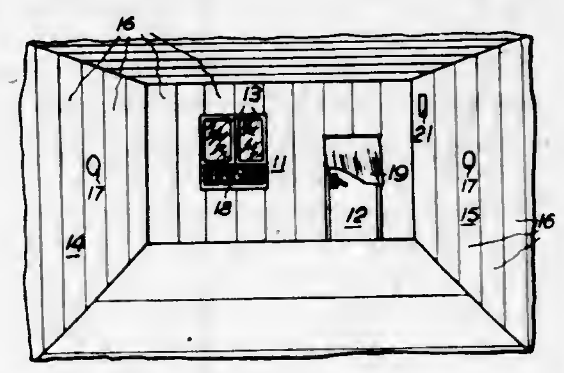
The metallic ignition member of a percussively ignitable flashbulb is coated with an insulating material which melts, burns, vaporizes or becomes conductive under the influence of the heat produced when the flashbulb is ignited. A pair of spaced electrical contact members are adapted to engage the coated ignition member to provide a switch in series with a signal lamp or the like. If the bulb has not been fired, the contact members are insulated from the metallic ignition member by the coating material so that the switch remains in an open condition. After the bulb is fired, the fingers are shorted by the metallic ignition member to close the switch and thereby energize the signal lamp.

3,567,352
SAFETY DEVICE FOR PERCUSSION-IGNITABLE FLASH UNITS
Clarence W. Van Duser, Rochester, N.Y., assignor to
Sylvania Electric Products Inc., Danvers, Mass.
Original application Oct. 14, 1968, Ser. No. 767,097.
Divided and this application May 7, 1969, Ser.
No. 822,456
Int. Cl. F21k *5/02*
U.S. Cl. 431—93 **13 Claims**



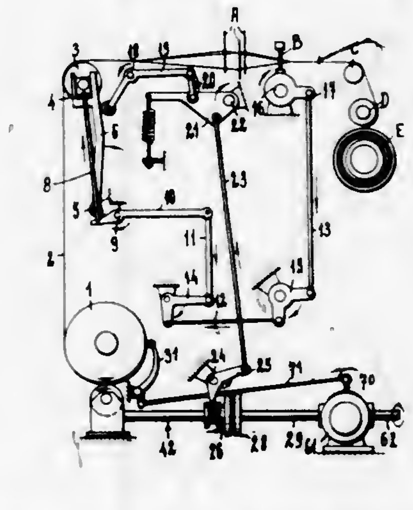
A photoflash unit having percussion-ignitable flash lamps and individual, preenergized strikers is provided with disarming latch members for each striker which prevent accidental release of the strikers. The disarming members have cam portions associable with photographic apparatus for moving the latch members to an inoperative position upon mounting of the flash unit on the apparatus. Apparatus is disclosed for cooperating during mounting of such units to arm the unit for selective release of the strikers. The disarming members are resiliently urged to their operative position so that unreleased striker elements are again disarmed upon removal of the flash unit from photographic apparatus.

3,567,353
THERMAL CONDITIONING SYSTEM
Paul Eisler, 57 Exeter Road, London, NW. 2, England
Original application May 26, 1965, Ser. No. 458,925, now Patent No. 3,410,336, dated Nov. 12, 1968. Divided and this application Aug. 29, 1968, Ser. No. 758,651
The portion of the term of the patent subsequent to Nov. 12, 1985, has been disclaimed
Int. Cl. F24f *3/14*
U.S. Cl. 165—21 **22 Claims**



A space is maintained between 55 and 85 degrees Fahrenheit, and thereby below blood temperature. The boundary walls of the space are regulated as to temperature by a sensing device and a second sensing device responds to the temperature and humidity of the air in the space and controls the first sensing device. In this manner, the radiant loss from an occupant of the space to the walls amounts to about 400 B.t.u. per hour minus the heat exchange between the occupant and the air within the space. The walls may be covered by a detachable material having passages for a heat exchange medium or incorporating an electric heating film.

3,567,354
APPARATUS FOR CONTROLLING THE WARP TENSION IN A WEAVING MACHINE
Theodorus Franssen and Hubert van Mullekom, Deurne, Netherlands, assignors to N.V. Machinenfabriek L. Te Strake, Deurne, Netherlands
Filed Sept. 19, 1968, Ser. No. 760,805
Claims priority, application Netherlands, Sept. 20, 1967, 6712855
Int. Cl. D03c *49/06*
U.S. Cl. 139—108 **2 Claims**



The weaving machine has a back beam around which the warp is bent to provide two warp spans extending from the back beam at substantially a right angle to one another. The back beam is mounted for movement in a direction substantially parallel to one of the two warp spans and is urged in such direction by resilient means to maintain the warp under predetermined tension. Mechanism is provided to operate in response to movement of the back beam in the opposite direction to feed the warp toward the back beam. The improvement comprises mechanism for reciprocating the back beam in a path substantially parallel to the other of the two warp spans, in synchronism with the opening and closing of the shed of the weaving machine, to counteract the tendency of the opening and closing of the shed to vary the tension of the warp.

CHEMICAL

3,567,355

MERCAPTANS FOR BOOSTING THE DYEING OF HUMAN HAIR WITH DIRECT DYES

Karl-Josef Boosen, Dusseldorf-Holthausen, Günter Reese, Dusseldorf, and Peter Berth, Dusseldorf-Benrath, Germany, assignors to Therachemie Chemisch Therapeutische Gesellschaft m.b.H., Dusseldorf, Germany

No Drawing. Filed Aug. 26, 1965, Ser. No. 482,895

Claims priority, application Germany, Sept. 2, 1964, T 26,920

Int. Cl. A61k *7/12*

U.S. Cl. 8—10.1 **24 Claims**

A process is disclosed for improving the coloring of human hair, especially living human hair, with direct dyes by the use of mercaptans which are insoluble or difficultly soluble in water. The mercaptans are mercaptocarboxylic acid esters and amides. Emulsions or dispersions of the mercaptans can be used to treat the hair prior to dyeing or they can be combined with the dyeing composition.

3,567,356

REACTIVE AND DISPERSE DYES FIXED ON CELLULOSE BLENDED FABRICS TRAVELLING ON DRUM RADIALLY PASSING HOT GAS

Hans-Ulrich von der Eltz and Richard Gross, Frankfurt am Main, and Kurt Petersen and Jurgen Schafer, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

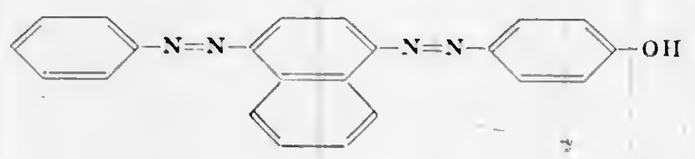
Filed May 10, 1967, Ser. No. 637,457

Claims priority, application Germany, May 11, 1966, F 49,172

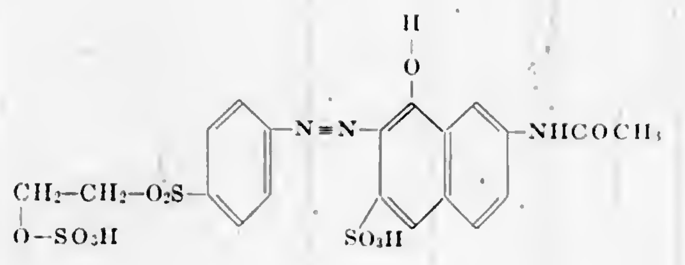
Int. Cl. D06p *3/82*

U.S. Cl. 8—21 **6 Claims**

Process for the simultaneous fixation of disperse and reactive dyestuffs such as



and



respectively, on a fabric such as made of a polyester and cellulose fiber blend by passing a heated gas such as air through said fabric which is trained around a plurality of perforated drums covered with a fine mesh sieve material of a mesh size, of less than 1 mm. and wherein said fabrics are printed or padded with the aforesaid dyestuffs.

3,567,357

DYESTUFF PREPARATIONS FOR THE DYEING OF SYNTHETIC POLYAMIDE OR POLYURETHANE FIBROUS MATERIALS

Edwin Baier, Frankfurt am Main, Günter Kaufmann, Kelkheim, Taunus, and Rudolf Löwenfeld, Buschschlag, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

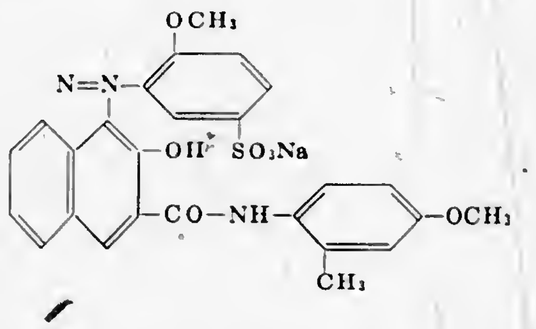
No Drawing. Filed May 14, 1968, Ser. No. 728,875

Claims priority, application Germany, Nov. 21, 1967, F 54,082

Int. Cl. C09b *27/00, 29/20*

U.S. Cl. 8—41 **2 Claims**

Dyestuff preparations for the dyeing of polyamide or polyurethane fibrous materials, characterized by a content of 20–45% by weight of the red azo dyestuff of the formula



0.5–5% by weight of an alkali metal halide, preferably sodium chloride, and 50–79.5% by weight of an inert, organic, nonionogenic, water-soluble compound, preferably sucrose, serving as an extender.

3,567,358

REVERSIBLE CROSS-LINKING OF CELLULOSIC FABRICS

Donald M. Soignet, Metairie, and Ruth R. Benerito and John D. Guthrie, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Aug. 29, 1969, Ser. No. 854,293

Int. Cl. D06m *13/20, 13/34, 13/54*

U.S. Cl. 8—116 **6 Claims**

Cellulosic fabrics are diethylaminoethylated and/or carboxymethylated and thereafter heated at elevated temperatures under vacuum for extended periods of time to form cross-links which may be removed by treatment with steam or alkaline solutions.

3,567,359

TREATMENT OF CELLULOSIC TEXTILE MATERIALS TO PROVIDE FIRE RESISTANCE THERETO

David Blackburn, Shaw, near Oldham, and Edward Haslam, Bolton, England, assignors to Courtaulds Limited, London, England

No Drawing. Filed Aug. 20, 1965, Ser. No. 481,398

Claims priority, application Great Britain, Aug. 21, 1964, 34,227/64

Int. Cl. D06m *13/34*

U.S. Cl. 8—116.2 **14 Claims**

The fire resistance of cellulosic material is improved by impregnating it with a non-volatile inorganic acid, cyanamide, and a halogenated alkyl phosphate and then heating to effect reaction between the cellulose and the impregnants.

3,567,360

METHOD FOR INTRODUCING CARBOXYALKYL AND/OR CARBAMOYLALKYL GROUPS INTO CELLULOSIC TEXTILE MATERIALS AND PRODUCTS THUS PRODUCED

Andrew G. Pierce, Jr., and Robert M. Reinhardt, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

Filed Mar. 6, 1968, Ser. No. 711,023

Int. Cl. C08b *11/06, 11/14;* **D06m** *13/08*

U.S. Cl. 8—116.2 **23 Claims**

Cellulosic textile materials are etherified through treatment with a haloalkylamide or an N-substituted haloalkylamide. The carboxyl group content of the resulting material can be controlled by adjusting treatment conditions.

3,567,361

BIS-PYRROLIDONE-FORMALDEHYDE ADDITION PRODUCTS AND THEIR USE AS CROSSLINKING AGENTS WITH CELLULOSE

Sidney L. Vail, New Orleans, La., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Aug. 29, 1969, Ser. No. 854,292

Int. Cl. C07d *27/08;* **D06m** *13/14, 13/38*

U.S. Cl. 8—116.3 **4 Claims**

A new alkylene bis-pyrrolidone-formaldehyde addition product was prepared by the base catalyzed addition of ethylidenebis-3-(2-pyrrolidone) to formaldehyde in mole ratios of about from 1:1 to 1:3 in aqueous solvent. The neutralized solutions prepared of the new chemical compound were used effectively to crosslink cotton fabrics employing a pad-dry-cure procedure. The resultant fabrics were found to be wrinkle resistant and to have resistance to chlorine damage, and the crosslinks were resistant to acid and basic hydrolysis.

3,567,362

ERASURE OF CONFIGURATIONAL MEMORY IN CROSSLINKED COTTON

Hilda Z. Jung, John B. McKelvey, and Ruth R. Benerito, New Orleans, and Ralph J. Berni, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Nov. 7, 1969, Ser. No. 874,952

Int. Cl. D06m *13/00*

U.S. Cl. 8—120 **3 Claims**

This invention relates to a chemical process by which conditioned and wet crease recovery can be imparted to cotton fabrics and by which the conditioned recovery alone can be removed without destroying the chemical crosslinks formed during the reaction by reacting the fabric with butadienediepoxide, mercerizing the fabric and then either reacting the fabric again with butadienediepoxide or heating the fabric under vacuum for an extended period.

3,567,363

MODIFICATION OF KERATIN TO THE S-SULFO FORM

Leszek January Wolfram, Rockville, Md., assignor to The Gillette Company, Boston, Mass.

No Drawing. Continuation-in-part of application Ser. No. 488,759, Sept. 20, 1965. This application June 27, 1969, Ser. No. 837,366

Int. Cl. A61k *7/10;* **D06m** *3/02*

U.S. Cl. 8—127.51 **1 Claim**

A composition in the form of a particulate mixture of reducing agent including water-soluble sulfite, bisulfite or hydrosulfite with oxidizing agent including water-soluble trithionate, tetrathionate, pentathionate or hexathionate, the composition being useful, when in water solution at pH 4.5–11, for treating hair or wool.

3,567,364

TREATMENT OF FABRICS, SKINS AND FURS

Robert A. James, 4 Grange Court, High St., Pinner, Middlesex, England

No Drawing. Filed Jan. 3, 1967, Ser. No. 606,585

Int. Cl. B08b *3/00*

U.S. Cl. 8—137 **4 Claims**

A composition for treatment of fabrics comprising a solution of water, sulphonated castor oil, glycerine and sodium hydroxide. The method of treating by brushing the surface of fabric with this solution and drying.

3,567,365

MONITORING THE WET PROCESSING OF A MATERIAL

Geoffrey James Parish, Manchester, England, assignor to The Cotton Silk and Man Made Fibres Research Association

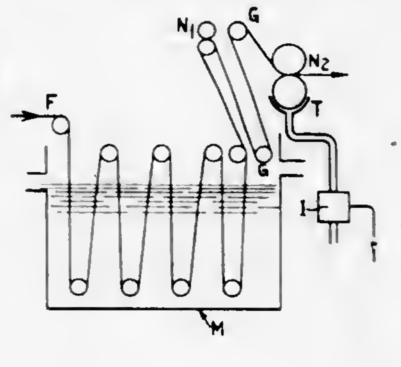
Continuation-in-part of application Ser. No. 525,945, Feb. 8, 1966. This application Apr. 25, 1969, Ser. No. 819,165

Claims priority, application Great Britain, July 24, 1968, 35,296/68

The portion of the term of the patent subsequent to Feb. 10, 1967, has been disclaimed

Int. Cl. D06l *1/00*

U.S. Cl. 8—142 13 Claims



After material leaves apparatus, such as a washing machine or merceriser, in which it is wet processed, the liquid retained by the material is removed in two stages, e.g., by two separate pairs of nip rollers. Most of the liquid is removed in the first stage. Liquid removed in second stage is collected, and its nature, e.g., its pH, examined to give an indication of the characteristics of the material. Signal dependent upon indication may be used to adjust action of the apparatus.

3,567,366

SHORT CHAIN HYDROXYALKYL-, LONG CHAIN ALKYL SULFONIUM SALT ASSISTED DYEING OF NYLON WITH ANIONIC DYES

Hermann Sand, Wachenheim Pfalz, Harry Distler, Ludwigshafen (Rhine), and Willibald Ender, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,788

Claims priority, application Germany, Feb. 14, 1967, P 16 19 359.2

Int. Cl. D06p *5/02*

U.S. Cl. 8—173 **8 Claims**

Process for dyeing or printing textile material of linear polyamide fibers with anionic azo dyes having from one to four sulfonic acid groups in which a tertiary trialkyl sulfonium salt is used as a dyeing assistant, the sulfur atom of the sulfonium salt being substituted by one or two hydroxyalkyl or dihydroxyalkyl substituents of 2 to 3 carbon atoms of the α-carbamoylmethyl-β-hydroxyethyl group with the remaining sulfur substituent being alkyl of 8 to 16 carbon atoms and one of the first mentioned substituents or groups being replaceable by methyl or ethyl.

3,567,367

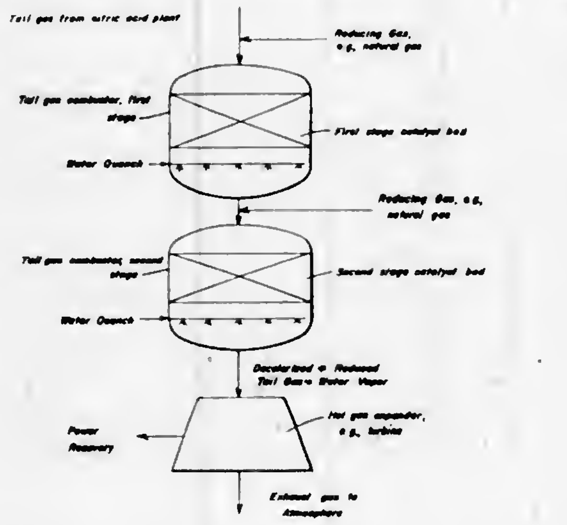
METHOD OF REMOVING NITROGEN OXIDES FROM GASES

Paul Kandell, Matawan, N.J., and George Nemes, New York, N.Y., assignors to W. R. Grace & Co., New York, N.Y.

Filed Aug. 20, 1968, Ser. No. 753,967

Int. Cl. B01d *53/00*

U.S. Cl. 23—2 **5 Claims**


Tail gas from nitric acid plant
Reducing Gas, e.g., natural gas
Tail gas combustor, first stage
First stage catalyst bed
Water Quench
Reducing Gas, e.g., natural gas
Tail gas combustor, second stage
Second stage catalyst bed
Water Quench
Decolorized & Reduced Tail Gas + Water Vapor
Hot gas expander, e.g., turbine
Power Recovery
Exhaust gas to Atmosphere

Improvement in the catalytic reduction of nitrogen oxides in tail gas from nitric acid synthesis, wherein water is added to the tail gas prior to and after final reduction so as to give increased reduction, longer catalyst life, and increased energy available for recovery in the treated effluent.

3,567,368

METHOD FOR PRODUCING RHODIUM CONCENTRATES

Frantisek Nekvasil, Kutna Hora, Dorboslav Dolezal, Rynovice, and Jiri Pelikan, Kutna Hora, Czechoslovakia, assignors to Ustav nerostynych surovin, Kutna Hora, Czechoslovakia

Filed Mar. 29, 1967, Ser. No. 627,594

Claims priority, application Czechoslovakia, Mar. 29, 1966, 2,059/66

Int. Cl. C01g *55/00*

U.S. Cl. 23—51 **2 Claims**

A process for recovering a rhodium concentrate from an acid solution which comprises passing a rhodium containing solution through an anion exchanger column, precipitating cationic rhodium on said anion exchanger until a zone of cationic recovered rhodium is formed and eluting cationic rhodium from said zone.

3,567,369

ION EXCHANGE PROCESS FOR RECOVERING BORATES FROM BRINE

Elie M. Chemtob, Claremont, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,539

Int. Cl. C01b *25/00*

U.S. Cl. 23—59 **12 Claims**

A process for recovering borates from borate-containing brines by contacting a boron-specific resin—for example, an insoluble cross-linked copolymer of a mixture of 85% to 99.5%, on a molar basis, of styrene and 0.5% to 15%, on a molar basis of divinylbenzene, the copolymer having attached to the aromatic nuclei thereof groups of the structure $-\!-CH_2N(CH_3)C_6H_8(OH)_5$ in which the $—C_6H_8(OH)_5$ portion is the sorbityl radical, with a borate-containing brine to load the resin with borates and then eluting the loaded resin with water to remove the borates.

3,567,370

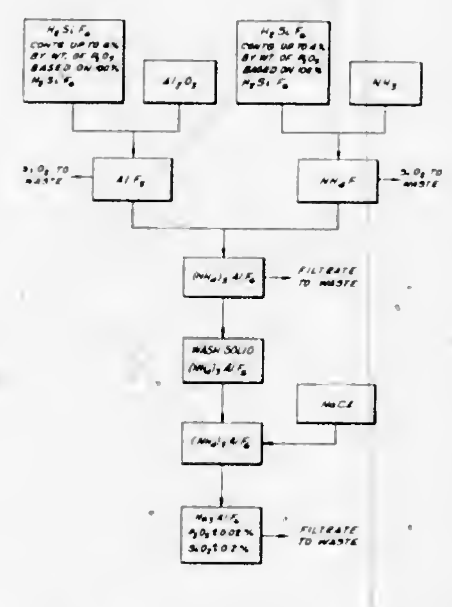
METHOD OF MAKING SYNTHETIC CRYOLITE

Warren E. Clifford, Danville, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Jan. 29, 1969, Ser. No. 795,115

Int. Cl. C01f *7/50, 7/54*

U.S. Cl. 23—88 **6 Claims**


H2SiF6 CONT'G UP TO 4% BY WT. OF P2O5 BASED ON 100% H2SiF6
Al2O3
H2SiF6 CONT'G UP TO 4% BY WT. OF P2O5 BASED ON 100% H2SiF6
NH3
FILTRATE TO WASTE
FILTRATE TO WASTE

Synthetic white sodium cryolite of high purity is made from aluminum fluoride and ammonium fluoride, both compounds being prepared from impure fluosilicic acid containing up to 4% by weight of phosphatic impurities (calculated as P_2O_5 on the basis of 100% fluosilicic acid). The reaction product of ammonium fluoride and aluminum fluoride, i.e., ammonium cryolite, is separated from the impurities and is washed prior to metathesis with sodium chloride. The ammonium cryolite-sodium chloride reaction produces a synthetic sodium cryolite which contains less than 0.02% by weight of phosphatic impurities calculated as P_2O_5 and less than 0.2% by weight of SiO_2. Calcination of the sodium cryolite further reduces the SiO_2 content.

3,567,371

SODIUM CHLORIDE CRYSTALS

James Derek Birchall, Northwich, England, assignor to Imperial Chemical Industries Limited, London, England

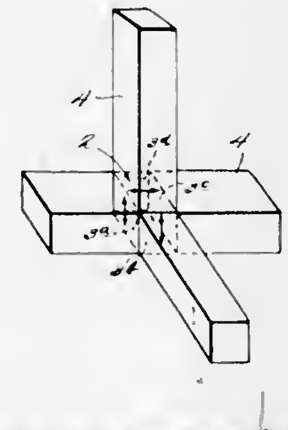
Filed July 28, 1967, Ser. No. 656,678

Claims priority, application Great Britain, Aug. 17, 1966, 36,863/66

Int. Cl. C01d *3/04*

U.S. Cl. 23—89 **4 Claims**

Preparation of a novel crystal form of sodium chloride by evaporating sodium chloride brines containing certain additives. The novel crystal form comprises a cube having rectilinear columns of rectangular, usually square section attached perpendicularly to at least one pair of adjacent faces of the cubes. To the columns themselves can also be attached, perpendicularly, further rectilinear columns, and so on, and the perpendicular positioning holds the crystals apart from one another in the mass and the bulk-density of such a mass is consequently low. The additives include polyvinyl alcohol either alone or in association with polyelectrolytes that give rise to polyanions, and combinations of a water-soluble polyelectrolyte and salts able to yield inorganic ions that form insoluble or sparingly soluble salts with the polyions of the polyelectrolyte. Particularly effective is 1 to 100 parts by weight per million of brine of poly(vinyl alcohol) of molecular weight such that the viscosity of a 1% by weight aqueous solution at 20° C. is 1.1 to 1.6 centistokes; or a combination of 5 to 50 parts of sodium alginate and 250–500 parts of calcium ions by weight per million of brine.



3,567,372

SYNTHETIC CRYSTALLINE ZEOLITE

Heyman Clarke Duecker, Rockville, Md., and Armin Weiss and Carlos R. Guerra, Munich, Germany, assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed July 15, 1968, Ser. No. 744,634

Int. Cl. C01b *33/28*

U.S. Cl. 23—111 **2 Claims**

A synthetic zeolite having a pore diameter of 17 angstroms having a diamond type cubic crystal with lattice spacing $d_{111}=21.1\pm0.2$ angstroms and a unit cell of $a_0=36.7\pm0.3$ angstroms, prepared from aluminate and silicate solutions in the presence of varying amounts of sodium hydroxide.

3,567,373

LOW DONOR CONCENTRATION ZINC OXIDE AND DEVICES UTILIZING SAME

Andrew R. Hutson, Summit, and Robert A. Laudise, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 29, 1967, Ser. No. 686,405

Int. Cl. C01g *9/02*

U.S. Cl. 23—147 **5 Claims**

Effective operation of acoustoelectric devices such as amplifiers, oscillators, circulators, isolators and switches requires high resistivity substantially uncompensated material. Uncompensated zinc oxide, otherwise considered the best material for such devices, has been unsuitable by reason of its large donor concentration. Substantially uncompensated material may now be prepared by a technique involving introduction of (1) lithium during hydrothermal growth, (2) replacement of lithium by zinc by heating in zinc vapor; and (3) out-diffusion of interstitial zinc by baking in oxygen.

3,567,374

UREA DETERMINATION

Donald R. Wybenga, Alhambra, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 24, 1968, Ser. No. 747,117

Int. Cl. G01n *21/22, 21/24, 33/16*

U.S. Cl. 23—230 **10 Claims**

A reagent for the determination of urea nitrogen in biological fluids using the diacetyl monoxime color reaction is prepared by dissolving thiosemicarbazide, a linearity-enhancing amount of urea and a stabilizing amount of a metal salt, preferably cadmium sulfate, in a mixture of phosphoric acid and sulfuric acid. The reagent has improved linearity, stability, photosensitivity and specificity properties. Methods of preparing the reagent and using it in the determination of urea nitrogen are disclosed.

3,567,375

PHOSPHORIC ACID MANUFACTURE FROM GYPSUM AND PHOSPHATE ROCK

William A. Satterwhite, Lakeland, and Fred J. Klem, Brandon, Fla., assignors to United States Steel Corporation, Pittsburgh, Pa.

No Drawing. Filed June 26, 1968, Ser. No. 740,079

Int. Cl. C01b *25/18*

U.S. Cl. 23—165 **10 Claims**

Phosphate rock is digested with sulfuric acid to produce phosphoric acid and calcium sulfate. An alkali metal sulfate, such as potassium or sodium sulfate, is reacted with fluosilicic acid to produce sulfuric acid and the potassium or sodium silicofluoride, the sulfuric acid being recycled to the digestion step. The silicofluoride is calcined with silicon oxide to produce the potassium or sodium silicate and silicon tetrafluoride. The calcium sulfate from the digestion step together with the potassium or sodium silicate are calcined to produce the potassium or sodium sulfate and calcium silicate. Water is added to the silicon tetrafluoride to produce fluosilicic acid, and the potassium or sodium sulfate and the fluosilicic acid are recycled to the reaction step described above for producing the sulfuric acid.

3,567,376

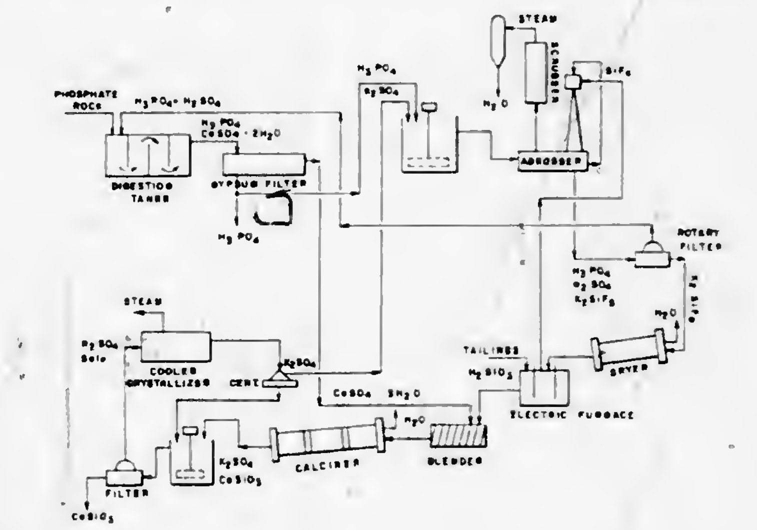
PREPARATION OF PHOSPHORIC ACID FROM GYPSUM AND PHOSPHATE ROCK

William A. Satterwhite, Lakeland, and Fred J. Klem, Brandon, Fla., assignors to United States Steel Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 740,079, June 26, 1968. This application June 27, 1968, Ser. No. 740,711

Int. Cl. B01j *1/00;* **C01b** *25/18, 33/00*

U.S. Cl. 23—165 **12 Claims**



Phosphate rock is digested with sulfuric acid to produce phosphoric acid and calcium sulfate. An alkali metal sulfate is reacted with fluosilicic acid to produce sulfuric acid and the metal silicofluoride, the sulfuric acid being recycled to the digestion step. The silico-fluoride is calcined with silicon oxide to produce the alkali metal silicate and silicon tetrafluoride. The calcium sulfate from the digestion step together with the metal silicate are calcined to produce the metal sulfate and calcium silicate. Water in the form of weak phosphoric recycle is added to the silicon tetrafluoride to produce fluosilicic acid, and the metal sulfate and the fluosilicic acid are recycled to the reaction step described above for producing the sulfuric acid. To reduce the amount of water brought into the system and to reduce evaporation requirements, the metal sulfate may be separated by crystallization and may be dissolved in weak phosphoric acid recycle, and the silicon tetrafluoride may be absorbed in the solution to form the metal silicofluoride which when reacted with recycled fluosilicic acid generates the sulfuric acid.

3,567,377

RECOVERY OF SULFUR VALUES FROM SULFUR-BEARING MATERIALS

Philip A. Lefrancois, Cranford, Kenneth M. Barclay, Stockton, and James P. Van Hook, Basking Ridge, N.J., assignors to Pullman Incorporated, Chicago, Ill.
Filed Aug. 12, 1968, Ser. No. 751,934
Int. Cl. C01b *17/16;* **C10g** *19/08*
U.S. Cl. 23—181 **16 Claims**

A process for the recovery of sulfur from normally solid or liquid carbonaceous material used in a process for producing synthesis gas in which the material is introduced into a carbonate melt of sodium, and/or potassium and the sulfur of the sulfur-containing material is converted to a sulfide. The melt is dissolved in an aqueous solution of the acid salt of the metal carbonate to recover the sulfide in aqueous solution and the solution is then carbonated with carbon dioxide in the presence of an aqueous solution more concentrated in metal bicarbonate than the aqueous solution entering the carbonation zone to produce hydrogen sulfide which can be converted to sulfur and to preceipitate the acid salt of the metal carbonate which is converted to the carbonate and recycled to the process as the alkali metal carbonate melt.

3,567,378

RECOVERY OF MAGNESIUM VALUES FROM MAGNESIUM AND SULFATE CONTAINING AQUEOUS SALT SOLUTIONS

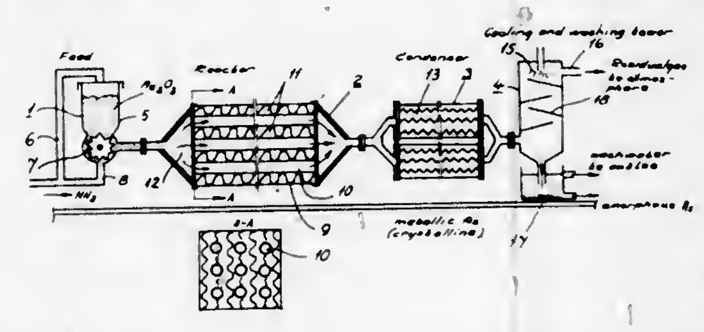
Lockwood W. Ferris, deceased, late of Salt Lake City, Utah, by Tracy Collins Bank and Trust Company, trustee, Salt Lake City, Utah, assignor to National Lead Company, New York, N.Y.
No Drawing. Filed Sept. 18, 1967, Ser. No. 668,711
Int. Cl. C01d *5/00;* **C01f** *5/10, 5/32*
U.S. Cl. 23—201 **8 Claims**

A process for recovering magnesium values from aqueous salt solutions containing magnesium and sulfate ions, comprising the addition thereto of sufficient alkali metal chloride salts, specifically sodium and/or potassium chloride, to provide for conversion of all of the magnesium values to magnesium chloride and also to provide sufficient alakli metal ion to combine with the sulfate vide sufficient alkali metal ion to combine with the sulfate the presence of steam at about 500–750° C., preferably 600–700° C., to convert the magnesium chloride values to magnesium oxide with evolution of hydrogen chloride, water washing the calcinate to solubilize the soluble salts including salts of sodium, potassium, lithium and boron, and separating the magnesium oxide from the solubilized salts. The magnesium oxide obtained in this way is of high purity and may be reacted with hydrochloric acid, such as that evolved from this process, to produce high purity magnesium chloride for use in the electrolytic production of magnesium metal.

3,567,379

METHOD AND APPARATUS FOR PRODUCING METALLIC ARSENIC

Sten Tycho Henriksson, Skelleftehamn, Sweden, assignor to Boliden Aktiebolag, Stockholm, Sweden
Filed Nov. 1, 1968, Ser. No. 772,771
Claims priority, application Sweden, Nov. 10, 1967, 15,469/67
Int. Cl. C22b *33/00*
U.S. Cl. 23—209 **7 Claims**



Method and apparatus for producing metallic arsenic by reducing an arsenic compound in gas phase with ammonia. The method comprises suspending arsenic troxide in a stream of ammonia at a temperature which causes decomposition of the ammonia by the arsenic trioxide and wherein the formed hydrogen reduces the arsenic trioxide to elementary arsenic in a homogeneous gas phase reaction, whereafter the gas mixture is cooled and the arsenic vapour condensed out to crystallinic arsenic.

The apparatus comprises a feed means from which a finely divided arsenic compound distributed in a stream of ammonia is metered to a reactor, where said stream is homogenized by vaporisation of the arsenic compound, a condenser for condensing formed arsenic in elementary crystallinic form, and a gas cleaning tower in which the gas is cleansed of residual arsenic.

3,567,380

CONTINUOUS CARBON FILAMENT PRODUCTION

Bruce Arnold Townsend, Rugby, England, assignor to Courtaulds Limited, London, England
Filed Aug. 26, 1968, Ser. No. 755,262
Int. Cl. C01b *31/07*
U.S. Cl. 23—209.1 **11 Claims**

A process for the production of carbon filaments which comprises feeding organic filamentary material, preferably polycarylonitrile filamentary material, or such material which has already been subjected to a prior heat treatment, continuously in a series of passes through a least one heat treatment zone in which the temperature increases as the filamentary material traverses the successive passes while the direction of travel of the filamentary material in each pass is substantially at right angles to the direction of increasing temperature.

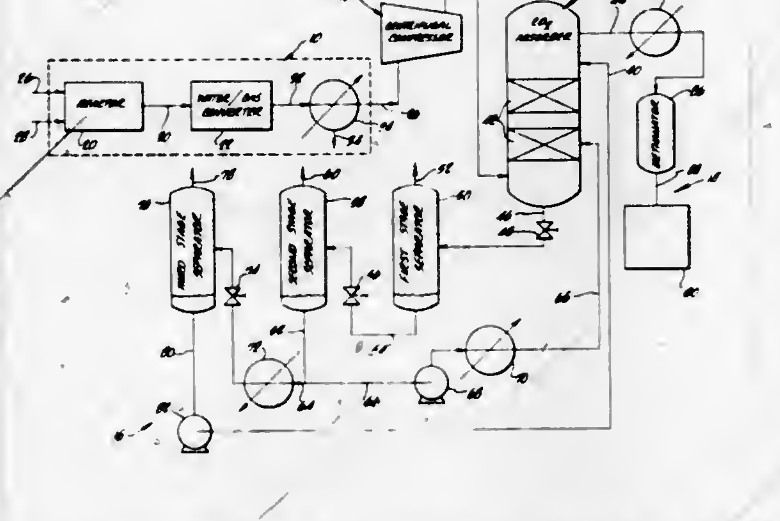
3,567,381

METHOD OF HYDROGEN MANUFACTURE

David K. Beavon, Long Beach, and Theodore R. Roszkowski, Malibu, Calif., assignors to The Ralph M. Parsons Company, Los Angeles, Calif.
Filed Sept. 22, 1967, Ser. No. 669,951
Int. Cl. C01b *1/16*
U.S. Cl. 23—212 **7 Claims**

A hydrocarbon feed material is converted to a stream of hydrogen and carbon dioxide. The stream is compressed by centrifugal compression to a separation pressure and introduced into a carbon dioxide absorber. The carbon dioxide absorber employs a physical solvent to strip carbon dioxide from the compressed stream. The solvent is reclaimed by removing the solvent and solute carbon dioxide from the carbon dioxide absorber and

passing it through successive stages of pressure reduction. In each stage of pressure reduction carbon dioxide comes out of solution and is separated from its solvent.

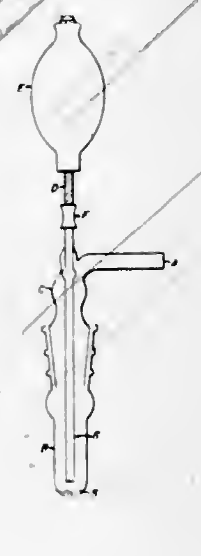


The reclaimed solvent is recycled to the carbon dioxide absorber for reuse in stripping carbon dioxide from hydrogen.

3,567,382

ISOCYANIDE INDICATOR

Eleanor V. Crabtree, Towson, and Edward J. Poziomek, Bel Air, Md., and Daniel J. Hoy, State College, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Apr. 23, 1968, Ser. No. 723,487
Int. Cl. G01n *21/12, 31/06, 31/22*
U.S. Cl. 23—230 **7 Claims**



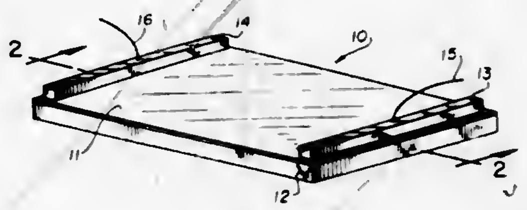
The colorimetric method of detecting the presence of microgram amounts of isocyanide groups in the various chemical compounds or mixtures comprising the steps of placing the chemical compound or mixture upon an inert support medium and then contacting with the detector a benzidine reagent or tetra base reagent producing a blue color indicating the presence of the isocyanide group.

3,567,383

HYDROGEN DETECTORS

Robert C. Langley, Millington, and Leonard R. Rubin, Union, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Newark, N.J.
Filed Oct. 1, 1968, Ser. No. 764,271
Int. Cl. G01n *27/12, 27/26*
U.S. Cl. 23—230 **11 Claims**

A detector for hydrogen has as its sensing device a thin film comprised of palladium or platinum oxide which oxide on contact with hydrogen reduces to the corresponding metal. Differences in properties, e.g. electrical or optical, of the oxide and metallic films are used to detect the presence of hydrogen.



3,567,384

CARBON BLACK PRODUCTION

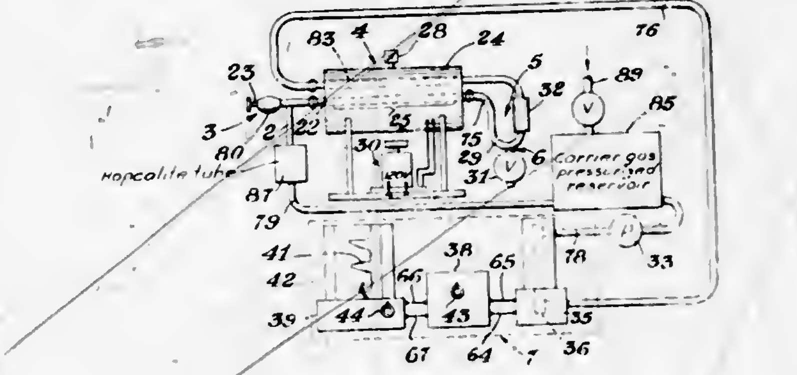
William T. Nelson and Marvin M. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Mar. 24, 1969, Ser. No. 809,934
Int. Cl. C09c *1/48*
U.S. Cl. 23—209.5 **10 Claims**

A process for the production of carbon black by conversion of carbon monoxide in a hydrocarbon medium under reaction conditions above the critical temperature of the carbon monoxide, in the presence of a catalyst which is a dicyclopentadienyl derivative of a Group VIII metal of the Periodic Table.

3,567,385

METHOD AND APPARATUS FOR DETERMINING THE OXYGEN DEMAND OF OXIDIZABLE MATERIALS

Clayton E. Van Hall, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of application Ser. No. 710,249, Mar. 4, 1968. This application Feb. 3, 1969, Ser. No. 801,230
Int. Cl. G01n *31/10, 31/12, 33/16*
U.S. Cl. 2[illegible] **13 Claims**

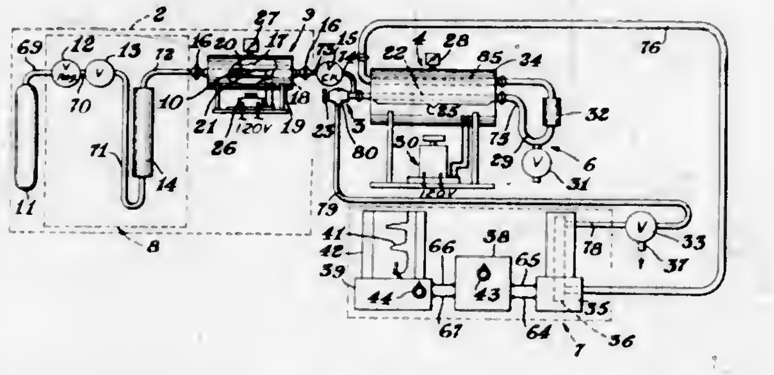


Method and apparatus for determining the oxygen demand of a material containing oxidizable components, which method involves the combustion of a small sample of the material to be analyzed in a heated, continuous stream of carbon dioxide. Carbon monoxide produced as the result of combustion with carbon dioxide relates directly to the total oxygen demand (TOD) of the sample. Hence, quantitative analysis of the combustion gases for carbon monoxide yields a measure of the oxygen demand of the sample. By TOD is meant the net oxygen demand of the sample. Thus, oxygen dissolved in the sample and other oxidant source materials contained in the sample lower the oxygen demand of the sample as it is measured in accordance with the invention.

The carbon dioxide feed gas plus the sample are introduced into a combustion tube, moisture is then removed from the effluent, and the moisture-reduced effluent then is passed through a suitable carbon monoxide detector. The effluent then is processed to convert carbon monoxide therein to carbon dioxide and the thus processed effluent is then pumped at a controlled flow rate and is re-introduced to the combustion chamber.

3,567,386
METHOD AND APPARATUS FOR DETERMINING THE OXYGEN DEMAND OF OXIDIZABLE MATERIALS

Vernon A. Stenger, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of application Ser. No. 710,339, Mar. 4, 1968. This application Feb. 3, 1969, Ser. No. 801,231
Int. Cl. G01n *31/10, 31/12, 33/16*
U.S. Cl. 23—230 **18 Claims**

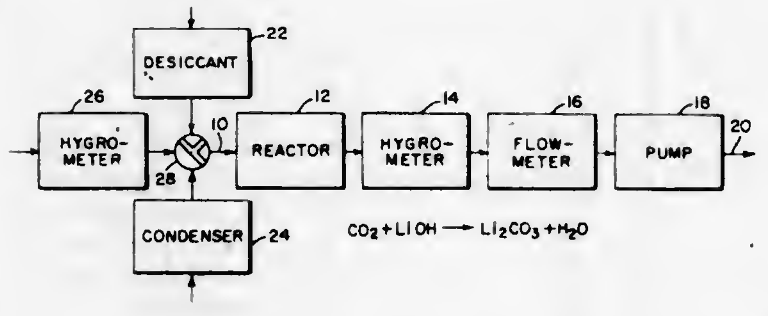


Method and apparatus for determining the oxygen demand of a material containing oxidizable components, which method involves the combustion of a small sample of the material to be analyzed in a heated, continuous stream of carbon dioxide. Carbon monoxide produced as the result of combustion with carbon dioxide relates directly to the total oxygen demand (TOD) of the sample. Hence, quantitative analysis of the combustion gases for carbon monoxide yields a measure of the oxygen demand of the sample. By TOD is meant the net oxygen demand of the sample. Thus oxygen dissolved in the sample and other oxidant source materials contained in the sample lower the oxygen demand of the sample as it is measured in accordance with the invention.

The carbon dioxide feed gas plus the sample are introduced into a first combustion tube, moisture is then removed from the effluent, and the moisture-reduced effluent then is passed through a second combustion tube and thence through a suitable carbon monoxide detector.

3,567,387
CARBON DIOXIDE MONITOR

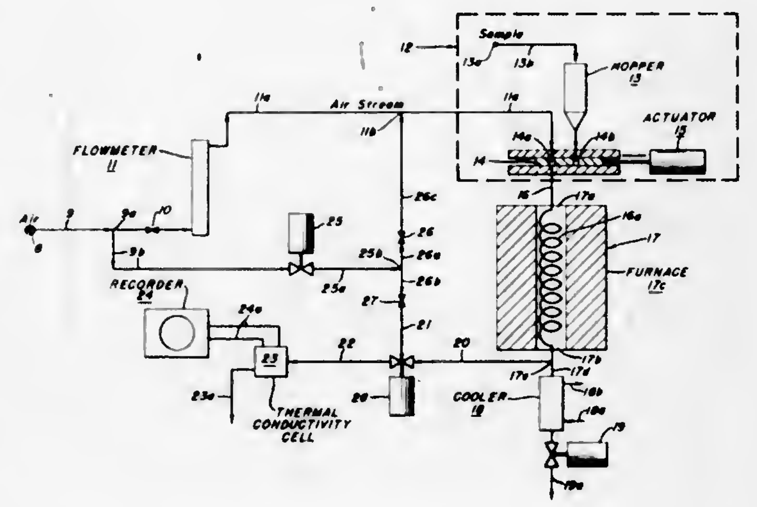
William J. Jones, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 9, 1969, Ser. No. 789,982
Int. Cl. G01n *7/00, 7/14, 7/18, 33/18*
U.S. Cl. 23—232 **9 Claims**



An instrument for automatically and continuously monitoring the carbon dioxide partial pressure as for example in confined atmospheres of habitable environments, by reacting carbon dioxide in a sample gas stream with a hydroxide of an alkali metal or an alkaline earth metal to release water vapor and then measuring the increase in the partial pressure of water vapor in the gas stream, the partial pressure increase being related to the partial pressure of carbon dioxide initially present in the gas stream.

3,567,388
APPARATUS FOR DETERMINING CARBON ON CATALYST

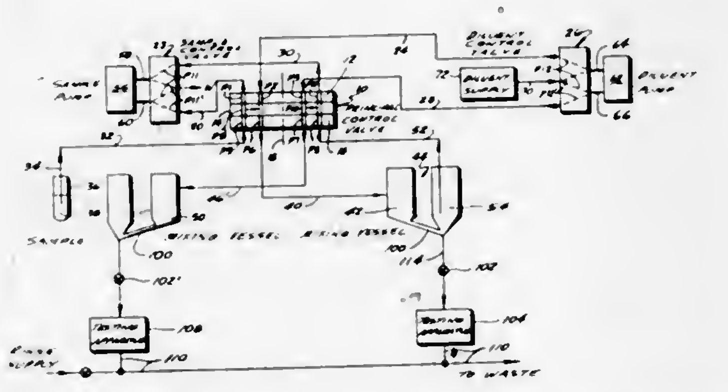
Sixt Frederick Kapff, Homewood, Ill., assignor to Standard Oil Company, Chicago, Ill.
Filed Jan. 30, 1968, Ser. No. 701,632
Int. Cl. G01n *31/10, 31/12*
U.S. Cl. 23—253 **5 Claims**



Apparatus and method for determining the amount of carbon deposited on a catalyst, such as a hydrocarbon cracking catalyst, including combustion means, means for introducing a catalyst having carbon deposits into the combustion means, means for determining and recording the amount of carbon burned off the catalyst, and means for purging the system.

3,567,389
FLUID TRANSFER VALVE STRUCTURE

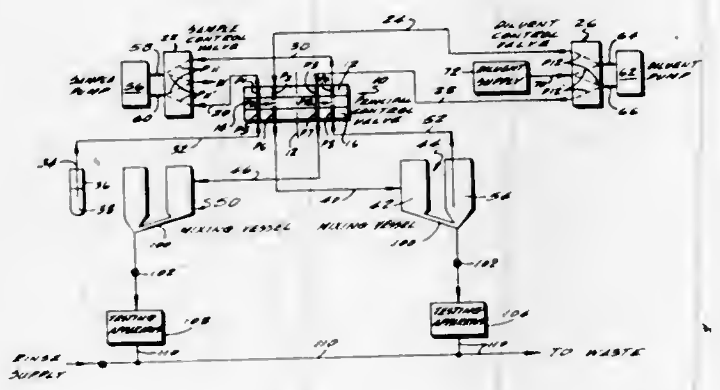
Wallace H. Coulter, Miami Springs, and William F. Rothermel, Hialeah, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.
Filed Apr. 3, 1968, Ser. No. 718,545
Int. Cl. G01n *1/00*
U.S. Cl. 23—253 **12 Claims**



A transfer valve construction for a diluting system which automatically produces one or more sample dilutions of predetermined concentration from a first fluid specimen, while adapted to simultaneously commence dilution of a second fluid specimen before the desired dilutions of said first specimen are completed. The valve including a plurality of members engaged in face-to-face contact, one of which is moveable relative to the remainder of the valve structure and capable of being indexed between a first and a second position. Said valve having a first and second portion for receiving fluid samples, such that when said movable member is indexed a precise amount of said sample is isolated and positioned for combining with a predetermined volume of diluent to produce the requisite dilutions. The valve of the present invention having fluid operated means for biasing the valve members into tight sealing engagement upon the introduction of the liquid specimens and the diluent into said valve but being deenergized to relax said tight engagement during relative movement of the valve members to prolong the work life span of said valve.

3,567,390
FLUID TRANSFER VALVE STRUCTURE AND DILUTING SYSTEM

William F. Rothermel, Hialeah, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.
Continuation-in-part of application Ser. No. 631,284, Apr. 17, 1967. This application Apr. 3, 1968, Ser. No. 718,605
Int. Cl. G01n *1/00*
U.S. Cl. 23—253 **15 Claims**

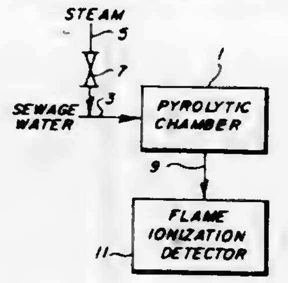


A diluting system for automatically producing one or more sample suspensions or dilutions of predetermined concentration from a first fluid specimen, while simultaneously commencing dilution of a second fluid specimen before the desired dilutions of the first are completed; and a novel transfer valve structure for use therein. The system employing means for drawing a fluid sample into a first portion of the transfer valve, wherein upon indexing of the valve a precise amount of said sample is subtended and mixed with a known quantity of diluent to provide a first fluid suspension of known concentrate. Means for drawing a portion of the first fluid suspension into a second portion of the valve, such that upon indexing of the valve back to its initial position, a precise amount of said first fluid suspension is subtended and mixed with a second volume of diluent to produce a second or final fluid suspension of determinable concentrate.

3,567,391
ANALYSIS FOR BIOCHEMICAL OXYGEN DEMAND

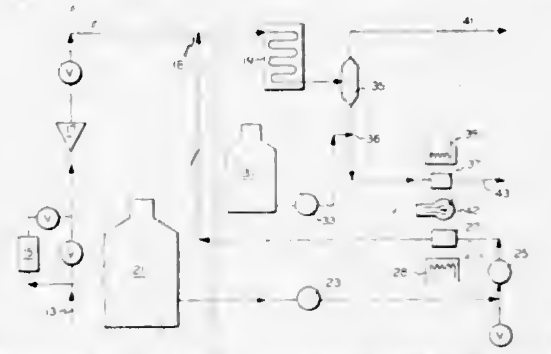
Ihor Lysyj, Canoga Park, and Kurt H. Nelson, Thousand Oaks, Calif., assignors to North American Rockwell Corporation
Continuation-in-part of application Ser. No. 672,190, Oct. 2, 1967. This application Sept. 22, 1969, Ser. No. 859,625
Int. Cl. G01n *31/12, 33/18*
U.S. Cl. 23—230 **5 Claims**

A rapid method for the analysis of waste water for biochemical oxygen demand. The method uses a pyrolysis chamber functionally connected to a hydrogen flame ionization detector so that first a value indicative of total organic content of a sample is determined and then that value is converted by suitable factors to a value indicative of biochemical oxygen demand.



3,567,392
METHOD AND APPARATUS FOR ANALYSIS OF GASES FOR SULFUR DIOXIDE

Ferdinand Schulze, 3205 Fordham Road, Wilmington, Del. 19807
Filed Apr. 23, 1968, Ser. No. 723,419
Int. Cl. G01n *21/28, 31/06, 31/22*
U.S. Cl. 23—232 **5 Claims**



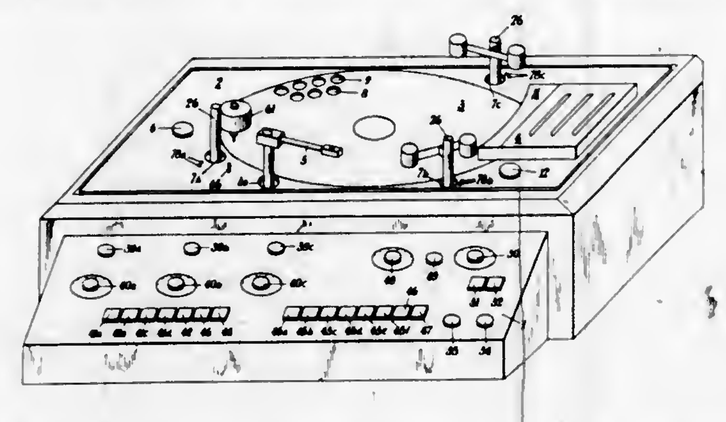
Sulfur dioxide in gas mixtures is determined by absorbing the sulfur dioxide in an alkaline solution containing a p-aminophenyl-azobenzene dye, e.g., p-(p-aminophenylazobenzene) sulfonic acid salt, then reacting with an acidic solution containing formaldehyde to form the more highly colored N-methyl sulfonic acid derivative of the dye and spectrally measuring the dye-derivative solution to determine the amount of sulfur dioxide.

The method is highly suitable for an apparatus for the continuous analysis of air, as in air pollution control, by providing pumping, metering and mixing of the gas and reagent streams in the proper sequence and photometric scanning of the resultant solution.

3,567,393
AUTOMATIC APPARATUS FOR THE DETERMINATION OF FLUIDS AND IN PARTICULAR BIOLOGICAL FLUIDS

Henry H. Welch, Rome, Italy, assignor to Poli-Mak S.r.l., Rome, Italy
Filed Jan. 24, 1968, Ser. No. 700,271
Claims priority, application Italy, July 3, 1967, 37,903/67
Int. Cl. G01n *31/00, 33/16*
U.S. Cl. 23—253 **6 Claims**

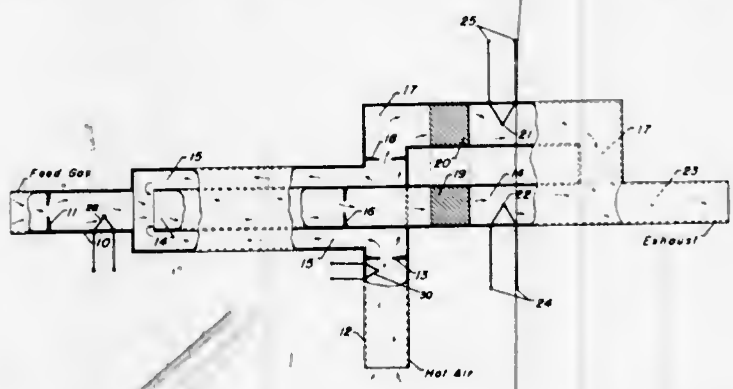
An automatic apparatus for the quantitative determination of fluids having a single motor. Electromagnetic valves control the quantitative addition of reagents. Means are provided for compensation and fine sensitivity control adjustments. An aspiration pump supplies the intermediate aspiration of variable amounts of sample and air by means of interchangeable cams. A single analytical plate is provided for containing the sample cups and the precalibrated reaction-measuring test tubes wherein the complete reaction and the colorimetric measurement is accomplished. The reagent additions is accomplished by gravity controlled by the electromagnetic valves. A transistorized power supply is provided for the colorimetric system which is stabilized for current variations. A power supply is provided for auxiliary circuits independent from the power supply of the colorimetric system and electronic



means programming automatically a plurality of specimens.

3,567,394
IMPURITY DETECTOR FOR GASEOUS STREAMS

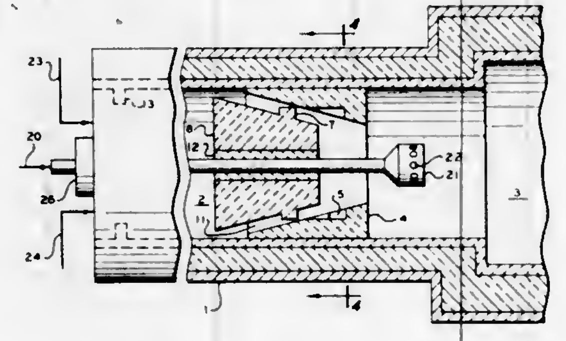
Erwin C. Betz, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed May 16, 1968, Ser. No. 729,718
Int. Cl. G01n *27/00*
U.S. Cl. 23—254 **3 Claims**



System for determining impurity concentration in a gaseous atmosphere. A known impurity gaseous stream and an unknown impurity gaseous stream are passed through parallel conversion zones to produce separate conversion product streams. These separate conversion product streams are passed through detection devices and the signal generated from such devices is quantitatively correlated with the impurity content of the unknown stream.

3,567,395
APPARATUS FOR PRODUCING CARBON BLACK

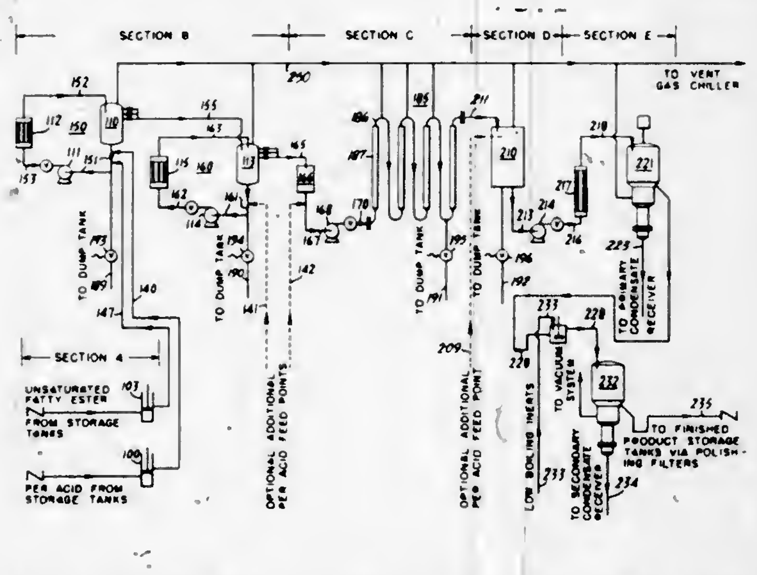
Eulas W. Henderson, Bartlesville, Okla., Glenn J. Forseth, Phillips, Tex., and Sheldon A. Cunningham, Corvallis, Oreg., assignors to Phillips Petroleum Company
Filed Oct. 21, 1968, Ser. No. 769,282
Int. Cl. C01b *31/00;* **C09c** *1/48*
U.S. Cl. 23—259.5 **9 Claims**



A choke for an axial type carbon black reactor which consists of an element slidably positionable along the axis of the axial tunnel, the passageway through the choke being adapted to be altered in respect to area.

3,567,396
APPARATUS FOR PREPARING EPOXIDIZED ORGANIC COMPOUNDS WHICH INCLUDES MORE THAN ONE REACTION ZONE

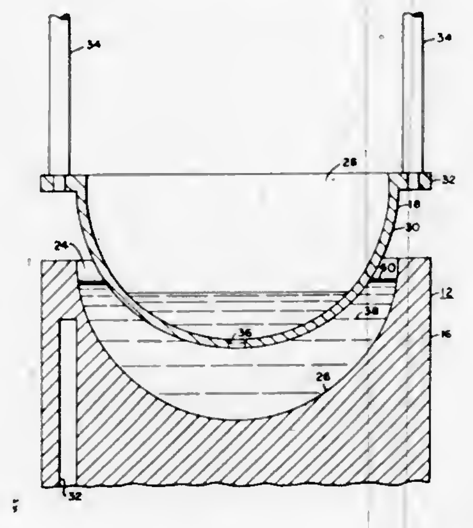
William E. Setzler, Jr., Seaford, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y.
Application Feb. 3, 1966, Ser. No. 533,109, now Patent No. 3,458,536, dated July 29, 1969, which is a continuation-in-part of application Ser. No. 440,856, Mar. 18, 1965. Divided and this application May 12, 1969, Ser. No. 858,211
Int. Cl. B01d *3/00*
U.S. Cl. 23—263 **5 Claims**


SECTION B
SECTION C
SECTION D
SECTION E
TO VENT GAS CHILLER
SECTION A
UNSATURATED FATTY ESTER FROM STORAGE TANKS
PER ACID FROM STORAGE TANKS
TO DUMP TANK
OPTIONAL ADDITIONAL PER ACID FEED POINT
LOW BOILING INERTS
TO FINISHED PRODUCT STORAGE TANKS VIA POLISHING FILTERS

Apparatus for the epoxidation of unsaturated organic compounds is provided comprising a plurality of reaction zones in series, in circulating interconnected relationship, including a back-mix stirred-pot reaction zone and a nonrecirculating traverse reaction zone, with means for supplying to the zone reactants including a per acid epoxidizing agent and unsaturated organic compound, and means for withdrawing a predetermined proportion of reaction mixture from the back-mix reaction zone, and delivering this to the nonrecirculating traverse zone.

3,567,397
APPARATUS FOR OBTAINING A DROSS-FREE CRYSTALLINE GROWTH MELT

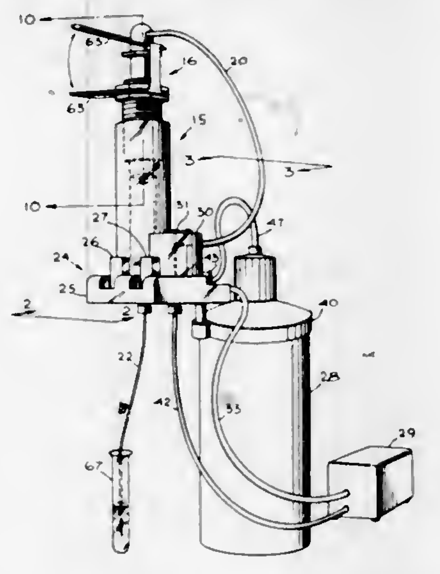
Sydney O'Hara, Menlo Park, Calif., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 11, 1967, Ser. No. 674,448
Int. Cl. B01j *17/00*
U.S. Cl. 23—273 **7 Claims**



This invention provides apparatus for growing webbed dendritic semiconductor material from a melt substantially free of any dross on the surface of the melt. The apparatus comprises a two component crucible, consisting of an inner shell and an outer shell. The melt is formed in the outer shell. The inner shell, axially aligned with the outer shell, has a vertical displacement means attached to it. The inner shell is lowered into the melt of the outer shell and dross free melt is forced through an aperture in the apex of a cavity of the inner shell forming a pool of dross free melt therein. From this dross free melt the webbed dendritic semiconductor material is grown.

3,567,398
SEMI-AUTOMATIC PIPETTING AND DILUTER DEVICE

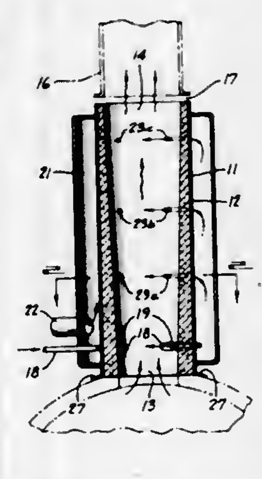
Andrew F. Farr, South Gate, Calif., assignor to Farr Devices, Inc., Southgate, Calif.
Filed Oct. 23, 1968, Ser. No. 769,825
Int. Cl. B01l *3/02;* **G01f** *11/28*
U.S. Cl. 23—259 **7 Claims**



A laboratory apparatus for semi-automatically accurately measuring out a volume of diluting reagent and also accurately measuring out a volume of a liquid sample for analysis, and for discharging both liquids into a reaction vessel, with pre-set or adjustable volumes for both liquids. The operation is effected by means of a small motor driven air pump which provides air at increased or reduced pressures as required, and an air-permeable but hydrophobic porous membrane serves to fix the liquid level in the measuring pipette.

3,567,399
WASTE COMBUSTION AFTERBURNER

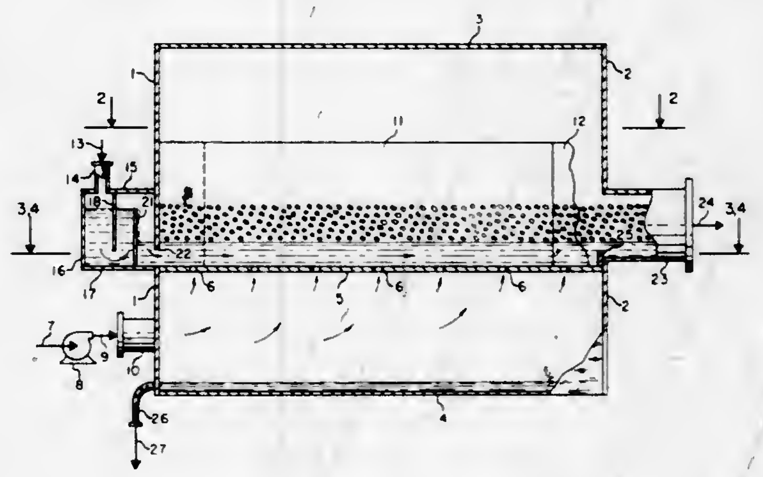
Berton G. Altmann, Los Gatos, and John D. Bailey, San Jose, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed June 3, 1968, Ser. No. 733,919
Int. Cl. F23c *9/04*
U.S. Cl. 23—277 **3 Claims**

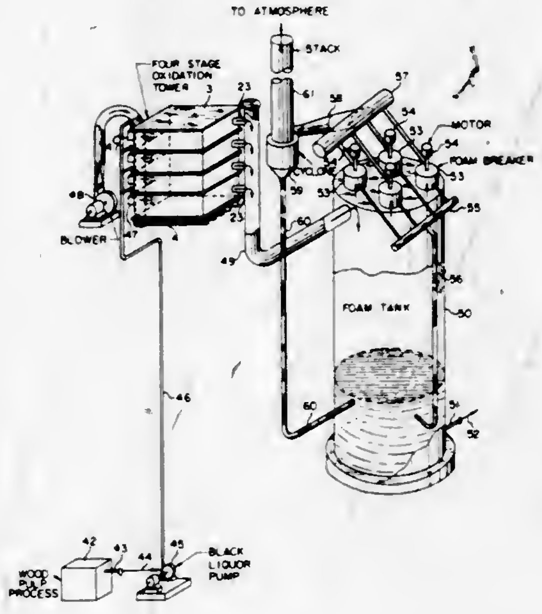


An afterburner for oxidizing gaseous wastes comprises an elongated, frustoconical refractory chamber of increasing internal cross-sectional area from entrance to exit. Near the entrance end, heat is introduced into the chamber to raise the temperature of the gaseous waste products to the point where they will spontaneously oxidize when mixed with fluent oxidizer. The fluent oxidizer (e.g., air) is introduced in spaced sequential fashion along the length of the chamber.

3,567,400
APPARATUS FOR OXIDATION OF BLACK LIQUOR

Indravadan S. Shah, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.
Filed Apr. 1, 1968, Ser. No. 717,740
Int. Cl. C01b *17/22;* **D21c** *11/02*
U.S. Cl. 23—260 **4 Claims**

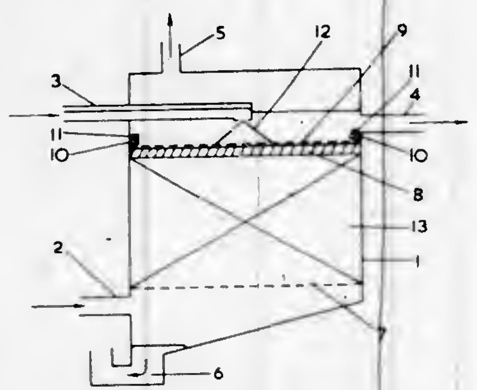




The apparatus for black liquid oxidation features a vertically oriented container which is provided with an internal horizontal perforated plate and at least one internal vertical baffle plate which extends upwards from the horizontal perforated plate. An air stream is passed via a fan or blower into the container below the perforated plate and air stream portions rise through the perforations. A stream of black liquor is passed via a pump and liquor seal inlet box into one end of the container above the perforated plate, and flows horizontally across the upper surface of the perforated plate parallel with and around the ends of the vertical baffle plates in a sinuous or serpentine flow path. The black liquor stream thus flows transverse to and in contact with the air stream portions rising through the plurality of perforations. The air stream portions are thereby dispersed into the black liquor stream, and the black liquor is oxidized with the concomitant generation of a foam. The resulting mixture of air, foam and oxidized black liquor is removed horizontally from an outlet end of the container above the perforated plate, via a substantially horizontal outlet conduit usually provided with a lower weir or other means for maintaining a liquor level on the perforated plate, and the mixture is passed to a vertically oriented defoaming vessel, which is provided with a lower outlet for removal of oxidized black liquor free of foam, upper mechanical means for breaking foam into separate liquid and gaseous phases, so that the liquid phase returns to the main body of oxidized liquor in the lower part of the vessel, and means to discharge the separated gaseous phase to atmosphere.

3,567,401
VERTICAL DENUDERS

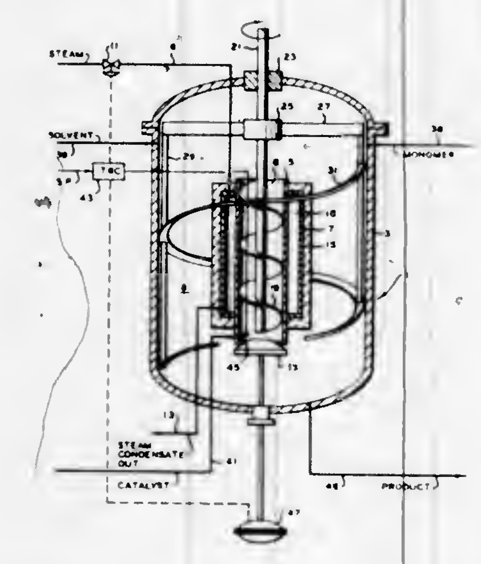
Geoffrey Thomas Sheppard and Ronald Geoffrey Cottam, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
Filed May 5, 1967, Ser. No. 636,531
Claims priority, application Great Britain, May 31, 1966, 24,224/66
Int. Cl. C01d *1/04*
U.S. Cl. 23—283 **12 Claims**



A vertical alkali-metal amalgam denuder having a resilient holding-down plate to prevent attrition of the graphite packing. The holding-down plate is preferably in the form of a resilient bed of material (e.g. wire mesh) having a thickness of at least one inch.

3,567,402
REACTOR WITH AXIALLY DISPOSED HEATED TUBE WITH VALVE

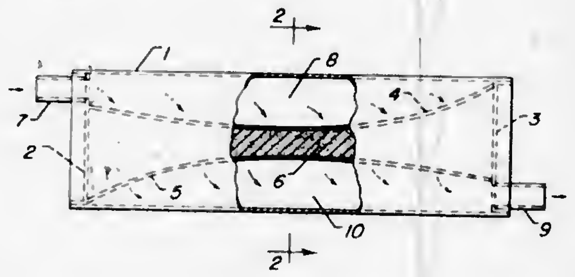
Don C. Christensen, Bartlesville, Okla., assignor to Phillips Petroleum Company
Original application Nov. 2, 1964, Ser. No. 408,184, now Patent No. 3,438,952, dated Apr. 15, 1969. Divided and this application Jan. 17, 1969, Ser. No. 792,080
Int. Cl. C08f *1/98*
U.S. Cl. 23—285 **3 Claims**



An adiabatic reactor has axially positioned therein a vertical jacketed tube provided with an auger to circulate material through the tube, said tube having a valve means at the bottom thereof to restrict circulation. Temperature within the jacketed tube is sensed and signal generated thereby utilized to control heat to said jacket and to open said valve.

3,567,403
EXHAUST GAS CATALYTIC CONVERTER

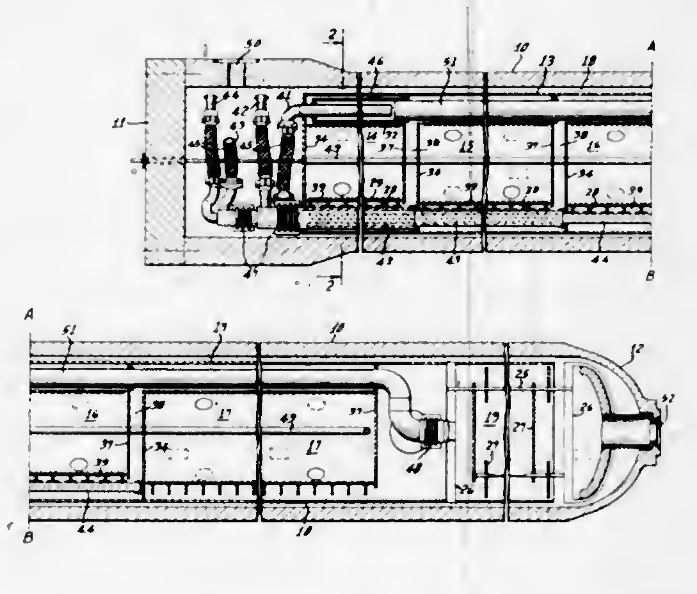
Martin W. Perga, Hoffman Estates, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Jan. 29, 1969, Ser. No. 795,122
Int. Cl. B01j *9/04*
U.S. Cl. 23—288 **4 Claims**



In a catalytic converter unit having a fixed bed of catalyst particles, the improved construction which uses a pair of opposing perforated members to support the catalyst therebetween and each of the perforated members is of a dished design that is positioned to be convex inwardly toward the catalyst such that particles will be held in a tight non-settling manner when the unit is subjected to expansion from high temperature operating conditions.

3,567,404
REACTOR VESSEL

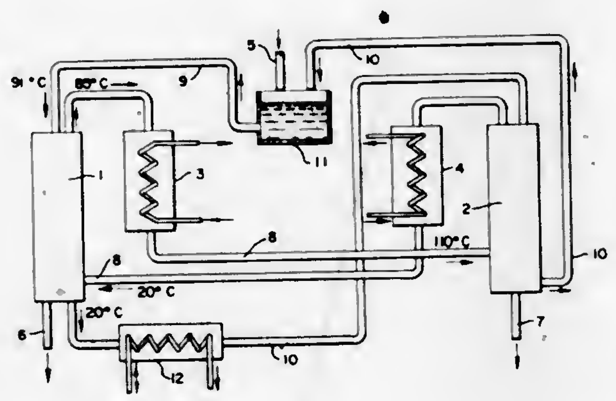
Leonard C. Axelrod, Elizabeth, and Raymond S. Eagle, New Shrewsbury, N.J., James B. Fleming, Old Greenwich, Conn., and Gerhard M. Kahn, Flushing, and Orlando J. Quartulli, New York, N.Y., assignors to Pullman Incorporated, Chicago, Ill.
Filed Aug. 18, 1967, Ser. No. 661,673
Int. Cl. B01j *9/04*
U.S. Cl. 23—289 **5 Claims**



A reactor vessel having an outer shell, a heat exchanger and an inner shell, the inner shell containing a series of catalytic reaction beds having their entrance areas disposed parallel to the longitudinal axis of the outer and inner shells.

3,567,405
PROCESSING CRUDE POTASH SALTS USING DIRECT CONTACT HEAT EXCHANGER

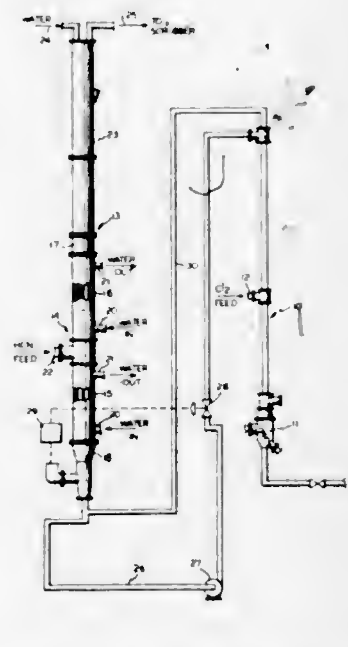
Hans Hoppe, Sondershausen, and Manfred Schubert, Dresden, Germany, assignors to Kali-Forschungsinstitut, Sondershausen, Postfach, Germany
Filed Jan. 5, 1968, Ser. No. 695,920
Int. Cl. B01d *9/02;* **C01d** *3/08*
U.S. Cl. 23—299 **2 Claims**



Crude potash salt is treated to obtain a coarse-grained salt mixture having a higher K content, which is suitable for use as fertilizer, by directly contacting a hot solution of the soluble components of the crude salt with an inert heat transfer medium insoluble in said solution and at a lower temperature, in countercurrent flow, to cool the solution and thereby precipitate the desired salt mixture by crystallization and then directly contacting the resultant cooled residual solution with the resultant heated heat transfer medium, in countercurrent flow, to heat the residual solution for dissolution therein of an additional quantity of the crude potash salt to be processed by the same steps.

3,567,406
METHOD AND APPARATUS FOR PRODUCING CYANOGEN CHLORIDE USING A FLOODED REACTOR

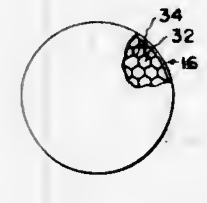
William John Evers, Mobile, Ala., assignor to Geigy Chemical Corporation, Ardsley, N.Y.
Filed Feb. 17, 1967, Ser. No. 616,875
Int. Cl. B01j *7/02;* **C01b** *7/08;* **C01c** *3/00*
U.S. Cl. 23—359 **6 Claims**



A reaction column flooded with a reaction medium is placed between a packed stripping column into which the reaction medium is pumped from the lower end of the flooded reaction column and a packed scrubbing column which is above the reaction column and into which gases from the reaction column flow to be scrubbed. Chlorine is fed from the stripping column into the bottom of the reaction column, hydrogen cyanide is fed into the middle of the reaction column, and water is fed into the top of the scrubbing column. The heat of reaction is removed from the flooded reactor by passing a cooling fluid around the outside of the reaction medium in the reaction column. Cyanogen chloride which has been scrubbed to remove hydrogen cyanide as it passes up the scrubbing column is removed from the top of the scrubbing column as a gas. The reaction medium is passed into the stripping column into which chlorine is fed and in the bottom of which is a steam reboiler, and in which the reaction medium is stripped of dissolved cyanogen chloride and chlorine and from the bottom of which is removed aqueous hydrochloric acid at concentrations up to about 26%.

3,567,407
COMPOSITE MATERIALS

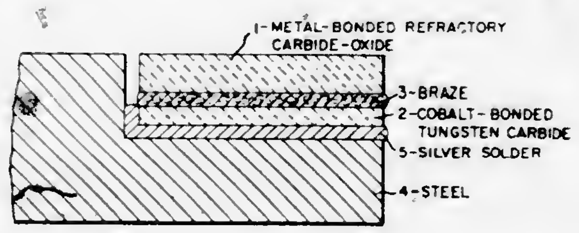
Jack A. Yoblin, South Acton, Mass., assignor to Whittaker Corporation, Los Angeles, Calif.
Filed June 27, 1966, Ser. No. 560,648
Int. Cl. B21c *23/22;* **B32b** *15/00*
U.S. Cl. 29—191.4 **10 Claims**



A composite structure is formed from a plurality of extended filamentary fibers, each coated with a protective cladding. The fibers are aligned parallel to each other, bundled together in an extrusion canister, and coextruded to form a monolithic structure in which the cladding forms a continuous, honeycomb-type matrix uniformly extrusion-bonded to the fibers and separating them from each other. The fibers are chosen for their high strength while the protective cladding is chosen for its ability to protect the fibers from their environment or from each other.

3,567,408
LAMINATED CARBIDE-OXIDE COMPOSITE

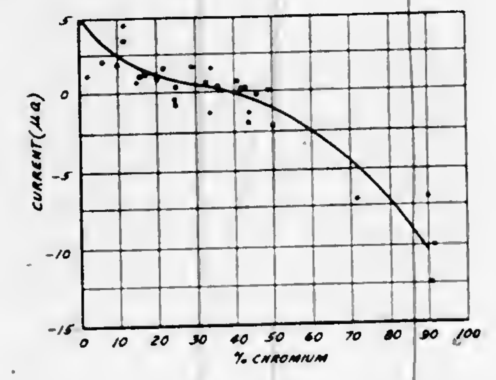
Dong M. Chay and Ralph K. Iler, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 25, 1968, Ser. No. 784,999
Int. Cl. B32b *15/16*
U.S. Cl. 29—195 **12 Claims**


1-METAL-BONDED REFRACTORY CARBIDE-OXIDE
3-BRAZE
2-COBALT-BONDED TUNGSTEN CARBIDE
5-SILVER SOLDER
4-STEEL

Disclosed are composite structures comprising (1) a dense, metal-bonded refractory carbide-oxide element metallurgically bonded with a copper-alloy to (2) a dense, cobalt-bonded tungsten carbide element having a substantially uniform coefficient of thermal expansion of from 0.5 to 1.5 times that of said carbide-oxide element. The composites are particularly useful as cutting edges for milling and turning cast iron and hardened steels.

3,567,409
SHEET STEEL COATED WITH AN ALUMINUM ALLOY

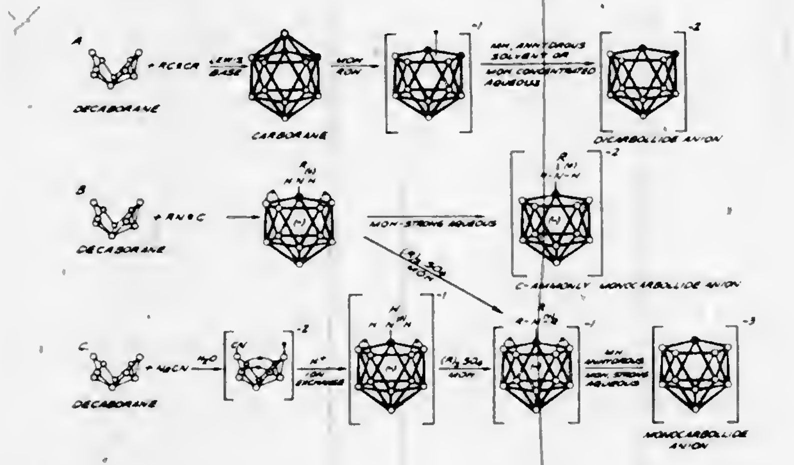
Bernard C. Seiler, Bethlehem, Pa., assignor to Bethlehem Steel Corporation
Filed Nov. 15, 1967, Ser. No. 684,901
Int. Cl. B32b *15/18, 15/20*
U.S. Cl. 29—196.2 **5 Claims**



A steel sheet, coated with an alloy of aluminum and chromium or titanium, for use as a container for beer. The coating composition is selected so that any galvanic current between the steel and the coating is minimal.

3,567,410
HYDROCARBON COMPOSITIONS CONTAINING CARBOLLYL METAL COMPLEXES

Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
Filed Dec. 11, 1967, Ser. No. 689,527
Int. Cl. C10l *1/28*
U.S. Cl. 44—68 **9 Claims**

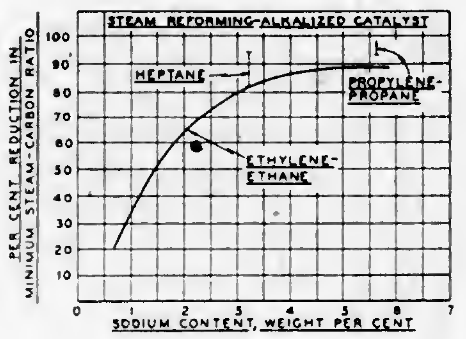


The invention comprises the use of carbollyl metal complexes as additives in hydrocarbon fuels and lubricants where they function as combustion improvers, antiknock agents and extreme pressure agents. Specific embodiments include use in fuels for spark and compression ignition engines, jet engines and rockets.

3,567,411
PROCESS FOR THE PRODUCTION OF GASEOUS PRODUCT CONTAINING HYDROGEN AND METHANE

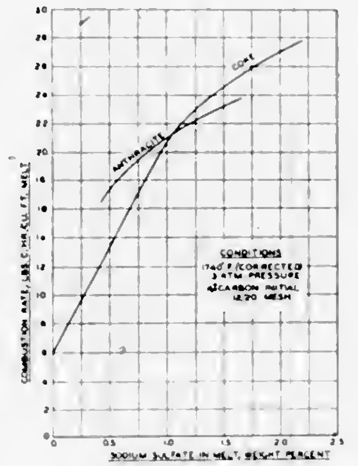
Joseph F. McMahon, Iselin, N.J., assignor to Pullman Incorporated, New York, N.Y.
Original application Apr. 5, 1963, Ser. No. 270,892, now Patent No. 3,417,029, dated Dec. 17, 1968. Divided and this application Aug. 26, 1968, Ser. No. 826,031
The portion of the term of the patent subsequent to Jan. 28, 1981, has been disclaimed
Int. Cl. C01b *1/16, 2/16;* **C10g** *11/28*
U.S. Cl. 48—197 **3 Claims**

A process for the conversion of hydrocarbons with steam to produce gaseous product containing hydrogen and methane, or town's gas, which comprises contacting the hydrocarbon and steam with a particular catalyst at a temperature between about 600° F. and about 1000° F. such that there is substantially no deleterious carbon deposition on the catalyst. The catalyst employed contains elemental nickel or a compound of nickel, an oxidic refractory material, and at least 0.5 weight percent of an alkali metal compound, expressed as alkali metal.



3,567,412
GASIFICATION OF CARBONACEOUS FUELS

Philip A. Lefrancois, Cranford, and Kenneth M. Barclay, Stockton, N.J., assignors to Pullman Incorporated, Chicago, Ill.
Filed Aug. 12, 1968, Ser. No. 751,932
Int. Cl. C10j *3/16;* **C10g** *9/34*
U.S. Cl. 48—202 **20 Claims**

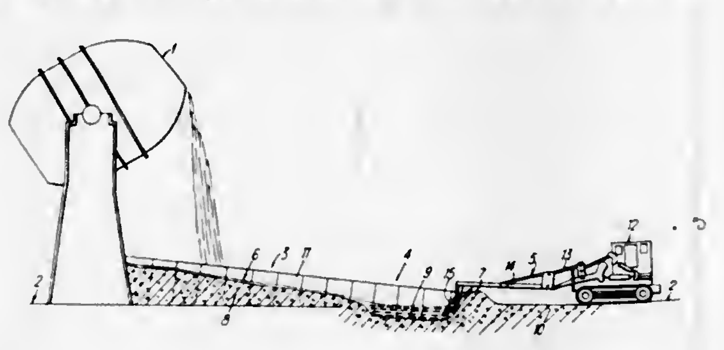


A method for improving the gasification and combustion rates of carbonaceous materials in a reaction zone containing a melt comprising essentially an alkali metal carbonate by maintaining at least a critical minimum concentration of 0.4 weight percent of sodium sulfate in the reaction melt and the viscosity of the melt is maintained between about 10 and about 150 centipoises.

3,567,413
METHOD FOR THE DISPOSAL OF MOLTEN SLAG

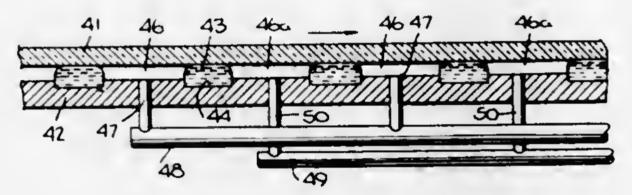
William B. Y. Miller, Glasgow, Scotland, assignor to Colvilles Limited, Glasgow, Scotland
Continuation-in-part of application Ser. No. 555,591, June 6, 1966. This application Apr. 7, 1969, Ser. No. 822,817
Int. Cl. C03b *5/08*
U.S. Cl. 65—19 **1 Claim**

In a process for forming hard slag lumps from molten slag, the molten slag is poured from an L–D type steelmaking vessel into a receiver having a destructible wall made of cool hard slag lumps comparable in size to the slag-lumps product desired, and a mobile boom-and-blade implement is then manipulated to treat the substantially uncooled pouring with the cool slag lumps of the wall, the treatment including adding the cool slag lumps of the wall to the molten slag pouring and agitating together in the atmosphere the added slag lumps and the molten slag to effect cooling and fragmentation of the molten slag and air-cooling of the molten fragments to slag lumps which are readily removable with the added slag lumps from the vicinity of the vessel.



3,567,414
METHOD AND APPARATUS FOR SUPPORTING GLASS SHEET BY COMBINED ACTION OF LIQUID AND GAS

Stephane Dufaure de Lajarte, Paris, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
Continuation-in-part of application Ser. No. 337,066, Jan. 10, 1964, now Patent No. 3,410,672. This application Dec. 26, 1967, Ser. No. 693,515
Claims priority, application France, Jan. 12, 1963, 921,331
Int. Cl. C03b *18/00, 39/00*
U.S. Cl. 65—25 **9 Claims**

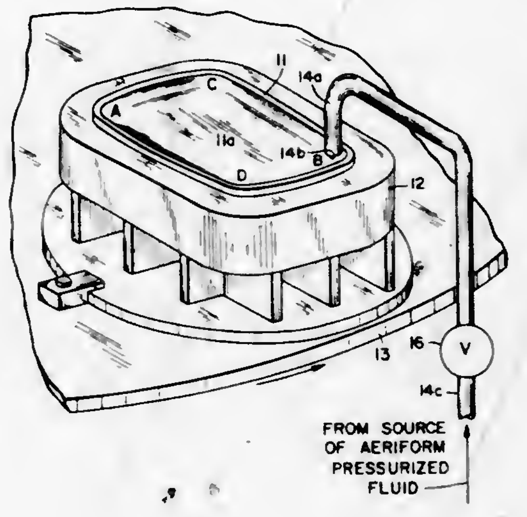


Moving molten sheet glass is supported on liquid lands forming annuli within which gas under pressure combines to support the sheet in a flat condition. Lengths of drawn material, such as glass sheet, are sequentially passed over and in fluid-tight contact with liquid or molten metal lands forming enclosures of respective areas of the sheet instantaneously contacted and supported by the lands, while passing treating fluid into such enclosures to effect a predetermined treatment of the glass. The treating fluids are under low pressure, which assists in supporting the sheet.

3,567,415
METHOD OF CORRECTING CONTOURS OF TELEVISION VIEWING PANELS

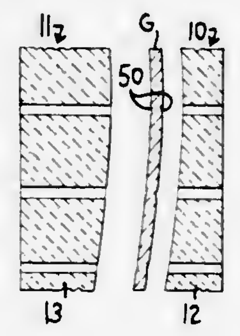
Lynn A. Carpenter, State College, Pa., assignor to Corning Glass Works, Corning, N.Y.
Filed Sept. 16, 1968, Ser. No. 759,957
Int. Cl. C03b *11/02*
U.S. Cl. 65—69 **2 Claims**

A method of correcting the contours of the face plates of rectangular press-formed glass viewing panels for television picture tubes prior to the removal of the panels from their forming molds. The method comprises directing a stream of low pressure pressurized aeriform cooling fluid into the interior of the panels at a selected area of each of the face plates thereof and substantially normal to the chord of the curvature of said areas of the face plates. The cooling effect of said cooling fluid causes said panels to separate from their forming molds more than usual in said area and thereby change the shape or contour of the panels.



3,567,416
METHOD OF PRESS BENDING GLASS SHEETS

George W. Stilley, Freeport, and Joseph D. Kelly, Cheswick, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Filed Jan. 19, 1968, Ser. No. 699,131
Int. Cl. C03b *23/02*
U.S. Cl. 65—106 **4 Claims**

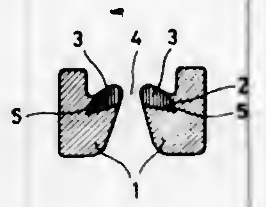


Press bending glass sheets between shaping molds having controlled temperature during the press bending operation. The temperature of the molds is controlled within a temperature range such that when the molds engage the glass surfaces shaping the latter, they cool the glass surfaces at approximately the same cooling rate as the ambient atmosphere in spaces throughout the mold faces.

3,567,417
NOZZLE FOR DRAWING CORD-FREE PLATE GLASS

Ernst Winter, Weiden, Upper Palatinate, Germany, assignor to Flachglas-Aktiengesellschaft Delog-Detag, Furth, Bavaria, Germany
Filed July 10, 1968, Ser. No. 743,846
Claims priority, application Germany, Dec. 20, 1967, D 54,908
Int. Cl. C03b *15/02*
U.S. Cl. 65—193 **2 Claims**

A nozzle for drawing cord-free plate glass, comprising a chamotte nozzle body having a straight slot extending essentially the entire width of the nozzle body and tapered at both its ends, through which slot the molten glass is extracted for drawing, and liner inserts secured in said body and conformed to the shape of the nozzle slot and extending over its entire useful length. The inserts have a wedge-shaped cross-section and are lodged in a correspondingly shaped portion of a recess in the body to prevents any lifting-off of the liner inserts, the liner inserts being constituted of sintered molybdenum disilicide.

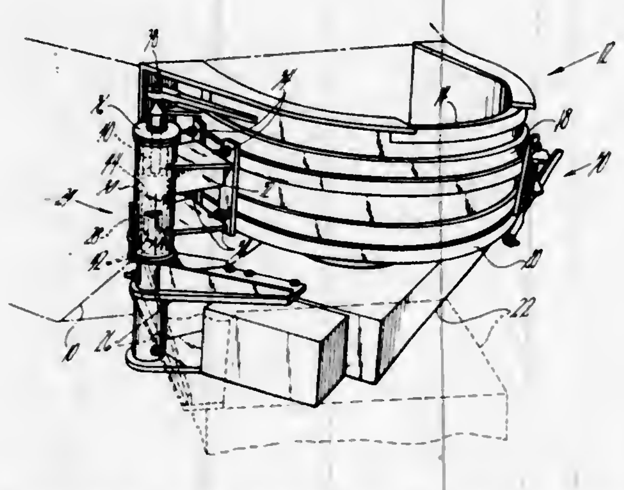


3,567,418

STRAIGHT LINE SHEAR FRAME MOUNTING MECHANISM

Harald Hoette, Farmington, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Apr. 29, 1968, Ser. No. 725,118
Int. Cl. C03b *5/26, 5/38*

U.S. Cl. 65—325 **5 Claims**



A rectangularly shaped frame for a plurality of straight line shears is pivotally mounted on a pivot post carried on one side of a glass feeding apparatus spout casing so that the frame is movable from and to a position beneath the outlet spout. The pivot post is rotatably supported in a bracket which is adjustably mounted on arcuately shaped gibs defined on the spout casing, and said post is vertically adjustable in this bracket. The gibs on the casing also carry a toggle clamp, which clamp is also adjustably mounted thereon to engage a clamp plate provided on a diagonally opposite corner of the shear frame from the corner associated with the pivot post.

3,567,419

PLANT GROWTH REGULANT MATERIAL

Ronald Alfred Dean, Laleham, John Sidney Ashford, Hampton Hill, and Patrick Gould, Woodham, near Weybridge, England, assignors to The British Petroleum Company Limited, London, England
No Drawing. Continuation of application Ser. No. 509,439, Nov. 23, 1969. This application Apr. 22, 1969, Ser. No. 818,455
Claims priority, application Great Britain, Nov. 24, 1964, 47,722/64, 47,723/64
Int. Cl. C05f *11/00*

U.S. Cl. 71—11 **4 Claims**

A method of treating soil to improve its ability to promote and support plant life is provided which comprises adding to the soil a solid, water-insoluble plant growth regulant consisting essentially of an aromatic-containing petroleum fraction, modified to contain, in chemically bound form, at least one component selected from the group consisting of the essential plant nutritive elements and ionic groups. These modified materials are solid and water-insoluble and depending on the nature of their chemical modification, act either as slow release fertilisers or soil-ion retention media or both.

3,567,420

USE OF CERTAIN POLYAMINES AS ANTIMICROBIAL AGENTS

Marvin Legator, Rockville, Md., and Calvin A. Page, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation of application Ser. No. 513,569, Dec. 13, 1965. This application Apr. 8, 1969, Ser. No. 816,163
Int. Cl. A01n *9/20*

U.S. Cl. 71—67 **9 Claims**

Use of certain reaction products of amines and polyepihalohydrins, salts thereof and corresponding quaternary ammonium derivatives for controlling microorganisms.

3,567,421

TREATMENT OF MUNG BEAN SEEDS

Dale H. Pape and William E. Neel, Archbold, Ohio, assignors to Beatrice Foods Co., Chicago, Ill.
No Drawing. Filed Mar. 14, 1969, Ser. No. 807,420
Int. Cl. A01n *21/02*

U.S. Cl. 71—76 **10 Claims**

Legume seeds, preferably mung bean seeds, are soaked with a mixture of p-chlorophenoxyacetic acid and α,α,α-trifluoro - 2,6 - dinitro-N,N-dipropyl-p-toluidine (trifluralin). The use of trifluralin increases the yield of sprouts and gives shorter, fatter sprouts. The addition of p-chlorophenoxyacetic acid curbs the growth of undesired root hairs.

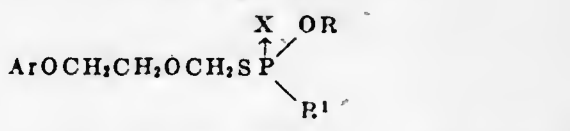
3,567,422

METHOD OF COMBATING WEEDS

Llewellyn W. Fancher, Orinda, and Reed A. Gray, Saratoga, Calif., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Application Sept. 11, 1967, Ser. No. 666,992, now Patent No. 3,504,057, dated Mar. 31, 1970, which is a continuation-in-part of application Ser. No. 427,500, Jan. 22, 1965. Divided and this application Aug. 25, 1969, Ser. No. 870,785
Int. Cl. A01n *9/36*

U.S. Cl. 71—87 **6 Claims**

Compounds corresponding to the formula



$$\mathrm{ArOCH_2CH_2OCH_2S}\overset{\overset{\displaystyle X}{\uparrow}}{\mathrm{P}}\begin{matrix}\diagup\mathrm{OR}\\ \diagdown\mathrm{R^1}\end{matrix}$$

in which X is oxygen or sulfur, R is lower alkyl, R^1 is lower alkyl or lower alkoxy, and Ar is a nuclear polychlorinated phenyl or naphthyl. The polychlorination is from 2 to 5 chlorine atoms. The naphthyl nuclei are bonded through either the α or β nuclear carbon atoms. The above compounds are effective herbicides, particularly for the control of grasses and broadleaf plants with both pre-emergence and post-emergence activity. Representative compounds are: 2,4-dichlorophenoxyethyl-oxymethyl-0,0-diethyl phosphorodithioate, β-naphthoxyethyl-oxymethyl-0,0-dimethylphosphorodithioate, 2,4,5 - trichlorophenoxyethyloxymethyl-0,0 - diethylphosphorothioate, 2,4,5 - trichlorophenoxyethyl-0-ethylmethylphosphenedithioate.

3,567,423

HERBICIDAL TRIFLUOROMETHYL BENZIMIDAZOLES

Harry Goldsmith, Brea, and Robert F. Crawford, La Mirada, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif.
No Drawing. Application Apr. 11, 1967, Ser. No. 629,930, now Patent No. 3,515,866, which is a continuation-in-part of application Ser. No. 366,141, May 8, 1964. Divided and this application Feb. 26, 1970, Ser. No. 14,675
Int. Cl. A01n *9/22*

U.S. Cl. 71—92 **6 Claims**

Trifluoromethyl-benzimidazole compounds having at least one trifluoromethyl substituent on a carbon atom of the benzimidazole molecule are provided. The benzimidazoles can also be substituted with other groups such as alkyl, halogen and alkoxy. The compounds are especially useful as herbicides for controlling weed growth.

3,567,424

CHEMICAL REGULATION OF PLANT PROTEIN CONTENT

Stanley K. Ries, East Lansing, Mich., assignor to The Battelle Development Corporation, Columbus, Ohio
No Drawing. Filed Feb. 8, 1968, Ser. No. 703,893
Int. Cl. A01n *5/00*

U.S. Cl. 71—93 **9 Claims**

Chemical regulation of plant protein content through growing a susceptible crop plant in an environment containing a low-level, non-phytotoxic concentration of a certain organic chemical agent and a nitrate source of a nitrogen plant nutrient with the certain organic chemical agent being a particular triazine, uracil, or phenyl-substituted urea, and preferably being simazine.

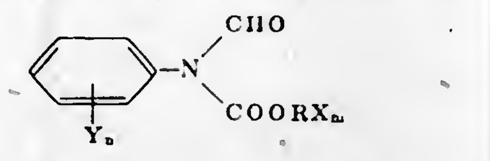
3,567,425

HERBICIDAL N-FORMYLCARBANILATES

John Frank Olin, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Original application Mar. 21, 1966, Ser. No. 535,737, now Patent No. 3,457,296, dated July 22, 1969. Divided and this application Jan. 10, 1969, Ser. No. 801,907
Int. Cl. A01n *9/20*

U.S. Cl. 71—111 **19 Claims**

Phytotoxic composition, and method of use, comprising as the active ingredient a compound of the formula:



wherein Y is halogen, hydroxyl, alkyl or alkoxy having not more than 5 carbon atoms, R is hydrocarbyl of not more than 5 carbon atoms selected from the group consisting of alkyl, alkenyl and alkynyl, X is halogen (Cl, Br, I and F), *n* is an integer from 0 to 5, inclusive, and *m* is an integer from 0 to 3, inclusive.

3,567,426

DIRECT IRON ORE REDUCTION PROCESSES

Marnell A. Segura, Baton Rouge, and Leo Broussard, Parish, La., assignors to Esso Research and Engineering Company
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,137
Int. Cl. C21b *1/06*

U.S. Cl. 75—1 **6 Claims**

This invention relates to a process for increasing the iron values of wustite products by disproportionation of wustite at relatively mild conditions. In particular, the free metal content of wustite-containing reduced iron products can be increased by providing sufficient holding time, at relatively low temperatures, ranging generally from about 500° F. to about 1000° F. to produce disproportionation of wustite to magnetite and metallic iron. The iron content of products from direct iron ore reduction processes containing residual wustite can be readily increased by heat treatment or controlled cooling at times sufficient to disproportionate the wustite to iron metal and magnetite.

3,567,427

CHEMICAL DISAGGREGATION OF ROCK

Ray V. Huff and Larman J. Heath, Bartlesville, Okla., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Nov. 7, 1968, Ser. No. 774,172
Int. Cl. B02c *19/12, 19/18*

U.S. Cl. 75—1 **10 Claims**

Rock containing certain clay minerals is chemically disaggregated by treatment with a compound which causes a rupturing or negation of the bonding between unit cells of the clay mineral. The clay minerals may be illite, illite-type, mixed lattice minerals of the illite type or mixture thereof. The treatment compound may be hydrazine, hydrogen peroxide or mixtures thereof. The treatment of the clay minerals may be in situ.

3,567,428

PROCESS FOR COLD HARDENING OF PELLETS

Karl Jonas Valter Svensson, Strassa, Sweden, assignor to Trafikaktiebolaget Grangesberg-Oxelosund, Stockholm, Sweden
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,777
Claims priority, application Sweden, Jan. 16, 1968, 1,052/68
The portion of the term of the patent subsequent to Jan. 20, 1987, has been disclaimed
Int. Cl. C21b *1/24*

U.S. Cl. 75—3 **4 Claims**

The invention relates to a process for the cold hardening of pellets comprising finely divided metal oxide, finely divided hydraulic binding agent, water and coke breeze or petroleum coke. Green pellets are produced and then embedded in a mass of the finely divided metal oxide in such a way that, in principle they are isolated from each other. **The mass of the finely divided metal oxide is separated** when the pellets, thanks to the setting effect of the hydraulic binding agent have achieved an acceptable strength.

3,567,429

PROCESS FOR PREPARING A STRONTIUM AND/OR BARIUM ALLOY

Eckhard Dunkel, Frankfurt am Main, and Wolfgang Thiele, Bad Homburg, vor der Hohe, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
No Drawing. Filed Sept. 9, 1968, Ser. No. 758,605
Claims priority, application Germany, Sept. 21, 1967, P 16 08 245.4
Int. Cl. C22d *7/06*

U.S. Cl. 75—10 **2 Claims**

Strontium and/or barium are charged into a silicon melt having a temperature of from 650 to 1700° C. and containing from 0.5% to 70% of magnesium, calcium, or aluminum, and a flux. The melt is stirred vigorously. Substantially all of the strontium and/or barium is alloyed. The alloy is then used to refine aluminum.

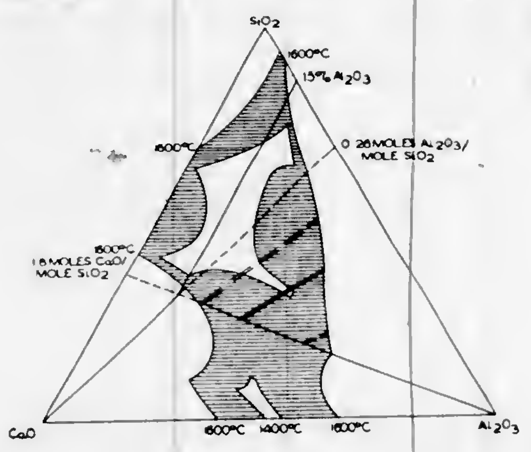
3,567,430
METHOD OF REMOVING LEAD FROM MOLTEN AUSTENITIC STAINLESS STEEL

John W. Engroff, Natrona Heights, Pa., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa.
No Drawing. Filed June 11, 1968, Ser. No. 736,030
Int. Cl. C21c *5/52*
U.S. Cl. 75—12 **6 Claims**

A method of reducing lead content in the molten bath of steel below 0.003% comprising substantially removing the slag cover from the molten bath, charging the melt with carbon, and oxidizing the melt to remove carbon and lead.

3,567,431
PRODUCTION OF MAGNESIUM IN SLAG OF RESTRICTED CaO CONTENT

Walther Schmidt, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed July 5, 1967, Ser. No. 651,216
Int. Cl. C22b *45/00*
U.S. Cl. 75—67 **2 Claims**



Magnesium oxide and calcium oxide, in respective molar proportions varying from 4:1 to 8:1, are fed into an electric furnace into which a metallic silicon-containing reductant, having approximately equal contents by weight of Si and Al and also containing iron and titanium, is fed in matched proportion to the CaO in order to maintain a liquid slag bath having CaO and SiO_2 in respective molar ratios varying from about 0.5:1.0 to about 1.2:1.0, whereby the weight of slag which is produced is approximately twice the weight of magnesium metal product.

3,567,432
METAL CASTING

Anthony Charles Wardell, Nechells, Birmingham, England, assignor to Foseco International Limited, Birmingham, England
No Drawing. Filed July 31, 1967, Ser. No. 657,063
Claims priority, application Great Britain, Aug. 16, 1966, 36,626/66
Int. Cl. C22b *9/10;* **C23c** *1/12*
U.S. Cl. 75—94 **7 Claims**

In the production of steel ingots, the steel is poured into the ingot mould through a flux layer, the flux including at least one fluoride, and at least one alkali metal carbonate. Preferred flux compositions include calcium fluoride, sodium carbonate, anthracene, calcium oxide and ferrosilicon.

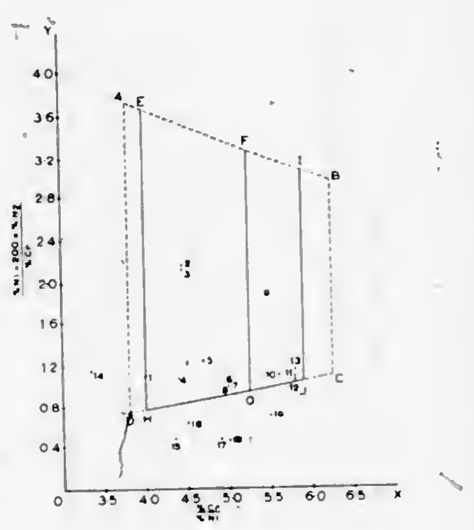
3,567,433
METHOD OF RECOVERING METALS FROM SPENT HYDROREFINING CATALYSTS

George Gutnikov, Los Angeles, Calif., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Feb. 14, 1968, Ser. No. 705,285
Int. Cl. C22b *3/00*
U.S. Cl. 75—103 **3 Claims**

Recovery of metals from a spent metals-laden hydrorefining catalyst. Carbonaceous matter is burned from the spent catalyst which is thereafter extracted with aqueous ammonia or ammonium carbonate solution to recover molybdenum, nickel and vanadium therefrom.

3,567,434
STAINLESS STEELS

William Henry Richardson, Datchet, and Prodyot Guha, High Wycombe, England, assignors to Langley Alloys Limited, Slough, England
Filed Mar. 14, 1968, Ser. No. 713,017
Claims priority, application Great Britain, Mar. 17, 1967, 12,708/67
Int. Cl. C22c *39/20*
U.S. Cl. 75—125 **7 Claims**



A corrosion resistant and wear resistant high strength ferritic-austenitic steel consisting of:

	Percent
Chromium	23.0–30.0
Nickel	4.0–7.0
Molybdenum	1.0–5.0
Copper	1.0–4.0
Silicon	0.2–2.0
Manganese	0.2–4.0
Carbon	0.01–0.1
Nitrogen	0.06–0.4
Iron (excepting unavoidable impurities)	Balance

and wherein the chromium and nickel and nitrogen contents satisfy the following formulae:

$$(i)\qquad \frac{\text{Chromium content}}{\text{Nickel content}}=3.8\text{–}6.25\%$$

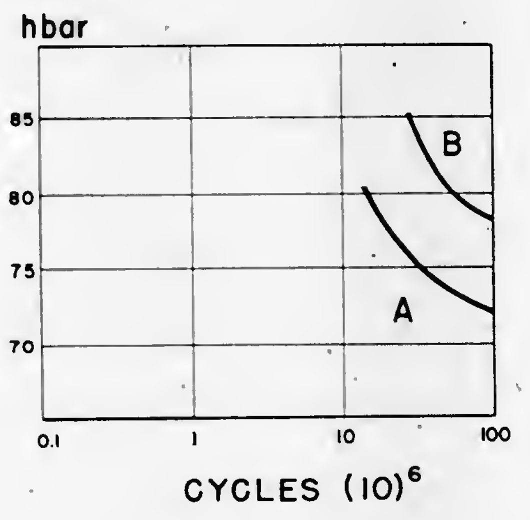
$$(ii)\qquad \frac{\text{Nickel content}+200\times\text{nitrogen content}}{\text{Chromium content}}=0.74\text{–}3.72\%$$

and wherein when the said formulae are plotted on a graph with Formula *i* plotted against the X axis and Formula ii plotted against the Y axis, the values of the two formulae taken together fall within that area of the graph bounded by four straight lines extending between points A, B, C and D of the graph respectively having the following co-ordinates:

	X	Y
A	3.8	3.72
B	6.25	2.96
C	6.25	1.1
D	3.8	0.74

3,567,435
HIGH STRENGTH STEEL CONTAINING CHROMIUM AND SULFUR

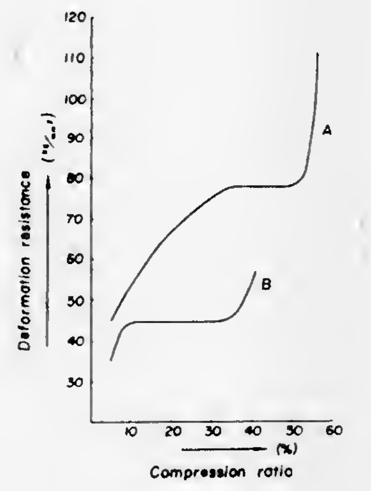
Jacques Monnot, Albertville, France, assignor to Ugine Kuhlmann, Paris, France
Filed Nov. 24, 1967, Ser. No. 685,486
Claims priority, application France, Nov. 24, 1966, 84,767
Int. Cl. C22c *39/14*
U.S. Cl. 75—126 **4 Claims**



An improved steel containing 0.05 to 0.40 percent sulfur which has a hardness greater than 50 Rockwell C, good machinability and high fatigue strength and is particularly suited for bearings, gears, etc. which are subject to repeated stresses.

3,567,436
COMPRESSION RESISTANT ZINC BASE ALLOY

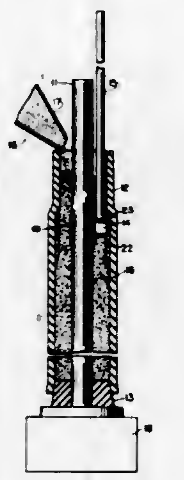
Takehiro Isobe, Bandai-machi, and Hisanori Iga, Tokyo-to, Japan, assignors to Nisso Kinzoku Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 26, 1968, Ser. No. 724,376
Claims priority, application Japan, May 11, 1967, 42/29,543
Int. Cl. C22c *17/00*
U.S. Cl. 75—178 **13 Claims**



Zinc base alloy consisting of, by weight, 2–25% of aluminium, 1–10% of copper, 0.01–1.5% of magnesium, 0.02–0.15% of beryllium, 0.01–1.5% of titanium, and zinc for the balance has superior compression resistance extending to 110 kg./mm.^{2} of compressive strength and 78 kg./mm.^{2} of yield point on compressive deformation.

3,567,437
METHOD FOR FORMING POROUS SEAMLESS TUBING

Lambert H. Mott, Farmington, Conn.
(272 Huyshope Ave., Hartford, Conn. 06114)
Filed May 16, 1968, Ser. No. 729,696
Int. Cl. B22f *3/04*
U.S. Cl. 75—214 **2 Claims**



Metal powder is poured into a vertical flexible tubular mold containing a central core rod and a spacer slightly larger in diameter than the tubular mold and sliding on the core rod, the spacer is pulled upward through the tubular mold to evenly space powder about the core rod, the ends of the tubular mold are stopped, the tubular mold with powder and core rod therein is placed in a fluid and subjected to high pressure to compact the powder, the tubular mold and core rod are removed, and the metal powder is sintered to form a length of porous seamless tubing.

3,567,438
ORGANIC PHOTOCONDUCTORS SENSITIZED WITH PYRYLIUM CYANINE DYES

Leslie G. S. Brooker, Donald W. Heseltine, and Daniel S. Daniel, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,520
Int. Cl. G03g *13/22, 5/08*
U.S. Cl. 96—1.6 **20 Claims**

Pyrylium dyes are provided which feature a 2-arylindole nucleus, a carbazole nucleus, or an imidazo[4,5-b]-quinoxaline nucleus. Organic photoconductors are sensitized with the novel dyes of this invention.

3,567,439
BORINIUM DYES AS SENSITIZERS FOR ORGANIC PHOTOCONDUCTORS

Daniel S. Daniel and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,860
Int. Cl. G03g *5/08, 13/22*
U.S. Cl. 96—1.6 **5 Claims**

Novel methine dyes are provided which feature a 1,3,2-dioxaborinium salt moiety, 1,3,2-oxazaborinium salt moiety or a 1,3,2-diazaborinium salt moiety. Organic photoconductors are spectrally sensitized with the novel dyes of this invention. Novel intermediates and methods for the preparation of such intermediates are also provided.

3,567,440
ELECTROPHOTOGRAPHIC MATERIAL

Horst H. J. Kosche, Duren, Germany, assignor to Renker-Belipa GmbH., Duren, Germany
No Drawing. Filed Mar. 22, 1967, Ser. No. 625,033
Int. Cl. G03g *5/04;* **H01l** *15/00*
U.S. Cl. 96—1.8 **3 Claims**

In an electrophotographic material a photoconductive preparation comprising photoconductive reaction products of (i) one or more compounds of at least one di- or polyfunctional isocyanate, and at least one non-photoconductive organic substance, the photoconductive compounds having a plurality of free isocyanate groups linked to aromatic or heterocyclic ring systems and/or conjugated unsaturated aliphatic systems, and (ii) at least one pigment-like or crystalline compound selected from the group consisting of zinc oxide, titanium oxide, zinc sulfide, and cadmium sulfide.

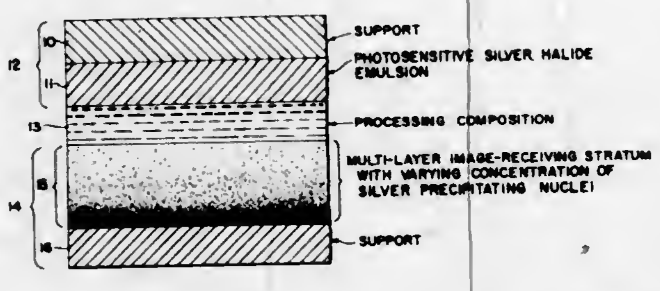
3,567,441
PHOTOGRAPHER HARDENER-DEVELOPER COMPOSITIONS

Howard W. Vogt, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Jan. 4, 1968, Ser. No. 695,564
Int. Cl. G03c *7/16, 7/00, 5/30*
U.S. Cl. 96—22 **23 Claims**

Compositions comprising a chelate compound inorganic developing agent for silver halide and an organic aldehyde hardening agent for photographic hydrophilic colloid layers are used to advantage to combine in a single process step the hardening and developing steps in color processes.

3,567,442
NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES

Edwin Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation of application Ser. No. 858,454, Dec. 9, 1959. This application Mar. 10, 1967, Ser. No. 622,133
Int. Cl. G03c *5/54*
U.S. Cl. 96—29 **3 Claims**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16
SUPPORT
PHOTOSENSITIVE SILVER HALIDE EMULSION
PROCESSING COMPOSITION
MULTI-LAYER IMAGE-RECEIVING STRATUM WITH VARYING CONCENTRATION OF SILVER PRECIPITATING NUCLEI
SUPPORT

The present invention is directed to a silver diffusion transfer photographic process print-receiving element which comprises a common support carrying on one surface a plurality of layers each of which comprises metallic sulfide, metallic selenide, colloidal metal, thiooxalate or thioacetamide silver precipitating agents disposed in a gelatin, deacetylated chitin or silica matrix wherein each such layer comprises a substantially constant concentration of silver precipitating agent per unit area, and a decreasing concentration, layer-wise, in the direction of the support; and to photographic silver diffusion transfer processes employing such print receiving element.

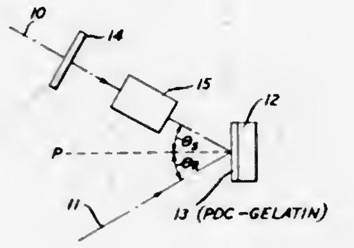
3,567,443
DIFFUSION TRANSFER PRODUCTION OF PRINTING PLATES WITH LiOH AS ALKALIZING AGENT

Louis Maria De Haes, Edegem, Belgium, assignor to Gevaert Photo-Producten N.V., Mortsel, Belgium
No Drawing. Continuation-in-part of application Ser. No. 296,096, July 18, 1963. This application Aug. 15, 1967, Ser. No. 660,591
Claims priority, application Belgium, July 18, 1962, 41,833
Int. Cl. G03c *5/54*
U.S. Cl. 96—29 **2 Claims**

In the production of planographic printing plates by means of the silver complex diffusion transfer process, an increased number of such printing plates can be produced with the otherwise convention diffusion transfer processing liquid by employing as the alkaline component of that liquid lithium hydroxide in a concentration of about one-half to one mol per liter. The printing plate is formed of metal participating in the chemical reduction of complexed silver halide which diffuses during the diffusion transfer process, and aluminum sheets are preferred.

3,567,444
HOLOGRAPHIC RECORDING METHOD

Theodore A. Shankoff, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Oct. 20, 1967, Ser. No. 676,866
Int. Cl. G03c *5/00, 5/04*
U.S. Cl. 96—27 **7 Claims**



This disclosure relates to a holographic recording method which uses a sensitized gelatin film as the recording medium, and which employs a critical film-development step in processing.

3,567,445
PRESENSITIZED LITHOGRAPHIC PLATE WITH TWO DIFFERENTIALLY SPECTRALLY SENSITIZED LAYERS SEPARATED BY A NOVOLAK RESIN

Lawrence Atkinson, Leonard Roy Brooker, and Brian Ronald David Whitear, Ilford, Essex, England, assignors to Polychrome Corporation, Yonkers, N.Y.
No Drawing. Filed Oct. 20, 1967, Ser. No. 676,713
Claims priority, application Great Britain, Oct. 28, 1966, 48,491/66
Int. Cl. G03f *7/02*
U.S. Cl. 96—33 **14 Claims**

The application describes a composite presensitised lithographic plate which comprises a hydrophilic-surface support base and coated thereon, in order, a first light-sensitive layer which is an adherent light-sensitive layer of the type which is capable of being used as the light-sensitive layer in a negative-working presensitised lithographic plate, an intermediate protective layer or layers, the layer or if there is more than one layer, the layer which is nearest to the said first layer, being a non-hardenable resin of the condensed phenol-carbonyl compound type, and a second light-sensitive layer which is a silver halide emulsion layer.

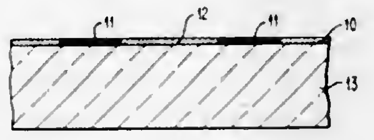
3,567,446
PHOTOGRAPHIC ETCH-BLEACH BATHS

John M. Gleadle, Prestwood, Great Missenden, England, assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed May 1, 1967, Ser. No. 634,850
Int. Cl. G03c *5/00, 5/32*
U.S. Cl. 96—36 **3 Claims**

A process for gelatin relief images is described, comprising bathing the exposed and developed silver halide emulsion in an etch bleach bath. The etch bleach bath contains hydrogen peroxide, cupric ions, halide ions and at least 50 grams per liter of urea.

3,567,447
PROCESS FOR MAKING MASKS PHOTOGRAPHICALLY

Nirmal Chand, South Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1967, Ser. No. 650,804
Int. Cl. G03c *5/00*
U.S. Cl. 96—36 **21 Claims**



A process of producing masks photographically by forming a developed colloidal silver image in a gelatin coating on a glass plate and heating the coating, after which the non-image areas of the coating are selectively removed by a gelatin removing liquid such as aqueous sodium hypochlorite. The heating renders the silver image areas of the gelatin coating more resistant to the action of the gelatin removing liquid so that the non-image areas may be selectively removed.

3,567,448
IMAGE-FORMING PROCESS UTILIZING A COLORED COMPLEX OF TITANIUM DIOXIDE

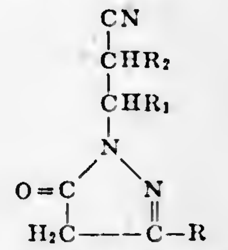
Paul B. Gilman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Nov. 4, 1968, Ser. No. 773,355
Int. Cl. G03c *1/10, 7/00*
U.S. Cl. 96—53 **9 Claims**

Utilizing the silver-dye-bleach process, photographic dye images are prepared on imagewise exposed photographic elements having, as the light-sensitive component, a colored complex of titanium dioxide and an unsaturated organic ligand compound including at least one nitrogen-containing linkage. A silver metal image is first physically developed on the exposed areas of such an element, after which a bleaching step reduces the colored complex to a colorless form in those areas having a silver image, thereby preparing positive, colored photographic dye images.

3,567,449
SILVER HALIDE PHOTOGRAPHIC COLOUR MATERIAL CONTAINING 1-(CYANOALKYL)-PYRAZOLONE COLOR COUPLERS

Hector Alfons Vanden Eynde, Mortsel, Robert Joseph Pollet, Berchem, and Arthur Henri De Cat, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
No Drawing. Filed Aug. 31, 1967, Ser. No. 664,644
Claims priority, application Great Britain, Sept. 26, 1966, 42,823/66
Int. Cl. G03c *1/40*
U.S. Cl. 96—56.5 **4 Claims**

Photographic light-sensitive silver halide elements containing a non-diffusing 2-pyrazolin-5-one color coupler having the formula



wherein R_1 is hydrogen, an alkyl group or an aryl group and R_2 is hydrogen or an alkyl group, and R represents an alkyl group, and aryl group, a heterocyclic group, a —NH-aryl group, a —NH—CO-alkyl group, a —NHCO-aryl group, a —NH—CO-aralkyl group, a—NHCONH-alkyl group, a —NHCONH-aryl group, a —NHCONH-aralkyl group, an alkoxycarbonylamino group, an aryloxycarbonylamino group, or an aralkyloxycarbonylamino group is described. These photographic elements have improved light stability and possess favorable spectral and sensitometric properties.

3,567,450
PHOTOCONDUCTIVE ELEMENTS CONTAINING SUBSTITUTED TRIARYLAMINE PHOTOCONDUCTORS

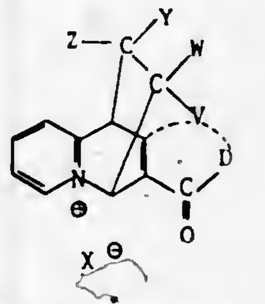
Thomas B. Brantly, Lawrence E. Contois, and Charles J. Fox, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Feb. 20, 1968, Ser. No. 706,800
Int. Cl. G03g *5/06, 13/22*
U.S. Cl. 96—1.5 **17 Claims**

Triarylamines having at least one of the aryl radicals substituted by either a vinyl radical or a vinylene radical having at least one active hydrogen-containing group are good organic photoconductors in electrophotographic systems.

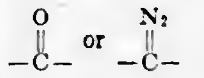
3,567,451
PHOTOSENSITIVE COMPOSITIONS AND ELEMENTS USING DIELS-ALDER ADDUCTS OF QUINOLIZINIUM SALT DERIVATIVES

Douglas G. Borden, Donald L. Fields, and Jerry B. Miller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 14, 1967, Ser. No. 645,880
Int. Cl. G03c *1/94*
U.S. Cl. 96—86 **17 Claims**

Photosensitive compositions and elements comprising Diels-Alder adducts having generic formula:



where X⊖ is an anion; D represents the atoms necessary to form a 5 or 6 membered ring, said atoms in D containing an



$$\overset{O}{\overset{\|}{-C-}} \text{ or } \overset{N_2}{\overset{\|}{-C-}}$$

group, each of V, W, Y and Z separately being hydrogen, alkyl, aryl, cyano, alkylthio, alkoxy, dialkylamino or aralkyl, provided no more than one of V, W, Y and Z is cyano; Y and Z when taken together being alkylenedioxy or V, W, Y and Z when taken together being the atoms or chemical bonds necessary to form a 5 or 6 membered fused ring.

3,567,452
PHOTOGRAPHIC ELEMENT WITH POLYMERIC FILM BASE

Stokes Smith Rawlins, Jr., Piscataway, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 7, 1968, Ser. No. 727,333
Int. Cl. G03c *1/78*
U.S. Cl. 96—87 **2 Claims**

A film element comprising a dimensionally stable hydrophobic macromolecular organic polymer film base bearing on at least one surface a non-tacky layer of a mixture of a vinylidene chloride/alkyl acrylate/itaconic acid terpolymer and a polymer of ethyl acrylate or methacrylate and a cross-linking di-ethenyl or di-propenyl monomer subsequently formed in the presence of the terpolymer. Aqueous coating dispersions containing the mixture of terpolymer and cross-linked polymer.

Photographic elements having a water-permeable colloid silver halide layer on a support coated first with the non-tacky layer then overcoated with gelatin.

3,567,453
LIGHT SENSITIVE COMPOSITIONS FOR PHOTORESISTS AND LITHOGRAPHY

Douglas G. Borden, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,168
Int. Cl. G03c *1/54, 1/94*
U.S. Cl. 96—91 **12 Claims**

A radiation sensitive compound comprises a tetrasubstituted borate anion and an organic cation containing an atom selected from the group consisting of nitrogen, arsenic, tin, antimony, sulfur, iodine, phosphorus, oxygen, titanium, palladium, chromium and cobalt. These compounds can be spectrally sensitized and can be used in photoresists and for lithography.

3,567,454
LIGHT-SENSITIVE MATERIALS

Jozef Frans Willems, Wilrijk, Robrecht Julius Thiers, Brasschaat, and Adam Marcel Schouwenaars, Edegem, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
No Drawing. Filed Nov. 21, 1967, Ser. No. 684,622
Claims priority, application Great Britain, Dec. 12, 1966, 55,445/66
Int. Cl. G03c *1/34*
U.S. Cl. 96—109 **7 Claims**

Photographic materials comprising a support and at least one layer of light-sensitive silver halide emulsion containing a water-soluble mercury(II) compound having one of the following formulae:

$$\underset{\text{I}}{[MO_3S-X_1-S-]_2Hg} \quad \text{and} \quad \underset{\text{II}}{MO_3S-X_2-S-Hg-Y}$$

wherein:

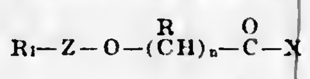
X_1 is a bivalent organic radical,
X_2 stands for an aliphatic or aromatic bivalent group,
M represents hydrogen, alkali metal, alkaline earth metal, ammonium, guanidine or an organic amine, and
Y stands for an aliphatic, alicyclic, aromatic or heterocyclic radical, said radicals including the substituted derivatives thereof

are described. The photographic material has improved stability and fogging characteristics.

3,567,455
PHOTOGRAPHIC GELATINE LAYERS WITH PLASTICIZERS

Eckart Seelig, Leverkusen, Fritz Nittel and Wolfgang Himmelmann, Cologne-Stammheim, and Karl-Otto Meyer, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 19, 1968, Ser. No. 714,334
Claims priority, application Germany, Mar. 25, 1967, A 55,263
Int. Cl. G03c *1/38, 1/02*
U.S. Cl. 96—114.4 **9 Claims**

Gelatine, especially in photographic gelatine layers, is plasticized with a water-insoluble, dispersed amide, urethane or carbonate having the formula



$$R_1-Z-O-(\overset{R}{C}H)_n-\overset{O}{C}-X$$

as defined below.

3,567,456
PHOTOGRAPHIC DIRECT-REVERSAL EMULSIONS

Oskar Riester, Leverkusen, Wolfgang Lassig, Cologne-Stammheim, and August Randolph, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 29, 1967, Ser. No. 686,574
Claims priority, application Germany, Dec. 1, 1966, A 54,235; Apr. 12, 1967, A 55,427
Int. Cl. G03c *1/12*
U.S. Cl. 96—123 **18 Claims**

This invention relates to photographic direct-positive emulsions which are sensitized by certain bis-thiazolyl- or selenazolyl-compounds or by a supersensitizing mixture of the said compounds with certain indole polymethine dyes.

3,567,457
SILVER HALIDE EMULSIONS SENSITIZED WITH PHOSPHOCYANINE DYES

John A. Ford, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,923
Int. Cl. G03c *1/08*
U.S. Cl. 96—142 **10 Claims**

1-indenylidenetriarylphosphorane is a class of stable phosphorus ylides which react with appropriate electrophilic reagents to form various dyes. Some of the dyes are useful spectral sensitizers in silver halide emulsions.

3,567,458
PHOTOGRAPHIC EMULSION CONTAINING A WATER-SOLUBLE ALKYLENE OXIDE BLOCK COPOLYMER AND A MEROCYANINE DYE

Kirby M. Milton, Fishers, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Nov. 15, 1967, Ser. No. 683,107
Int. Cl. G03c *1/10*
U.S. Cl. 96—132 **18 Claims**

Photographic emulsions are provided which contain a water-soluble alkylene oxide block copolymer and carboxy-substituted merocyanine dyes.

3,567,459
SIMULATED BONE COMPRISING SUGAR SOLIDS IN A MOLTEN-THIXOTROPIC THERMOSETTING FORM

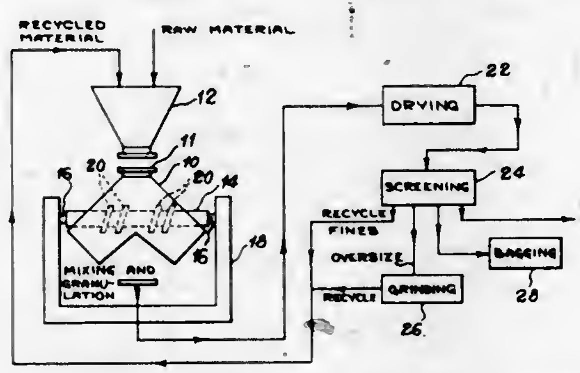
Philip J. Wruk, 111 Spoonwood Road, Wilton, Conn. 06897; Philip Roemer, Battle Creek, Mich. (17 Columbus Drive, Carmel, N.Y. 10512); and Peter Q. Van Middlesworth, Rte. 1, Climax, Mich. 49034
No Drawing. Filed July 12, 1967, Ser. No. 652,680
Int. Cl. A23j *1/12;* **A23k** *1/00*
U.S. Cl. 99—2 **11 Claims**

A simulated dog bone is formed from a molten thixotropic thermo-setting sugar composition that includes nutritional fillers, fatty flavoring materials and fat-absorbing farinaceous ingredients wherein the simulated dog bone composition upon cooling solidifies to a hard and non-brittle product.

3,567,460
SOIL DISPERSIBLE AND WATER DISPERSIBLE GRANULAR PLANT AND ANIMAL NUTRIENT COMPOUNDS FOR USE IN FERTILIZERS AND/OR IN ANIMAL FEEDS AND METHOD OF MAKING SAME

Paul E. McCoy, 69 McDougall Lane, Bogota, N.J. 07603
Filed Aug. 26, 1968, Ser. No. 755,207
Int. Cl. A23k *1/00;* **C05f** *5/00*
U.S. Cl. 99—2 **28 Claims**

Soil dispersible and water dispersible, granular, plant and animal nutrient compounds for use in fertilizers and/or in animal feeds wherein a plurality of fines of the micronutrients are entrapped together with a gas in an outer coating of water soluble material such as a polysaccharide; the granular, nutrient compounds being produced by mixing fines of the nutrients with a nonsolid, water soluble material for appropriate times at appropriate temperatures.



3,567,461
DIETETIC LOW PROTEIN BREAD MIX AND BREAD PRODUCED THEREFROM

Donald A. Wernecke, Minneapolis, Minn., assignor to General Mills, Inc.
No Drawing. Continuation-in-part of application Ser. No. 701,056, Jan. 29, 1968. This application May 28, 1969, Ser. No. 828,726
Int. Cl. A21d *13/06*
U.S. Cl. 99—90 **3 Claims**

A dietetic low protein bread mix comprised of fat, sugar, wheat starch containing wheat gluten, and a structure enhancer added to the mix to produce a low protein content bread having a structure, taste, and appearance similar to that of conventional white bread.

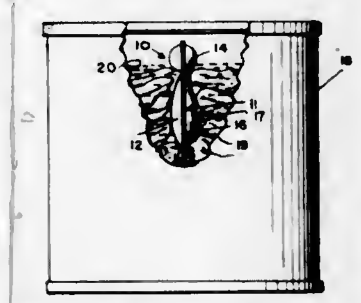
3,567,462
METHOD FOR PRESERVING FRESH ANIMAL TISSUE

Gerald Silverman, Brookline, and George T. Michael, Marshfield, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
No Drawing. Filed Jan. 26, 1967, Ser. No. 611,847
Int. Cl. A23b *1/00, 3/00*
U.S. Cl. 99—157 **9 Claims**

A method for extending the storage life of frseh animal tissue at refrigeration temperatures is disclosed. The animal tissue is subjected to radio pasteurization and stored in an atmosphere from about 30 percent carbon dioxide to 100 percent carbon dioxide at refrigeration temperatures. The pasteurization of tissue can precede, follow, or interrupt the carbon dioxide step and the storage atmosphere preferably contains at least 70 percent carbon dioxide.

3,567,463
FOOD FLAVORING PACKET FOR CONTAINERS

Theodore M. Williams, 816 N. Ridgewood Ave., Daytona Beach, Fla. 32014
Filed Feb. 6, 1969, Ser. No. 796,984
Int. Cl. B65d *81/32*
U.S. Cl. 99—171 **8 Claims**



A packet containing a food flavoring buoyantly supported in the liquid of a food container packaged for sale to a consumer, so that the packet will be readily accessible for removal when the container is opened, to be utilized for flavoring the food contents of the container.

3,567,464
METHOD FOR PREPARING A REASSEMBLED UNITARY MEAT PRODUCT

Edd O. Stallons, Westchester, Ill., assignor to Armour and Company, Chicago, Ill.
No Drawing. Filed Mar. 24, 1967, Ser. No. 625,611
Int. Cl. A22c *18/00*
U.S. Cl. 99—107 **3 Claims**

This invention relates to a new reassembled unitary meat product and method for preparing the same from an individual piece or pieces of meat. The process generally comprises the steps of scoring pieces of meat to a depth substantially below their surface, holding the meat for a sufficient time to permit the release of meat juices and to increase the adhesiveness of the juices, rescoring the portion of the meat previously scored, and pressing the meat together into the desired form of the meat product until the meat is bound together as one cohesive mass.

3,567,465
PROCESS OF MAKING SUNFLOWER SEED PASTE

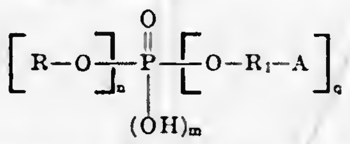
Herbert B. Knechtel, Park Ridge, Ill., assignor to Dahlgren & Company, Inc., Crookston, Minn.
Filed Apr. 15, 1968, Ser. No. 721,290
Int. Cl. A23l *1/36*
U.S. Cl. 99—134 **1 Claim**

A sunflower seed paste spread and process of making the same wherein a predetermined amount of sunflower seed meats are heated in a predetermined volume of melted sugar to cause the sunflower seed meats to become roasted. An additional quantity of sunflower seed meats is then roasted in oil, and the oil is drained therefrom, and the oil roasted seed meats are then admixed with said mixture of roasted sunflower seed meats and syrup. The mixture is then cooled and pulverized to form a paste which has a creamy texture and a pleasant savory sunflower seed meat flavor.

3,567,466
EMULSIFIER FOR FOODSTUFF

Ralph B. Fearing, Bardonia, and John C. Sourby, Hawthorne, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed June 11, 1968, Ser. No. 735,991
Int. Cl. A23g *3/00;* **A23l** *1/24*
U.S. Cl. 99—139 **5 Claims**

An emulsifying agent for oil and water foodstuff combinations consisting essentially of a phosphate composition having the following formula:



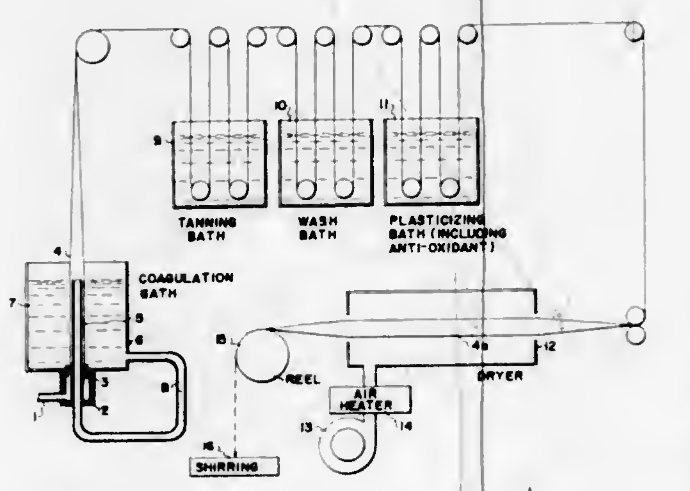
$$\left[R-O\right]_n-\underset{\underset{(OH)_m}{|}}{\overset{\overset{O}{\|}}{P}}-\left[O-R_1-A\right]_q$$

wherein R is a straight chain alkyl group having from 8 to 24 carbon atoms, R_1 is a polyol selected from the group consisting of monoglycerol, diglycerol, triglycerol, tetraglycerol, and mixtures thereof; A is selected from the group consisting of hydrogen, lactyl, dihydroxypropionyl, saccharyl, tartaryl, gluconyl, malyl and mixtures thereof; and *n* is 1 or 2, *m* is 0 or 1 and *q* is 1 or 2.

3,567,467
EDIBLE COLLAGEN CASING CONTAINING ANTIOXIDANT

Mauj A. Cohly, Catlin, Ill., assignor to Tee-Park, Inc.
Filed Jan. 15, 1968, Ser. No. 697,708
Int. Cl. C22c *13/00*
U.S. Cl. 99—176 **10 Claims**

An edible sausage casing prepared from hide collagen having improved antioxidant and appearance characteristics, and the method of manufacture thereof. Animal hides are swollen and mechanically unhaired and split to produce a collagen containing corium layer. The corium is ground into fine particles, formed into a slurry and swollen with weak acid to produce an extrudable collagen paste or slurry having a solids content of about 2–6%. The slurry is extruded through an annular die, coagulated with ammonium sulfate or sodium sulfate and tanned or hardened in a bath containing any suitable nontoxic tanning agent such as aluminum salts, ferric salts, nontoxic dialdehydes, etc. The tanned casing is washed and finally plasticized using an aqueous solution of glycerin or equivalent plasticizer, containing a small amount of a monoglyceride or an acetylated monoglyceride, and an edible, nontoxic antioxidant. The casing is then dried and reeled and eventually shirred on a commercial shirring machine for delivery to the meat packer in shirred form. The final treatment of the casing, prior to drying, with the solution containing a small amount of an edible, nontoxic antioxidant, is effective to improve the antioxidant and appearance characteristics of the casing, particularly upon prolonged storage.



3,567,468

FROZEN FOODS

Donald Kiteley Tressler, 74 N. Compo Road, Westport, Conn. 06880

No Drawing. Filed Dec. 27, 1966, Ser. No. 664,571

Int. Cl. A23b *7/04*

U.S. Cl. 99—193 **10 Claims**

This invention relates to a boil-in-the-bag frozen food package and the method of producing same comprising a sealed heat-resistant container and within said container a frozen comestible and a dry sauce mix, said sauce mix being present in an amount sufficient to use in its constitution to a liquid sauce, the liquid resulting from heating the container in preparation of the contents for consumption.

3,567,469

PROCESS FOR THE PRODUCTION OF DEHYDRATED PRODUCTS

Roberto Calderon-Pedroza and Isabel Resano-Gonzalez, Mexico City, Mex., assignors to CPC International Inc., New York, N.Y.

No Drawing. Filed Dec. 14, 1964, Ser. No. 418,318

Int. Cl. A23b *1/04, 3/04, 7/02*

U.S. Cl. 99—204 **12 Claims**

Edible material is dehydrated by forming a dispersion of finely divided particles of the material in hydrophobic fluid and subjecting the dispersion to reduced pressure in the form of a thin, agitated film. The dispersion does not exceed about 3 millimeters when spread as a thin layer on a heated surface.

3,567,470

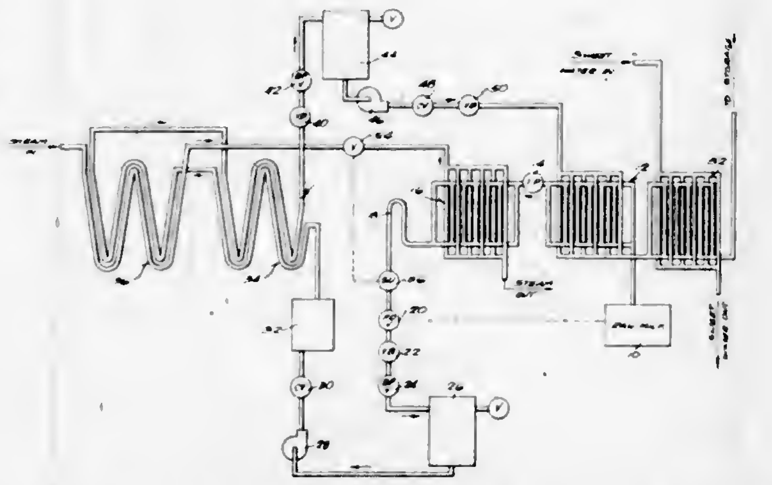
MILK STERILIZATION PROCESS

Grover W. McElroy, 1587 Cherry Road, Apt. 1, Memphis, Tenn. 38117

Filed June 24, 1968, Ser. No. 739,413

Int. Cl. A23c *3/02*

U.S. Cl. 99—212 **7 Claims**



A single flow high temperature and short time milk sterilization process in which raw milk is first treated in standard presses of the type normally used for pasteurization and thereafter is passed through counterflow heat exchangers wherein the milk is gradually raised to sterilization temperatures. The milk is vacuum treated after pasteurization and after sterilization and is maintained under pressure while it is passed through the sterilization heat exchangers.

3,567,471

NONSETTLING THIXOTROPIC COLD BOTTOM FILLER COMPOSITION

George F. Kahle, 1600 Long-Valley Road, Glenview, Ill. 60025

No Drawing. Filed May 16, 1967, Ser. No. 638,723

Int. Cl. A43b *13/42;* **C08f** *45/20;* **C09k** *3/00*

U.S. Cl. 106—38 **5 Claims**

A nonsettling thixotropic composition capable of setting to a pliable solid when exposed to the atmosphere and particularly suited for use as a cold bottom filler in the construction of shoes which is formed of a binder material containing a resinous film forming material dissolved in one or more volatile solvents and containing asbestos fiber particles or equivalent inert thickeners and gellants as a thixiotropy producing agent in an amount sufficient to maintain the binder material in a thixotropic state and having solid particulate material, such as granulated cork, uniformly distributed throughout the thixotropic binder material.

The nonsettling thixotropic composition is prepared by first mixing the binder material ingredients to form the thixotropic binder and thereafter uniformly distributing the solid particulate material throughout the thixotropic binder material.

3,567,472

MAGNESIUM-ALUMINATE SPINEL MEMBER HAVING CALCIUM OXIDE ADDITION AND METHOD FOR PREPARING

Raymond J. Bratton, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 28, 1968, Ser. No. 716,890

Int. Cl. C04b *33/00*

U.S. Cl. 106—39 **5 Claims**

Light-transmitting spinel ceramic member, which is particularly adapted for use as a discharge device arc tube, has added thereto a small amount of calcium oxide. The spinel member is easily sintered and has improved strength and light-transmission properties. In the method for preparing such a member, a small amount of calcium oxide

is distributed throughout spinel powder, the mixture is compacted, and thereafter sintered in accordance with a predetermined schedule.

3,567,473

COMPOSITION FOR MAKING REFRACTORY ARTICLES

James Ross Drever, Philip David Zimmerman, and Allan Blaine Brink, Crystal Lake, Ill., assignors to Amsted Industries Incorporated, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 584,365, Oct. 5, 1966. This application May 14, 1968, Ser. No. 728,922

Int. Cl. C04b *35/48*

U.S. Cl. 106—57 **12 Claims**

The refractory composition includes a fusion product as well as tabular alumina, calcined alumina, alpha quartz, and a relatively small quantity of magnesium oxide, all of which ingredients are processed with a colloidal silica solution. The tabular alumina and alpha quartz may be replaced by kyanite. The fusion product may include unstabilized monoclinic zirconia and alumina alone or may comprise zirconia, alumina and either silica or magnesium oxide.

3,567,474

TREATMENT OF CLAY

Peter James Malden, Cornwall, England, assignor to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwall, England

No Drawing. Filed Aug. 6, 1968, Ser. No. 750,474

Claims priority, application Great Britain, Aug. 11, 1967, 37,122/67

Int. Cl. C08h *17/06;* **C09c** *1/42*

U.S. Cl. 106—72 **5 Claims**

A mineral having a layer lattice crystal structure, for example a clay mineral, is bleached by first forming an intercalation complex with, for example, urea and thereafter bleaching the intercalation complex with an oxidising bleaching agent.

3,567,475

ASPHALT SOLUTIONS AND METHODS FOR APPLYING THE SAME

Fritz S. Rostler, Berkeley, Calif., assignor to Witco Chemical Company, Inc., New York, N.Y.

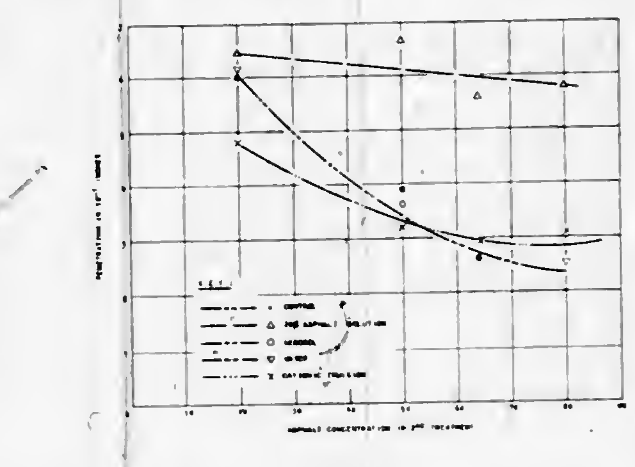
Continuation-in-part of application Ser. No. 366,574, May 11, 1964, which is a continuation-in-part of application Ser. No. 274,193, Apr. 19, 1963, now Patent No. 3,162,101, and also is a continuation-in part of applications Ser. No. 366,568, May 11, 1964, which is a division of application Ser. No. 274,193, Apr. 19, 1963, which in turn is a continuation-in-part of abandoned applications Ser. No. 45,023, July 25, 1960, and Ser. No. 254,399, Jan. 28, 1963, which also in turn are continuations-in-part of abandoned application Ser. No. 497,397, Mar. 28, 1955. This application Aug. 26, 1966, Ser. No. 575,466

Int. Cl. C08h *13/00, 17/22*

U.S. Cl. 106—278 **16 Claims**

An asphalt solution for treating uncemented sands, soils and aggregates to consolidate the same, which solution contains a light petroleum oil fraction having a boiling point lower than that of light gas oil and from 10–80% by weight of a gel type asphalt. The gel type asphalt has an R ratio of about 0.8 to about 1.2 and has a penetration of 60–100 at 77° F. (ASTM D-5). The asphalt solution contains a cationic surfactant and the solution has a 95% minimum coating retention as tested by ASTM test D-1664. The method of treating bodies of uncemented sand, soils and aggregates to consolidate them, which method involves applying to the surface of the bodies an asphalt solution as defined above.

The method of treating bodies of uncemented sands, soils and aggregates to consolidate them. First, there is applied to the surface a solution of a light petroleum oil fraction having a boiling point lower than that of light gas oil and containing from 10 to 30% by weight of a gel type asphalt having a penetration of 60–100 at 77° F. (ASTM D-5), an R ratio of from about 0.8 to about 1.2, and containing a cationic surfactant. The solution has a 95% minimum coating retention as tested by ASTM test D-1664 at a rate of application of about 0.2 to about 1 gallon per square yard of surface being treated. Following the first treatment, there is applied to the surface a light petroleum oil (as defined above) solution containing 50–70% by weight of a gel type asphalt having a penetration of 60–100 at 77° F. (ASTM D-5), an R ratio of from about 0.8 to about 1.2 and containing a cationic surfactant. The asphalt solution has a 95% minimum coating retention as measured by ASTM test D-1664, and the second application is made at a rate of from about 0.5 to about 2 gallons per square yard of the surface being treated.



3,567,476

METHOD OF COLORING BITUMINOUS MATERIALS AND THE RESULTING PRODUCT

Philip X. Masciantonio, Penn Township, Westmoreland County, and Richard C. Weil and Myron H. Wilt, Monroeville, Pa., assignors to United States Steel Corporation

Continuation-in-part of application Ser. No. 515,668, Dec. 22, 1965. This application Apr. 4, 1969, Ser. No. 822,807

Int. Cl. C08h *13/00;* **C08k** *1/62;* **C09d** *3/24*

U.S. Cl. 106—277 **5 Claims**

A method is disclosed for coloring a liquid bituminous material which is normally black. The liquid bituminous material is mixed with a filler (e.g., montmorillonite clay). Separately a protective colloid emulsifying agent is mixed with hot water. The two mixtures are combined in a colloid mill to form a water emulsion of the bituminous material. Next a clay masking agent is mixed with the emulsion. Finally a resinous substance (e.g., latex) and a pigment are mixed with the emulsions. The resinous substance and pigment coat the individual masked colloidal particles of bituminous material.

3,567,477

MOLYBDATE ORANGE PIGMENT

James F. Higgins, Livingston, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 15, 1967, Ser. No. 683,119

Int. Cl. C09c *1/20*

U.S. Cl. 106—298 **7 Claims**

A high strength molybdate orange pigment, characterized by the typical X-ray diffraction pattern for molybdate orange and containing from 4 to 9 mol percent of lead molybdate, from 1 to 7 mol percent of lead sulfate and no more than 25 mol percent of monoclinic lead chromate, based on the total mols of lead salts present, prepared by introducing a chromate-molybdate-sulfate solution through a jet at a linear velocity of at least 48 ft./sec. into a stirred lead salt solution.

3,567,478

PROCESS FOR IMPROVING PIGMENTARY METAL OXIDES

Albert Dietz, Wadsworth, and Harry Lott, Jr., Akron, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed July 6, 1965, Ser. No. 469,864
Int. Cl. C01g *23/04;* **C09c** *1/36*
U.S. Cl. 106—300 17 Claims

Pigmentary metal oxides, particularly titanium dioxide, are prepared by vapor phase oxidation of corresponding metal halides. A method for wet treating raw metal oxide to improve pigmentary properties is described. The process comprises digesting an aqueous slurry consisting essentially of such oxide at pH levels below 2.0 and at temperatures of from 50° C. to the boiling point of the slurry for a period of time sufficient to reduce the surface activity of the raw metal oxide.

3,567,479

PRODUCTION OF AQUEOUS SUSPENSIONS OF TITANIUM DIOXIDE

Pierre J. Portes, Jacques Andre Krisner, and Robert Jean Mas, Thann, France, assignors to Fabriques de Produits Chimiques de Thann et de Mulhouse, Thann, France

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,274
Claims priority, application France, Feb. 17, 1967, 95,435
Int. Cl. C09c *1/36, 3/02*
U.S. Cl. 106—300 3 Claims

Aqueous suspensions of titanium dioxide are obtained using as dispersing agent a mixture of an alkali metal salt, especially a phosphate or polyphosphate, and an amine, especially an ethanolamine. The respective amounts of the two components may be 0.5–3%, and 0.05–2%, on the weight of the titanium dioxide. The dispersion can be hydroclassified without use of a flocculating agent.

3,567,480

PIGMENT OR FILLER AND MATERIALS AND PROCEDURES FOR MAKING THE SAME

William L. Craig, Westport, Conn., assignor to R. T. Vanderbilt Company, Inc., New York, N.Y.

Original application Mar. 29, 1965, Ser. No. 447,116. Divided and this application June 11, 1969, Ser. No. 850,283
Int. Cl. C01g *23/04;* **C09c** *1/36*
U.S. Cl. 106—300 12 Claims

A complex composition consisting essentially of TiO_2, SiO_2 and CaO made by precipitation from an acid solution of titanyl sulfate containing calcium and silicate ions dissolved therein, by mixing such solution with an alkaline solution under conditions of high shear.

3,567,481

FIBROUS CATIONIC MINERAL PIGMENT

William L. Craig, Westport, Conn., assignor to R. T. Vanderbilt Company, Inc., New York, N.Y.

No Drawing. Filed June 5, 1968, Ser. No. 734,581
Int. Cl. C09c *1/02, 3/00*
U.S. Cl. 106—306 8 Claims

An improved complex silicate pigment is disclosed prepared by precipitating a complex silicate pigment on cationic fibrous magnesium or magnesium-aluminum silicates. The ratio of the fibrous silicate to pigment is between about 50:50 and 97:3 by weight. The properties of papers manufactured using the improved pigment of this invention are described.

3,567,482

LATENT IMAGE PRINTING DEVICE

Harry O. George, Belle Mead, and James F. Martone, Somerville, N.J., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,296
Int. Cl. B44f *1/10*
U.S. Cl. 117—1.7 2 Claims

A latent image printing device comprising a substrate, a first layer of abrasive material, and a second layer of non-abrasive material placed as a negative facsimile of the image to be printed upon said first layer, said layers matched for similarity of properties of color, gloss and fluorescence, to render the image undetectable under normal or ultraviolet light. The image is developed by rubbing, for example, a metal object over the surface of said substrate, causing abrading of the object in the abrasive areas and "printing" of said image.

3,567,483

IMAGE DEVELOPMENT SYSTEM

Frederick J. Stryker, San Jose, Calif., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Mar. 26, 1968, Ser. No. 716,235
Int. Cl. B41m *5/02;* **B44d** *5/04*
U.S. Cl. 117—1.7 2 Claims

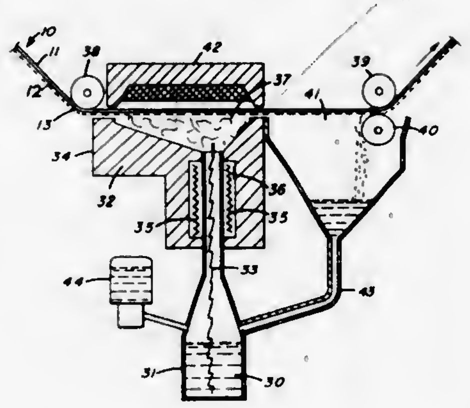
An improvement for reproducing onto a copy paper the latent image of an original which has been produced by the Reduced Layer Formation Process (RLF), which comprises treating the original with oleic acid, transferring a latent oil image on the original onto a copy paper and rendering the transferred latent oil image on the copy paper visible.

3,567,484

PROCESS FOR FUSING XEROGRAPHIC IMAGES

William E. White and William F. Garbe, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 17, 1969, Ser. No. 807,831
Int. Cl. B44d *1/094;* **G03g** *13/20*
U.S. Cl. 117—17.5 6 Claims



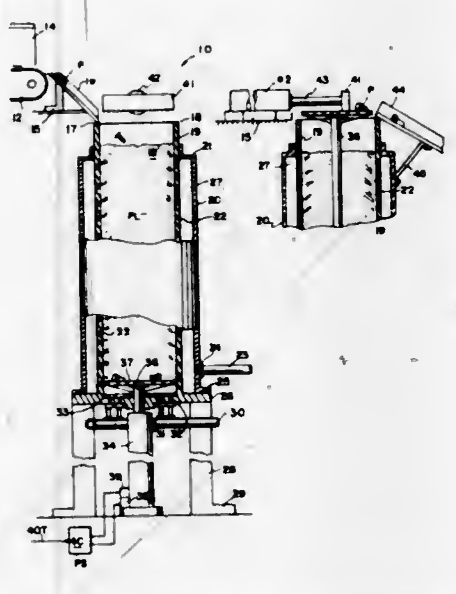
A process for fusing an electroscopic toner image to the surface of a support in which the support is moved relative to a station where a nonsolvent vapor is applied to the support. The toner image is fused to the support by the heat released by the exothermic change of state of the vapor due to its contact with the support and toner.

3,567,485

ARTICLE COATING METHOD

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of application Ser. No. 305,002, Aug. 27, 1963, which is a continuation-in-part of applications Ser. No. 589,848, May 28, 1956, and Ser. No. 589,300, June 4, 1956. This application Oct. 14, 1968, Ser. No. 767,377
Int. Cl. B44c *1/08*
U.S. Cl. 117—21 5 Claims



An apparatus and method for coating or otherwise treating the surfaces of small articles by passing the articles through a fluidized medium. In one form, a fluidized bed of particles of thermoplastic coating material is generated by passing a gas upwardly through a column surrounded by a jacket or housing and introducing particles of thermoplastic material into said column which particles become fluidized. Thereafter, articles such as metal parts which have been preheated to a temperature above the melting range of the plastic resin so fluidized, are introduced into the top of the chamber and allowed to fall through the fluidized mass. As they fall, they intersect particles of the fluidized mass which melt upon contact with the surface of the articles forming a coating thereon. Depending upon the height of the column and the desired thickness of coating, the articles may be ejected or carried upwardly by a movable receiving device located at the bottom of the column which is activated to either propel the articles from the surface thereof upwardly into the fluidized mass or to carry the articles upwardly into the fluidized mass.

3,567,486

HEAT-SEALABLE FILM

Timothy Alan Remmington, Hertford, and Auguste Louis Lucien Palluel, Windsor, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Mar. 6, 1967, Ser. No. 620,678
Claims priority, application Great Britain, Mar. 29, 1966, 13,859/66
Int. Cl. C09j *7/02*
U.S. Cl. 117—47 7 Claims

An improved heat sealable film having at least one surface treated to improve its bonding properties and having adhesively bonded thereto a resin coating of a condensation product of a monoaldehyde with an interpolymer of acrylamide or methacrylamide condensed in the presence of alkanol. The interpolymer is a copolymer of acrylamide and methacrylamide and at least one monoethylenically unsaturated monomer. Suitably the monoaldehyde is formaldehyde and the monoethylenically unsaturated monomer is styrene.

3,567,487

METALLIZABLE POLYOLEFINS

Wassily Poppe and Habet M. Khelghatian, Springfield, Pa., assignors to Avisun Corporation, Philadelphia, Pa.

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,422
Int. Cl. B44d *1/92;* **C23c** *17/00*
U.S. Cl. 117—47 19 Claims

Metallizable polyolefin compositions are provided from blends of a polyolefin and from about 1% to about 55% by weight of a compatible adhesion-promoting modifier selected from the group consisting of (a) polyterpene resins, (b) rosins, (c) disproportionated rosins, (d) polymerized rosins, (e) hydrogenated rosins, (f) dirosin amines, (g) rosin amides, (h) ester gums, and (i) petroleum resins having a molecular weight less than about 3,000. The polyolefin compositions may be metallized by conventional electroplating or other metallizing processes to form metallized shaped articles.

3,567,488

PROCESS FOR ELECTROLESS PLATING OF CARBOXYLIC ACID COPOLYMERS USING AMMONIA

Richard J. Rathsack, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,892
Int. Cl. B44d *1/92;* **C23c** *3/02*
U.S. Cl. 117—47 8 Claims

Process for chemically depositing a plating metal on the surface of a copolymer of an α,β-ethylenically unsaturated monocarboxylic acid in which the surface is first ammoniated and then treated with a noble metal salt prior to the chemical deposition.

3,567,489

PROCESS FOR ELECTROLESS PLATING OF CARBOXYLIC ACID COPOLYMERS USING ALKYLENIMINES

Richard J. Rathsack, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,893
Int. Cl. B44d *1/092;* **C23c** *3/02*
U.S. Cl. 117—47 8 Claims

Process for chemically depositing a plating metal on the surface of a copolymer of an α,β-ethylenically unsaturated monocarboxylic acid in which the surface is first treated with an alkylenimine and then treated with a noble metal salt prior to the chemical deposition.

3,567,490

FIXTURE FOR MAKING GLASS-TO-METAL SEALS OR THE LIKE AND METHODS OF MAKING THE SAME

Arthur T. Johnson, Providence, R.I., assignor to GTI Corporation

Filed Oct. 4, 1967, Ser. No. 672,919
Int. Cl. B44d *1/14*
U.S. Cl. 117—54 11 Claims

A high temperature ceramic fixture is disclosed for employment in holding metal and glass components in proper position for fusing of glass-to-metal seals therebetween. The life of the fixture and the quality of the glass-to-metal seals are improved by a unique method of depositing a uniformly adherent coating of carbon on the fixture at relatively low temperatures. The carbon-coated ceramic fixture is more durable and its coating can be periodically replenished during usage without the necessity of refiring or replacing the fixtures.

3,567,491

COATING COMPOSITIONS

Paul R. Graham, Ballwin, and August F. Ottinger, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Apr. 3, 1968, Ser. No. 718,378
Int. Cl. D21h *1/40*
U.S. Cl. 117—76 **10 Claims**

This invention relates to fibrous substrates and the sequential coating thereof with an interpolymer of ethylene, vinyl chloride and acrylamide and polyvinylidene chloride polymer.

3,567,492

METHOD FOR TREATING STONE TO OBTAIN IMPROVED BONDING TO BITUMINOUS MATERIAL

Peter M. Burrill, Cowbridge, Wales, assignor to Midland Silicones Limited, Berkshire, England
No Drawing. Filed June 24, 1968, Ser. No. 739,145
Int. Cl. B44d *1/14*
U.S. Cl. 117—72 **5 Claims**

A method for bonding a bituminous material to stone surfaces employing an aqueous emulsion of certain organosilicon materials as a primer on the stone. The aqueous emulsion of organosilicon material is applied to the stone and the coating is dried prior to application of the bituminous material thereto.

3,567,493

METHOD OF CURING A ROOM TEMPERATURE VULCANIZABLE SILICONE COMPOSITION TO A VULCANIZED SILICONE RUBBER

James K. Wessel, Elizabethtown, Ky., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Feb. 19, 1968, Ser. No. 706,673
Int. Cl. B44d *1/14*
U.S. Cl. 117—76 **9 Claims**

A method of curing a room temperature vulcanizable silicon composition to other cured silicone rubbers by applying a metal carboxylate to the surface of the cured silicone rubber prior to applying the room temperature vulcanizable silicone composition is disclosed. The room temperature vulcanizable silicone composition is a mixture of a hydroxylated organosiloxane polymer, a hydrocarbonoxy silicon compound or a silicon compound having silicon bonded hydrogen atoms, and a curing catalyst. The metal carboxylate can be illustrated by dibutyltindilaurate. This method is useful in sealing, encapsulating and bonding processes where some or all the parts are cured silicone rubber.

3,567,494

PROCESS FOR PREPARING POLYMERIZED SURFACE COATINGS USING ULTRA-VIOLET RADIATION

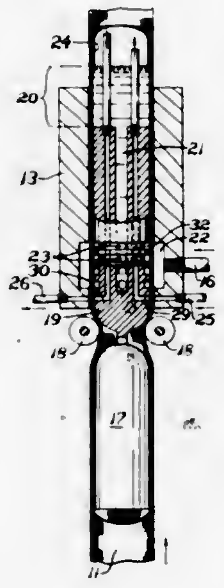
Chester W. Fitko, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
No Drawing Filed Aug. 29, 1968, Ser. No. 756,322
Int. Cl. B44d *1/50*
U.S. Cl. 117—93.31 **10 Claims**

A process for coating an article wherein there is applied to the surface of the article to be coated a thin film of a polymerizable acrylic ester prepared by the coesterification of a polyhydric alcohol having at least 3 esterifiable hydroxyl groups on adjacent carbon atoms with acrylic acid, and a dicarboxylic acid selected from a saturated aliphatic dicarboxylic acid and an alpha-unsaturated, alpha,beta-dicarboxylic acid, from 45% to 95% of the hydroxyl groups of the alcohol being esterified with the acrylic acid, 5% to 55% of the hydroxyl groups being esterified with the dicarboxylic acid, and exposing the polymerizable film-containing surface to a source of ultraviolet radiation for a time sufficient to effect polymerization of the acrylic ester film.

3,567,495

METHOD FOR LINING A PREFORMED PERMEABLE TEXTILE TUBE

Leslie B. Gajdos, Lakewood, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
Continuation-in-part of application Ser. No. 372,309, June 3, 1964. This application Sept. 5, 1968, Ser. No. 770,465
Int. Cl. B05b *13/06;* **B05c** *7/04, 8/04*
U.S. Cl. 117—95 **4 Claims**



A permeable textile tube containing a unique floating mandrel is interiorly coated by passing a plastisol through the textile tube, and through the interior of the mandrel to a coating zone atop the mandrel. An exterior coat is then optionally given to the tube.

3,567,496

METHOD OF PRODUCING PLASTIC IMPREGNATED CONCRETE

Meyer Steinberg, Huntington Station, Peter Colombo, Patchogue, Lawrence E. Kukacka, Port Jefferson, and Bernard Manowitz, Brightwaters, N.Y., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,338
Int. Cl. C04b *41/28;* **C05c** *3/02*
U.S. Cl. 117—113 **4 Claims**

A method of improving the physical properties of concrete bodies comprising impregnating the body with a mixture of monomer and polymerization catalyst and thereafter thermo-catalytically polymerizing the monomer in situ.

3,567,497

FABRICATING STRUCTURES IMPREGNATED WITH MIXTURES OF VINYLIC RESINS AND ACRYLOXYALKYLSILANES

Edwin P. Plueddemann and Harold A. Clark, both % Dow Corning Corp., Midland, Mich. 48640
No Drawing. Continuation-in-part of application Ser. No. 288,525, June 17, 1963, which is a continuation-in-part of abandoned application Ser. No. 111,146, May 19, 1961, which in turn is a continuation-in-part of abandoned application Ser. No. 87,101, Feb. 6, 1961. This application Nov. 3, 1967, Ser. No. 680,310
Int. Cl. C03c *25/02*
U.S. Cl. 117—126 **3 Claims**

Method of making molded articles, particularly of fibrous glass, comprising impregnating a substrate with a mixture of a curable vinylic resin and an acryloxyalkylsilane and subsequently curing to form a consolidated article.

3,567,498

METHOD FOR TREATING FABRICS

John W. Rafferty, Marblehead, and Derek E. Till, Concord, Mass., assignors to Arthur D. Little Inc., Cambridge, Mass.
No Drawing. Filed July 7, 1966, Ser. No. 563,399
Int. Cl. D06m *15/16*
U.S. Cl. 117—139.5 **4 Claims**

A method of enhancing the body of a fabric, particularly after laundering, without increasing its stiffness, by depositing on the fabric up to 3% of its weight a copolymer of ethylene and vinyl acetate, of butylacrylate and acrylamide, or of polybutyl acrylates containing acrylic acid residues. Deposition is from a water dispersion.

3,567,499

TEXTILE MATERIALS AND THE PROCESS FOR FINISHING THE SAME

Wolfgang Klebert, Leverkusen, Karl Schäfer, Opladen, Heinz Griepentrog, Cologne, and Friedrich Reich, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 4, 1967, Ser. No. 672,718
Claims priority, application Germany, Oct. 6, 1966, F 50,369
Int. Cl. C08g *47/10;* **D06m** *15/52, 15/66*
U.S. Cl. 117—139.5 **8 Claims**

Textile materials are finished by treatment with an aqueous bath which contains a polyurethane prepolymer having free isocyanate groups which in turn has been obtained from an organic compound having active hydrogen containing groups and an organic polyisocyanate, and an organo polysiloxane having a molecular weight of to about 25,000 and containing at least two active hydrogen containing groups. The organo polysiloxane is reactive with the isocyanato prepolymer on the textile substrate in order to give the textile material a full pleasantly soft, supple hand and reduce susceptibility to soiling. One may use polymers or copolymers prepared from vinyl or divinyl monomers in the aqueous bath along with the other components.

3,567,500

FLUOROAMIDE-AMINO POLYMERS AND PROCESS FOR IMPARTING OLEOPHOBIC YET HYDROPHILIC PROPERTIES TO FIBROUS MATERIALS

Jerry P. Moreau, New Orleans, and George L. Drake, Jr., and Wilson A. Reeves, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,211
Int. Cl. C08j *1/44*
U.S. Cl. 117—139.5 **6 Claims**

Certain liquid perfluoroalkyl esters were reacted with certain liquid polyamines containing a primary: secondary:tertiary amine ratio of 1:2:1 to produce new liquid polymeric fluoroamido-amino compounds. The new compounds were dissolved in certain solvents and applied to cotton fabrics thereby imparting to the treated fabrics olephobicity with retained hydrophilicity which was durable to repeated laundering.

3,567,501

SOFTENING AND INCREASING ABRASION RESISTANCE OF FABRICS CONTAINING CELLULOSE ETHERS INCORPORATING AMINE GROUPS BY USE OF HETEROCYCLIC CARBONATES

Truman L. Ward and Ruth R. Benerito, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Oct. 11, 1968, Ser. No. 766,950
Int. Cl. C08j *1/44*
U.S. Cl. 117—139.5 **1 Claim**

This invention relates to a process for softening and for increasing abrasion resistance of fabrics. More particularly, this invention relates to a process for softening and for increasing abrasion resistance of fabrics containing cellulose ethers incorporating amine groups by use of heterocyclic carbonates.

3,567,502

BARRIER COATINGS

Paul R. Graham, Ballwin, and August F. Ottinger, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Apr. 3, 1968, Ser. No. 718,367
Int. Cl. D21h *1/40*
U.S. Cl. 117—155 **11 Claims**

This invention relates to fibrous substrates coated with a mixed latex of polyvinylidene chloride polymer and an ethylene, vinyl chloride and acrylamide interpolymer.

3,567,503

PAPER TREATED WITH COPOLYMER COMPOSITIONS

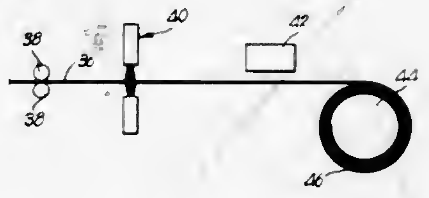
William Franklin Fallwell, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 703,250, Feb. 6, 1968, which is a division of application Ser. No. 411,610, now Patent No. 3,395,131, dated Nov. 16, 1964. This application Sept. 30, 1969, Ser. No. 862,533
Int. Cl. D21h *1/28*
U.S. Cl. 117—155 **5 Claims**

This invention relates to copolymers of a vinyl compound and a partial ester of an unsaturated dibasic acid anhydride and a hydroxyl-contining nonionic dispersing agent and their use as pigment binders in mineral coated paper.

3,567,504

POLYIMIDE BONDED SOLID LUBRICANT BEARING SURFACE

Vernice Hopkins, Overland Park, and Mahlon E. Campbell, Merriam, Kans., and Keith E. Demorest, Huntsville, Ala.; said Demorest assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration, said Hopkins and Campbell assignors to Midwest Research Institute, Kansas City, Mo.
Filed June 19, 1967, Ser. No. 647,007
Int. Cl. C10m *7/00;* **F16c** *13/02, 19/00*
U.S. Cl. 117—160 **16 Claims**



A solid lubricant film coating composition is produced by admixing a finely divided solid lubricant material comprising a mixture of molybdenum disulfide (MoS_2) and antimony trioxide (Sb_2O_3) into a solution of a polypyromellitamic acid and a solvent therefor. In particular, the acid is derived from the reaction between pyromellitic dianhydride (PMDA) and either 4,4′-diaminodiphenyl ether (DADPE) or 4,4′-methylene dianiline (MDA). The solvent for the MDA acid is diethylene acidimide while the solvent for the DADPE acid is a three to one volume ratio of oxylene and pyrrolodine. Optimum results are obtained with MDA acid by using a 3 to 1 ratio of MoS_2 to Sb_2O_3 in the lubricant material and a 79 to 21 ratio of lubricant material to MDA acid (solids) in the admixture. Also, optimum results are obtained with DADPE acid by using a 55 to 45 ratio of MoS_2 to Sb_2O_3 in the lubricant material and a 66 to 34 ratio of lubricant material to DADPE (solids) in the admixture.

Either of the admixtures, after appropriate dilution, is sprayed onto a bearing surface of a bearing component in a layer approximately 0.0005 inch thick. The layer is baked at approximately 200° F. to evaporate the solvent therefrom and then at about 575° F. to cure the film by causing the acid in the film to be converted to its corresponding polyimide by ring closure.

Fiber glass reinforced bearing components are formed utilizing the polyimide composition as a binder for the glass fibers as well as for the lubricant pigment. The fiber glass reinforced components have solid lubricant characteristics as well as structural strength, and may be machined to form bearing sleeves or retainers.

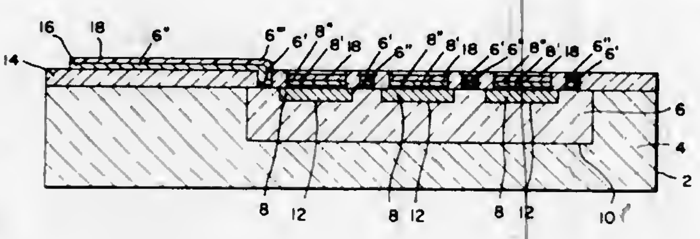
3,567,505
REACTION FILMS ON GLASS SURFACES

Roy V. Harrington, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
No Drawing. Filed Feb. 26, 1968, Ser. No. 707,977
Int. Cl. H05b *33/00*
U.S. Cl. 117—211 **13 Claims**

This invention relates to a method of producing electronically active surface films on a glass substrate by passing a gas containing a reactive anion over the surface of the heated glass substrate which contains a reactive cation and reacting the cation and anion so as to form a film on the surface of the glass substrate, the cations are selected from groups II or III and reacted with anions from groups V or VI respectively, hence either III–V or II–VI compound films can be formed.

3,567,506
METHOD FOR PROVIDING A PLANAR TRANSISTOR WITH HEAT-DISSIPATING TOP BASE AND EMITTER CONTACTS

Richard J. Belardi, Anaheim, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Mar. 22, 1968, Ser. No. 715,349
Int. Cl. H01l *7/00*
U.S. Cl. 117—212 **8 Claims**



A method for providing heat-dissipating top contacts for the base and emitter regions of a planar transistor having a glass coating on the surface thereof in which the heat-dissipating members are formed by plating metal through openings in the glass coating.

3,567,507
ENCAPSULATED ELECTRONIC COMPONENT

Thomas F. Cobb, Ansonia, and William R. Belko, Jr., Huntington, Conn., assignors to Vitramon Incorporated, Monroe, Conn.
No Drawing. Continuation-in-part of application Ser. No. 582,491, Sept. 28, 1966. This application Apr. 30, 1968, Ser. No. 725,540
Int. Cl. H01l *1/10*
U.S. Cl. 117—212 **3 Claims**

A method of hermetically encapsulating electronic components comprising coating less than all of the surfaces with a first refractory material and firing the component to glaze the first refractory material; and, coating the remaining surfaces with a second refractory material having a lower melting temperature than the first refractory material and again firing the component to glaze the second refractory material.

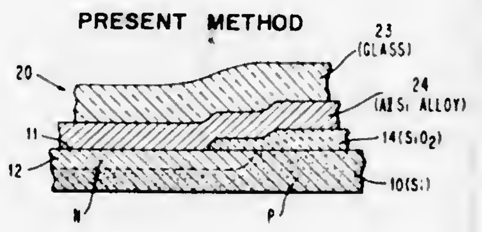
3,567,508
LOW TEMPERATURE-HIGH VACUUM CONTACT FORMATION PROCESS

Theodore R. Cox, Canastota, and Clair E. Logan, North Syracuse, N.Y., assignors to General Electric Company
Filed Oct. 31, 1968, Ser. No. 772,099
Int. Cl. B44d *1/18*
U.S. Cl. 117—212 **8 Claims**

This invention relates to an improved method of forming a metallic electrical contact on a semiconductor body having an insulating cover provided with at least one contact locating aperture exposing a portion of the top surface of the body, and wherein the insulating cover is itself covered or coated with a selectively-patterned mask of heat-removable material such as a layer of organic photoresist. A layer of metal is deposited by condensation from the vapor state, in a vacuum of about 1.0×10^{-6} torr over the surface of the photoresist layer and the surface of the body exposed through the aperture, while maintaining the semiconductor material and photoresist at a temperature slightly below that at which the photoresist begins to char. After the deposition of the metal, removal of the photoresist material together with the portion of the metal layer overlying the photoresist is accomplished by a one-shot heating step, by which the photoresist and the semiconductor material are heated to a temperature in the range of 400 to 570° C. This heating also sinters the un-removed portion of the metal layer to the semiconductor body to provide a non-rectifying electrical connection of increased mechanical strength.

3,567,509
METAL-INSULATOR FILMS FOR SEMICONDUCTOR DEVICES

Lubertus L. Kuiper, Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Original application July 22, 1965, Ser. No. 474,074. Divided and this application Feb. 19, 1968, Ser. No. 739,993
Int. Cl. H01l *9/00*
U.S. Cl. 117—217 **2 Claims**

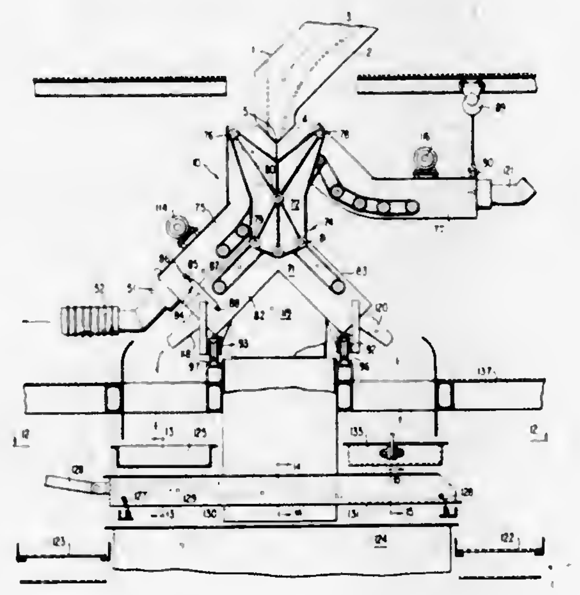


This is a metal-insulating compound film for semiconductor devices wherein the metal is a metal-semiconductor alloy with the semiconductor being a small percentage of the alloy.

3,567,510
METHOD AND APPARATUS FOR SEPARATING COMPONENTS OF SUGARCANE

Sydney E. Tilby, Winterburn, Alberta, Canada, assignor to Canadian Cane Equipment, Ltd., Montreal, Quebec, Canada
Filed Dec. 20, 1967, Ser. No. 692,185
Int. Cl. C13c *1/00, 1/02;* **C13d** *1/02*
U.S. Cl. 127—2 **19 Claims**

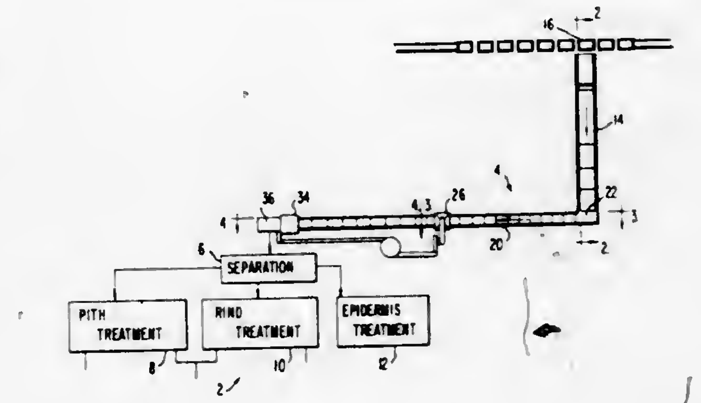
Method and apparatus for separating the pith, rind and epidermis components of split sugarcane stalk. Each split stalk portion is flattened and milled on the pith side to separate pith from rind and milled on an opposite side to remove epidermis. While the milling away of pith and epidermis is being effected, the rind is maintained in a flattened condition and is positively engaged by rind, velocity-controlling, gripping means which partially penetrate the ring periphery. The rind milling apparatus is characterized by a milling roll having a plurality of generally radially extending milling ridges. Each milling ridge has a planar milling side parallel to a radial plane of the roll and a peripheral, arcuate, rind-contacting which intersects the planar milling side. The separator apparatus is constructed such that cooperating components of stalk feeding and milling units may be simultaneously separated. The separator apparatus is incorporated with component conveying and handling systems to facilitate the modular stacking of separator units. This modulator stacking increases plant capacity and facilitates a secondary separation of residual pith from rind, after the primary rind and pith separation has taken place.



3,567,511
METHOD AND APPARATUS FOR PROCESSING SUGARCANE

Sydney E. Tilby, Winterburn, Alberta, Canada, assignor to Canadian Cane Equipment, Ltd., Montreal, Quebec, Canada
Continuation-in-part of applications Ser. No. 692,185 and Ser. No. 692,237, both Dec. 20, 1967. This application Mar. 21, 1968, Ser. No. 714,896
Int. Cl. A01f *29/00;* **C13c** *1/00, 1/02*
U.S. Cl. 127—43 **13 Claims**

A process which transforms randomly oriented sugarcane stalks into their pith, rind and epidermis components which are then treated to obtain sugar juice, pith floc, cane fibers and other sugarcane commodities. In delivering the sugarcane stalk material to the separating zone, the stalks are aligned longitudinally in their direction of travel and are chopped transversely thereof into shorted lengths. If the cane contains trash such as leaves and rocks, a fluid is directed through it to remove the trash. At the separating zone the chopped stalks are separated into their pith, rind and epidermis components by opening up longitudinally each chopped stalk into separate portions which are then flattened. As the flattened stalk material is fed through the zone, pith is milled away from one side and epidermis material is milled away from the opposite side. The components are then recovered and can be further treated. The treatment of the pith comprises a washing and pressing operation to extract the juice from the pith. The rind is reduced into smaller portions such as chips or shreds which are then contacted with water to extract water solubles from the rind. The epidermis can also be treated to separate wax bearing material from certain other epidermis material.



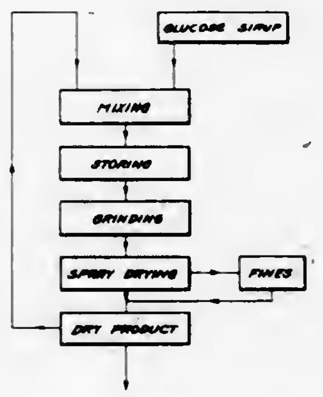
3,567,512
PROCESS FOR THE PURIFICATION OF SUGAR BEET DIFFUSION JUICE

John W. Lyons, St. Louis, and Charles E. Miles, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed June 17, 1968, Ser. No. 737,346
Int. Cl. C13d *3/02, 3/14*
U.S. Cl. 127—48 **9 Claims**

A process for purifying sugar beet diffusion juice which involves treating said juice with calcium oxide, phosphoric acid and a polyelectrolyte. An anionic, cationic or nonionic polyelectrolyte can be used.

3,567,513
PROCESS FOR THE MANUFACTURE OF A FREE-FLOWING GLUCOSE PRODUCT

Ove Hansen, Vanlose, Denmark, assignor to Aktieselskabet Niro Atomizer, Soborg, Denmark
Filed Oct. 14, 1968, Ser. No. 767,241
Claims priority, application Denmark, Oct. 17, 1967, 5,137/67
Int. Cl. C13k *1/10*
U.S. Cl. 127—62 **5 Claims**

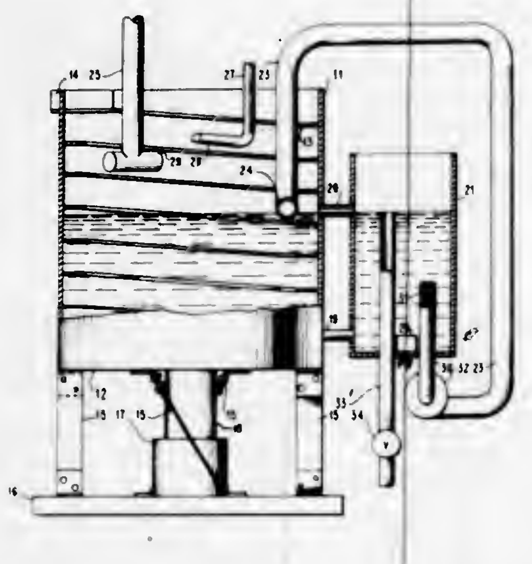


A process for the manufacture of a glucose product by spray drying. Part of the dried product is mixed with a saturated glucose solution and left standing until a transformation from a gritty to a smooth homogeneous consistency has taken place, then the mixture is recirculated to the spray dryer.

3,567,514

CLEANING AND SEPARATING TABLEWARE

David L. Nystuen, Burnsville, Minn., assignor to Economics Laboratory, Inc., St. Paul, Minn.
Filed Oct. 11, 1968, Ser. No. 766,766
Int. Cl. B08b *3/10*
U.S. Cl. 134—1 **4 Claims**



A vibratory bowl feeder is employed to wash tableware and separate individual pieces for delivery, for example, to a tableware sorter.

3,567,515

ELECTROCHEMICAL CELL CONTAINING SULFUR DIOXIDE AS THE CATHODE DEPOLARIZER

Donald Leonard Maricle, Ridgefield, and John Phillip Mohns, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation of application Ser. No. 735,971, June 11, 1968, which is a continuation-in-part of application Ser. No. 678,476, Oct. 10, 1967, which is a continuation-in-part of application Ser. No. 589,237, Oct. 25, 1966, which in turn is a continuation-in-part of application Ser. No. 454,657, May 10, 1965. This application Mar. 25, 1970, Ser. No. 20,472
Int. Cl. H01m *17/00*
U.S. Cl. 136—6 **16 Claims**

A primary and secondary electrochemical cell effective without electrode separator which comprises in combination an anode of a metal capable of reducing sulfur dioxide, a cathode particularly of a high surface area material, an electrolyte salt solution containing sulfur dioxide as the major cathode depolarizer, with the use of a co-solvent if desired.

3,567,516

ELECTRICAL ENERGY STORAGE DEVICE CONTAINING A TELLURIUM ADDITIVE

Robert A. Rightmire, Northfield, and James L. Benak and Joseph E. Metcalfe III, Bedford Heights, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio
Filed Mar. 20, 1969, Ser. No. 808,876
Int. Cl. H01m *35/02*
U.S. Cl. 136—6 **5 Claims**

The capacity of an electrical energy storage device containing a high surface area carbon cathode, a metallic anode, and a fused salt electrolyte in contact with the electrodes, can be greatly enhanced by the addition of a tellurium compound directly to the electrolyte or to the carbon cathode. On passage of an electric current through the system, the tellurium becomes permanently bonded to the carbon of the cathode thereby forming an "active" tellurium species that manifests itself as a characteristic plateau in the discharge profile of the cell.

3,567,517

PROCESS FOR PREPARING CADMIUM ELECTRODES

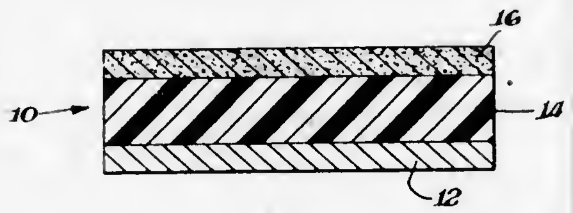
Samuel Korman, Hewlett, N.Y., assignor to Portable Power Corporation, New York, N.Y.
Filed May 29, 1968, Ser. No. 733,061
Int. Cl. H01m *35/30, 43/04*
U.S. Cl. 136—24 **1 Claim**

The disclosure relates to novel aqueous cadmium solutions wherein the ratio of water to cadmium is in the range of about 1.3 to less than 4.0 and preferably between 1.3 to 3.0. The solutions are prepared by removing water from molten cadmium nitrate tetrahydrate and are used to impregnate porous matrices to form cadmium electrodes of high capacity.

3,567,518

SOLID-STATE BATTERY CELL WITH COMPLEX ORGANIC ELECTROLYTE MATERIAL

Donald M. Smyth, Williamstown, Charles H. Tompkins, Jr., Clarksburg, and Sidney D. Ross, Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.
Filed Oct. 7, 1968, Ser. No. 765,531
Int. Cl. H01m *11/00;* **B01k** *3/12*
U.S. Cl. 136—83 **3 Claims**



In a battery or an electrical capacitor the solid electrolyte is a new composition of matter defined as the quaternary ammonium iodide-silver iodide reaction product of a Z-quaternary ammonium iodide and silver iodide, wherein the molar ratio of silver ion to the quaternary ammonium ion is greater than 2:1. The Z-quaternary ammonium ion is a member of the group consisting of R_4N^+, N—R substituted pyridinium, N—R substituted quinolinium and N—R substituted isoquinolinium. R is an alkyl, aryl, alkaryl or aralkyl group, and the R groups of R_4N^+ are the same or any combination of said groups.

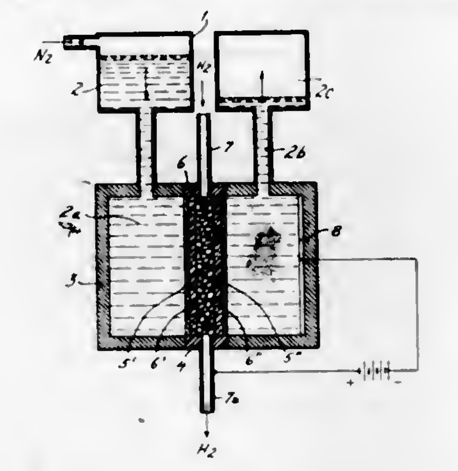
3,567,519

DEPOLARIZATION PROCESS

Ralf Wendtland and August Winsel, Braunschweig, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munchen, and Varta Aktiengesellschaft, Frankfurt am Main, Germany
Continuation-in-part of applications Ser. No. 269,907, Apr. 2, 1963, now Patent No. 3,428,491, and Ser. No. 545,986, Apr. 28, 1966. This application Oct. 4, 1968, Ser. No. 765,134
Claims priority, application Germany, Apr. 30, 1965, P 15 46 719.3
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 **12 Claims**

A method of controlling the concentration polarization during the operation of a fuel cell. Electrolyte is

passed through the small pores of an electrode from one face thereof in one electrolyte chamber to the other face in another electrolyte chamber while reaction gas is passed through the coarser pores of the electrode.



3,567,520

PROCESS FOR MANUFACTURING ELECTRODES OF FUEL CELLS

Francis Dennery and Gerard Mondain-Monval, Paris, France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et Exploitation des Procedes Georges Claude, Paris, France
No Drawing. Filed Sept. 28, 1967, Ser. No. 671,188
Claims priority, application France, Oct. 13, 1966, 79,869
Int. Cl. C23f *17/00;* **F26b** *5/06;* **H01m** *13/04*
U.S. Cl. 136—120 **7 Claims**

Process for manufacturing electrodes for fuel cells, wherein a paste, comprising a mechanically resistant material in the dry state, a solvent for this material and possibly an oxidation or reduction catalyst or a component capable of generating such a catalyst, is subjected to a freeze-drying in which at least one of the operations of freezing and sublimation is effected at a sufficiently variable speed, for there to be formed a material having pores of variable size over its thickness, and variable concentrations of the catalyst or of the component capable of generating it.

3,567,521

POLYMER COATING OF METAL SURFACES

Madeline S. Toy, Fountain Valley, and Nathan A. Tiner, Laguna Beach, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,999
Int. Cl. C23f *7/00*
U.S. Cl. 148—6.3 **17 Claims**

Polymer coated metal surface and process therefor. The metal surface is first treated with elemental fluorine to form an integral, chemically bonded surface coating of metal fluoride. The metal fluoride surface coating is then exposed to a film forming monomer, e.g., tetrafluoroethylene, to cause in situ polymerization thereon and produce a uniform, continuous, adherent polymer coating. Such tetrafluoroethylene polymer coated metal surfaces provide excellent corrosion resistance useful for protective coatings particularly on metal structural components.

3,567,522

METHOD OF PRODUCING ZIRCONIUM BASE ALLOYS

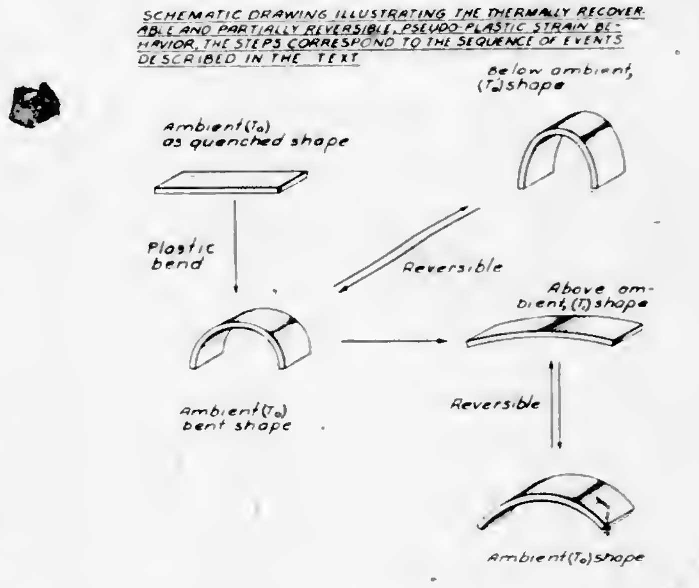
Kenneth C. Thomas and Robert J. Allio, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
No Drawing. Filed Dec. 15, 1965, Ser. No. 514,129
Int. Cl. C22f *1/18*
U.S. Cl. 148—11.5 **3 Claims**

A process for producing a zirconium base alloy member having improved tensile strength and ductility properties prior to nuclear radiation by first cold working the member to induce a 7% to 20% strain. The member is then heat treated at temperatures lower than the usual annealing temperatures.

3,567,523

PSEUDO-PLASTIC BEHAVIOR OF URANIUM-NIOBIUM ALLOYS

Ross J. Jackson, Boulder, Joseph F. Boland, Golden, and Julius L. Frankeny, Arvada, Colo., assignors to The Dow Chemical Company, Midland, Mich.
Filed Sept. 27, 1968, Ser. No. 763,180
Int. Cl. C22c *27/00;* **C22f** *1/18*
U.S. Cl. 148—11.5 **10 Claims**

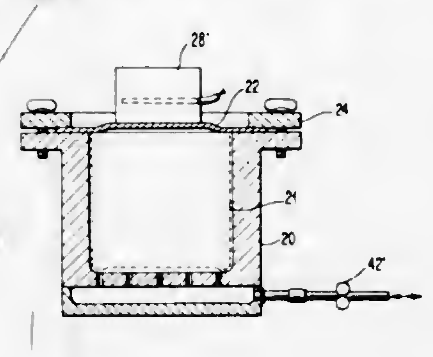

SCHEMATIC DRAWING ILLUSTRATING THE THERMALLY RECOVERABLE AND PARTIALLY REVERSIBLE, PSEUDO-PLASTIC STRAIN BEHAVIOR. THE STEPS CORRESPOND TO THE SEQUENCE OF EVENTS DESCRIBED IN THE TEXT
Below ambient, (T₂) shape
Ambient (T₀) as quenched shape
Plastic bend
Reversible
Above ambient, (T₁) shape
Ambient (T₀) bent shape
Reversible
Ambient (T₀) shape

The present invention provides a process for achieving an unusual, thermally recoverable and reversible, pseudo-plastic strain behavior in uranium-niobium alloys, as well as useful products prepared therefrom. The process comprises rapidly cooling a uranium-niobium alloy from the gamma region, plastically deforming the same at a temperature below 450° C., and subsequently heating or cooling the alloy to cause it to exhibit pseudo-plastic behavior.

3,567,524

METHOD OF PRODUCING MOLDINGS AND THE PRODUCTS OF THIS METHOD

Jackie L. Cook, Oak Ridge, Tenn., and William G. Ralston and Bernard E. Toben, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 13, 1968, Ser. No. 783,640
Int. Cl. C22f *1/16*
U.S. Cl. 148—11.5 **23 Claims**



Wall thinning of moldings made by pressure deformation is avoided by locally preconditioning the material structure of a sheet of suitable material, for example, a superplastic metal. The preconditioning includes a heat treatment of the material structure in selected portions of the sheet to reduce the strain plasticity in these portions during the forming process.

3,567,525
HEAT TREATED FERROMAGNETIC PARTICLES

Arthur Hughes Graham, Ernest Lewis Little, Jr., and Jack D. Wolf, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed June 25, 1968, Ser. No. 739,732
Int. Cl. C21d *1/04;* **H01f** *1/06, 7/02*
U.S. Cl. 148—31.57 **10 Claims**

Ferromagnetic alloy particles of iron, nickel or cobalt, and optionally chromium supersaturated with boron, nitrogen or phosphorus which are prepared by reduction of a solution containing salts of the appropriate metals, are converted to polyphase particles of substantially unchanged size having improved magnetic properties by heating below their sintering temperatures. The ferromagnetic particles are useful for making magnets and for making magnetic recording members.

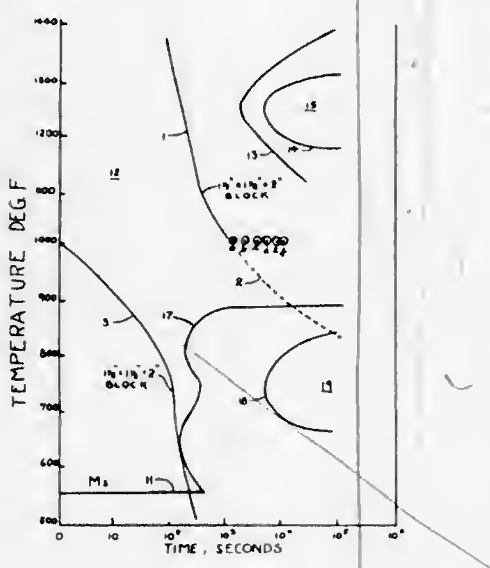
3,567,526
LIMITATION OF CARBON IN SINGLE CRYSTAL OR COLUMNAR-GRAINED NICKEL BASE SUPERALLOYS

Maurice L. Gell, Rocky Hill, and Gerald R. Leverant, Wapping, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
No Drawing. Filed May 1, 1968, Ser. No. 725,889
Int. Cl. C22c *19/00*
U.S. Cl. 148—32.5 **3 Claims**

The nickel-base superalloys which are fabricated by controlled unidirectional solidification into anisotropic articles, particularly in single crystal or columnar-grained form, are limited to a maximum carbon content of about 100 parts per million to provide superior fatigue resistance.

3,567,527
METALLURGICAL PROCESS AND PRODUCT

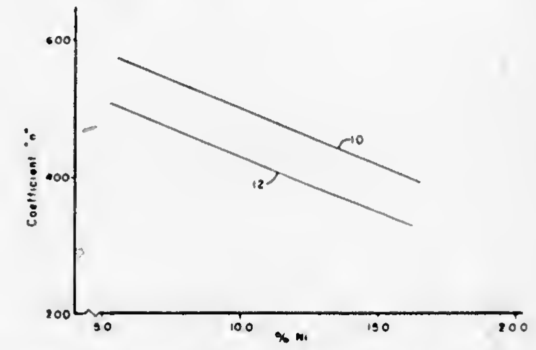
Maxwell Pevar, Philadelphia, Pa.
(551 Shoemaker Road, Elkins Park, Pa. 19117)
Continuation of application Ser. No. 497,926, Oct. 19, 1965. This application Dec. 16, 1968, Ser. No. 794,835
Int. Cl. C21d *1/00*
U.S. Cl. 148—127 **14 Claims**



This application discloses a method for heat treating metals of the class which is characterized by having a time-temperature-transformation, or T-T-T diagram wherein there is a high temperature long-time transformation region spaced above a low temperature short-time transformation region, the treatment being conducted in a manner to avail of the intermediate region between the high temperature transformation region and the low temperature transformation region and minimize quenching stresses, distortion, residual stresses, and cracking; also welding, when desired, in the intermediate region to produce homogeneous welded objects without special after-weld treatments; also the improved product of the heat-treatment process.

3,567,528
METHOD OF USING A CARBURIZED AUSTENITIC STAINLESS STEEL

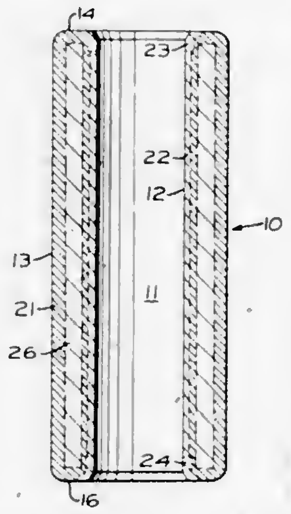
Gunther Mohling, Pittsburgh, Pa., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa.
Continuation of application Ser. No. 407,298, Oct. 29, 1964. This application Feb. 9, 1968, Ser. No. 704,944
Int. Cl. C22c *35/00*
U.S. Cl. 148—139 **5 Claims**



An austenitic steel is described which is suitable for use as valves and valve components for use in an internal combustion engine after the article has been carburized. The steel possesses a composition which includes up to 0.10% carbon, up to 0.20% silicon, up to 0.70% manganese, 0.06% maximum nitrogen, 13% to 22% chromium, 9% to 20% nickel and up to 33% copper, the sum of the nickel plus copper being within the range between 10% and 21% with the balance essentially iron. The steel is characterized by a low rate of work hardening and excellent ductility. Data was presented to demonstrate the cold workability by means of the slope of the true stress-true strain curve and the cold work hardening factor. Equations are presented for balancing the alloying components to obtain the desired cold work hardening rate.

3,567,529
DIFFERENTIALLY TREATED TRACK BUSHING

Robert D. Burtnett, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 3, 1969, Ser. No. 803,638
Int. Cl. C21d *1/00*
U.S. Cl. 148—148 **17 Claims**



A cylindrical bushing having a longitudinal bore therethrough, the outer diameter of the bushing being hardened to resist wear with the inner diameter of the bushing being differentially tempered with a reduced hardness relative to the outer diameter in order to resist shock and the development of cracks.

A method of manufacturing the above bushing comprising the steps of forming the bushing, hardening at least the outer diameter of the bushing, and then differentially tempering the inner diameter to a substantially reduced hardness relative to the outer diameter.

3,567,530
POLYMERIC PROPELLANT COMPOSITION CONTAINING LITHIUM PERCHLORATE/AMMONIUM PERCHLORATE EUTECTICS

Robert I. Lait, Swampscott, Stanley F. Bedell, Andover, and Lucius G. Gilman, Wakefield, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo.
No Drawing. Filed July 2, 1962, Ser. No. 207,468
Int. Cl. C06d *5/00*
U.S. Cl. 149—76 **19 Claims**

1. A polymeric solid solution of an oxidant amount of the lithium perchlorate/ammonium perchlorate eutectic and the polymer of a monomer including a hetero atom selected from the group consisting of O, S and N, in the same homogeneous phase.

3,567,531
HIGH ENERGY THIXOTROPIC FUEL COMPOSITIONS

Glenn Fuller and Alfred John Lawrence Toombs, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 302,444, Aug. 15, 1963. This application Mar. 17, 1964, Ser. No. 352,682
Int. Cl. C10l *7/00*
U.S. Cl. 149—87 **16 Claims**

1. A thixotropic composition consisting essentially of a mixture of finely divided particles selected from the group consisting of metal particles and metal hydride particles in a liquid hydrocarbon, gelled by admixture therewith of (a) 98–90% by weight of a monoester of a hydrocarbylthiomethyl phosphonic acid and a C_{1-18} alkanol and (b) 2–10% by weight of a di- to tri-basic pentavalent phosphorus acid having from 0 to 1 monohaloalkyl substituents, wherein the alkyl group contains from 1 to 4 carbon atoms.

3,567,532
ACIDIC CONDITIONER FOR PLASTIC MATERIALS

James L. Jezl, Swarthmore, and Habet M. Khelghtian, Springfield, Pa., assignors to Avisun Corporation, Philadelphia, Pa.
No Drawing. Filed Jan. 3, 1969, Ser. No. 788,954
Int. Cl. B44c *1/22;* **C23d** *1/00*
U.S. Cl. 156—2 **9 Claims**

In an acidic conditioning bath containing (a) a strong, liquid mineral acid, (b) a hexavalent chromium compound and (c) water, from about 0.01% to about 5% by weight of an aryl sulfonic acid or an aryl phosphonic acid is added to the aforementioned conditioning bath components. The acidic conditioner is useful for chemically etching the surface of a plastic article prior to treating the article with a metallizing process. Adhesion of the deposited metal to the surface of the plastic article is improved when the plastic article is immersed in the acidic conditioning bath.

3,567,533
TIN SOLDER COATED WITH CHROMIUM AS A MASK FOR ETCHING A METAL BASE

John S. C. Chiang, Cranbury, N.J., and Joseph T. McManamon, Levittown, Pa., assignors to FMC Corporation, New York, N.Y.
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,199
Int. Cl. C23f *1/00, 17/00*
U.S. Cl. 156—11 **5 Claims**

A method of etching a metal workpiece is described, which carries a tin resist (or a tin-coated solder resist); a chromate coating is provided over the resist, and the metal workpiece is etched with an aqueous etchant such as a peroxysulfate containing phosphoric acid or a sodium chlorite-ammonium hydroxide solution or a chromic-sulfuric acid bath to dissolve the metal free of resist, thus producing bright, smooth and electrically clean reliefs having sharp pattern definition on the metal workpiece.

3,567,534
AUTOMATIC WEB SPLICING SYSTEM AND METHOD

Eishiro Kushiro, Tokyo, Japan, assignor to Nihon Regulator Co., Ltd., Tokyo, Japan
Filed Oct. 23, 1968, Ser. No. 769,946
Claims priority, application Japan, Nov. 6, 1967, 42/70,957
Int. Cl. G01p *3/00*
U.S. Cl. 156—64 **9 Claims**

A method and apparatus for splicing the trailing end of a first moving web or strip to the leading end of a second strip by providing an index mark on the first strip a predetermined distance in advance of the trailing end and moving the trailing and leading ends into sealing engagement at the proper time in response to the sensing of such mark. The second strip is preferably provided in coil form and the coil is caused to rotate at a speed dependent on the speed of travel of the first strip and the radius of the coil, whereby the trailing and leading ends are moving at substantially the same speed when brought into engagement with one another.

3,567,535
PROCESS FOR MANUFACTURE OF SUEDE-LIKE SHEET MATERIAL

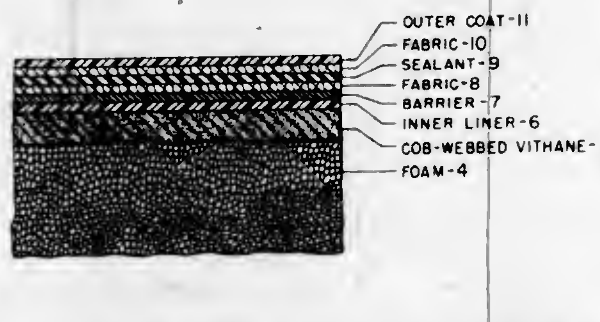
Kazuo Noda, Takao Matsuura, and Hidehiko Shimamura, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan
No Drawing. Filed Dec. 16, 1968, Ser. No. 784,233
Claims priority, application Japan, Dec. 29, 1967, 43/85,178; Feb. 1, 1968, 43/6,162; Feb. 9, 1968, 43/8,104
Int. Cl. B32b *5/18, 31/08, 31/18*
U.S. Cl. 156—77 **2 Claims**

A process for manufacture of suede-like sheet materials comprising applying a solution of a polymer such as polyurethane to a support, such as glass or polymer sheet to form a polymer solution layer, dipping the polymer solution layer applied on the support to coagulate the polymer solution into a layer having a relatively large spongy structure in inner part, adhering a first fibrous substrate to the surface of the polymer layer with an adhesive, peeling off the support from the polymer layer, further adhering a second substrate as the first substrate to the surface of the polymer layer, which has not been adhered with the first substrate, with an adhesive and then pulling the polymer layer in the opposite directions to tear the polymer layer into two parts, whereby two suede-like sheets are manufactured at once.

3,567,536
CONTAINER AND METHOD OF PREPARATION

William S. Wickersham, Jr., North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Feb. 7, 1968, Ser. No. 703,677
Int. Cl. B32b *5/18*
U.S. Cl. 156—78 **4 Claims**

This invention relates to a container and the method of making said container comprising forming a foraminous mass or a reticulated foam having the shape of the desired container, sealing the surface opening of the foraminous mass and applying a coating of the container material over the sealed layer on the foraminous mass to form the sides of the container. Preferably, the foraminous mass is a reticulated polyurethane foam and



the sealing material is a polyurethane reaction mixture which when sprayed forms a cobwebbing and the coating material is an elastomeric material.

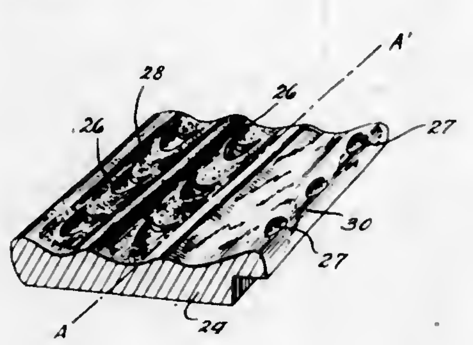
3,567,537
POWDERED THERMOPLASTIC BAG SEALING PROCESS

William W. Martney, Toledo, and Charles P. Spring, Sylvania, Ohio, assignors to Owens-Illinois, Inc.
Filed July 31, 1967, Ser. No. 657,378
Int. Cl. B32b *7/08*
U.S. Cl. 156—91 **4 Claims**

This invention is concerned with a bag sealing method wherein a thermoplastic powder is utilized to hermetically seal the sewn end of a bag including the gussets. The seal is effected by the application of heat and pressure to the thermoplastic powder coated areas. The application of heat and pressure causes some of the thermoplastic material to migrate into and through the sewn portion so as to produce a durable hermetic seal.

3,567,538
PROCESS OF MAKING LAMINATED METAL FOIL PRODUCT

Douglas T. Lind, Barrington, Ill., assignor to Arvey Corporation
Filed Dec. 14, 1967, Ser. No. 690,439
Int. Cl. B29d *31/00;* **B32b** *15/08*
U.S. Cl. 156—154 **5 Claims**



A laminated sheet suitable for "antiquing" is prepared comprising a metallic foil layer with a transparent plastic film adhering to one side thereof. The plastic film carries on its exposed surface an opaque coating comprising a pigment dispersed in a binder which adheres to the plastic film. The physical strength of the opaque coating is substantially less than that of the plastic film, so that portions of the coating can be removed by buffing action without removing the plastic film from the foil and without damaging the foil underneath. Typically, the foil is aluminum, and at least the outer portion of the plastic film is a biaxially-oriented polyester resin. The laminated sheet of this invention can be affixed to an irregular surface of a substrate and pressed so as to conform to the irregularities, or it can be applied to a flat substrate and embossed to form an irregular surface. The sheet of this invention can be used to impart a metallic sheen to selected portions of a substrate after buffing, and also to impart an "antiqued" appearance resulting from the fact that the opaque coating can be removed by buffing from the high spots of the irregular surface without removing the coating from the recesses and corners.

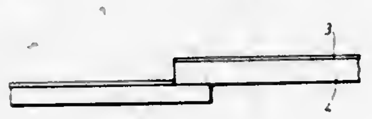
3,567,539
METHOD OF MAKING A TUBULAR THERMOPLASTIC LAMINATE

Henry G. Schirmer, Spartanburg, S.C., assignor to W. R. Grace & Co., Duncan, S.C.
Filed Aug. 11, 1967, Ser. No. 660,043
Int. Cl. B29c *17/00*
U.S. Cl. 156—156 **5 Claims**

A laminated thermoplastic film is produced by passing slightly inflated, irradiated polyethylene tubing through a circular die, coating a molten ethylene vinyl acetate copolymer onto the tubing whereby the polyethylene is heated to its orientation temperature while the copolymer is cooled to a temperature suitable for hot blowing, and immediately expanding the laminate as it leaves the die by internal air pressure.

3,567,540
SPLICING OF POLYESTER FILMS

Heinrich Tacheci, Bad Homburg, Manfred Sander, Kelkheim, and Pedro Pintaske, Waldacker, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 15, 1967, Ser. No. 683,251
Claims priority, application Germany, Nov. 28, 1966,
A 54,196
Int. Cl. B65h *69/02*
U.S. Cl. 156—157 **8 Claims**

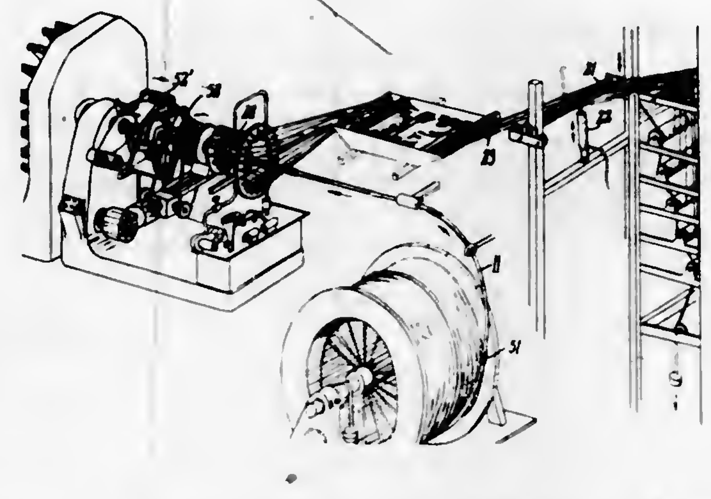


Polyester films such as moving picture film of polyethylene terephthalate, are spliced by swelling the faces to be joined with a coumarin, a partially etherified polyhydric phenol, or a partially etherified polyhydric naphthol, and then pressing these faces together for not more than a few seconds at 100 to 180° C. Such splicing does not cause shrinkage and the swelling agents are innocuous.

3,567,541
METHOD OF WINDING LAMINATED SECTIONS FOR USE AS ELECTROMECHANICAL STRUCTURAL ELEMENTS WHICH CONTAIN A CENTRAL CORE OF CELLULAR PLASTIC FOAM

Alexandre Kaczerginski, Vichy, Allier, France, assignor to Societe Europeenne d'Isolateurs en Verre Sediver, Paris, France
Filed Oct. 7, 1968, Ser. No. 765,524
Claims priority, application France, Oct. 13, 1967,
124,412
Int. Cl. B65h *81/00*
U.S. Cl. 156—172 **13 Claims**

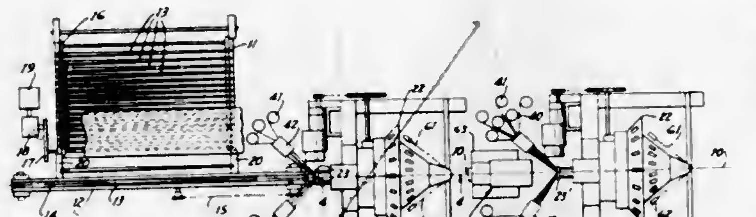
The continuous production of laminated sections of general cylindrical formation having excellent mechanical and electrical properties to render them especially adapted for use as insulators in electrical transmission networks, and comprising a central core of cellular plastic foam sheathed by one or more layers of resin reenforced with resin-impregnated glass filaments extending longitudinally and circumferentially as well as by an outer relatively thick covering layer of resin, with or without fillers, which is molded before hardening with a smooth cylindrical, fluted or finned outer surface. The invention contemplates the inclusion of anchoring sockets at predetermined spacings along the central core, which, upon



severance into individual units, serve for the sealing therein of supporting devices for the units.

3,567,542
METHOD OF MANUFACTURING FIBER GLASS REINFORCED PLASTIC TUBING USING SEQUENTIALLY INSERTED MOVING MANDRELS

Carl Thomas Jackson, North Madison, Ohio, assignor to True Temper Corporation, Cleveland, Ohio
Filed July 25, 1967, Ser. No. 655,919
Int. Cl. B65h *81/00*
U.S. Cl. 156—172 **13 Claims**



There is disclosed herein a method and apparatus for continuously producing fiber glass reinforced articles by continuously pulling a plurality of fiber glass strands along a production line, some of said strands being provided with an uncured resin, arranging the strands into a tubular shape, successively inserting mandrels into the tube thus formed, curing the resin, cutting the mandrels apart, and removing the mandrels from the hollow articles formed thereon.

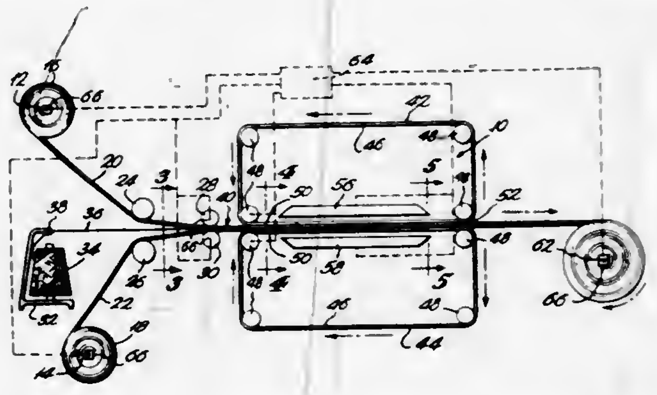
3,567,543
METHOD OF MANUFACTURING A FIBRE REINFORCED RESIN STRUCTURE

Arthur E. Standage, Nottingham, and William Neil Turner, Derby, England, assignors to Rolls-Royce Limited, Derby, England
No Drawing. Filed July 7, 1967, Ser. No. 651,663
Claims priority, application Great Britain, July 23, 1966,
33,241/66
Int. Cl. B29d *7/14;* **B32b** *54/00*
U.S. Cl. 156—174 **9 Claims**

A method of producing a fibre reinforced resin structure using a resin which is intractable in its cured form but which has a tractable intermediate formed during its synthesis. The method consists of coating layers of the fibres with the tractable intermediate in the form of a resin solution, partly curing the individual layers, applying a further coating of the resin to each layer, pressing the layers together and finally completely curing the composite structure.

3,567,544
METHOD OF HOT MELT SEAMING OF FABRIC MATERIALS USING A HIGH FREQUENCY ELECTRIC FIELD

Iven G. Nichols, Pompton Plains, N.J., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.
Filed Dec. 22, 1967, Ser. No. 693,013
Int. Cl. B32b *5/08*
U.S. Cl. 156—176 **12 Claims**

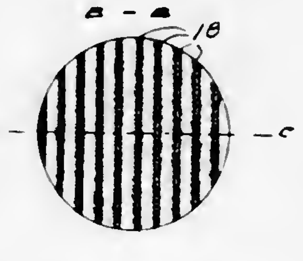


The continuous, rapid forming of a hot melt bonded seam in articles of fabric material by first constructing a multi-ply assemblage of fabric material with a thermoplastic filament between the plies and passing the multi-ply assemblage through a high frequency electrical field that will instantly melt selectively the filament while the multi-ply assemblage is compressed so as to cause the melted filament to penetrate evenly the fabric plies; and the seam bonded articles produced by this process.

An apparatus that continuously and rapidly produces hot melt seam bonding of plies of fabric material having means for forming a continuous multi-ply assemblage of fabric material, the positioning of a thermoplastic filament along a line of desired seam bonding in the assemblage, and means for passing the multi-ply assemblage through a high frequency electrical field that is attuned to melt selectively the filament while pressure is applied to compress the multi-ply assemblage.

3,567,545
METHOD OF FORMING FIBERTAPES USING ROTATING MATING PRESSURE ROLLS

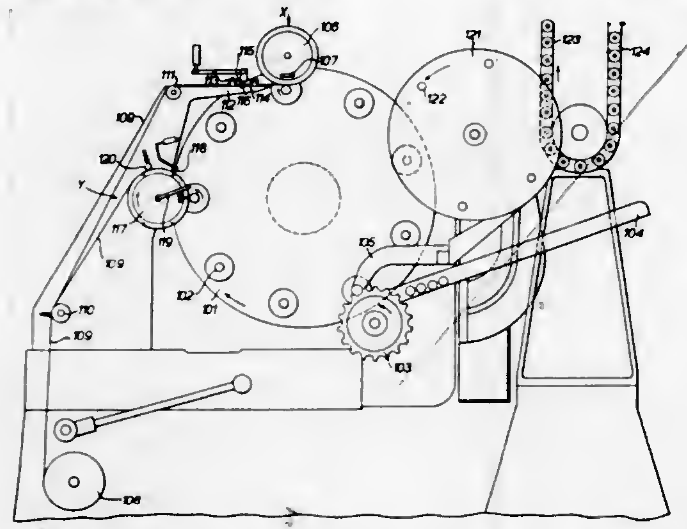
Emilian Bobkowicz and Andrew J. Bobkowicz, both of 1435 St. Alexander St., Room 310, Montreal, Quebec, Canada
Filed May 14, 1968, Ser. No. 729,090
Claims priority, application Canada, Sept. 26, 1967,
1,047
Int. Cl. B29c *15/00*
U.S. Cl. 156—229 **21 Claims**



Apparatus for continuous production of fibertapes, with elimination of subsequent separate slitting operations comprising a pair of rotatable pressure rolls with continuous circumferential grooves on their surface, the rolls being so positioned side by side that each male member of the grooved surface of one roll fits into the corresponding female member of the other roll; and a method for producing fibertapes by introducing staple fibers and a polymeric bonding agent between such rotating grooved pressure rolls.

3,567,546
METHOD OF PRODUCING HOLLOW COLLAPSIBLE CONTAINERS

Cecil Edward Morris, Bolton, Ralph William Birch, Woking, and Edmund Philip Adcock and Neil Malcolm McDonnell, Harpenden, England, assignors to United Glass Limited, Staines, England
Filed Sept. 20, 1967, Ser. No. 669,063
Claims priority, application Great Britain, Apr. 20, 1967, 18,338/67
Int. Cl. B29c *19/06*
U.S. Cl. 156—275 **10 Claims**



A hollow container is produced by forming a hollow body of thermoplastic material, wrapping a layer of metal foil around the outer surface of the hollow body, and causing the layer of metal foil to adhere to the surface of the hollow body.

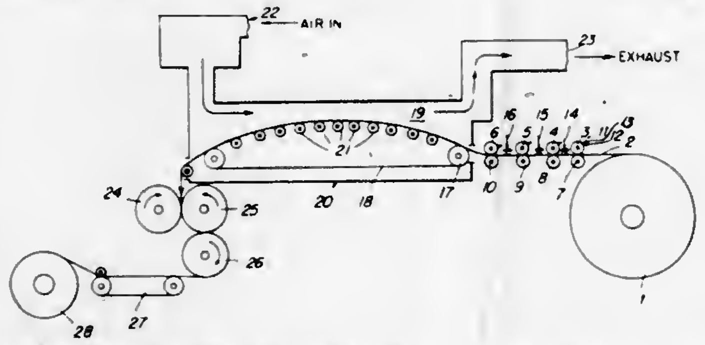
3,567,547
METHOD OF PROVIDING THIN GLASS PARTS OF PRECISE DIMENSIONS

John R. Mattson, 162 S. Wabasha 55107, and Roy D. Mattson, 415 Minnesota Ave. 55113, both of St. Paul, Minn.
No Drawing. Filed June 22, 1967, Ser. No. 647,901
Int. Cl. B32b *31/00*
U.S. Cl. 156—247 **5 Claims**

A method of machining thin glass parts with precise dimensions including applying an abrasive resistant coating to the parts and forming the parts into a solid block by providing an adhesive therebetween. The parts can then be precisely machined, after which the parts are separated by removing the adhesive with a first solvent, which first solvent does not affect the abrasive resistant coating. Immediately prior to use the abrasive resistant coating can be removed through the use of a second solvent.

3,567,548
PRODUCTION OF PERMANENTLY SCULPTURED PILE FABRICS

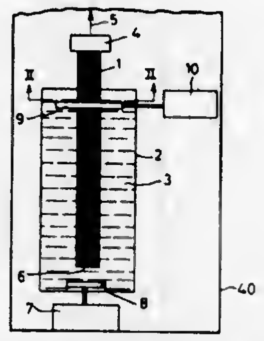
Phillip Miller, 4 Redwood Road,
Norwalk, Conn. 06850
Filed May 12, 1967, Ser. No. 639,927
Int. Cl. D03c *19/00*
U.S. Cl. 156—277 **12 Claims**



Deep sculpturing pile fibers, e.g., acrylic and polyester, by depositing polar solvent containing solutions for the fiber in the pile, e.g., dimethyl formamide, dimethyl sulfoxide, having a viscosity of 500 to 1000 cps.

3,567,549
METHOD OF PRODUCING A FIBER-OPTICS IMAGE-TRANSMITTING DEVICE

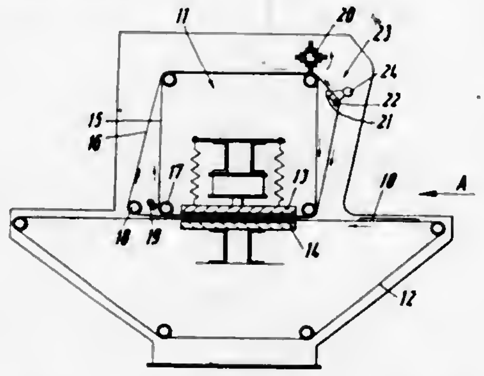
Dietrich Hoffmeister, Oberkochen, Josef Ladel, Konigsbronn, and Fritz Schleich, Wasseralfingen, Germany, assignors to Carl Zeiss-Stiftung, doing business as Carl Zeiss, Heidenheim (Brenz), Wurttemberg, Germany
Filed Nov. 28, 1967, Ser. No. 686,264
Claims priority, application Germany, Dec. 1, 1966, Z 12,561, Z 12,562
Int. Cl. B32b *17/00*
U.S. Cl. 156—296 **9 Claims**



A fiber-optics image-transmitting device is produced by holding a bundle of substantially straight fibers—each fiber consisting of a core of light-conducting material covered by jacket of transparent material having a lower index of refraction than said core material—at one end and immersing the bundle with the other end entering first into a wetting liquid withdrawing said bundle from the wetting liquid in the longitudinal direction of the axis of the bundle, and after flowing-off of the excess liquid then fixing the ends of said bundle so as to cause the individual fibers at said ends to adhere permanently to each other.

3,567,550
BONDING PRESS WITH SUPPLEMENTAL GUIDE MEANS

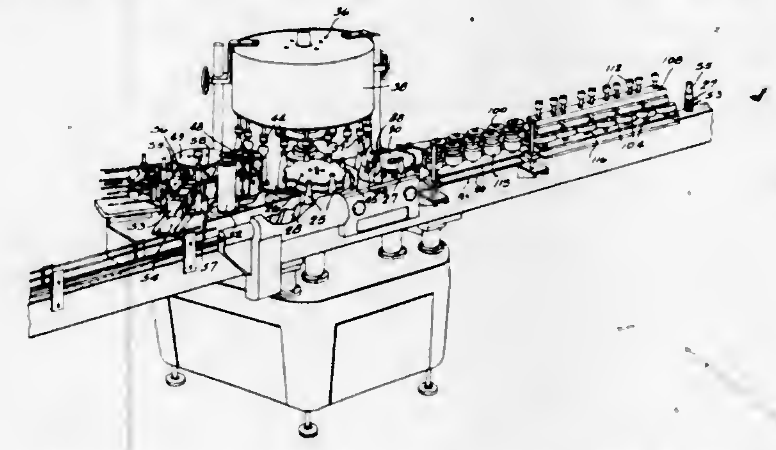
Herbert Kannegiesser and Richard Juraschek, Vlotho (Weser), Germany, assignors to Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung, Vlotho (Weser), Germany
Filed Feb. 25, 1969, Ser. No. 802,080
Claims priority, application Germany, Mar. 11, 1968, K 60,577
Int. Cl. B32b
U.S. Cl. 156—389 **10 Claims**



This invention provides a bonding press composed of an upper heated press plate and a preferably stationary bottom press plate, through which superimposed pieces of fabric to be stuck together are fed on an endless conveyor belt. The upper heated press plate is covered on its underside by an endless covering band which in turn is covered on its underside facing the pieces of fabric by endless guide means preferably consisting of a plurality of parallel thin narrow tapes spaced apart. The conveyor belt, the covering ban and the guide means are intermittently synchronously driven, the guide means traveling on the exit side of the press beyond the point of deflection of said covering band in a direction that differs from that of said covering band after it has been deflected.

3,567,551
APPARATUS FOR FOIL WRAPPING BOTTLE NECKS

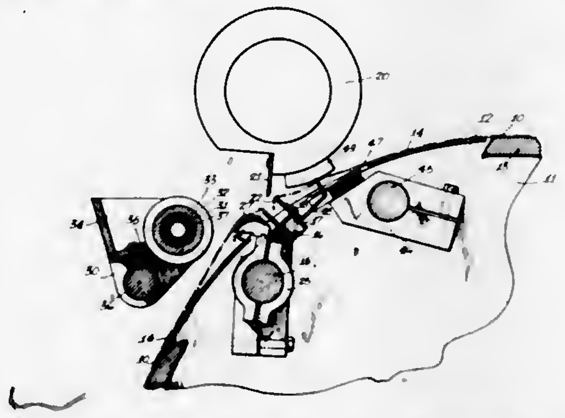
Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany
Filed June 25, 1969, Ser. No. 836,285
Claims priority, application Germany, July 12, 1968, P 17 61 837.0
Int. Cl. B32b *35/00*
U.S. Cl. 156—391 **22 Claims**



Method and apparatus for foil wrapping bottle necks and the like with precut foil wrappers stored in a magazine and comprising advancing unwrapped bottles along a path, successively feeding individual foil wrappers from the magazine toward a bottle station along said path, applying a leading portion of the wrapper to the bottle neck, rolling the wrapper around the bottle neck to wrap the wrapper around the neck and applying the trailing portion of the wrapper to the bottle neck, exposing a top margin of the wrapper upwardly beyond the top of the bottle while rolling it onto the bottle neck, pressing the exposed top margin of the wrapper inwardly in folds, and flattening the inwardly pressed and folded wrapper margin against the bottle top. The conveyor consists of individual bottle turntables and clamping stems for holding the bottle in vertical orientation while it is rotated against flaps, pads, and brushes, etc., to smooth the wrapper onto the bottle. An infeed star wheel has spaced plates with peripheral pockets which are aligned vertically and which hold the bottle in vertical orientation.

3,567,552
ROLL END FASTENING

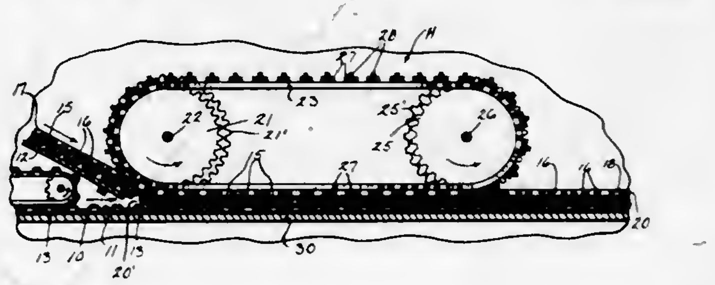
Michael Heuff and Pierre A. Bornais, Trois Rivieres, Quebec, Canada, assignors to Consolidated Paper (Bahamas) Limited, Nassau, N.P., Bahamas
Filed Dec. 20, 1967, Ser. No. 691,995
Int. Cl. B65h *19/06*
U.S. Cl. 156—468 **5 Claims**



Apparatus for providing for the fastening of the end of a roll of material, such as toilet and similar paper rolls, in which the conventional bed-roll, in addition to a pivotally mounted knife blade which is mounted within the roll and reciprocates out of the roll to cut the material, in cooperation with a further blade on a roller mounted parallel to and adjacent the bed-roll, also has a glue applicator by means of which a localized spot of glue is applied to the material a short distance from the end. More than one spot of adhesive may be applied, spaced across the material. The glue may be applied by a member which reciprocates with the knife blade and momentarily presses the material against the glue applicator, or the glue may be ejected onto the material.

3,567,553
HOLD DOWN FOR A MACHINE FOR FABRICATING A CUSHIONING PACKAGING STRIP

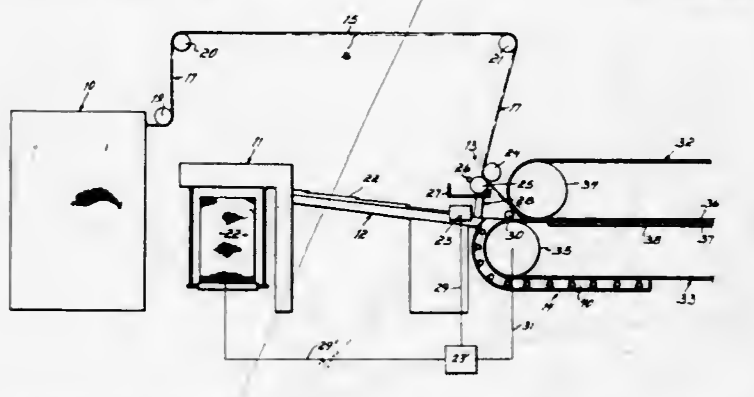
Lloyd D. Van Antwerpen, Milwaukee, Wis., assignor to Menasha Corporation, Neenah, Wis.
Filed Apr. 7, 1967, Ser. No. 629,242
Int. Cl. B31f *1/00*
U.S. Cl. 156—471 **4 Claims**



An improved hold down mechanism for a machine for feeding, forming and adhesively joining a series of independent sheets to provide a cushioning packaging strip. The machine having conveyor driven forming blocks overlying the joined sheets and a bed plate over which the sheets travel toward the discharged end of the machine. The hold down mechanism firmly presses and holds the said sheets together during the setting of the adhesive, and includes a series of pressure slats, secured between chains, and overlying a respective forming-block so that pressure is entered through the said pressure slats on the forming blocks.

3,567,554
METHOD AND APPARATUS FOR COMBINING PRINTED SHEETS WITH SINGLE FACE CORRUGATED PAPER

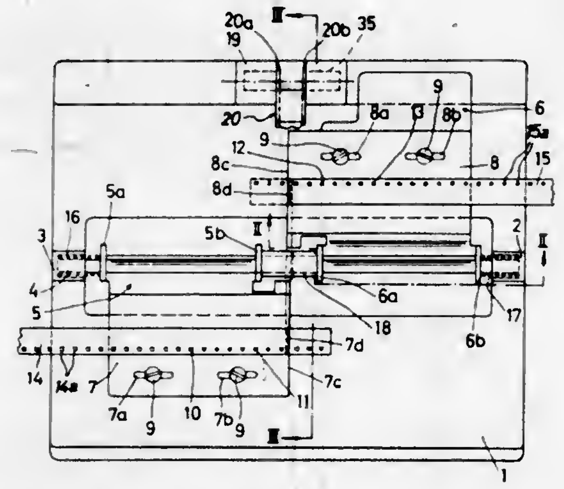
Charles H. Klein, James K. Haley, and Alfred C. Sides, Cincinnati, Ohio, assignors to Novelart Manufacturing Company, Cincinnati, Ohio
Continuation-in-part of applications Ser. No. 286,600, May 20, 1963, and Ser. No. 548,599, May 9, 1966. This application Feb. 10, 1967, Ser. No. 615,215
The portion of the term of the patent subsequent to Feb. 28, 1984, has been disclaimed
Int. Cl. B31f *1/00*
U.S. Cl. 156—470 **3 Claims**



Apparatus in which a single face corrugated web is fed, with its flutes facing downwardly, through a glue applicator at a combining station and in which preprinted discrete sheets are fed serially to the combining station underneath the corrugated web.

3,567,555
APPARATUS FOR SPLICING FILMS OR THE LIKE

Volkmar Stenzenberger and Hermann Müller, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 5, 1968, Ser. No. 781,312
Claims priority, application Germany, Dec. 16, 1967, P 15 97 661.1
Int. Cl. G03d *15/04*
U.S. Cl. 156—502 **17 Claims**

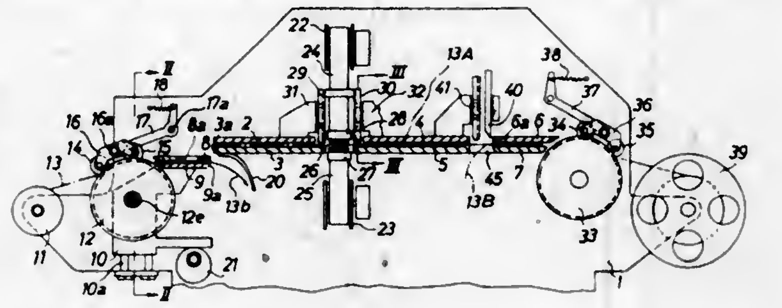


A portable film splicing apparatus wherein two film supporting platforms can turn on a shaft and are biased axially toward each other to normally bear against the opposite ends of a distancing sleeve on the shaft. One of the platforms is pivotable on the shaft between a first position in which the film portions on the two platforms are parallel to and coplanar with each other and a second position in which the film portions overlie and bear against each other. Two knives can be pivoted into engagement with counterknives on the platforms in the first position of the one platform to trim the corresponding film portions and to simultaneously move the platforms away from the distancing sleeve. Such knives are adjacent to two scraping members which can be reciprocated by hand to roughen the film portions adjacent to their trimmed ends. The thus roughened film portions are coated with adhesive after the knives are moved away from the platforms so that the one platform can be pivoted to second position in which the adhesive-coated film portions are cemented to each other to form a lap splice.

3,567,556
APPARATUS OR TRIMMING AND SPLICING STRIPS OF ROLL FILM OR THE LIKE

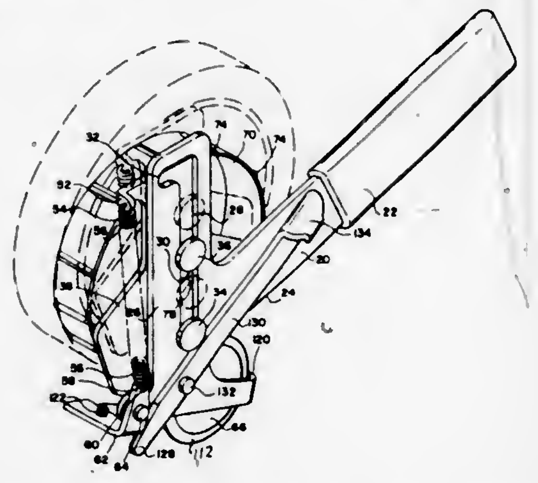
Michael Fensterl, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 25, 1967, Ser. No. 670,287
Claims priority, application Germany, Sept. 30, 1966, A 26,446
Int. Cl. B31f *5/00*
U.S. Cl. 156—505 **11 Claims**

Apparatus for splicing strips of roll film or the like end-to-end and for trimming the leading and trailing ends of strips prior to splicing. The trailing end of a preceding strip is trimmed between the splicing station and a take-up reel and is thereupon moved backwards to the splicing station. The leading end of a following strip is trimmed prior to transport into abutment with the trimmed trailing end of the preceding strip. In order to flatten the strips, the apparatus comprises a pair of guide rollers which are respectively disposed upstream and downstream of the splicing station and each of which cooperates with pressing rolls which bias the strips against the peripheral surfaces of the respective guide rollers and prevent longitudinal buckling or curling of strips. The leading end of a following strip is trimmed in response to upward movement of a carriage for the corresponding guide roller and the trailing end of the preceding strip is trimmed by an auxiliary trimming device located between the splicing station and the other guide roller.



3,567,557
MASKING TAPE AND MASKING PAPER APPLICATOR

John D. Kingery, 4302 E. Vernon 85008, and Danny L. Pool, 4023 W. Alta Vista 85041, both of Phoenix, Ariz.
Filed Aug. 22, 1968, Ser. No. 754,698
Int. Cl. B32b *31/18, 31/20*
U.S. Cl. 156—523 **17 Claims**

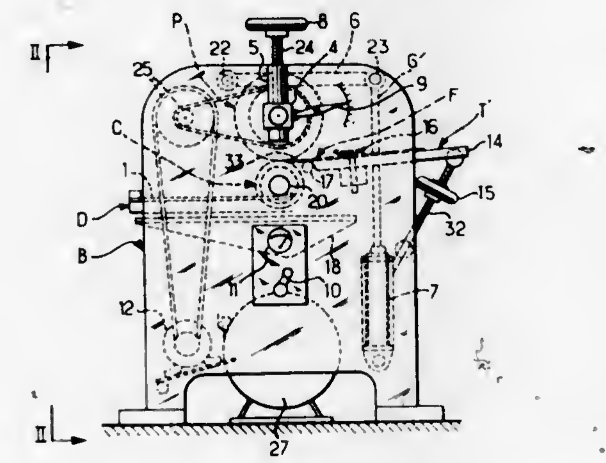


A masking tape and masking paper applicator for manual application of masking tape and/or masking paper comprising a handle frame and a roller frame having common spring means for connecting the handle frame and the roller frame together, the roller frame being adapted to carry a roll of masking tape and the handle frame carrying a tape applicator roller in rotatably mounted relation thereon, the applicator roller having an enlarged bore mounted on a substantially smaller axle carried by the handle frame so that spring means tending to move the roller frame toward the applicator roller may force the roller to move laterally with relation to the axle on which the enlarged bore is mounted and whereby pressure of the applicator roller on a surface when applying tape permits the roller to move relative to the axle in a direction at right angles thereto and to deflect the roll of tape and the roller frame resiliently relative to the handle frame.

3,567,558
GELATINE-TRANSFER ENGRAVING MACHINE

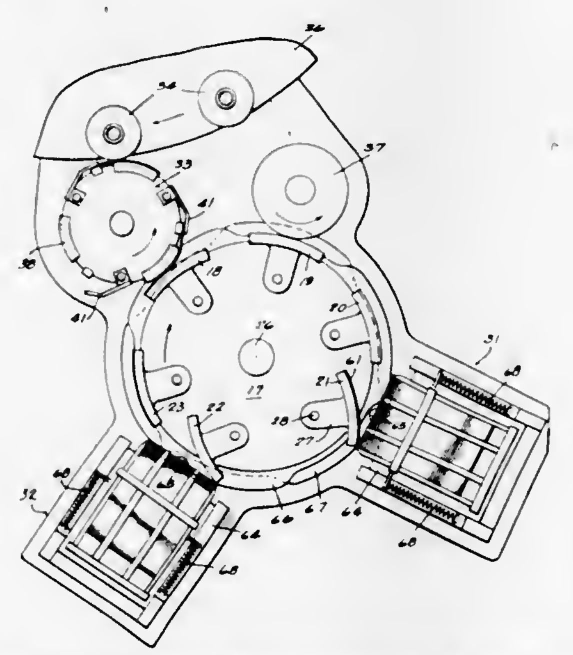
Charles Walter Gemperlé, Villefranche-sur-Saone, France, assignor to Gillet Thaon (Societe Anonyme), Paris, France
Filed May 3, 1968, Ser. No. 726,314
Int. Cl. B32b *31/12;* **B41l** *25/02*
U.S. Cl. 156—555 **17 Claims**

Apparatus for transferring a layer of exposed gelatine supported on a film of plastic material, especially of polyester, onto a cylinder to be engraved. The machine comprises a rigid frame and bearings supporting a cylinder to be engraved. The bearings are movably mounted transversely on the frame between a predetermined working position and a displaced position for cleaning to a pressure roller adapted to be applied against the cylinder, is supported by bearings mounted in vertical guides arranged vertically in line with the working position of the bearings of the cylinder and pressure-control means are provided for lifting and lowering the pressure roller along the vertical guides and for applying a predetermined pressure from said roller onto the cylinder to be engraved. Driving control means are associated with the pressure roller in order to rotate said roller, and a feed table is intended to receive a layer of light-exposed gelatine carried by a plastic film and to permit the introduction of the film between the cylinder and the pressure roller for the purpose of winding and causing the film to adhere around the cylinder by the driving and pressing action of the pressure roller.



3,567,559
HIGH SPEED CONTAINER LABELING MACHINE

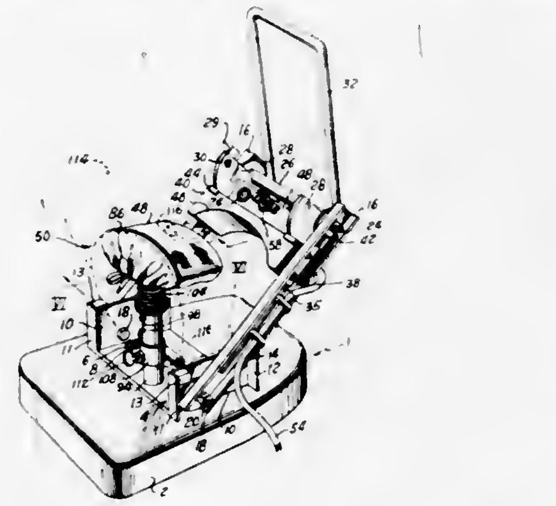
Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany
Filed July 18, 1968, Ser. No. 745,778
Claims priority, application Germany, Aug. 17, 1967, K 63,114
Int. Cl. B65h *3/08;* **B32b** *31/20*
U.S. Cl. 156—571 **9 Claims**



A high speed container labeling machine and apparatus to transfer labels from separate label magazines to a rotating label turret which applies the labels to the containers and in which multiple label magazines are disposed about the axis of an adhesive pad rotor which carries multiple groups of oscillatable adhesive pads disposed about the rotor axis, some of the pads constituting a pad group associated with one of the magazines and others of the pads constituting another pad group associated with another of said magazines, and means for oscillating said pads for coaction of each pad group with its associated label magazine.

3,567,560
PRESSING DEVICE

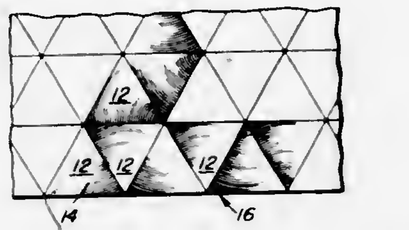
David C. Stiff, 2014 Greenville Ave., Dallas, Tex. 75206
Filed Aug. 9, 1968, Ser. No. 751,492
Int. Cl. B30b *15/34;* **A47j** *51/22*
U.S. Cl. 156—583 **16 Claims**



A letter pressing device having a heating element slidably disposed on arms pivotally mounted on a base plate whereby the heating element is moved horizontally and vertically into overlying relation with the garment and then moved downwardly by cams to press the garment.

3,567,561
DIFFRACTION TYPE MOSAIC SYSTEM

Remsen V. Wood, Riderwood, Md. 21139
Continuation-in-part of application Ser. No. 467,312, June 28, 1965. This application Jan. 9, 1969, Ser. No. 797,324
Int. Cl. B44f *1/02*
U.S. Cl. 161—34 **7 Claims**

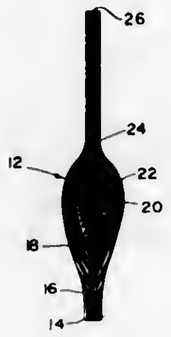


Means and method for producing co-ordinate spectra from randomly arrayed mosaics of diffraction gratings by using curved-line gratings, and for increasing the efficiency of spectrum production by circular gratings by using arrays of parts of the gratings in selected structural organization.

3,567,562
KNITTED CASING FOR INFLATABLE BLADDER

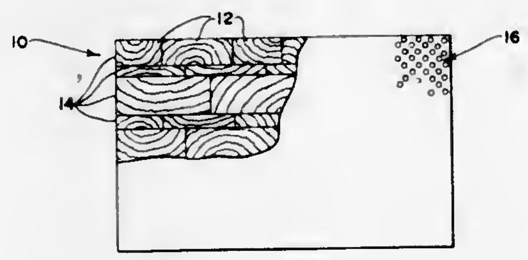
Barnett D. Gordon, Brookline, and Steve E. Soltis, Worcester, Mass., assignors to M.K.M Knitting Mills, Inc., Manchester, N.H.
Filed Sept. 27, 1967, Ser. No. 670,839
Int. Cl. B32b *3/10*
U.S. Cl. 161—7 **3 Claims**

A knitted casing is provided for a bladder which, when inflated, has the shape of a solid of revolution, e.g., an elongated neck terminating in an approximately spherical bulge of much larger diameter. The casing is made by knitting panels on a full-fashioned knitting machine in such a manner as to produce in each panel the curvature of the bulge. The panels are then stitched together along their edges by a full-fashioned seamer to complete the casing.



3,567,563
LIGHTWEIGHT, HIGH STRENGTH CORE MATERIAL IN A STRUCTURAL PANEL

Charles A. Handenchild, Cuyahoga Falls, and Nicholas G. Sandru, Canton, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio
Filed Dec. 26, 1968, Ser. No. 786,910
Int. Cl. B32b *21/00*
U.S. Cl. 161—37 **5 Claims**



A lightweight, high strength sandwich core material which is in a substantially flat sheet form having a plurality of uniformly spaced holes positioned perpendicular to one surface thereof and extending between 85% and 95% of the thickness of the sheet towards the other surface. In the preferred embodiment of the invention, the material making up the sheet is redwood with the grain of the redwood running perpendicular to the surfaces thereof, and with the entire sheet of redwood made up of a plurality of blocks mosaic together in a random pattern where there is no continuity of joint lines. The core is normally sandwiched between out skins or facings and intimately fixed to each other. The continuous surface of the core is positioned to receive most impact and compressive forces. The positioning of the core determines the most impact resistant surface.

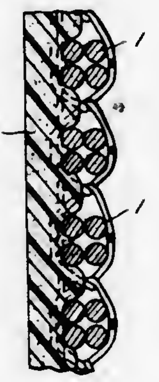
3,567,564
FLEXIBLE SHEET AGGLOMERATE UTILIZABLE IN FOUNDRY

Lars Rydberg, Uranus Vager 8, Skalby, Sweden
No Drawing. Filed July 13, 1967, Ser. No. 653,023
Claims priority, application Monaco, July 14, 1966, 632.67.602; June 7, 1967, 49
Int. Cl. B22d *7/10;* **B32b** *1/04*
U.S. Cl. 161—44 **1 Claim**

An insulating sheet for foundry practice, such as an ingot mold lining, is in the form of a flexible sheet of sand and vegetable flour agglomerated with a binder, and optionally also an exothermic material and one or more inorganic insulating materials. The sheet has a thickness of 2 to 12 mm. and has adhesive on one side to hold it to the mold. The sheet has a bevel on at least one edge, that faces away from the side that bears the adhesive, thereby to avoid formation of shoulders on the ingot that would roll out to imperfections.

3,567,565
LAMINATE OF FOAM AND STITCH BONDED FABRIC

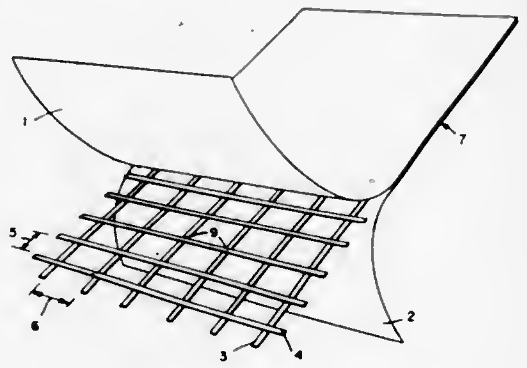
Robert L. Jones, Greensboro, N.C., and Robert E. Provost, Stamford, Conn., assignors to Burlington Industries, Inc., Greensboro, N.C.
Filed Nov. 9, 1967, Ser. No. 681,703
Int. Cl. B32b *7/04*
U.S. Cl. 161—50 **6 Claims**



A warp knitted fabric comprising loose filling threads held together by chain stitches of sewing thread which gather the filling threads into clusters separated by spaces where the stitches pass through the fabric. The fabric is laminated with a foamed polymeric material which is fluid or becomes fluid during the process so that it can flow into the spaces between clusters of filling threads and interlock with them and the sewing thread. After flowing into position while fluid the foam is gelled and, if necessary, cured to take on its permanent configuration.

3,567,566
COMPOSITE REINFORCED THERMOPLASTIC FOIL LAMINATE

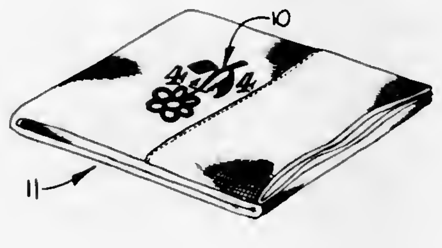
Werner Bandel, Wuppertal, Herbert Hilpert, Schwelm, and Hans Treckmann and Ernst Pirot, Wuppertal, Germany, assignors to J. P. Bemberg Aktiengesellschaft, Wuppertal, Germany
Filed Jan. 2, 1969, Ser. No. 788,472
Claims priority, application Germany, Jan. 3, 1968, P 17 04 517.9
Int. Cl. B32b *5/12, 27/12*
U.S. Cl. 161—55 **24 Claims**



A composite thermoplastic foil consisting of two outer foil sheets interconnected by an adhesive between which there is inserted a grid-shaped or latticed planar reinforcing structure which consists of longitudinally stretched narrow foil strips laid in a criss-cross pattern at spaced substantially parallel intervals, the individual strips having a thickness of not more than 100 microns and a width of approximately 1 to 6 mm. with a spaced interval between individual pairs of strips of at least 1.5 times the width of the strips. It is particularly desirable to provide foil strips having a proportionately higher elongation at break, breaking strength and elastic strain value but a lower ductility than the outer foil sheets. The resulting composite foil is particularly useful as a packaging material which is subject to a high degree of local stresses or forces tending to rupture the foil.

3,567,567
EMBROIDERED FUSIBLE APPLIQUE AND FABRIC

Ernest Kohn Sherrill, Eden, N.C., assignor to Fieldcrest Mills, Inc., Eden, N.C., a corporation of Delaware
Filed May 21, 1968, Ser. No. 730,834
Int. Cl. D03d *27/08*
U.S. Cl. 161—67 **11 Claims**



An embroidered appliqué whose bottom surface is formed from composite yarn having at least two plied strands, the first of which has a relatively low fusion point. The other strand and the applique are nonfusible when subjected to heat at or substantially above the temperature of the fusion point of the first strand so that, even though the continuity of the first strand may be interrupted by having been melted during fusing of the appliqué to a supporting fabric, the second strand remains intact and will maintain the structural integrity of the applique fused to the fabric even after the fabric has been subjected to many launderings.

3,567,568
IMPACT RESISTANT SHEET AND METHOD FOR THE PREPARATION THEREOF

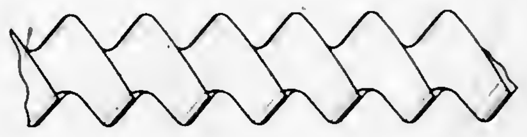
Leo J. Windecker, Midland, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Sept. 29, 1967, Ser. No. 671,791
Int. Cl. B32b *5/26, 7/02;* **B41k** *1/02*
U.S. Cl. 161—93 **5 Claims**

Bullet proof sheets and sheets having high impact resistance are prepared by forming a laminate of resin-glass fiber layers and layers of an open-celled flexible foam with an elastomer and retaining the open-celled configuration.

3,567,569
SYNTHETIC FIBERS HAVING NOVEL SHAPE

Terumichi Ono, Shigeru Mizutani, and Hazime Arai, Nagoya, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 4, 1966, Ser. No. 570,325
Claims priority, application Japan, Aug. 9, 1965, 40/48,040; Nov. 15, 1965, 40/69,783; July 22, 1966, 41/47,670
Int. Cl. D02g *3/00, 3/34*
U.S. Cl. 161—179 **6 Claims**

Synthetic, molecularly oriented fibers of fine pitch and having large concavities and convexities comprising a melt-spinnable synthetic polymer having a single continuous male screw shape wherein the ratio of pitch to outer diameter of the screw thread is within the range of 0.3 to 15, and the ratio of height to outer diameter of said thread is in the range of from 0.03 to 0.4.



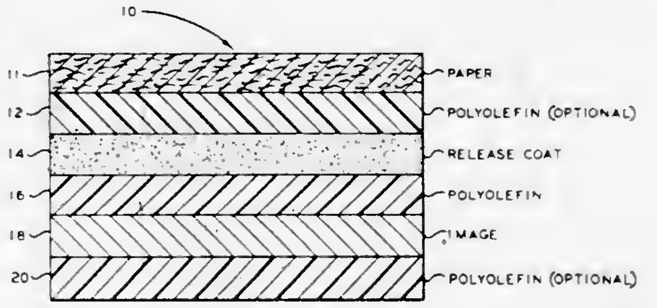
3,567,570
GLASS FIBERS HAVING REDUCED STATIC ELECTRICITY GENERATING PROPERTIES

Jerome A. Preston, Granville, Michael J. Harvey, Newark, and Leo P. Caron, Reynoldsburg, Ohio, and Carl C. Rue, Anderson, S.C., assignors to Owens-Corning Fiberglas Corporation
No Drawing. Filed Aug. 14, 1967, Ser. No. 660,230
Int. Cl. B32b *17/04;* **C03c** *25/02*
U.S. Cl. 161—193 **6 Claims**

A polyester panel reinforced with chopped glass fibers coated with a mixture of particles of a non-ionic organosiloxane, a compatible film forming resin, and a coupling agent from the group of metal oxides, Werner complexes, and organosilanes.

3,567,571
LAMINATED STRUCTURE FOR HOT APPLICATION OF AN IMAGE TO A THERMOPLASTIC RESIN ARTICLE

Robert J. Martinovich, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Nov. 14, 1967, Ser. No. 682,775
Int. Cl. B32b *27/10;* **B44c** *1/16*
U.S. Cl. 161—206 **4 Claims**



A heat transfer laminated structure for hot application to a thermoplastic resin article is provided, said structure comprising a paper substrate, which may be coated with a resin, a coating of a heat release agent bonded to said substrate, a film of a thermoplastic resin compatible with the resin of said article bonded to the heat release coating, and an image to be transferred imposed on only a portion of the film of resin. The image may be applied either before or after applying the resin film to the release agent on the coated or uncoated substrate. When applying the resin film before application of the image, it is preferred to apply a second resin film over the image to protect the image by sandwiching it between the films of resin. Heat and pressure are used to transfer the image and film or films of resin to the resin article.

ERRATUM

For Class 162—2 see:
Patent No. 3,566,956

3,567,572

POLYSULFIDE LIQUOR IMPREGNATION OF LIGNOCELLULOSE MATERIALS IN A MULTI-STAGE PULPING PROCESS

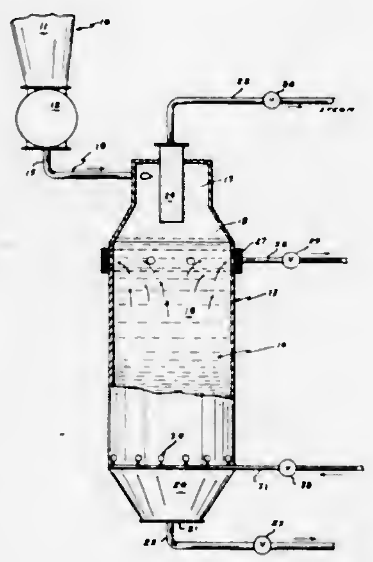
David W. Clayton, Hudson, Quebec, and Asahi Sakai, Cite de Lasalle, Quebec, Canada, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec, Canada
No Drawing. Filed Sept. 6, 1967, Ser. No. 665,710
Int. Cl. D21c *3/26*
U.S. Cl. 162—19 **17 Claims**

A process for the production of celluloisic pulp from lignocellulosic materials including the steps of impregnating the materials with a polysulfide liquor at a temperature below that at which substantial decomposition of the polysulfide occurs, removing excess of polysulfide liquor from the impregnated materials, increasing the temperature and adjusting the pH from the impregnation step to prevent alkaline degradation of the material, and cooking the impregnated material with a cooking liquor containing sodium hydroxide to substantially delignify said material.

3,567,573

DIGESTER DISCHARGE SYSTEM

Philip D. Case, Turin, Italy, assignor to The Bauer Bros. Co., Springfield, Ohio
Continuation of application Ser. No. 674,012, Oct. 9, 1969, which is a continuation of application Ser. No. 295,687, July 17, 1963. This application Sept. 25, 1968, Ser. No. 807,469
(Filed under Rule 47(b) and 35 U.S.C. 118)
Int. Cl. D21b *1/36;* **D21c** *7/00*
U.S. Cl. 162—22 **14 Claims**

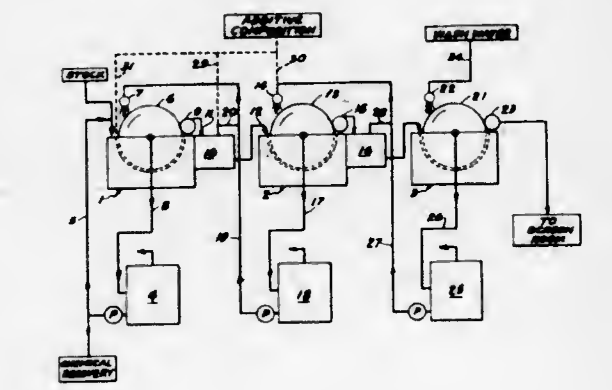


A process for simply refining fibrous materials such as wood chips characterized by a series related pair of vessels in the first of which the raw materials are fully saturated with conditioning fluids which substantially dissolve the bonding agents between their fibers without significantly affecting their shape and in the second of which the material is caused to automatically split to fiber form and be washed and cooled prior to exit to a blow tank or other holding or transition unit.

3,567,574

COMPOSITION AND METHOD FOR REDUCING FOAMING AND SODA LOSSES IN THE RECOVERY OF FIBROUS PARTICLES FROM AQUEOUS MEDIA

Leo D. Braitberg, Park Forest, Ill., and Donald C. Roylance, Potomac, Md., assignors to United States Movidyn Corporation, Chicago, Ill.
Filed July 26, 1967, Ser. No. 656,260
Int. Cl. D21c *3/28*
U.S. Cl. 162—70 **17 Claims**

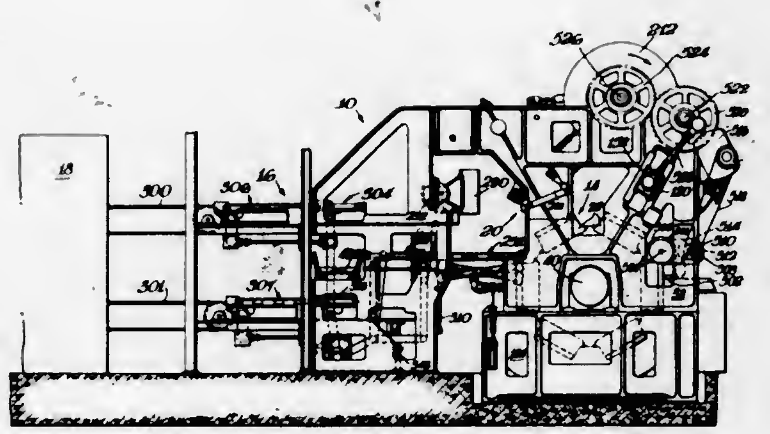


Compositions and methods for improving recovery of fibrous particles from aqueous media are provided which employ both a primary hydrophobic material, such as silicone-coated silica, and an additional hydrophobic material, such as dimethyldioctadecyl ammonium bentonite, dispersed in a low polarity oil for which the additional hydrophobic material is not a gellant. Even with solids contents up to 35% by weight, the compositions are pumpable liquids.

3,567,575

APPARATUS FOR PRODUCING FIBROUS PULP ARTICLES

Richard L. Emery, Fairfield, Maine, assignor to Keyes Fibre Company, Waterville, Maine
Filed Apr. 6, 1967, Ser. No. 628,916
Int. Cl. D21j *3/10*
U.S. Cl. 162—387 **7 Claims**

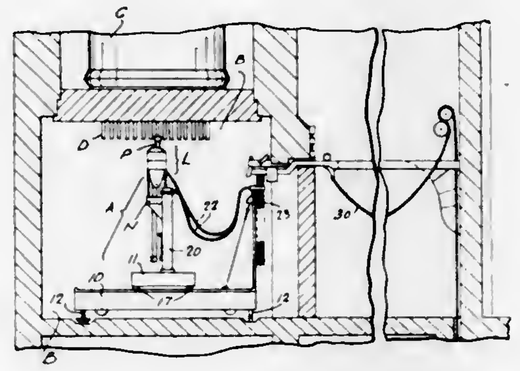


Apparatus for producing fibrous pulp articles comprising means for manufacturing the articles, means for conveying the articles to an article dryer, and means for transferring the articles from the manufacturing means to the conveying means, the article manufacturing means including a plurality of forming molds connected to a framework for rotation past spaced article processing stations, and indexing means connected to the framework for intermittently rotating the forming molds to the article processing stations.

3,567,576

NUCLEAR REACTOR INSTALLATION

Peter Isaac, Cooksville, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Apr. 15, 1968, Ser. No. 721,293
Int. Cl. G21c *19/24*
U.S. Cl. 176—30 **19 Claims**

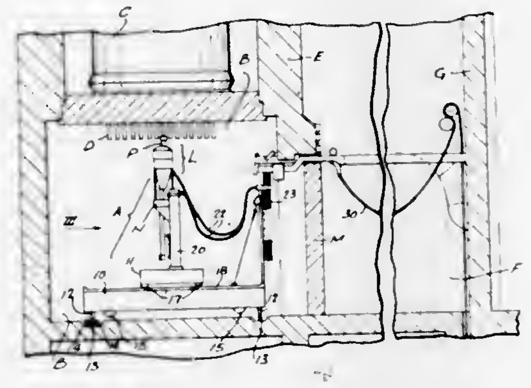


A T-coupling is provided between the fuel string and the closure plug assembly together forming a fuel aggregate for loading into each reactor fuel channel. A fuelling machine comprises a minimum of two barrels, one for receiving the fuel string and one for receiving the plug assembly, the barrels being disposed in a turret rotatable about an axis parallel to the barrels and the fuel channel. Intermediate engagement or disengagement of the coupling when loading or unloading a fuel channel is made by rotating the turret.

3,567,577

NUCLEAR REACTOR INSTALLATION

Gordon L. Brooks, Clarkson, Toronto, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Apr. 15, 1968, Ser. No. 721,294
Int. Cl. G21c *19/24*
U.S. Cl. 176—30 **13 Claims**

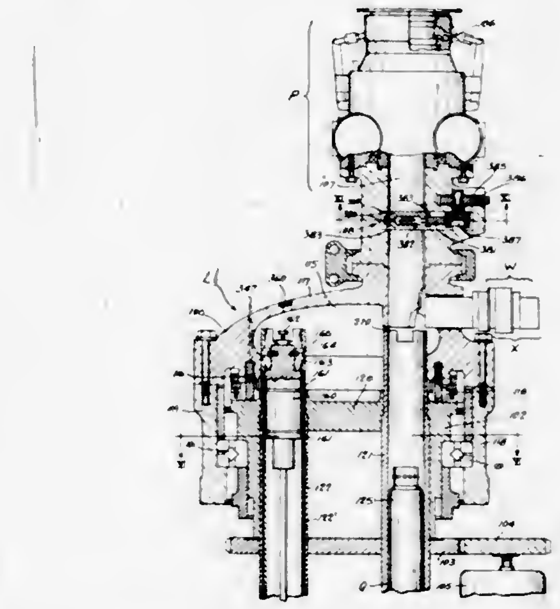


For loading and unloading fuel aggregates into and from a plurality of vertically extending fuel channels of the reactor, the snout of a fuelling machine head is coaxially aligned with a selected such channel, vertically shifted towards the channel and clamped onto a projecting end thereof. To carry out the necessary motions, a carriage is vertically shiftably mounted on a horizontally movable vehicle and supports a suspension assembly in which the machine head is rotatably mounted about a horizontal axis. The suspension assembly includes four vertically suspended rods connecting the machine head to the carriage, each rod having a universal joint at both ends to permit free horizontal translation of the machine head relative to the carriage, thus compensating for minor misalignments between the snout and the selected channel.

3,567,578

NUCLEAR REACTOR INSTALLATION

Peter Isaac, Cooksville, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Apr. 15, 1968, Ser. No. 721,295
Int. Cl. G21c *19/24*
U.S. Cl. 176—30 **11 Claims**

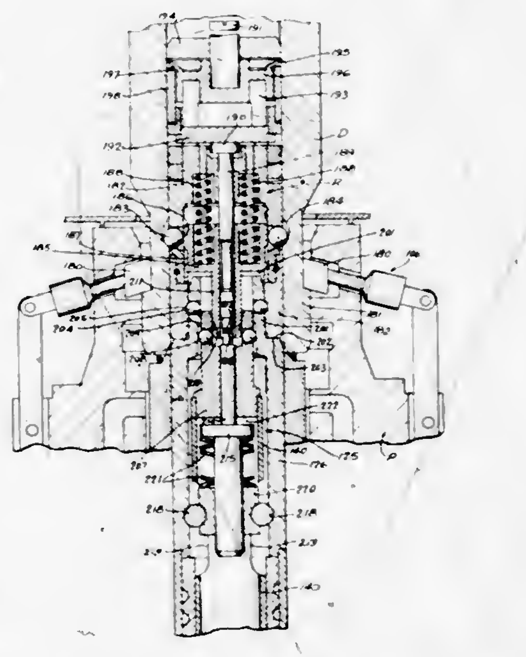


A fuelling machine head comprises an end wall with a snout for connecting reactor fuel channels and replenishment fuel transfer channels, a skirt portion, and a turret rotatably mounted in the skirt portion for supporting a number of tubes and aligning them with the snout. The tubes serve snugly to receive used and fresh fuel strings and a plug closing the channels. A fluid pressure-tight seal is disposed between the turret and the end wall so that the space defined within the turret is small in comparison with the volume of the tubes.

3,567,579

NUCLEAR REACTOR INSTALLATION

Peter Hubler and Roy K. Nakagawa, Toronto, Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Apr. 15, 1968, Ser. No. 721,358
Int. Cl. G21c *19/24*
U.S. Cl. 176—30 **8 Claims**



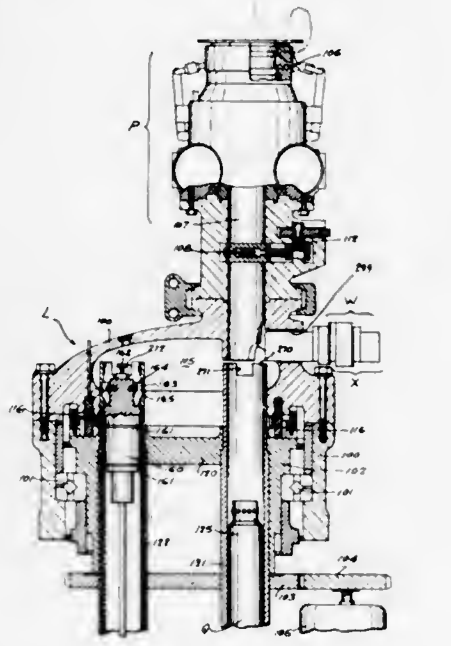
Each fuel aggregate used for fueling the reactor is locked and sealed within tis respective fuel channel by means of an end plug portion. For unlocking this portion, releasing the seal and displacing the fuel aggregate out of the channel, a mechanism is used which includes a casing for engaging the channel and two coaxial tubes for engaging the end plug portion. The two tubes are moved together along their longitudinal axis, relatively to the casing, and independently of this motion, the inner one of these tubes is moved along the same axis relatively to the outer tube. The end plug portion similarly comprises two coaxial tubular members, the outer one of which is provided with a set of captive balls and the inner one of which has a surface portion arranged to force these captive balls into a locking groove provided in the inner surface of the channel. The outer and inner tubes of the ram mechanism are similarly provided with a set of captive balls to lock the tubes to the outer and inner tubular members of the end plug portion respectively. The inner tube furthermore serves to displace the inner tubular member relatively to the outer tubular member to engage or disengage the captive balls of the end plug portion to or from the channel groove. The outer tube furthermore serves to actuate means for releasing the seal of the end plug portion.

3,567,580

NUCLEAR REACTOR INSTALLATION

Roy K. Nakagawa and Peter Hubler, Toronto, Ontario, and Peter Isaac, Cooksville, Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Apr. 15, 1968, Ser. No. 721,410
Int. Cl. G21c *19/24*
U.S. Cl. 176—30 **11 Claims**



Each fuel aggregate used for fuelling the reactor is divided into two portions between which a coupling is provided. During the procedures of loading and unloading such fuel aggregate into and from a selected reactor channel by means of a fuelling machine, the coupling is disengaged and the two portions are handled separately and sequentially. Locking means are provided for defining a predetermined position of the portion in the fuelling machine head such that proper engagement and disengagement of the coupling will be insured. This locking means includes a disc-shaped flange formed on that portion of the fuel aggregate, which is first inserted into and last withdrawn from the channel, and stop means mounted in the fuelling machine for engaging the flange in a pincer-like manner.

3,567,581

URANIUM-SILICON FUEL ELEMENTS FOR A NUCLEAR REACTOR

Melville Albert Feraday, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

No Drawing. Continuation-in-part of application Ser. No. 647,246, June 19, 1967. This application June 4, 1968, Ser. No. 734,221
Int. Cl. G21c *3/30*
U.S. Cl. 176—70 **13 Claims**

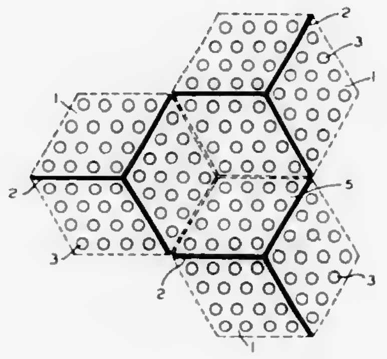
A nuclear reactor fuel element using delta phase (U_3Si) uranium-silicon alloy to provide a low aqueous corrosion rate together with low parasitic neutron absorption. The nuclear fuel is provided with a central hollow core or uniformly dispersed porosity or a combination of both having a volume in the range 3–25% of the volume of the core and sheathed width corrosion resistant material.

3,567,582

NUCLEAR FUEL SUBASSEMBLIES AND COMBINATIONS THEREOF

Jean-Paul L. Van Dievoet, Brussels, Jean George DeWandeleer, Overijsche, and Robert Odon Charles, Chatelet, Belgium, assignors to Societe Belge pour l'Industrie Nucleaire, S.A., "Belgonucleaire," Brussels, Belgium

Filed Feb. 23, 1968, Ser. No. 707,728
Claims priority, application Belgium, Feb. 23, 1967, 40,148
Int. Cl. E21c; E21b
U.S. Cl. 176—78 **7 Claims**



In a fuel subassembly for use in nuclear reactors, a support member which includes three or more elongated webs, each having one of its longitudinal edges joined with a common nexus from which the several webs radiate in an angularly spaced array, and fuel rods attached to the central support member within the thus-defined angular spaces in open lateral communication with the exterior of the subassembly. Groups of such subassemblies in which webs in different but adjoining central support members are disposed closely adjacent to one another along their outer longitudinal edges, and webs on a plurality of different central supports define cells containing fuel rods, thereby minimizing the amount of neutron-absorbing structural material required in each subassembly.

3,567,583

FERMENTATIVE PROCESS FOR THE PRODUCTION OF ERGOCRISTINE

Anacleto Minghetti, P.zza Vesuvio 23; Celestino Spalla, Via L. Soderini 21; and Luigi Tognoli, Via Fiordalisi 10, all of Milan, Italy

No Drawing. Filed July 2, 1968, Ser. No. 741,885
Claims priority, application Italy, Nov. 10, 1967, 22,538-A/67
Int. Cl. C12b *1/08;* **C12k** *1/10*
U.S. Cl. 195—81 **1 Claim**

The present invention relates to a microbiological process for the production of the ergot alkaloid ergocristine employing the new microorganisms *Claviceps purpurea* F.I. S40 which also has been given the index number ATCC 20103 by the American Type Culture Collection, Rockville, Md. 20852, U.S.A.

3,567,584

PROCESS FOR THE PREPARATION OF ERGOCORNINE AND ERGOSINE

Alba Maria Amici, Via Morigi 13; Anacleto Minghetti, P.zza Vesuvio 23; and Celestino Spalla, Via L. Soderini 21, all of Milan, Italy

No Drawing. Filed July 2, 1968, Ser. No. 741,884
Claims priority, application Italy, Feb. 26, 1968, 13,195/68
Int. Cl. C12b *1/08;* **C12k** *1/10*
U.S. Cl. 195—81 **1 Claim**

The present invention relates to a new microbiological process for the production of ergosine and ergocornine employing the new strain *Claviceps purpurea* F.I. 43/14 which has also been given the index number ATCC 20106 by the American Type Culture Collection, Rockville, Md. 20852, U.S.A. By the process of the invention, good yields with a high purity of a mixture in practically equal parts of the alkaloids ergocornine and ergosine are obtained.

3,567,585

PROCESS FOR OBTAINING BCG-CULTURES

Hubert Bloch, Basel, and Jakob Nuesch, Riehen, Switzerland, assignors to Ciba Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 379,364, June 30, 1964, and Ser. No. 455,994, May 14, 1965. This application June 27, 1968, Ser. No. 740,478
Claims priority, application Switzerland, July 12, 1963, 8,736/63; May 26, 1964, 6,839/64; May 27, 1964, 6,913/64; Mar. 25, 1965, 4,203/65
Int. Cl. C12k *5/00*
U.S. Cl. 195—96 **3 Claims**

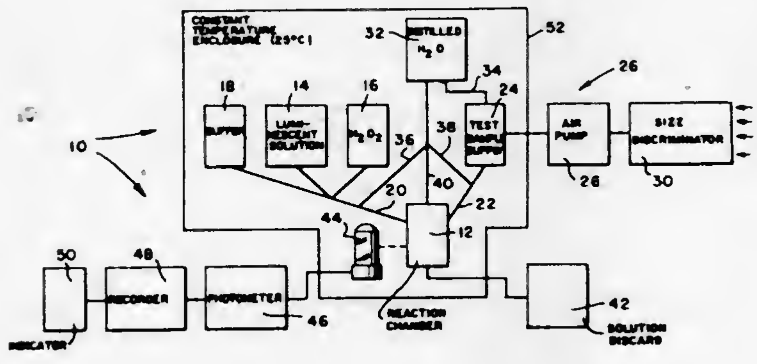
Process for cultivating BCG on an industrial scale in a fermenter by using a nutrient solution containing glycerin and a wetting agent of the Tween type and processing of the BCG culture to obtain vaccines.

3,567,586

CHEMILUMINESCENT SYSTEM FOR DETECTING LIVING MICROORGANISMS

Giorgio Soli, Los Angeles, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Original application July 7, 1964, Ser. No. 380,958. Divided and this application Nov. 9, 1967, Ser. No. 688,294
Int. Cl. C12b *1/00*
U.S. Cl. 195—127 **5 Claims**



Apparatus is provided for continually monitoring the presence of living organisms in the atmosphere by pumping samples of air into a chamber wherein the sample is brought into contact with a compound of known luminescence. When microorganisms are persent in the sample a measurable attenuation of light output from the compound is detected and recorded.

3,567,587

PHOSPHOROUS-HALOGEN FOG STABILIZERS FOR PHOTOGRAPHIC EMULSIONS

Donald M. Burness, Robert A. Silverman, and Charles J. Wright, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,244
Int. Cl. G03c *1/34*
U.S. Cl. 196—109 **18 Claims**

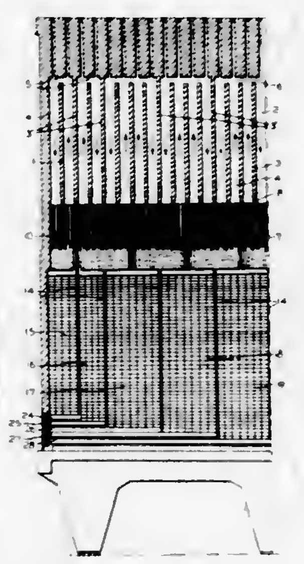
A photographic silver halide emulsion or photographic element containing a fog-stabilizing amount of an amide containing both phosphorus and halogen in the molecule, the phosphorus atom being attached to the amidic nitrogen atom.

3,567,588

REGENERATIVE COKE FURNACE WITH UPPER AND LOWER LOCATED BURNING POINTS IN THE HEATING FLUES

Artur Steding, Bochum, Kurt Prange, Dumberg-Hofe uber Hattingen, and Manfred Blase, Essen, Germany, assignors to Didier-Werke AG., Wiesbaden, Germany

Filed Sept. 26, 1968, Ser. No. 762,681
Claims priority, application Germany, Apr. 10, 1968, P 17 71 140.9
Int. Cl. C10b *5/02, 5/16*
U.S. Cl. 202—143 **4 Claims**



A regenerative coke furnace having upper and lower located burning points with the heating flues being combined into groups and having regenerator compartments corresponding to the number of groups of heating flues, which are in connection via sole flues with regulating devices being arranged at the exterior side of the furnace for regulating the flowing mediae.

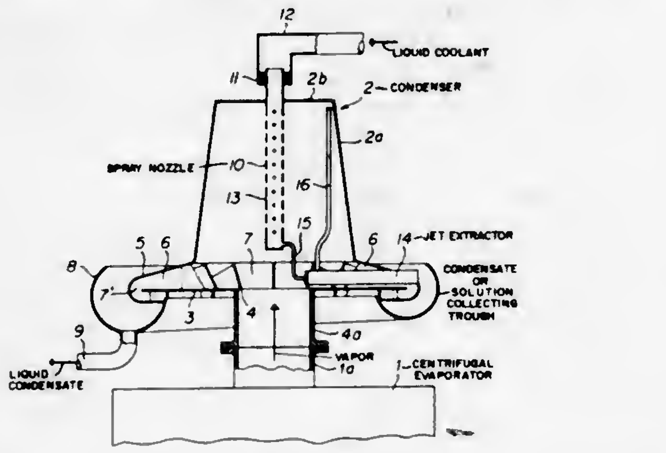
3,567,589

CENTRIFUGAL CONDENSING APPARATUS

Alain Javet, Grange-Canal, Geneva, Switzerland, assignor to The Battelle Development Corporation, Columbus, Ohio

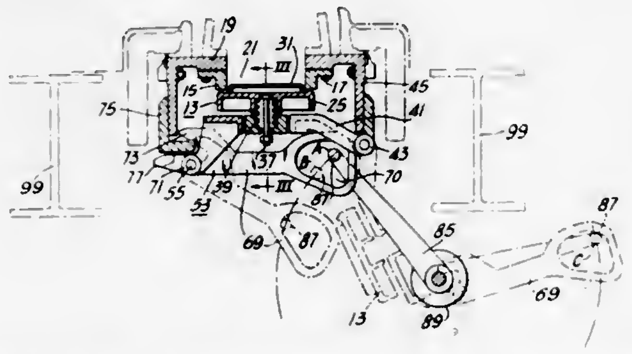
Filed July 5, 1968, Ser. No. 742,589
Claims priority, application Switzerland, July 4, 1967, 9,474/67
Int. Cl. B01d *3/08*
U.S. Cl. 202—189 **10 Claims**

A device for enabling a liquid to be discharged from a rotating chamber through an end opening formed in a casing portion thereof and for preventing a gaseous fluid from flowing through said opening in either direction, which comprises the outer semitoric half of a toric channel with one opening of the channel directly and sealingly connected to said casing end opening and with the convex surface of the channel in a position radially more remote from the rotational axis of the chamber than said opening, a disc transverse to the axis extends radially into the channel so that, upon liquid being discharged from said casing end opening, said liquid first fills said channel to form a liquid plug before issuing at the other end of the channel. In a preferred embodiment the casing end opening and the channel extend, widthwise, circumferentially around the entire chamber.



3,567,590
LEVELER DOOR AND OPERATING MECHANISM

Kurt Reinfeld and Emmanuel V. Gouye, Pittsburgh, Pa., assignors to Koppers Company, Inc.
Filed Jan. 21, 1969, Ser. No. 792,740
Int. Cl. C10b *25/12*
U.S. Cl. 202—248 **6 Claims**

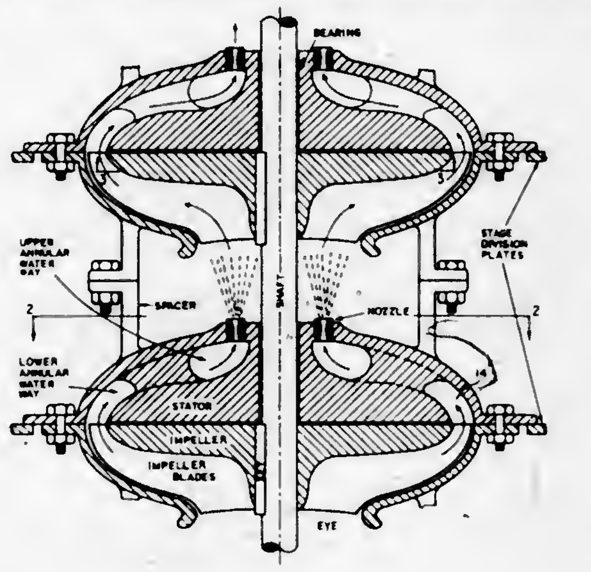


A leveler bar door is resiliently mounted to a frame which pivots about a vertical axis, and a latch is mounted to the door in biased relation to the door frame. A remotely controlled latch operating mechanism can be actuated to engage the latch to open and close the door when the leveler bar is aligned with the door opening.

3,567,591
METHOD FOR OPEN MULTICONDENSATION OF VAPORS FROM MULTIFLASH EVAPORATIONS

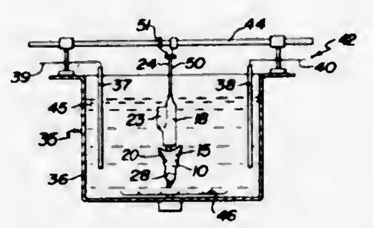
Donald F. Othmer, 333 Jay St., Brooklyn, N.Y. 11201
Continuation of application Ser. No. 652,368, June 12, 1968, which is a continuation-in-part of application Ser. No. 252,473, Jan. 18, 1963. This application Mar. 3, 1969, Ser. No. 809,457
Int. Cl. B01d *3/06;* **C02b** *1/06*
U.S. Cl. 203—26 **18 Claims**

Multiflash evaporation for concentrating solutions, and producing fresh water wherein vapors from a flash evaporator at a lower pressure is condensed and entrained in a colder stream of liquid sprayed through the open vapor space between two centrifugal pumps, the spray of condensing liquid and entrained vapors being directed into the suction eye of a first centrifugal pump thereby compressing the entrained vapors. The resultant condensing liquid and compressed vapors are then discharged as a second spray into the suction eye of a second co-acting centrifugal pump, the second spray passing through the open vapor space of the next higher pressure flash evaporation stage.



3,567,592
METHOD OF MAKING DENTAL RESTORATIONS

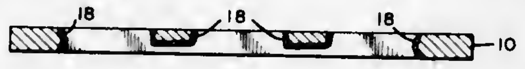
Horst L. Wismann, 260 E. 16th St., North Vancouver, British Columbia, Canada
Filed Sept. 16, 1968, Ser. No. 759,873
Int. Cl. C23b *7/02;* **C23f** *17/00*
U.S. Cl. 204—9 **7 Claims**



Dental restorations are manufactured by electroplating a ceramal substructure on a die which duplicates the tooth structure to be restored and subsequently applying a porcelain outer layer to the ceramal substructure.

3,567,593
PROCESS OF ETCHING AND ELECTROPLATING PRINTED CIRCUITS

George G. Burlingame, Stillwater, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.
Filed Sept. 17, 1968, Ser. No. 760,339
Int. Cl. B29c *17/08;* **C23b** *5/48*
U.S. Cl. 204—15 **3 Claims**



A process of etching and electroplating a printed circuit having a recessed region utilizing the same resist material to control the etching and the electroplating.

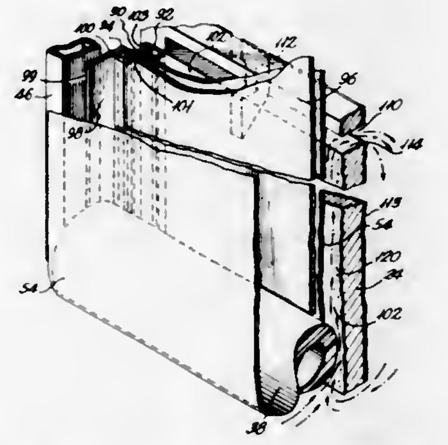
3,567,594
ELECTROPLATING PLASTICS

Johnny L. Wells, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation-in-part of application Ser. No. 714,098, Mar. 18, 1968. This application Mar. 17, 1969, Ser. No. 807,986
Int. Cl. B29c *25/00;* **C23b** *5/64*
U.S. Cl. 204—20 **36 Claims**

Electroplating of a moldable plastic containing a siliceous filler is achieved by conditioning a preformed article of said plastic by a combination treatment consisting of an acid chromate etch and an HF treatment and thereafter preplating the conditioned article with an electrolessly platable metal and electroplating the preplated article with a final finish to obtain a metalplated plastic product.

3,567,595
ELECTROLYTIC PLATING METHOD

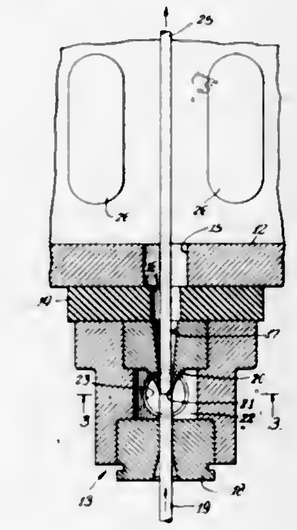
Charles B. Yates, Willingboro, N.J., assignor to Circuit Foil Corporation, Bordentown, N.J.
Filed Sept. 25, 1967, Ser. No. 670,152
Int. Cl. B01k *3/00;* **C23b** *5/58*
U.S. Cl. 204—28 **9 Claims**



A method of improving the electroplating of a metal onto the surface of a cathodic strip of metal which is moved in the electrolyte in proximity to the surface of an anode, said method involving the creation of a substantially uniform upward flow of electrolyte across the surface of said strip of metal using gas evolved between the anode and said strip of metal as the driving force for a pumping system to create an air lift effect. Apparatus for carrying out said method.

3,567,596
ELECTROLYTICALLY COPPER PLATING AN ALUMINUM WIRE

William D. Kelly, 12 Blodgett St., Clarendon Hills, Ill. 60514
Continuation-in-part of application Ser. No. 718,399, Apr. 3, 1968. This application Aug. 19, 1968, Ser. No. 755,504
Int. Cl. C23b *5/18, 5/48, 5/68*
U.S. Cl. 204—28 **3 Claims**



The invention relates to an apparatus for electrolytically plating wire. The apparatus is particularly useful in copper plating of aluminum wire and includes means whereby the outer layer of aluminum oxide may be stripped from the aluminum wire immediately prior to immersion of the wire into the electrolytic solution so as to inhibit the formation of aluminum oxide coating on the stripped wire.

3,567,597
METHOD OF MAKING A DRY LUBRICANT COATING

Ralph J. Hovey, Glen Ellyn, and Afsar A. Khan, Elmhurst, Ill., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.
No Drawing. Original application Jan. 13, 1966, Ser. No. 520,360. Divided and this application June 11, 1969, Ser. No. 832,476
Int. Cl. B01k *5/02;* **C23f** *17/00*
U.S. Cl. 204—38 **4 Claims**

A metal such as tin, aluminum or magnesium is electrolytically anodized and simultaneously therewith there is electrophoretically deposited particles of a solid lubricant on the metal. All types of solid lubricant particles which normally have or can be made to have a negative charge may be used, including molybdenum disulphide, alumina-tungsten disulphide, polyethylene, and fluorocarbon polymers.

3,567,598
RENDERING THE SURFACE OF MOLYBDENUM AND TUNGSTEN COMPOSITIONS SOFT-SOLDERABLE

Newell C. Cook, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Continuation-in-part of application Ser. No. 593,324, Nov. 10, 1966. This application June 23, 1969, Ser. No. 835,737
Int. Cl. C23b *5/14;* **C23f** *17/00*
U.S. Cl. 204—38 **6 Claims**

Molybdenum and tungsten can be tinided in a fused salt bath. The surfaces so produced are readily wet by molten soft solder and, therefore, such surfaces can be readily soft-soldered by conventional soft-soldering techniques to themselves or to other objects which can be soft-soldered.

3,567,599
ELECTROCHEMICAL TREATMENT OF FERROUS METAL

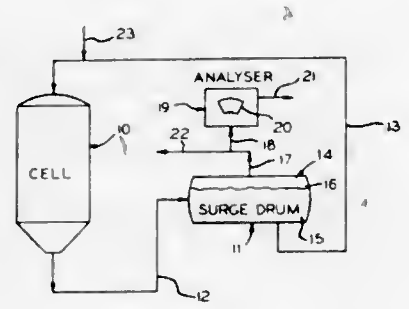
William A. Carter, Jr., Gary, Ind., and Harvie H. Lee, Park Forest, Ill., assignors to Inland Steel Company, Chicago, Ill.
No Drawing. Filed June 21, 1967, Ser. No. 647,619
Int. Cl. C23b *5/06, 5/50, 11/00*
U.S. Cl. 204—41 **6 Claims**

A two-step electrochemical treatment of a ferrous metal article in which a coating of electrolytic chromium plate is deposited on a ferrous metal surface and a surface coating containing chromium as an oxide of chromium and metallic chromium is codeposited over the chromium plate from a chromic acid solution containing an electroplating additive, preferably a halide ion. By controlling the thickness of each of the coatings, a duplex coating is formed which imparts good corrosion resistant and good lacquer-adherent properties to the ferrous metal article without imparing the formability thereof; thereby making the electrochemical treatment and the resultant product particularly suited for the production of tinless can stock.

3,567,600
METHOD OF MEASURING THE ALKYL CHLORIDE CONCENTRATION IN AN ELECTROLYTE

Alfred O. Walker, Lake Jackson, Tex., assignor to Nalco Chemical Company, Chicago, Ill.
Filed Aug. 8, 1969, Ser. No. 848,436
Int. Cl. B01k *3/00*
U.S. Cl. 204—59 **9 Claims**

The alkyl chloride concentration in the electrolyte of an electrolytic cell is measured and/or recorded by determining the concentration of the chloride in the gas phase of the electrolyte. The gas phase is analyzed by an infrared analyzer which is sensitive to the chloride, and calibrated to read out the weight percent of chloride in the liquid phase of the electrolyte.



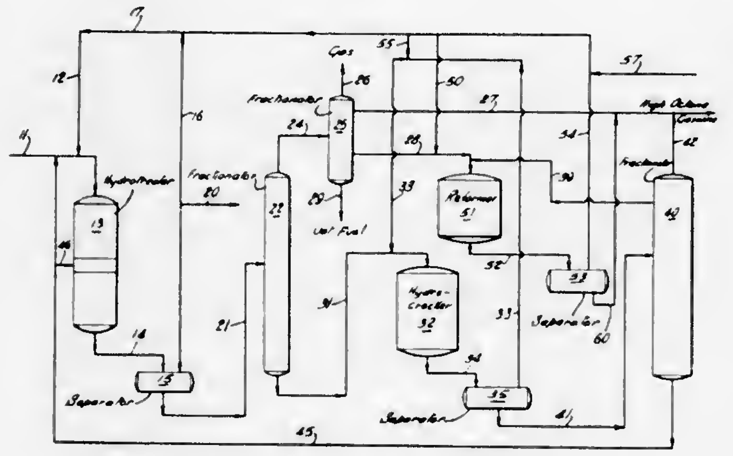
3,567,601
PROCESS FOR POLYMERIZING TETRAHYDROFURAN

Kenneth R. Lucas, James F. Cetnar, and Edward L. Kay, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Sept. 12, 1968, Ser. No. 759,504
Int. Cl. C07b *3/00, 29/06*
U.S. Cl. 204—78 **11 Claims**

The process described herein comprises an electrolytic method for polymerizing tetrahydrofuran to polytetramethylene oxide using as the electrolyte an alkali metal perchlorate or an ammonium perchlorate. The polymerization is effected in the anodic compartment of an electrolytic cell. Other monomers such as styrene or other vinyl monomers, including dienes such as isoprene, 1,3-butadiene, etc., can be polymerized simultaneously, if desired, in the cathodic compartment of the cell and using either the same perchlorate or other electrolyte in the cathodic compartment.

3,567,602
PRODUCTION OF MOTOR AND JET FUELS

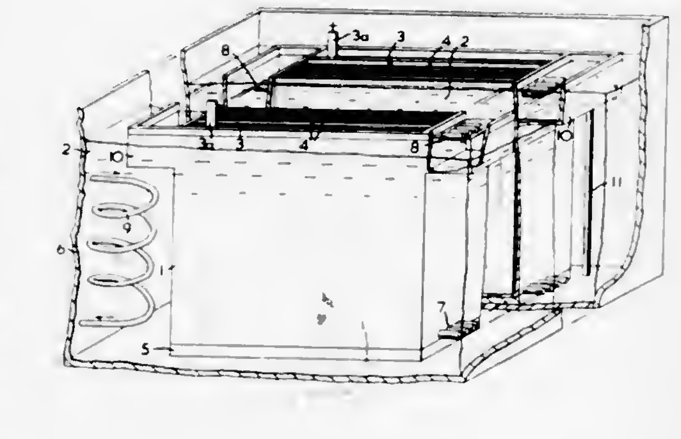
Edward T. Child, Fishkill, and Donald A. Messing, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Feb. 29, 1968, Ser. No. 709,484
Int. Cl. C10g *23/00*
U.S. Cl. 208—89 **9 Claims**



Simultaneous production of high quality motor and jet fuels is accomplished by passing a hydrocarbon feed through a hydrotreating zone, removing motor fuel and jet fuel from the effluent, passing a fraction boiling above the jet fuel range to a hydrocracking zone, recovering from the hydrocracking zone effluent a high quality motor fuel and recycling the jet fuel and heavier fraction to the hydrotreating zone.

3,567,603
REDUCTION OF CORROSION IN THE ELECTROLYTE SURROUNDING A MULTIPOLAR CELL

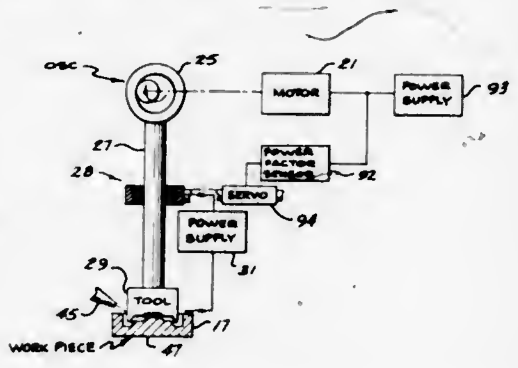
George J. Crane, Islington, Ontario, Canada; Ernest A. Du Vernet and Selma L. Crane, executors of the last will of said George J. Crane, deceased, assignors to Huron Nassau Ltd., Nassau, Bahamas
Continuation-in-part of abandoned application Ser. No. 362,718, Apr. 27, 1964. This application Mar. 5, 1968, Ser. No. 710,477
Claims priority, application Canada, Nov. 5, 1963, 888,376
Int. Cl. C01b *11/26;* **C22d** *1/02*
U.S. Cl. 204—95 **3 Claims**



In the production of sodium chlorate or perchlorate a method of reducing corrosion of electrically conductive parts, particularly cooling coils, in a tank surrounding a multipolar electrolytic cell, said tank containing an aqueous solution of sodium chloride as electrolyte from which the electrolyte is continuously recirculated through the cell which method comprises intimately admixing the effluent electrolyte from each cell unit from the cell prior to its passage to the tank whereby to obtain equalization of the electric potential in the effluent.

3,567,604
USE OF SONIC RESONANT ENERGY IN ELECTRICAL MACHINING

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406
Filed May 29, 1967, Ser. No. 642,085
Int. Cl. B23p *1/00*
U.S. Cl. 204—143 **2 Claims**

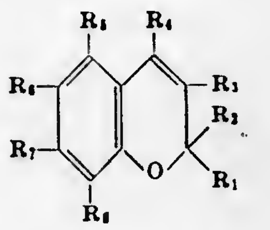


A device and method for electrical machining which consists of applying sonic energy to the work tool element. The work tool is resonantly vibrated so that a wave pattern is transmitted to the tip thereof adjacent the workpiece and is transmitted through the working fluid to the workpiece.

3,567,605
PHOTOCHEMICAL PROCESS

Ralph S. Becker, 518 Knipp, Houston, Tex. 77024
No Drawing. Filed Mar. 30, 1966, Ser. No. 542,429
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—158 **7 Claims**

A photochemical system employing chromene or its derivatives having the general formula:



where any of R_1 through R_8 are hydrogen or where one or more hydrogens are replaced by substitution with an alkyl, aryl, alkoxy, hydroxy or amino radical or are replaced by condensation across any one or more of the positions R_3–R_4; R_5–R_6; R_6–R_7; and R_7–R_8.

3,567,606
RADIATION INDUCED GRAFT COPOLYMERIZATION

Sharda Das Gupta and James Theodore Slobodian, Ottawa, Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
No Drawing. Continuation of application Ser. No. 338,625, Jan. 20, 1964. This application Jan. 8, 1968, Ser. No. 696,483
Claims priority, application Canada, July 24, 1963, 880,898
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.12 **17 Claims**

In the process of graft polymerization by the use of high energy radiation the improvements comprising covering the material to be grafted with an outer layer wherein homopolymerization is minimized in the inner layer by the presence of said outside layer.

3,567,607
IRRADIATED METAL-POLYMER COMPOSITIONS

Frank L. Saunders, James K. Rieke, and James W. Twining, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Feb. 18, 1966, Ser. No. 528,348
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.2 **10 Claims**

A composition useful for fabricating an article having improved tensile and impact strength, said composition comprising at least 40 percent by volume of an irradiated olefin polymer such as polyethylene and at least 40 percent by volume of finely divided metallic particles such as aluminum. The composition is prepared by dry blending the irradiated polymer and the metallic particles to form a uniform mixture. The mixture is then formed into the article desired by, for example, a suitable molding technique.

3,567,608
MERCAPTAN SYNTHESIS USING ULTRAVIOLET RADIATION AND A PROMOTER CONTAINING A PHOSPHITE AND AZOBISISOBUTYRONITRILE

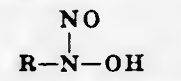
Paul F. Warner, Phillips, Tex., assignor to Phillips Petroleum Company
Filed Apr. 29, 1968, Ser. No. 725,097
Int. Cl. B01j *1/10;* **C07c** *3/24*
U.S. Cl. 204—162 **9 Claims**

The reaction rate and conversion of ethylenically unsaturated compounds and hydrogen sulfide carried out in the presence of ultraviolet radiation is improved by the utilization in the reaction system of a combination promoter consisting of a phosphite of the formula $(ArO)_3P$ and azobisisobutyronitrile.

3,567,609
PHOTOLYTIC PRODUCTION OF N-SUBSTITUTED N-NITROSOHYDROXYLAMINES

Martin Pape and Paul Raff, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Oct. 20, 1967, Ser. No. 676,692
Claims priority, application Germany, Oct. 27, 1966, P 15 43 376.8
Int. Cl. B01j *1/10*
U.S. Cl. 204—162 **4 Claims**

A process for the production of N-substituted N-nitrosohydroxylamines having the formula:



$$\mathrm{R-\overset{\displaystyle NO}{\overset{|}{N}}-OH}$$

in which R denotes an alkyl, cycloalkyl or aralkyl radical, by reacting a hydrocarbon R—H (in which R has the said meaning) with NO and HCl in the presence of light at temperatures of from −100° C. to +100° C. at a pressure of up to 2 atmospheres absolute.

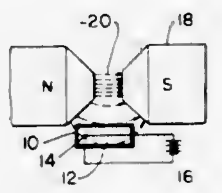
3,567,610
PRODUCTION OF CHLORINATED PARAFFINS

John E. Krol, Moon Township, and Albert J. Henderson, Coraopolis, Pa., assignors to Neville Chemical Company, Pittsburgh, Pa.
No Drawing. Filed June 24, 1968, Ser. No. 739,177
Int. Cl. C07c *17/10*
U.S. Cl. 204—163 **25 Claims**

Paraffin hydrocarbons are chlorinated in the presence of a minor amount of an additive capable of overcoming contamination present in the reaction zone which would otherwise retard the chlorination reaction. The additives utilized in the process are ferrocyanic acid, ferricyanic acid, and ferrocyanides or ferricyanides of ammonia, Group I metals, or Group II metals.

3,567,611
TWO-STAGE ELECTROMAGNETOPHORESIS

Richard E. Michel, Birmingham, and Robert M. Nalbandian, Bloomfield Hills, Mich.; said Michel assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 16, 1968, Ser. No. 759,884
Int. Cl. B01k *5/00*
U.S. Cl. 204—180 **7 Claims**



Material, such as human normal blood serum protein, is partitioned by two-stage electromagnetophoresis as a function of molecular paramagnetism. In the first stage the protein to be partitioned is positioned on a prism of gel and is electrophoresed to provide a first partition thereof in the direction of the applied electric field in accordance with physical and electrical characteristics thereof. Following the completion of the electrophoresis, the prism is placed in a non-uniform magnetic field and magnetophoresed. The proteins suspended in a partitioned state in the gel matrix as the result of electrophoresis are thus partitioned in a direction parallel to the magnetic field gradient as a function of the paramagnetism of the molecules of the protein.

3,567,612
ELECTROLYTIC COATING OF N - 3 - OXOHYDROCARBON-SUBSTITUTED ACRYLAMIDE POLYMER

Andrew G. Tsuk, Laurel, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Oct. 26, 1967, Ser. No. 678,195

The portion of the term of the patent subsequent to Mar. 25, 1986, has been disclaimed

Int. Cl. B01k *5/02;* **C23b** *13/00*

U.S. Cl. 204—181 **16 Claims**

A process for coating metallic electrodes comprising contacting said electrodes with an aqueous acidic solution of an N-3-oxohydrocarbon-substituted acrylamide under ambient conditions by an electrolysis process employing alternating current thereby forming an N-3-oxohydrocarbon-substituted acrylamide polymer coating on the electrodes.

3,567,613
METHOD FOR FLAMEPROOFING COMBUSTIBLE MATERIALS

John W. Kraus, Fairfax, Va., and Jose E. Herrera, Ellicott City, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed May 10, 1968, Ser. No. 728,357

Int. Cl. B01k *5/02*

U.S. Cl. 204—181 **8 Claims**

A process for flameproofing combustible materials by electrodepositing vermiculite from an aqueous solution of an alkali metal salt onto said materials.

3,567,614
HANDLING APPARATUS FOR ELECTROPLATING INSTALLATIONS

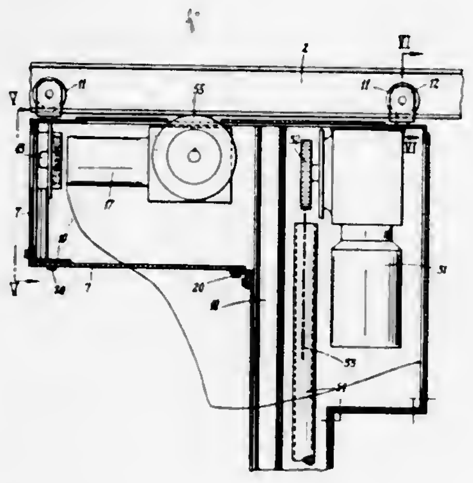
Robert Vauriac, Taverny, France, assignor to Les Procedes Rovac, Villeneuve-la-Garenne, Hauts-de-Seine, France

Filed May 16, 1968, Ser. No. 729,586

Claims priority, application France, May 31, 1967, 108,519; Apr. 24, 1968, 149,186

Int. Cl. B65g *49/00;* **C23b** *5/68*

U.S. Cl. 204—202 **2 Claims**



A handling apparatus which is primarily intended for use in electroplating installations and serves to lower parts to be treated into a plating tank, to withdraw said parts therefrom and to convey them to the following tank. The apparatus is constituted by a frame suspended from an overhead track mounted above the plating tanks and said frame is made up of a vertical extension along which a part-holding support is capable of moving. According to the invention, the vertical frame extension is protected by a shield casing constituting a practically sealed enclosure in which is mounted a vertically movable carriage fitted with said part-holding support and adapted to extend beyond the shield casing through at least one longitudinal slit formed in said casing.

The frame is also protected by a shield casing which is jointed to the shield casing of the vertical frame extension and houses the units for the propulsion and control of the carriage on which the part-holding support is mounted.

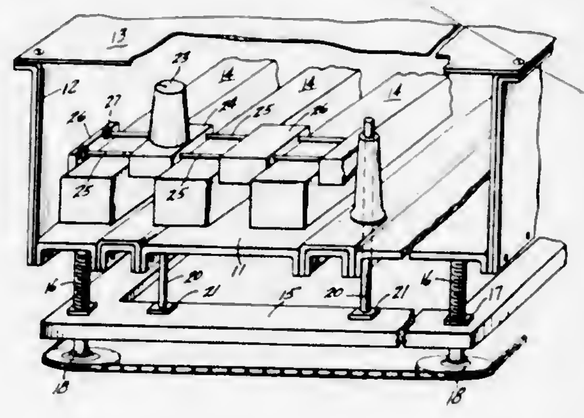
3,567,615
MERCURY CELL

Bernard H. Nicolaisen, Stamford, Conn., assignor to Olin Corporation

Filed Jan. 22, 1969, Ser. No. 792,948

Int. Cl. B01k *3/00;* **C22d** *1/04*

U.S. Cl. 204—219 **13 Claims**



The novel flowing mercury cathode electrolytic cell has an improved bottom with alternate bare and insulated lengthwise segments, anodes above the bare segments, and adjustable support means for the anodes extending through insulating sleeves in the insulated segments of the cell bottom to adjustment means below the cell bottom. The top and sides of the cell are advantageously constructed of light weight materials since they do not have to support the anodes and anode adjustment means.

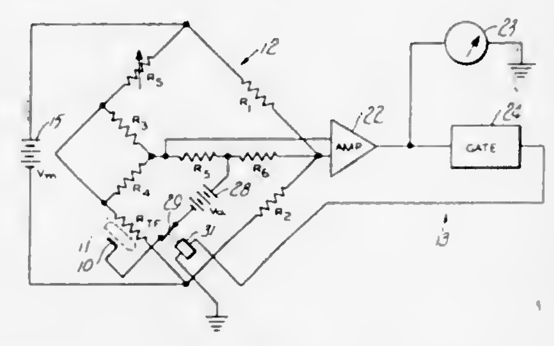
3,567,616
CIRCUIT FOR SIMULTANEOUSLY ANODIZING AND MEASURING THIN-FILM RESISTORS

Thomas L. Crisman, Alexandria, Va., and Robert C. Ward, Winston-Salem, N.C., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 18, 1968, Ser. No. 776,592

Int. Cl. B01k *3/00*

U.S. Cl. 204—228 **3 Claims**



A thin-film resistor, which is to be anodized to increase its resistance to a preselected value, is connected as one arm of a bridge circuit. A pair of equal series connected balancing resistors are connected across the measuring diagonal of the bridge while a D.C. source of measurement voltage is connected across the opposite diagonal. A source of D.C. anodizing current is coupled to the thin-film resistor through an electrolyte and to the junction between the pair of balancing resistors. When the bridge is balanced, the anodization current flows in two equal halves, in opposite directions through the balancing resistors so that a balance detector connected across the balancing resistors is unaffected by the flow of anodization current.

3,567,617
PROCESS FOR THE PRODUCTION OF OLEFIN OXIDES

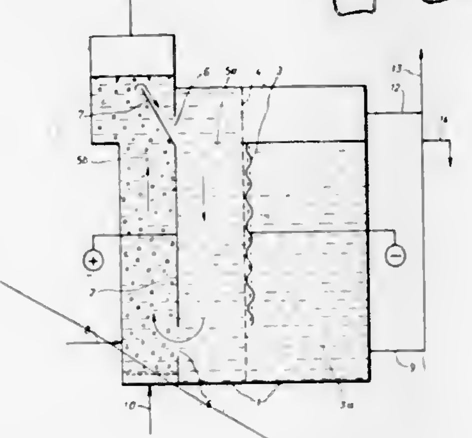
Walter Krönig and Peter Konrad, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 12, 1967, Ser. No. 674,783

Claims priority, application Germany, Oct. 14, 1966, F 50,440

Int. Cl. B01k *3/10*

U.S. Cl. 204—265 **11 Claims**



Process for electrolytically forming olefin oxides in an electrolytic cell having an anode, a diaphragm, and a cathode with the following compartments: an anode compartment divided into an anode backside compartment and an intermediate zone or compartment between the anode and the diaphragm and a cathode compartment; wherein gasiform olefin and metal halide-containing electrolyte are introduced into the cell and reacted therein to produce the desired olefin oxide; the improvement of introducing the gasiform olefin only into the anode backside compartment and preventing substantial quantities of gasiform olefin from being present in the intermediate zone.

3,567,618
FLUORIDIZED GRAPHITE AND METHOD OF MANUFACTURE THEREOF

Louis Foulletier and Roland Bachelard, Lyon, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Oct. 23, 1967, Ser. No. 677,071

Claims priority, application France, Oct. 24, 1966, 81,279

Int. Cl. B01k *3/08*

U.S. Cl. 204—294 **10 Claims**

Graphite and articles manufactured therefrom may be fluoridized to an extent hitherto unattainable by subjecting the graphite to repeated fluoridation cycles until the desired degree of fluoride penetration is achieved. Each fluoridation cycle comprises the steps of (a) degasing the graphite under vacuum, (b) contacting the graphite with fluorine gas under reduced pressure and at an elevated temperature, and (c) removing the fluorine gas from contact with the graphite.

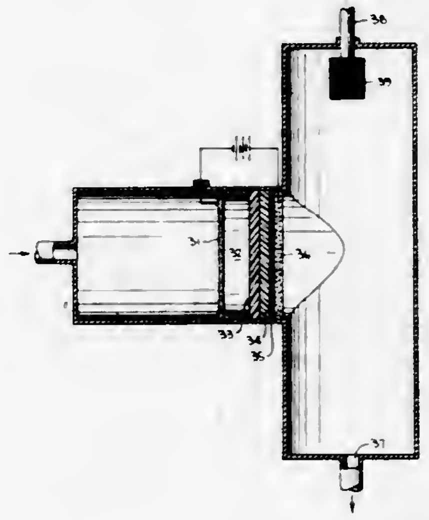
3,567,619
ELECTROSTATIC COALESCENCE MEANS

Robert N. Brown, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Army

Filed June 3, 1968, Ser. No. 734,033

Int. Cl. B01k *1/00;* **B03c** *5/02;* **C10g** *33/02*

U.S. Cl. 204—302 **2 Claims**



This invention relates to hydrocarbon fuel filtration and, more particularly, to electrostatic coalescence assisted filtration of solid and liquid contaminants from refined hydrocarbon fuels and non-water-soluble hydrocarbons such as those containing surface active additives. The contaminants are removed by including a first charged emitting screen electrode in the fluid flow with a conductive fibrous collecting bed downstream therefrom. The metallic coated fibers function substantially as a collecting electrode in the form of capillaries to attract very small particles of contaminants and cause them to collide with others to produce larger units, such as drops, thus increasing coalescence. The heavier, coalesced drops of water contaminants are drained off leaving the fuel substantially free of this contaminant. Solid contaminants are trapped and retained in a fibrous filter bed immediately upstream from the conductive fiber coalescing bed.

3,567,620
APPARATUS AND PROCESSES FOR THE MANUFACTURE OF OZONE

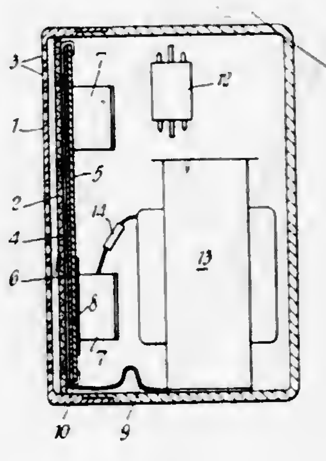
Rex Peter Ingram, Camberley, England, assignor to O-Three Instruments Limited, Weybridge, Surrey, England

Filed May 6, 1968, Ser. No. 726,731

Claims priority, application Great Britain, May 12, 1967, 22,084/67

Int. Cl. C01b *13/12*

U.S. Cl. 204—313 **8 Claims**

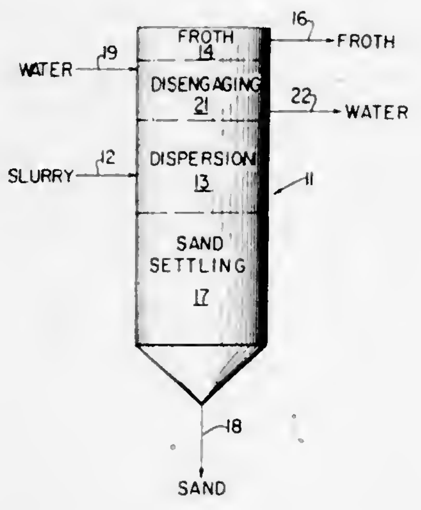


The specification discloses a compact apparatus for freshening air by the manufacture of ozone comprising a plane metallic electrode, an insulating film covering one surface of that electrode, and a perforated metallic sheet, for example a sheet of metallic gauze or a perforated anodised aluminium sheet, in contact with the side of the insulating film remote from the metallic electrode. An electric potential is applied between the metallic electrode and the perforated metallic sheet sufficient for producing ozone in the interstices of the perforated metallic sheet, and the interstices of the perforated metallic sheet are directly accessible to the air or atmosphere to be freshened so that the ozone which is produced is able to disperse immediately into the air.

3,567,621
RECOVERY OF BITUMEN FROM BITUMINOUS SAND

George Ronald Gray and Lubomyr M. O. Cymbalisty, Edmonton, Alberta, Canada, assignors to Cities Service Athabasca, Inc.; Imperial Oil Limited; Atlantic Richfield Corporation; and Royalite Oil Company Limited, fractional part interest to each

Filed June 17, 1968, Ser. No. 737,655
Int. Cl. C10g *1/04*
U.S. Cl. 208—11 **4 Claims**



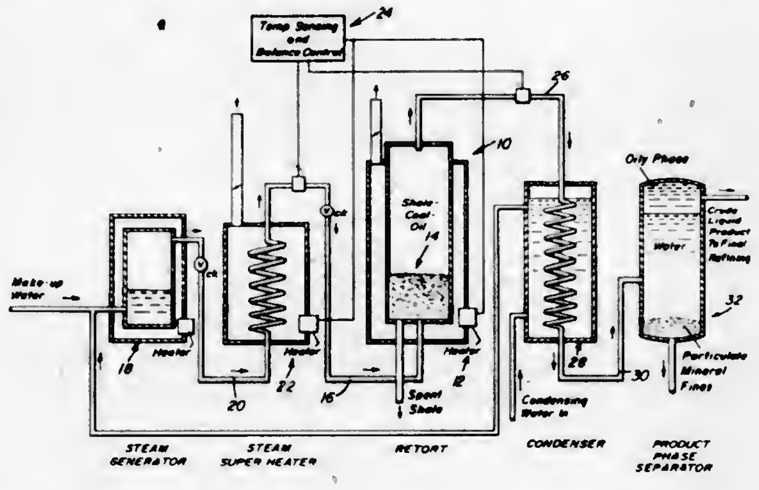
A process for the recovery of bitumen from tar sand in which a fluid slurry of tar sand is introduced into a body of hot water with bitumen rising to the top in the form of a layer of bituminous emulsion and sand settling to the bottom. Water is introduced immediately below the layer of bituminous emulsion to displace solids, froth particles associated with coarse solids, and prevent entrainment of fines in the emulsion. The additional water is preferably introduced into a quiescent zone in which a very slow downward velocity of water is maintained and water may be withdrawn from the lower portion of the quiescent zone to maintain a suitable downward velocity of water within the quiescent zone.

3,567,622
OIL RECOVERY PROCESS

Owen R. Waltrip, Roseville, Calif., assignor to Coleman D. Stephens, Jr., Sacramento, Calif.; John Konsonlas and Owen R. Waltrip, both of Roseville, Calif.; and Noel E. Adams, Oklahoma City, Okla., fractional part interest to each

Filed Nov. 21, 1968, Ser. No. 777,613
Int. Cl. C10g *1/02*
U.S. Cl. 208—11 **8 Claims**

A noncombustive, atmospheric pressure, retorting process for the production of high grade crude petroleum and petrochemicals from carbonaceous solids wherein superheated steam comprises a system carrier fluid and hydrogen donor and the retorting is carried out in the presence of a minor proportion of a middle fraction hydrocarbon oil selectively commingled with the carbonaceous solid in the retort zone or injected into the retort zone with the carrier fluid.



3,567,623
ANTIFOULANT AGENTS FOR PETROLEUM HYDROCARBONS

Dennis J. Hagney, Doylestown, Pa., assignor to Betz Laboratories, Inc., Trevose, Pa.

No Drawing. Filed Feb. 10, 1969, Ser. No. 805,930
Int. Cl. C10g *9/12, 9/16;* **C23f** *14/00*
U.S. Cl. 208—48 **15 Claims**

The present invention concerns a method for reducing or eliminating fouling deposits which are encountered in the processing or purification of crude hydrocarbons, hydrocarbon streams, petrochemicals, etc., and in particular to methods for preventing the deposition of fouling deposits wherein elevated temperatures are used. This objective is achieved by the addition of an antifouling amount of the product obtained by reacting an alkylene polyamine-aliphatic carboxylic acid reaction product with a lower aldehyde to the material being processed.

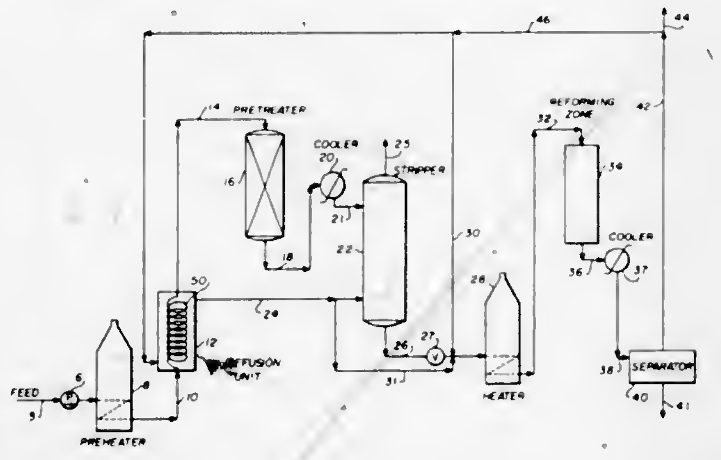
ERRATUM

For Class 208—89 see:
Patent No. 3,567,602

3,567,624
HYDROFORMING WITH PRELIMINARY HYDRODESULFURIZATION

William C. Pfefferle, Middletown, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Newark, N.J.

Filed July 17, 1968, Ser. No. 745,603
Int. Cl. C10g *23/00*
U.S. Cl. 208—89 **5 Claims**



A combination process for the desulfurization and catalytic hydroforming of normally liquid hydrocarbons

wherein the hydrogen required for desulfurization is obtained from the hydroformer reaction product and introduced into the feed to the desulfurizer by diffusion through a non-porous hydrogen permeable membrane.

3,567,625
HYDROFORMING WITH PROMOTED IRIDIUM CATALYST

John H. Sinfelt, Berkeley Heights, and Allan E. Barnett, Westfield, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed Feb. 6, 1969, Ser. No. 797,234
Int. Cl. C10g *35/06, 35/08*
U.S. Cl. 208—138 **12 Claims**

The use, in a hydroforming process, of a catalyst comprising iridium and a metal selected from the group consisting of gold, copper or silver, supported on a high surface area support results in the production of an improved hydroformate.

3,567,626
PROCESS FOR REDUCING THE SATURATE CONTENT OF AN OIL

Paul P. Bozeman, Jr., Groves, and Billy H. Cummins, Nederland, Tex., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,931
Int. Cl. C10g *21/02*
U.S. Cl. 208—316 **3 Claims**

A process for preparing aromatic oils with low saturate content, particularly rubber processing oils, by contacting a distillate extract with a hydrocarbon material containing up to 30 volume percent saturates and recovering an aromatic oil of reduced saturate content. The preferred solvent is furfural.

3,567,627
LUBE EXTRACTION WITH AN ETHYL GLYCOLATE SOLVENT

John M. McDonald, 152 Norman St., and Charles C. Hong, 811 Devine St., Apt. 30, both of Sarnia, Ontario, Canada

No Drawing. Filed Nov. 14, 1968, Ser. No. 775,942
Int. Cl. C10g *21/16*
U.S. Cl. 208—329 **2 Claims**

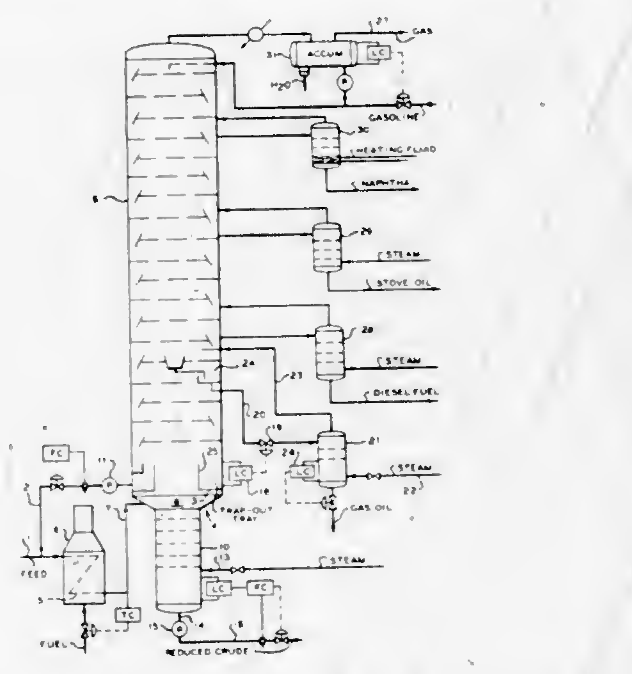
Polar materials, such as high molecular weight aromatics, are separated from petroleum distillate fractions by contacting a petroleum distillate fraction with a selective extraction solvent. The solvents employed, in accordance with this disclosure, are hydroxy substituted ethers and esters. The results obtained with these solvents are compared with the results obtained with the use of phenol.

3,567,628
PRODUCTION OF HIGH FLASH POINT TOPPED CRUDE AND HIGH FLASH POINT ASPHALT

Joe Van Pool, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Oct. 25, 1968, Ser. No. 770,575
Int. Cl. B01d *3/32, 3/42;* **C10g** *7/00*
U.S. Cl. 208—355 **4 Claims**

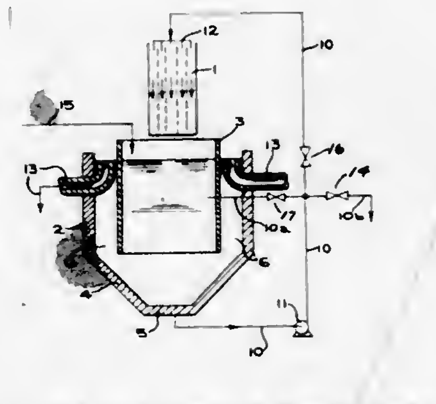
A high flash point reduced crude oil and a high flash point specification asphalt are produced by first distilling a crude oil in a distillation operation practiced in a distillation zone having a fractionation section and a stripping section in which a lower portion of the fractionation section is maintained at the highest temperature in the overall operation and to which is passed crude oil heated to substantially said highest temperature. A portion of distillate taken from said lower portion of said fractionation section is admixed with the crude oil and heated together therewith and therefore, reintroduced into the operation. The heated crude oil is, in any event, introduced intermediate the fractionation section and the stripping section. Alternately, distillate in the lower portion of the fractionation section can be heated therein to the desired highest temperature or substantially highest temperature in the overall operation. There is avoided the passing of distillate produced in or reintroduced into the operation to the stripping section by removing gas oil from a point above said lower portion of said fractionation section responsive to liquid level in said lower portion of said fractionation section. A trap-out tray from which the distillate is removed and passed to the furnace is operated so as to prevent overflow of distillate therefrom into the stripping section. A level controller on the trap-out tray regulates the rate of removal of gas oil from the fractionation section so as to insure production of desired reflux in the lower portion of the fractionation section. A high flash point reduced crude is withdrawn from the lower portion or bottom of the stripping section. Fractions boiling lower than the gas oil are taken off from the upper portions of the fractionation section. The reduced crude oil is solvent extracted as by a propane extraction operation to produce specification high flash point asphalt.



3,567,629
PROCESS AND PLANT FOR TREATING SEWAGE

Karl Cring Ayers and David Warren McAnaney, Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed June 9, 1969, Ser. No. 831,586
Int. Cl. C02c *1/04*
U.S. Cl. 210—5 **9 Claims**



A process for the treatment of liquid containing biodegradable organic solids, as for example, sewage, and the like, which, in general, combines desirable features of trickling filter and activated sludge systems and includes apparatus suitable therefor. A liquid containing biodegradable solids, as for example, sewage and the like is constantly recirculated from a sump or aerobic lagoon through a trickling filter, and effluent from the trickling filter is mixed with incoming raw sewage with agitation in the sump. The mixture is then retained in quiescent zones before overflow effluent is removed from the sump thus efficiently treating both settleable solids and dissolved solids contained in the sewage and the like.

3,567,630

REVERSE OSMOSIS MEMBRANES FROM AMORPHOUS COPOLYMERS OF AN ALKYLENE OXIDE AND ALLYL GLYCIDYL ETHER

Carl A. Lukach, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Sept. 29, 1969, Ser. No. 862,073

Int. Cl. B01d *13/00*

U.S. Cl. 210—23 **16 Claims**

Reverse osmosis membranes characterized by a salt-rejecting layer of an amorphous copolymer of an alkylene oxide and allyl glycidyl ether. The membranes are useful for desalination and other processes involving reverse osmosis.

3,567,631

REVERSE OSMOSIS MEMBRANES FROM POLYMERIC EPOXIDES

Carl L. Lukach, Harold M. Spurlin, Edwin J. Vandenberg, and William L. Young III, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed July 22, 1969, Ser. No. 843,752

Int. Cl. B01d *13/00*

U.S. Cl. 210—23 **23 Claims**

Reverse osmosis membranes characterized by a salt-rejecting layer of an amorphous polymer derived from epihalohydrin and an alkylene oxide. The membranes are useful for desalination and other processes involving reverse osmosis.

3,567,632

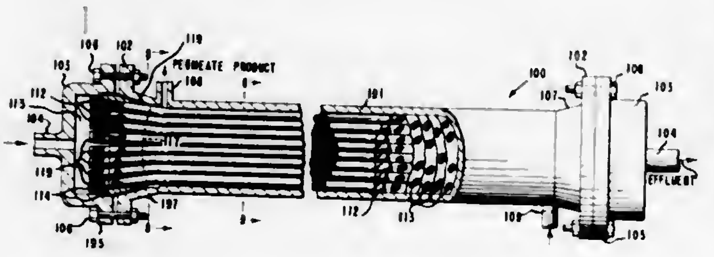
PERMSELECTIVE, AROMATIC, NITROGEN-CONTAINING POLYMERIC MEMBRANES

John William Richter, Kennett Square, and Harvey Herbert Hoehn, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 757,272, Sept. 4, 1968. This application Aug. 8, 1969, Ser. No. 848,611

Int. Cl. B01d *13/00*

U.S. Cl. 210—23 **40 Claims**



Permselective barriers or membranes prepared from synthetic, organic, nitrogen-linked aromatic polymers of the formula —LR— where L is a selected nitrogen-containing functional linkage such as an amide linkage, and R is a selected aromatic-containing linkage such as phenylene. The membranes are useful in separating components of fluid mixtures or solutions such as water containing dissolved salts

3,567,633

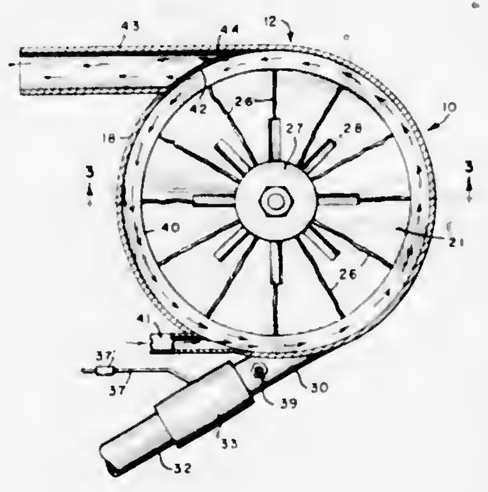
METHOD OF TREATING WASTE MATTER

Joe M. Valdespino, Orlando, Fla., assignor to Tekmar Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 866,810, Oct. 16, 1969. This application Mar. 30, 1970, Ser. No. 23,661

Int. Cl. B01d *21/26*

U.S. Cl. 210—62 **7 Claims**



The method of treating solid and liquid waste matter including the steps of separating liquid matter from solid matter, comminuting the solid waste matter within a chamber and introducing a stream of burning fuel under pressure into the chamber to incinerate the comminuted material, as well as including the steps of introducing liquid waste matter into an auxiliary tank and treating said liquid matter with a neutralizing agent prior to discharge.

3,567,634

CORROSION INHIBITOR DETERIORATION REDUCER

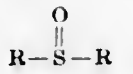
William E. Billings, London, England, and David Morris, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

No Drawing. Continuation-in-part of application Ser. No. 366,607, May 11, 1964, which is a continuation-in-part of application Ser. No. 133,294, Aug. 23, 1961. This application July 24, 1967, Ser. No. 655,282

Int. Cl. C23f *11/04;* **E21b** *43/28*

U.S. Cl. 252—8.55 **4 Claims**

This patent describes a non-corrosive fluid composition for treating earthen formations containing sulfides, consisting essentially of an aqueous solution of hydrochloric acid, a corrosion inhibiting amount of a hydrochloric acid inhibiting agent subject to deterioration by sulfides, said sulfides being present in a sufficient amount to reduce the effectiveness of said inhibiting agent, and a corrosion inhibitor deterioration reducing agent having the formula of



$$R-\overset{\overset{\large O}{\|}}{S}-R$$

wherein R is selected from the group consisting of alkyl group and aryl group, each group having from 2 to 10 carbon atoms and said corrosion inhibitor deterioration reducing agent being present in a sufficient amount to reduce the deterioration effect of said sulfides on said inhibiting agent.

3,567,635

LUBRICANT AND ANTISTATIC COMPOSITION

Kenneth D. Ballou, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

No Drawing. Continuation of application Ser. No. 471,752, July 13, 1965. This application June 5, 1969, Ser. No. 833,876

Int. Cl. D06m *13/38, 13/46*

U.S. Cl. 252—8.8 **1 Claim**

There is provided a composition for treating textile fibers whereby antistatic and lubricating properties are imparted to the fibers. The composition comprises:

(a) a cationic quaternary ammonium compound such as stearamido-propyl dimethyl β-hydroxyethyl ammonium nitrate,

(b) a nonionic ethylene oxide adduct of mixed fatty amines,

(c) a lower alkyl fatty ester, and

(d) an ethylene oxide adduct of alkyl phenol. There is also provided a process for treating textile fibers with the above composition.

3,567,636

ESTER-BASED LUBRICATING OILS CONTAINING POLYALKYLENEOXIDE-PHOSPHATE ESTERS

William Katzenstein, Broomall, Pa., assignor to GAF Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 596,402, Nov. 23, 1966, which is a continuation-in-part of application Ser. No. 334,917, Dec. 31, 1963. This application June 6, 1969, Ser. No. 834,591

Int. Cl. C10m *1/46*

U.S. Cl. 252—32.5 **10 Claims**

A lubricating composition comprising a major proportion of an ester-based lubricating fluid and a minor amount of a phosphate ester or salt thereof of a nonionic surface active compound, said phosphate ester being selected from the group consisting of mono-esters, diesters and mixtures thereof, said nonionic surface active compound being the condensation produce of an organic hydroxy compound of from 8 to 50 carbon atoms selected from the group consisting of alkyl phenols and alkanols with at least 1 mole of an alkylene oxide having from 2 to 3 carbon atoms, the nonionic surface active compound containing a maximum of about 50 percent by weight of alkylene oxide based on the weight of the nonionic surface active compound.

3,567,637

METHOD OF PREPARING OVER-BASED ALKALINE EARTH LONG-CHAIN ALKENYL SUCCINATES

Albert R. Sabol, Munster, Ind., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Apr. 2, 1969, Ser. No. 812,842

Int. Cl. C10m *1/10*

U.S. Cl. 252—39 **6 Claims**

Over-based alkaline earth salts of long chain alkenyl-substituted succinic anhydride or acid (hereinafter referred to as alkaline earth long chain alkenyl succinates) are prepared by reacting a long chain alkenyl-substituted succinic anhydride or acid, having at least 30 carbon atoms in the alkenyl substituent, or the alkaline earth salt thereof, with more than stoichiometric amounts of an inorganic basic alkaline earth compound in the presence of a lower alkanol, sufficient amounts of gaseous carbon dioxide to convert the excess basic alkaline earth compound to carbonate, and catalytic amounts of ammonia.

3,567,638

NOVEL PHOSPHORUS-CONTAINING ADDUCTS IN OIL COMPOSITIONS CONTAINING THE SAME

Milton Braid, Westmont, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Sept. 26, 1968, Ser. No. 762,967

Int. Cl. C10m *1/48*

U.S. Cl. 252—46.7 **12 Claims**

The reaction between diorganophosphinodithioic acids and vinyl carboxylates produces novel adducts having improved high temperature stability while imparting oxidation inhibition to organic base media.

3,567,639

HYDROCARBON-CONTAINING COMPOSITIONS

Colin Aaron and Alan Harold Edwards, Charlton, Wantage, England, and Keith Campbell Tessier, Westfield, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed May 8, 1967, Ser. No. 636,597

Claims priority, application Great Britain, June 1, 1966, 24,368/66

Int. Cl. C10m *1/28*

U.S. Cl. 252—56 **7 Claims**

A pour point depressant for crude oil, shale oil or a fuel oil which comprises 35–100 wt. percent of residua from the distillation of crude or shale oil is disclosed. The pour point depressant is a copolymer of ethylene and a vinyl or C_1 to C_{30} hydrocarbyl substituted vinyl ester of a C_1 to C_{30} saturated aliphatic monocarboxylic acid, said copolymer having a number average molecular weight of about 4,000 to 60,000 and containing about 40 to 95 wt. percent ethylene.

3,567,640

QUENCH OIL COMPOSITION AND METHOD OF USE

James A. Stroh, Ferndale, Mich., assignor to Park Chemical Company, Detroit, Mich.

No Drawing. Continuation of abandoned application Ser. No. 701,112, Jan. 29, 1968. This application Mar. 25, 1970, Ser. No. 20,475

Int. Cl. C10m *1/00*

U.S. Cl. 252—59 **12 Claims**

An improved quenching oil composition comprised of a major portion of a petroleum oil having a viscosity within the range of about 40 to about 300 SUS (Saybolt Universal Seconds) at 100° F. and a flash point in excess of 250° F. and about 2% to about 15% by weight of a quench oil additive, which is an oil soluble petroleum resin produced from distillates of cracked petroleum stock having a melting point of at least 40° C. and an aniline point value of less than 50° C. (ASTM–D–6611–64). The composition disclosed herein has led to unexpectedly good quenching oil properties and in particular the disclosed quench oil composition has unexpectedly superior high temperature stability when used for prolonged periods in quench oil baths.

3,567,641

FERROMAGNETIC HIGHLY PERMEABLE MANGANESE-ZINC-FERRITE CORE WITH GREAT TIME-AND-THERMAL STABILITY OF THE INITIAL PERMEABILITY AND PROCESS FOR ITS FABRICATION

Erich Ross and Ingrid Hanke, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed July 3, 1967, Ser. No. 650,907

Claims priority, application Germany, July 1, 1966, S 104,579

Int. Cl. C04b *35/38*

U.S. Cl. 252—62.59 **16 Claims**

A ferromagnetic highly permeable manganese-zinc-ferrite with great time and thermal stability of the initial permeability, having more than about 49 mol percent iron oxide, an amount of TiO_2 and very small amounts of CaO, characterized by the following composition with respect to the initial oxide:

	Mol percent
Fe_2O_3	49–51.6
TiO_2	.8–3
MnO	26–30.5
ZnO	17–22

and, in addition, CaO in the order of magnitude of 0.05–0.2% by weight, and the method of making the same comprising the steps of mixing the substantially pure initial oxides, pre-sintering the same, wet-grinding with the addition of $CaCO_3$ or CaO, pressing the same, sintering at 1100–1300° C. in a low oxygen atmosphere and cooling the same in a substantially pure nitrogen atmosphere.

3,567,642

HYDROTHERMAL PROCESS FOR GROWING CRYSTALS HAVING THE STRUCTURE OF BERYL IN AN ALKALINE HALIDE MEDIUM

Edith M. Flanigen, Buffalo, N.Y., assignor to Union Carbide Corporation

No Drawing. Continuation-in-part of application Ser. No. 629,817, Apr. 10, 1967, which is a continuation-in-part of abandoned application Ser. No. 345,605, Feb. 18, 1964. This application Mar. 25, 1968, Ser. No. 715,503

Int. Cl. B01l *17/00;* **C04b** *35/00*

U.S. Cl. 252—62.58 **12 Claims**

A hydrothermal process for growing relatively large macro-crystals having the structure of beryl. Growth takes place on seed crystals from an alkaline medium which includes alkali metal and/or ammonium halides.

3,567,643

HYDROTHERMAL PROCESS FOR GROWING CRYSTALS HAVING THE STRUCTURE OF BERYL IN AN ACID HALIDE MEDIUM

Edith M. Flanigen, Buffalo, and Norbert R. Mumbach, Eggertsville, N.Y., assignors to Union Carbide Corporation

No Drawing. Continuation-in-part of application Ser. No. 646,121, June 14, 1967, which is a continuation-in-part of application Ser. No. 345,562, Feb. 18, 1964. This application Mar. 25, 1968, Ser. No. 715,505

Int. Cl. B01j *17/00;* **C04b** *35/00*

U.S. Cl. 252—62.58 **9 Claims**

A hydrothermal process for growing relatively large macro-crystals having the structure of beryl. Growth takes place on seed crystals from an acid medium which includes alkali metal and/or ammonium halides.

3,567,644

HYDRAULIC FLUID CONTAINING 1,4,5,6,7,7-HEXACHLOROBICYCLO - [2.2.1] - HEPT - 5-ENE-2-YL-METHYL ALKANOATE BASE

Bruce W. Hotten, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed May 21, 1968, Ser. No. 730,954

Int. Cl. C09k *3/00*

U.S. Cl. 252—75 **15 Claims**

Flame-resistant hydraulic fluid and method of transmitting power employing fluid having as a base a chlorinated unsaturated ester which is a 1,4,5,6,7,7-hexachlorobicyclo-[2.2.1]-hept-5-ene-2-yl-methyl alkanoate.

3,567,645

SILICA DESICCANTS AND METHOD OF MANUFACTURE

Juergen Dultz, Hannover, Germany, assignor to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed Nov. 23, 1965, Ser. No. 509,429

Claims priority, application Germany, Nov. 25, 1964, K 54,622

Int. Cl. C09k *3/00*

U.S. Cl. 252—194 **17 Claims**

A process for manufacturing silica gel desiccants having high resistance to water, high attrition resistance, and high drying capacity, which comprises making a hydrosol, forming a hydrogel therefrom, cooling and aging the hydrogel, washing and drying it, and calcinating the resulting silica gel at a temperature between about 300 to 450° C. The silica gel desiccants of high resistance to water, high desiccant and high attrition resistance.

3,567,646

STABLE CESIUM COMPOUNDS

John H. Gray III, Baltimore, Md., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Apr. 22, 1964, Ser. No. 362,556

Int. Cl. C09k *3/00;* **C01g** *41/00*

U.S. Cl. 252—301.1 **8 Claims**

1. The method of making a stable cesium compound, comprising combining Ta_2O_5 and Cs_2WO_4 at between 1000° C. and 1400° C. until a constant weight is obtained to form cesium tungsten tantalate.

2. A composition for a high temperature radioactive heat source for radioisotope heated thermoelectric generators, which consists essentially of stoichiometric mixtures of Cs^{137} containing Cs_2WO_4 and a metal oxide selected from the group consisting of Ta_2O_5 and Nb_2O_5 mixed with 1–15% by weight B_2O_3 which acts as a flux that prevents the high temperature decomposition of the composition.

3,567,647

PHOSPHORESCENT CRYSTALS

Gerard Ernest Gerhardt, Warren Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,300

Int. Cl. C09k *1/02;* **C09d** *5/22*

U.S. Cl. 252—301.2 **14 Claims**

A phosphorescent composition comprising mixed crystals of (a) a polynuclear condensed ring compound such as pyrene, a halopyrene, benz[a]anthracene, benzo[ghi] perylene, coronene and/or the corresponding deuterated compounds, and (b) anthraquinone, a halogenated anthraquinone and/or an alkyl anthraquinone. The mixed crystals contain at least 0.001 mole percent of component (a). The phosphorescent compositions can be incorporated in liquid vehicles such as lacquers, paints or printing inks, and can be applied to the surface of solid articles such as paper, wood, or metals to impart phosphorescence thereto.

3,567,648

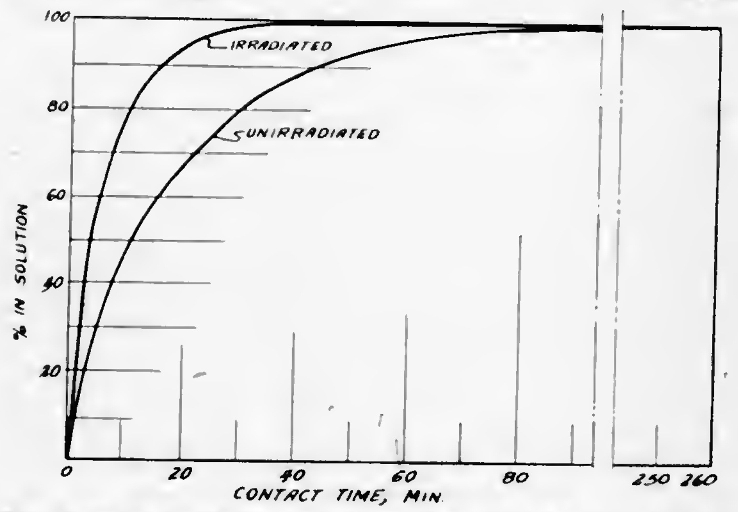
DISSOLUTION OF STAINLESS STEEL CLAD NUCLEAR FUEL ELEMENTS

William J. Walsh and R. Dean Pierce, Naperville, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 8, 1969, Ser. No. 814,313

Int. Cl. G21c *19/42, 19/44, 19/50*

U.S. Cl. 252—301.1 **5 Claims**



The loss by entrainment of nuclear fuel particles in the dissolution of stainless steel cladding with molten zinc

can be prevented by mixing a molten salt with the molten zinc to getter any nuclear fuel fines present and enable an essentially complete recovery of nuclear fuel particles.

3,567,649

AQUEOUS EMULSION FOR PLATING PRETREATMENT OF MOLDED POLYOLEFINS

John J. Grunwald, New Haven, and Eugene D. D'Ottavio, Thomaston, Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

No Drawing. Filed Mar. 28, 1968, Ser. No. 717,006

Int. Cl. B01g *13/00;* **B44d** *1/092*

U.S. Cl. 252—310 **6 Claims**

The invention discloses compositions for and methods of treating the surface of molded polyolefins, more especially polypropylene, polyethylene and polybutylene, prior to the deposition of a metallic plate thereon in order to improve the adherence of the plate to the surface of the polyolefin substrate. The compositions comprise stable, aqueous micro-emulsions of the oil-in-water type containing as the principal active agents a mixture of white phosphorus and trichloroethylene.

3,567,650

METHOD OF MAKING MICROSCOPIC CAPSULES

Joseph Anthony Bakan, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

No Drawing. Continuation of application Ser. No. 413,348, Nov. 23, 1964. This application Feb. 14, 1969, Ser. No. 802,730

Int. Cl. A61k *9/04;* **B01j** *13/02;* **B44d** *1/02*

U.S. Cl. 252—316 **2 Claims**

The process of forming minute capsules en masse which comprises (a) establishing an agitated system consisting of a liquid vehicle constituting a continuous first phase, a second phase dispersed therein consisting of minute mobile entities of core material, and a third phase dispersed therein consisting of minute, mobile liquid entities of a wall-forming solution of a polymeric material, the said core material being wettable by said wall-forming solution, the said three phases being mutually incompatible, the third phase constituting such a part of the total three-phase system, by volume, that it can exist as a dispersed phase of minute mobile entities capable of and sufficient in amount to deposit around the core entities, and wherein the wall-forming polymeric material has a decreasing solubility with increasing temperature in the vehicle, (b) hardening the walls so formed by elevating the temperature of the system to a temperature above the gel point of the wall-forming polymer, and (c) separating the hardened capsules from the rest of the system at a temperature above that at which resolution of the capsule walls takes place to any substantial degree.

3,567,651

DYE PENETRANT FOR SURFACES SUBSEQUENTLY CONTACTED BY LIQUID OXYGEN

Ralph M. F. Giles, La Mirada, and Isidore Pollack, Westminster, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

No Drawing. Filed Feb. 3, 1965, Ser. No. 430,192

Int. Cl. C09k *1/02;* **G01n** *21/16, 21/38*

U.S. Cl. 252—301.2 **1 Claim**

A dye penetrant inspection material and technique are described for nondestructive testing of solid surfaces that may be contacted by liquid oxygen. The dye penetrant solution comprises a trifluorochloroethylene polymer having a degree of polymerization in the range of from 2 to 10 in a quantity sufficient to suppress violent reaction of the solution with liquid oxygen, a halogenated solvent having an evaporation rate not greater than the evaporation rate of methylene chloride and miscible with said polymer, plus a dye soluble in said polymer and said solvent, the quantity of said dye being not greater than 1:20 relative to said polymer so that the solution is substantially insensitive to reaction to strongly oxidizing materials.

3,567,652

COPPER CHROMITE CATALYST FOR PREPARING 2,3-DIHYDRO-PARA-DIOXIN

Rodney D. Moss, Indianapolis, Ind., and Janet N. Paige, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application May 26, 1966, Ser. No. 553,061, now Patent No. 3,413,312, dated Nov. 26, 1968. Divided and this application May 17, 1968, Ser. No. 739,583

Int. Cl. B01j *11/82*

U.S. Cl. 252—440 **1 Claim**

The invention relates to a new and improved process for preparing 2,3-dihydro-para-dioxin. More particularly the present invention concerns the preparation of 2,3-dihydro-para-dioxin by the simultaneous dehydrogenation and dehydration of diethylene glycol in the liquid phase using a copper chromite catalyst promoted with an alkali metal acid sulfate or an alkali metal pyrosulfate.

3,567,653

COPOLYMER CATALYST SYSTEM AND PRODUCT

Joseph Wagensommer, 57 Barchester Way, Westfield, N.J. 07090; Richard J. Lauria, 16 Ely Place, Edison, N.J. 08817; and John H. Staib, 1224 Radcliff Place, Plainfield, N.J. 07062

No Drawing. Continuation of application Ser. No. 613,727, Feb. 3, 1967, which is a continuation-in-part of application Ser. No. 504,120, Oct. 23, 1965, which in turn is a continuation-in-part of application Ser. No. 464,862, June 17, 1965. This application July 16, 1969, Ser. No. 850,301

Int. Cl. C08f *15/04*

U.S. Cl. 252—429 **16 Claims**

A catalyst useful for copolymerizing ethylene and a higher alpha olefin is composed of an alkyl aluminum and the reaction product of, a vanadium compound (such as $VOCl_3$) and an alkyl titanate. Resulting copolymers may have a very high green strength as well as other desirable properties.

3,567,654

PROCESS AND CATALYST FOR HYDROCRACKING HYDROCARBON OIL

Ross E. Van Dyke, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 393,735, Sept. 1, 1964, which is a continuation-in-part of application Ser. No. 184,947, Apr. 4, 1962. This application July 29, 1965, Ser. No. 475,870

Int. Cl. B01j *11/24*

U.S. Cl. 252—459 **3 Claims**

A catalyst for hyddocracking hydrocarbon oils comprises an iron group metal and fluorine incorported into an amorphous acid-acting refractory oxide, the incorporation being carried out by contacting a hydrogel of said refractory oxide with an aqueous solution of an iron group metal compound, washing the contacted hydrogel and calcining at a temperature of about 800 to 1200° F.

3,567,655
METHOD OF PRODUCING A LOW-TEMPERATURE CATALYST FOR THE CONVERSION OF CARBON MONOXIDE WITH STEAM

Dimiter S. Shishkov, Diko G. Ivanov, Ivan P. Dombalov, Ganka I. Radoeva, and Radka G. Mishtalova, Scfia, Bulgaria, assignors to Himicheski Kombinat, Vratza, Bulgaria
No Drawing. Filed July 25, 1968, Ser. No. 747,449
Claims priority, application Bulgaria, Aug. 1, 1967, I-1,115
Int. Cl. B01j *11/06, 11/32*
U.S. Cl. 252—468 **2 Claims**

A catalyst for the gas-phase reaction of carbon monoxide and steam to yield hydrogen having the general formula, in terms of weight proportion, of $[CuO]_3\cdot[C{:}O_3]\cdot[ZnO]$, and formed by precipitating hydrated copper nitrate and zinc nitrate solutions containing CrO_3 or Cr_2O_3 with ammonia. The precipitate is dried, granulated and made into tablets such that the catalyst composition consists essentially of about 31.3% by weight copper oxide, 30.5% by weight zinc oxide and 38.2% by weight Cr_2O_3 or 49.7% by weight copper oxide, 17.8% by weight zinc oxide and 32.5% by weight CrO_3.

3,567,656
PREPARATION OF A CATALYTIC COMPOSITE CONTAINING A GERMANIUM COMPONENT

Roy T. Mitsche, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed May 28, 1969, Ser. No. 828,716
Int. Cl. B01j *11/08, 11/22*
U.S. Cl. 252—466 **11 Claims**

A germanium component is uniformly dispersed throughout a porous, high surface area carrier material by the steps of: first, reducing germanium dioxide with hydrogen; second, dissolving the resulting reduced material in an aqueous solution of chlorine to form a solution thereof; third, impregnating a high surface area, porous carrier material with the resulting solution; and, finally, drying and calcining the resulting impregnated carrier material. Key feature of this method of preparation involves the use of this solution of the reduced germanium compound in chlorine water to impregnate the carrier material, thereby achieving uniform dispersion of the germanium component in the carrier material.

3,567,657
ELECTRICALLY CONDUCTIVE SKIN CONDITIONING SYSTEM

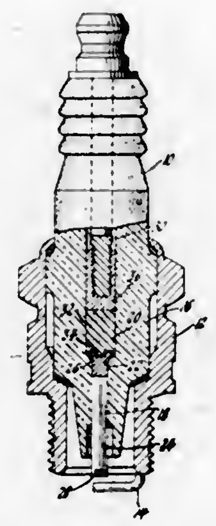
Joseph Lichtenstein, Colonia, N.J. 07067
No Drawing. Filed May 29, 1968, Ser. No. 732,867
Int. Cl. A01n *9/00;* **H01b** *1/00*
U.S. Cl. 252—500 **5 Claims**

The use of an electrically conductive material selected from the group consisting of benzoic, salicyclic, tartaric, citric, lactic and malic acids, the sodium and potassium salts thereof, the sodium and potassium acid salts thereof and mixtures of the same, with electrical medical instrumentation such as electro-cardiographic diagnostic equipment.

3,567,658
RESISTOR COMPOSITION

Richard A. Webb, Davison, Karl Schwartzwalder, Holly, and Patrick N. Kesten, Davison, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 21, 1967, Ser. No. 692,528
Int. Cl. H01b *1/06;* **H01t** *13/20*
U.S. Cl. 252—506 **6 Claims**

An improved resistor composition for use in resistor spark plugs and other electrical devices is disclosed. The resistor composition contains a compound taken from the group consisting of lithium carbonate, zinc carbonate, magnesium carbonate and sodium carbonate and a metal powder taken from the group consisting of zinc, antimony and tellurium in addition to the conventional resistor composition ingredients. The carbonate, for example, lithium carbonate, and the metal, for example, zinc, combine to yield a strong resistor mass having a low porosity which bonds tightly to the center electrode head in the spark plug insulator centerbore.



3,567,659
WATER-SOLUBLE CATIONIC POLYMERS FROM EPICHLOROHYDRIN AND METHYLAMINE

Daniel Elmer Nagy, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
Filed Nov. 26, 1968, Ser. No. 778,934
Int. Cl. C08g *33/06*
U.S. Cl. 260—2 **6 Claims**

A cationic, water-soluble, storage-stable, methylamine-epichlorohydrin polymer is prepared by reacting a quantity of a methylamine-epichlorohydrin polymer which is well below its gel point with successively added small amounts of epichlorohydrin until the polymer nears the stage at which it is an irreversible gel, and then reacting the polymer with sufficient methylamine to inactivate substantially all amine-reactive epichlorohydrin residues present. At least the last step of the reaction is performed at a temperature at which a partial depolymerization of the polymer occurs.

Water-soluble polymers of higher molecular weight and larger dimensions are produced by graft polymerizing one or more water-soluble vinyl monomers upon a hydrophilic water-dispersible cationic poly(hydroxyalkylene) polyamine, which is not necessarily the foregoing polyamine. The polymers are flocculants for suspended solids in sewage and mine effluent water and dry strength agents for paper.

3,567,660
METHOD OF CONVERSION OF OIL-SPILLS INTO IMPROVED, RUBBERIZED CARBON-BLACK AND FIBER FORTIFIED ASPHALTIC MATERIALS

Joseph Winkler, 120 Wilson Drive, Hazleton, Pa. 18201
No Drawing. Filed Feb. 2, 1970, Ser. No. 7,997
Int. Cl. E02b *15/04*
U.S. Cl. 260—2.3 **9 Claims**

A new method of conversion of oil spills into improved rubberized, fiber fortified asphaltic materials by coagulating oil spills with previously ground, spent automotive rubber tires which have preferably been previously premixed with powdery polystyrene or asphalt, said asphalt derived from naturally occurring asphaltite from petroleum or coal tars; harvesting by mechanical means the resulting non-liquid conglomerate reacting and concentrating this mixture by distillation to an asphaltic consistency.

3,567,661
POLYURETHANE PRODUCTS PREPARED FROM OXYALKYLENE CONDENSATES OF CELLULOSE AND METHOD OF PRODUCING SAME

John T. Patton, Jr., Wyandotte, Mich., and Henry E. Reich, Wilmette, Ill., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich.
No Drawing. Original application Oct. 7, 1963, Ser. No. 314,480, now Patent No. 3,336,291, dated Aug. 15, 1967. Divided and this application June 15, 1967, Ser. No. 662,222
Int. Cl. C08g *22/14, 22/44*
U.S. Cl. 260—2.5 **2 Claims**

A polyurethane product and method of producing same by coreacting a mixture of an organic polyisocyanate and polyoxyalkylene condensate of cellulose. The polyoxyalkylene condensate of cellulose in turn comprises the reaction product of at least one alkylene oxide with cellulosic material in the presence of a high molecular weight polyoxyalkylene alcohol derivative.

3,567,662
LOW TEMPERATURE METHOD FOR PREPARING FOAM PRODUCT

Charles R. Schmitt, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Oct. 18, 1967, Ser. No. 677,002
Int. Cl. C08g *22/46*
U.S. Cl. 260—2.5 **3 Claims**

Furfuryl alcohol is polymerized at temperatures ranging from −80° C. to +80° C. employing a reaction mixture of furfuryl alcohol and a solvent selected from the group consisting of methanol, ethanol, toluene, and secondary butyl alcohol which is rapidly mixed with a Friedel-Crafts type catalyst selected from the group consisting of chlorosulfonic acid, phosphorous trichloride, thionyl chloride, phosphorous pentoxide, fluosulfonic acid and difluophosphoric acid. Also, a foamed product is prepared by adding a surfactant to the reaction mixture prior to reacting same with the Friedel-Crafts type catalyst.

3,567,663
LOW PERMEABILITY POLYURETHANE FOAM AND PROCESS FOR THE MANUFACTURE THEREOF

Rocco P. Triolo, Broomall, and Roland J. Lamplugh, Linwood, Pa., assignors to Scott Paper Company, Delaware County, Pa.
No Drawing. Filed Jan. 5, 1968, Ser. No. 695,871
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 **15 Claims**

Low permeability polyurethane foam comprising a polyether-type polyurethane having incorporated therein a polybutene and unsaturated fatty acid or mixture of unsaturated fatty acids, and a process for making a low permeability polyether-type polyurethane foam by reacting a polyisocyanate and a polyether polyol in the presence of a polybutene and an unsaturated fatty acid or mixture of unsaturated fatty acids.

3,567,664
POLYURETHANE FOAMS STABILIZED AGAINST SCORCH WITH A MIXTURE OF BUTYLATED HYDROXY TOLUENE AND p,p'-DIOCTYL DIPHENYL AMINE

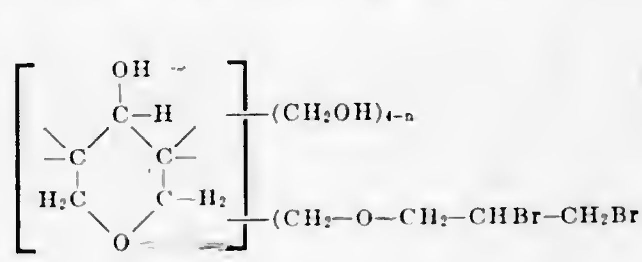
Robert C. Haring, Woodbridge, Conn., assignor to Olin Corporation
No Drawing. Continuation-in-part of application Ser. No. 540,806, Apr. 7, 1966. This application Oct. 15, 1968, Ser. No. 767,808
Int. Cl. C08g *22/46, 22/00*
U.S. Cl. 260—2.5 **12 Claims**

Polyurethane foams are stabilized against scorching when a mixture of 2,6-ditertiary-butyl-4-methyl phenol and a p,p'-dialkyl diphenyl amine containing between about 3 and about 18 carbon atoms in the alkyl, is present in a foam forming reaction mixture of an organic diisocyanate, the reaction product of a 1,2-oxide and an aliphatic polyhydric alcohol contains between 2 and 6 hydroxyl groups and 2 and 8 carbon atoms per molecule, a reaction catalyst and a foaming agent. The proportion of the amine in the stabilizing mixture is between about 15 and 90 percent by weight.

3,567,665
POLYURETHANE RESINS CONTAINING BROMINATED POLYOL ETHERS

Sammy Carpenter, Bolckow, Mo., Enrique R. Witt, Corpus Christi, Tex., and Joseph J. Cahill, Jr., Colonia, N.J., assignors to Celanese Corporation
Original application Mar. 12, 1965, Ser. No. 439,466, now Patent No. 3,385,900, dated May 28, 1968. Divided and this application Nov. 16, 1967, Ser. No. 699,754
Int. Cl. C08g *22/08, 22/44*
U.S. Cl. 260—2.5 **5 Claims**

A flame-retardant polyurethane resin is formed from a mixture comprising at least one organic polyisocyanate and at least one brominated polyol ether which can be a 2,3-dibromopropyl ether of sorbitol or a 2,3-dibromopropyl ether having the general formula:



wherein *n* represents an integer from 1 to 4.

3,567,666
SEPARATION MEANS

Carl Berger, 13401 Kootenay, Santa Ana, Calif. 92705
No Drawing. Filed Feb. 2, 1968, Ser. No. 702,525
Int. Cl. C08f *47/10;* **C08v** *1/16*
U.S. Cl. 260—2.5 **9 Claims**

This invention relates to a novel composite product which is employed as a separation means in reverse osmosis, gas mixtures and galvanic devices. The efficient separation mode is a result of the channel structure of the polymer coupled with the uniform porosity of the particulate within the polyer.

3,567,667
MOULD LININGS COMPOSITION COMPRISING BALL MILL DUST AND CALCIUM SILICATE, ALUMINUM SILICATE OR CALCIUM ALUMINO SILICATE FIBROUS REFRACTORY MATERIAL

Bernard Carl Rumbold, Nechells, England, assignor to Foseco International Limited, Birmingham, England
No Drawing. Filed Feb. 23, 1968, Ser. No. 707,471
Claims priority, application, Great Britain, Mar. 22, 1967, 13,587/67
Int. Cl. B22c *1/22;* **C08g** *51/18*
U.S. Cl. 260—17.2 **7 Claims**

Hot topping and mould lining materials which contain a major proportion of ball mill dust and proportions of refractory fibrous materials selected from calcium silicate, aluminium silicate and calcium aluminosilicate having advantageous properties compared with prior art similar materials containing asbestos.

3,567,668

METHOD FOR PREPARING AND COMPOSITIONS OF EPOXY RESIN ESTERS PRECONDENSED WITH PHENOPLASTIC OR AMINOPLASTIC RESINS

Rolf Güldenpfennig, Dossenheim, Germany, assignor to Reichhold Chemie Aktiengesellschaft, Hamburg, Germany

No Drawing. Filed Feb. 13, 1968, Ser. No. 705,008
Claims priority, application Germany, Feb. 24, 1967,
R 45,371
Int. Cl. C08g *45/08, 45/10*
U.S. Cl. 260—19 **13 Claims**

Water-dilutable, heat-curable coating compositions prepared by:

(I) forming partial esters of compounds containing epoxy groups or hydroxyl groups by hydrolytic dissociation of the epoxy groups with adducts of maleic acid with fatty acids or maleic anhydride with fatty acids, the fatty acids consisting of drying oil acids, semi-drying oil acids and mixtures of the oil acids with rosin acids, the fatty acids containing unsaturated monocarboxylic acids, the molar proportion of monocarboxylic acid to maleic acid or maleic anhydride being between about 0.9:1 and 1.1:1, the compounds containing epoxy groups consisting of epoxy resins having molecular weights of about 380 to 3500;

(II) precondensing by heating to 160° C. about 99 to 50 percent by weight of the partial esters with about 1 to 50 percent by weight of heat-curable, water-dilutable low molecular weight condensation products of phenoplast resins, aminoplast resins or mixtures thereof;

(III) neutralizing the precondensed product with a basic material; and

(IV) diluting the neutralized product with water;

in a particular embodiment the steps of the process are varied wherein the epoxy resins are first precondensed with the phenoplast or aminoplast resins and then the epoxy groups of the epoxy resins are reacted with the adducts of maleic acid and maleic anhydride.

3,567,669

PREPARATION OF RIGID POLYVINYL CHLORIDE PARTICLES HAVING A HIGH BULK DENSITY

Joseph M. Georgiana, Painesville, Anthony M. Mierzwa, North Madison, Robert A. Paradis, Willoughby, and James A. Rolls and Donald R. Voss, Painesville, Ohio, assignors to Diamond Shamrock Corporation

No Drawing. Filed Aug. 4, 1967, Ser. No. 658,337
Int. Cl. C08f *29/18, 29/24, 45/58*
U.S. Cl. 260—23.7 **6 Claims**

Employing resin produced by aqueous suspension polymerization, a rigid polyvinyl chloride resin powder composition has been prepared in mixing procedures wherein maximum temperatures attained range generally from 340° F. to 425° F. By reason of these elevated mixing temperatures, the composition has a higher bulk density than similar powder formulations prepared according to prior art methods. Most important, it exhibits fusion and processing characteristics significantly altered from those of the prior art formulations and may be processed at high rates in many different types of equipment. This densified, rigid polyvinyl chloride resin powder composition is useful for the preparation of high-quality plastic articles, e.g., pipe, fittings, rods, tubes, film, sheeting or containers, both by extrusion and molding technique.

3,567,670

COMPOSITIONS OF ABS COPOLYMERS CONTAINING MONOALKYL ETHERS OF TRIPROPYLENEGLYCOL

Floyd B. Nagle, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 29, 1967, Ser. No. 694,419
Int. Cl. C08c *11/28, 11/32*
U.S. Cl. 260—33.2 **4 Claims**

Compositions comprising ABS copolymers, i.e. acrylonitrile, styrene, butadiene rubber interpolymers, having intimately incorporated therewith from 0.5 to 2 percent by weight of a monoalkyl ether of tripropylene glycol having the general formula

$$HO—(C_3H_6O)_3—R$$

wherein R is an alkyl radical having from one to four carbon atoms.

3,567,671

TACK-FREE IMPREGNATED GLASS FIBER REINFORCEMENT FOR ELASTOMERIC MATERIALS

Nicholas S. Janetos, Providence, and Alfred Marzocchi, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation

No Drawing. Filed Nov. 17, 1966, Ser. No. 595,036
Int. Cl. C08f *45/52*
U.S. Cl. 260—28.5 **4 Claims**

The invention is addressed to glass fibers treated to improve their combination with elastomeric materials in the manufacture of glass fiber reinforced elastomeric products in which glass fibers are coated or bundles of glass fibers are impregnated with a composition formulated of a resorcinol aldehyde resin, a butadiene-styrene-vinyl pyridine terpolymer and a latex of carboxylated butadiene-styrene, acrylic resin or vinyl chloridevinylidene chloride copolymer and an incompatible wax which operates to reduce the tackiness of the treated or impregnated glass fibers to enable the treated fibers to be processed to the form desired for use in the combination with the elastomeric material but without impairing the bonded relationship between the treating material and the glass fibers or between the glass fibers and the elastomeric material of the continuous phase.

3,567,672

COATING COMPOSITION AND PROCESS COMPRISING CALCIUM SULFOALUMINATE PIGMENT, A RUBBERY LATEX BINDER AND A COPOLYMER OF STYRENE AND MALEIC MONOMER

Donald Graham Hobbs, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,758
Claims priority, application Canada, May 3, 1967,
989,481
Int. Cl. C08d *13/18;* **C08f** *41/12*
U.S. Cl. 260—29.6 **10 Claims**

One or more of the problems associated with the preparation of a water-based coating composition of a mixture of a calcium sulfoaluminate pigment, a first binder of water-solubilized protein and/or polysaccharides, and a second binder being a rubbery polymer latex, is overcome by a process in which the first binder material is eliminated. The improved process uses the second binder material as the sole binder and this is accomplished by further including in the mixture from 0.5 to 5% by weight (based on the weight of calcium sulfoaluminate) of a water-solubilized copolymer of a styrene monomer with a maleic monomer in the ratio of 1:3 to 3:1 and having an average molecular weight of 1000–20,000. The improvement is especially applicable to the paper coating process.

3,567,673

BIPHENYL MODIFIED POLYESTERIMIDE WIRE ENAMEL

Lionel J. Payette, Scotia, N.Y., assignor to General Electric Company

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,194
Int. Cl. C08f *45/28*
U.S. Cl. 260—33.6 **5 Claims**

Polyesterimide base coating solutions having biphenyl as an additive are characterized by improved wire coating capability.

3,567,674

PROCESS OF PREPARING POLYAZO POLYMERS BY CATALYTIC COUPLING OF POLYMERS WITH TERMINAL PRIMARY AROMATIC AMINO GROUPS

Eduard Radlmann, Wolfhardt Schmidt, and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 4, 1968, Ser. No. 781,279
Claims priority, application Germany, Dec. 14, 1967,
F 54,311
Int. Cl. C08g *22/34, 51/54*
U.S. Cl. 260—32.6 **8 Claims**

High molecular weight elastomeric polyazo polymers are made by the catalytic oxidative coupling of a linear aliphatic polymer, e.g. polyester, polyether, polythioether, or polyacetal, containing primary aromatic amino groups as the terminal portions of the polymer, the coupling being accomplished in the presence of a catalyst system comprising a copper salt and a basic organic compound containing a tertiary nitrogen atom.

3,567,675

ELECTROSTATIC SPRAYING OF ALUMINUM PIGMENTED PAINT

John W. Merck, Tyrone, Pa., and Lester L. Spiller, Indianapolis, Ind., assignors to Ransburg Electro-Coating Corp., Indianapolis, Ind.

No Drawing. Continuation-in-part of application Ser. No. 453,508, May 5, 1965, which is a continuation-in-part of application Ser. No. 125,933, July 24, 1961. This application Aug. 30, 1966, Ser. No. 575,953
The portion of the term of the patent subsequent to Oct. 5, 1982, has been disclaimed
Int. Cl. C08f *41/28*
U.S. Cl. 260—33.6 **7 Claims**

When aluminum flakes are treated with aqueous treating agents in order to provide them with an insulating coating to assist electrostatic atomization, the water left by the aqueous agent is troublesome as is known. The treated flakes are washed with water miscible polar organic solvent to remove the water and then with a hydrocarbon solvent to remove the polar solvent, and the flakes are then dispersed in a coating composition in order that electrostatic atomization may proceed with minimum danger of arcing.

3,567,676

CORROSION PREVENTIVE COATING CONSISTING OF BINDER, METAL PIGMENTS AND FLUORIDE ACTIVATORS

Howard R. Herrigel and John C. Sargent, Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

No Drawing. Filed Mar. 15, 1968, Ser. No. 713,328
Int. Cl. C08g *1/02, 51/04*
U.S. Cl. 260—37 **3 Claims**

A coating and method for reducing the susceptibility of metal alloys including titanium alloys, aluminum alloys, high strength and stainless steels to stress corrosion. The coating comprises three components: (1) a metallic pigment of either zinc or aluminum; (2) an activator which, in the case of an aluminum pigment, may be either an ionizable fluoride (sodium fluoride, calcium fluoride, lithium fluoride or magnesium fluoride) or an acid salt (potassium acid sulfate, sodium acid sulfate or sodium diacid phosphate); and in the case of either an aluminum or a zinc pigment, the activator is a metallic hydroxide (barium hydroxide, calcium hydroxide, cesium hydroxide, lithium hydroxide, magnesium hydroxide, potassium hydroxide, rubidium hydroxide, sodium hydroxide, or strontium hydroxide); and (3) a binder of chlorinated rubber, polystyrene, polyvinyl chloride, alkyd resins, phenolic resins, acrylic resins, or silicone resins.

3,567,677

FLEXIBLE, REPAIRABLE, POTTABLE MATERIAL FOR ELECTRICAL CONNECTORS

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Robert A. Dunaetz, Manhattan Beach, and Philip C. Crepeau, Buena Park, Calif.

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,607
Int. Cl. C08g *23/14*
U.S. Cl. 260—37 **10 Claims**

A flexible repairable, pottable composition of a matter suitable for encapsulating electrical connectors comprises diglycidyl ether of bisphenol A, diepoxide of polyglycol, and one or more amine curing agents. Optionally, the composition can contain one or more fillers in amounts which vary with the composition viscosity desired.

3,567,678

POLYMERS AND HAIR COLORING AND COMPOSITIONS COMPRISING THE SAME

Gregoire Kalopissis, Paris, France, assignor to L'Oreal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 459,498, Apr. 13, 1965, which is a division of application Ser. No. 227,542, Oct. 1, 1962. This application Apr. 10, 1967, Ser. No. 629,423
Claims priority, application France, Oct. 5, 1961,
875,144
Int. Cl. A61k *7/12;* **C08f** *1/84*
U.S. Cl. 260—41 **10 Claims**

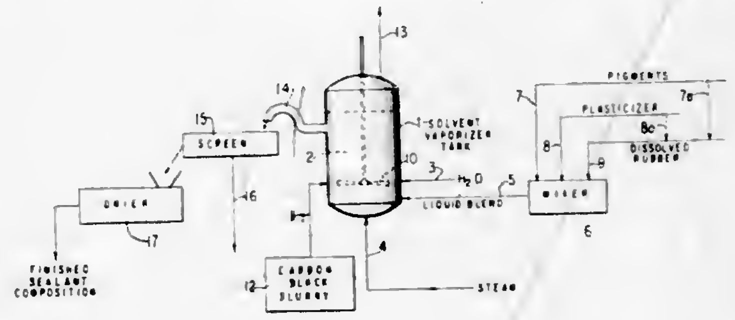
Water soluble colored polymers which have dye groups attached to the polymer chain by amide bonds and solubilizing groups for coloring hair.

3,567,679

REMOVAL OF SOLVENTS FROM SEALANT COMPOSITIONS

Guy D. Nolan, Monroe, La., assignor to Cities Service Company

Filed Dec. 28, 1967, Ser. No. 700,315
Int. Cl. C08c *11/18*
U.S. Cl. 260—41.5 **10 Claims**



Soft, nontacky, processable crumbs of sealant compound are formed by removal of an organic solvent from a liquid blend of sealant components by mixing the blend with hot water having carbon black dispersed therein. The carbon black of the aqueous dispersion is incorporated with the sealant composition.

3,567,680

SURFACE MODIFIED PIGMENTS AND METHODS FOR PRODUCING SAME AND ELASTOMERS CONTAINING SAME

Joseph Iannicelli, Macon, Ga., assignor to J. M. Huber Corporation, Locust, N.J.

No Drawing. Filed May 3, 1968, Ser. No. 726,585

Int. Cl. C08c *11/14;* **C08h** *17/02*

U.S. Cl. 260—41.5 **5 Claims**

A mercaptosilane grafted inorganic pigment such as kaolin clay for use as a reinforcing filler in elastomers, plastics, and the like is obtained by spray drying a dispersed aqueous slurry of the pigment in the presence of a small amount of mercaptoorganosilane. Small amounts of mercaptosilane grafted to inorganic pigments such as kaolin clay significantly increase the reinforcement of elastomers. A blend of mercaptosilane and aminosilane grafted to inorganic pigments such as kaolin clay gives higher reinforcement to elastomers than like amounts of either mercaptosilanes or aminosilanes grafted to the pigment alone.

3,567,681

STABILIZER COMPOSITIONS FOR HALOGENATED RESINS, EMPLOYING THE METAL SALTS OF NEOACIDS

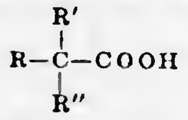
Lewis B. Weisfeld, Highland Park, and Carl W. Pause, Spotswood, N.J., assignors to Carlisle Chemical Works, Inc., Reading, Ohio

No Drawing. Filed Sept. 3, 1965, Ser. No. 485,094

Int. Cl. C08f *45/62*

U.S. Cl. 260—45.75 **9 Claims**

The light and heat stabilization of halogen-containing resins is further improved by metal soap components having the carboxylic acid moiety wholly or in part formed by a neo-acid of the following general formula:



$$R-\overset{R'}{\underset{R''}{C}}-COOH$$

wherein R, R′ and R″ are alkyl groups having a total of 3–18 carbons and undesirable plating-out of pigments and similar additives is reduced.

3,567,682

ANTIOXIDANTS

Edward F. Zaweski, Pleasant Ridge, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Original application Oct. 11, 1967, Ser. No. 674,646. Divided and this application Nov. 24, 1969, Ser. No. 879,597

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 **9 Claims**

Reaction of hydrogen sulfide with the hemi-quinone of a methylene bisphenol results in a tetranuclear phenol in which two molecules of the methylene bisphenol are bridged at their methylene groups through a sulfur atom. These are thiodimethylidyne tetrakisphenols. The compounds are useful as antioxidants, either alone or in combination with a dialkylthiodialkanoate, a phosphite or a phosphonate synergist.

3,567,683

COMPOSITION OF MATTER

Ronald B. Spacht, Hudson, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 381,525, July 9, 1964. This application Sept. 9, 1968, Ser. No. 758,583

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.95 **6 Claims**

This invention relates to new hindered phenolic phosphite ester compounds and their use as stabilizers in rubber compositions.

3,567,684

AMINO-POLYAMIDE ESTER ADHESIVE BINDERS

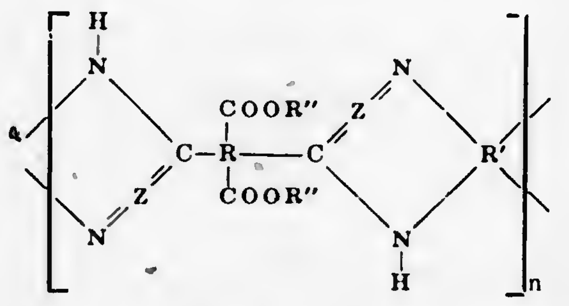
Gerfried Pruckmayr, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 26, 1966, Ser. No. 567,863

Int. Cl. C08g *20/00, 29/32*

U.S. Cl. 260—47 **6 Claims**

Amino-polyamide esters consisting essentially of recurring units of the formula



where R is a tetravalent carbocyclic aromatic radical, R′ is a tetravalent aromtic or cycloliphatic radical, R″ is a monovalent aliphatic, cycloaliphatic, or aromatic radical and =Z= represents a structure selected from the group consisting of

(1) that in which H_2 is bonded to the N, as in the $—NH_2$ group, and O is bonded to the C, as in the $>C=O$ group, and

(2) that in which the $—NH_2$ group from (1) above is condensed with the $>C=O$ group from (1) above to leave a double bond joining N and C, as in the

$$—N=C—$$

group, with the proviso that less than all $—NH_2$ groups have condensed with $>C=O$ groups,

and *n* is an integer, said polymers having melting points between 50° C. and 250° C., and inherent viscosities in solution at 0.5 weight percent concentration and 30° C. of less than 0.2 are useful as high temperature adhesive binders.

3,567,685

POLYMER OF A DIHYDRIC PHENOL AND AN IMIDE

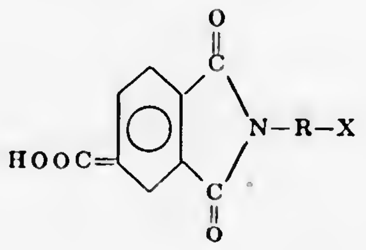
Charles A. Bialous, Mount Vernon, Ind., and Milton L. Evans, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Continuation-in-part of application Ser. No. 603,463, Dec. 21, 1966. This application Aug. 26, 1969, Ser. No. 853,202

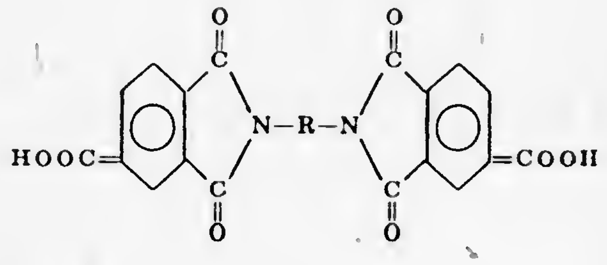
Int. Cl. C08g *17/13*

U.S. Cl. 260—47 **5 Claims**

A composition consisting of the reaction product of a dihydric phenol, a particular imide and a carbonyl halide wherein the particular imide is either



or



or mixtures thereof. In the formulas, R is divalent hydrocarbon radical containing 1 to 25 carbon atoms and X is either a carboxyl, a mercapto, a hydroxyl or a secondary amino group.

3,567,686

POLYCARBONATES

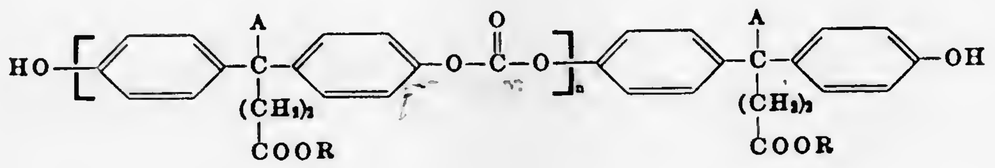
Ronald E. White, Romeo, and Zachariah G. Gardlund, Utica, Mich., assignors to General Motors Corporation, Detroit, Mich.

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,495

Int. Cl. C08g *17/13*

U.S. Cl. 260—47 **3 Claims**

Linear polycarbonate resins containing many pendant ester groups and possessing the general structural formula



wherein:

A is a radical selected from the group consisting of —H, $—CH_3$, and $—C_6H_5$;

R is an alkyl group containing one to eighteen carbon atoms and

n is an integer in the range of 40 to 70 inclusive,

are converted to the corresponding linear polycarbonate resins containing a large number of pendant hydroxyl groups only by reduction of the ester group with diborane (B_2H_6). The hydroxyl groups thus produced in the polycarbonate molecular chain are useful as grafting and cross-linking sites for further reaction with organic and organic-inorganic moieties to provide modified polycarbonates with enhanced physical properties.

3,567,687

HIGH MOLECULAR WEIGHT LINEAR POLYESTERS

Hermann Lohwasser, Eduard Radlmann, and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 24, 1968, Ser. No. 770,382

Claims priority, application Germany, Nov. 3, 1967, F 53,949

Int. Cl. C08g *17/08, 17/14*

U.S. Cl. 260—49 **6 Claims**

High molecular weight linear polyesters produced by reaction of an organic acid dihalide with a fairly high molecular weight aromatic polyether containing sulfonyl groups and having terminal hydroxy groups.

3,567,688

POLYOXYMETHYLENIC COPOLYMERS

Gianfranco Pregaglia, Milan, Marco Binaghi, Varese, and Paolo Roffia, Mantova, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 507,235, Nov. 10, 1965. This application Mar. 19, 1968, Ser. No. 714,354

Int. Cl. C08g *1/16*

U.S. Cl. 260—67 **7 Claims**

Polyoxymethylenic copolymers having superior properties consisting of repeating oxymethylenic units and of oxyalkylenic units formed by opening of substantially only one of the rings of 2,3-ethylene-dioxydioxane.

Polyoxymethylenic copolymers prepared by reacting trioxane with 2,3-ethylenedioxydioxane.

3,567,689

POLYMER BLENDS OF AMINO-FORMALDEHYDE PREPOLYMERS AND DIVALENT METAL SALTS OF DIBASIC ORGANIC ACIDS

James Economy, Buffalo, Luis C. Wohrer, Lewiston, and John H. Mason, Clarence, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Original application Mar. 19, 1964, Ser. No. 353,266, now Patent No. 3,418,273, dated Dec. 24, 1968. Divided and this application June 24, 1968, Ser. No. 751,647

Int. Cl. C08g *9/28, 9/30*

U.S. Cl. 260—67.6 **6 Claims**

Metal salts of alkanedioic and aromatic dibasic acids are used to improve one or more of the physical properties of certain thermoplastic and thermosetting resins, either before or after exposure to high temperatures.

3,567,690

COPOLYMERS HAVING PREVAILING POLYOXYMETHYLENE STRUCTURE, PRODUCTS DERIVED THEREFROM, AND PROCESSES FOR PRODUCING SAID COPOLYMERS

Gianfranco Pregaglia, Milan, Paolo Roffia, Mantova, and Valentino Zamboni, Arsizio, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Feb. 24, 1967, Ser. No. 618,349

Claims priority, application Italy, Feb. 25, 1966, 4,330/66

Int. Cl. C08g *1/18, 11/00*

U.S. Cl. 260—73 **12 Claims**

Preparation of new polyoxymethylene copolymers consisting of at least 95% of oxymethylene units separated by oxyalkylenic units bound to side groups containing double bonds; these products have a low viscosity in the molten state since practically no cross-linking occurs during the reaction of copolymerization. A controlled cross-linking of the copolymers is then carried out through the olefinic double bond present therein to obtain products with increased viscosity in the molten state or having the characteristics of a thermosetting resin.

3,567,691

MALEINIZATION OF SYNTHETIC RUBBER

Adriaan W. van Breen, Pieter Luijk, Jacobus M. Rellage, and Christiaan Vervloet, Delft, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Apr. 7, 1967, Ser. No. 629,117

Claims priority, application Netherlands, May 24, 1966, 6607078

Int. Cl. C08d *5/02*

U.S. Cl. 260—78.4 **8 Claims**

Conjugated diene homopolymers having improved green strength properties and satisfactory vulcanizate properties are prepared by masticating a solvent free polymer at 50–300° C. and injecting during mastication a solution of maleic anhydride in an amount of 0.01–1 phr.

3,567,692
POLYMERIC MATERIALS PRODUCED BY INTERACTING POLYISOCYANATE AND WATER IN THE PRESENCE OF POLYALDIMINE OR POLYKETIMINE

Geoffrey Arthur Haggis, Ronald Wynford Kenyon, and Vincent Kerrigan, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Original application Jan. 29, 1964, Ser. No. 341,114, now Patent No. 3,420,800, dated Jan. 7, 1969. Divided and this application Mar. 26, 1968, Ser. No. 716,706

Claims priority, application Great Britain, Feb. 4, 1963, 4,507/63; Aug. 29, 1963, 34,223/63

Int. Cl. C08g *22/00*

U.S. Cl. 260—75 **11 Claims**

A process for the manufacture of isocyanate-based polymers which comprises interacting at least one organic polyisocyanate and water in the presence of a sterically hindered bisaldimine or bisketimine derived from an amine containing two primary amino groups. The solutions of isocyanates containing such bisaldimines or bisketimines are significantly more stable than similar solutions containing other aldimines or ketimines. This increased stability is obtained without any significant decrease in the speed of polymer formation in presence of water or loss of desirable properties in the polymers, for example, surface coatings, so obtained.

3,567,693
PROCESS FOR PREPARING POLYESTER FILM HAVING IMPROVED SLIP PROPERTIES

Aleksander Piirma, 3528 Adeline Drive,
Stow, Ohio 44224

No Drawing. Continuation-in-part of application Ser. No. 624,163, Mar. 20, 1967, which is a continuation-in-part of application Ser. No. 329,863, Dec. 11, 1963. This application Dec. 6, 1968, Ser. No. 782,006

Int. Cl. C08g *17/01*

U.S. Cl. 260—75 5 Claims

The invention relates to a method of preparing a polyester resin having finely divided particles dispersed therein by adding a soluble alkaline earth metal compound and a free dicarboxylic acid to a glycol terephthalate and condensing the glycol ester to form high molecular weight resin. Films formed from the resins have good slip properties.

3,567,694
POLYESTERS, POLYAMIDES, AND POLYESTERAMIDES FROM ACRYL- OR METHACRYLIMINO DIACETIC ACID

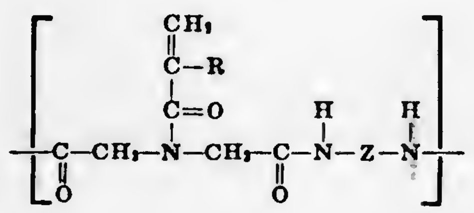
Donald E. Jefferson, Sykesville, and Nelson S. Marans, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Nov. 18, 1969, Ser. No. 877,856

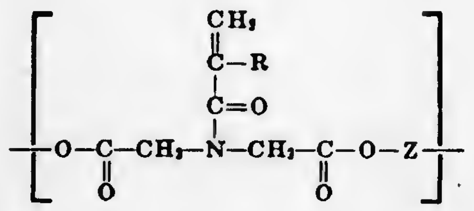
Int. Cl. C08g *17/10, 20/00, 20/30*

U.S. Cl. 260—75 **1 Claim**

A polymer having about 10–10,000 repeating monomeric units per molecule, said units being selected from the group consisting of

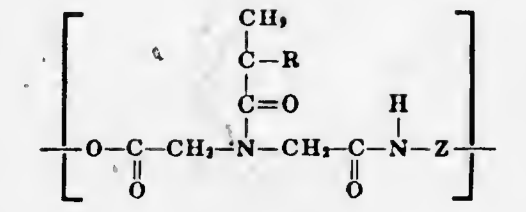


$$\left[\underset{O}{\underset{\|}{C}}-CH_2-\overset{\overset{\overset{CH_2}{\overset{\|}{C-R}}}{\overset{|}{C=O}}}{\overset{|}{N}}-CH_2-\underset{O}{\underset{\|}{C}}-\overset{H}{\overset{|}{N}}-Z-\overset{H}{\overset{|}{N}}\right]$$



$$\left[O-\underset{O}{\underset{\|}{C}}-CH_2-\overset{\overset{\overset{CH_2}{\overset{\|}{C-R}}}{\overset{|}{C=O}}}{\overset{|}{N}}-CH_2-\underset{O}{\underset{\|}{C}}-O-Z\right]$$

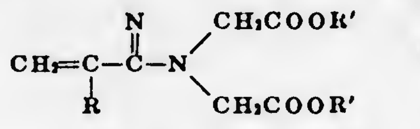
and



$$\left[O-\underset{O}{\underset{\|}{C}}-CH_2-\overset{\overset{\overset{CH_3}{\overset{|}{C-R}}}{\overset{|}{C=O}}}{\overset{|}{N}}-CH_2-\underset{O}{\underset{\|}{C}}-\overset{H}{\overset{|}{N}}-Z\right]$$

where R is hydrogen or a lower alkyl group and Z is an alkylene group having about 2–12 carbon atoms. This polymer is prepared by a process comprising:

(a) Forming a mixture of monomers consisting essentially of; (i) a monomeric diester having the formula



$$CH_2=\underset{R}{\underset{|}{C}}-\overset{N}{\overset{\|}{C}}-N\begin{matrix}\diagup CH_2COOR' \\ \diagdown CH_2COOR'\end{matrix}$$

where R is H or lower alkyl and R′ is lower alkyl; (ii) a monomer selected from the group of monomers having the formula

$$H_2N—Z—NH_2,\ H_2N—Z—OH,\text{ and }HO—Z—OH$$

where Z is a lower alkylene group having about 2–12 carbon atoms;

(b) Heating the mixture of monomers at about 50–150° C. to form the polymer and an alkanol byproduct while removing said alkanol as it is formed; and

(c) Recovering the polymer.

3,567,695
BLOCKED ISOCYANATE POLYMER (IV)

Thomas K. Brotherton and John W. Lynn, Charleston W. Va., assignors to Union Carbide Corporation

Application Nov. 9, 1964, Ser. No. 409,921, which is a continuation-in-part of application Ser. No. 212,480, July 25, 1962. Divided and this application Apr. 2, 1968, Ser. No. 718,094

Int. Cl. C08g *22/18*

U.S. Cl. 260—77.5 **8 Claims**

"Blocked" polyisocyanato-containing polymers which may be obtained via the vinyl polymerization of unsaturated diester diisocyanates as exemplified by bis(2-isocyanatoethyl) fumarate with/without ethylenically unsaturated compounds, e.g., styrene, vinyl acetate, etc., followed by reacting the polyisocyanato groups of the resulting polymers with a monofunctional active hydrogen compound. The above reactions may also be reversed to thus obtain the "blocked" polymers.

3,567,696
STORABLE POLYAMIDE-FORMING COMPOSITIONS AND PROCESS FOR THE PRODUCTION OF POLYAMIDES

Wilhelm August Sahler, Rheinbach, near Bonn, Germany, assignor to Dr. Plate GmbH, Chemische Fabrik, Bonn, Germany

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,737

Claims priority, application Germany, Mar. 25, 1967, P 41,723

Int. Cl. C08g *20/18*

U.S. Cl. 260—78 **3 Claims**

This invention relates to storable polyamide-forming compositions or mixtures of lactams comprising particular polymerization catalysts. Due to the particular polymerization catalysts the polyamide forming composition on the basis of polymerizable cyclic lactams may be stored at room temperature over prolonged periods of time and may nevertheless readily be polymerized by heating in the mould. This considerably simplifies the process for the production of polyamides from lactams.

3,567,697
METHOD OF PRODUCING ARTICLES OF CROSS-LINKED POLYETHYLENE

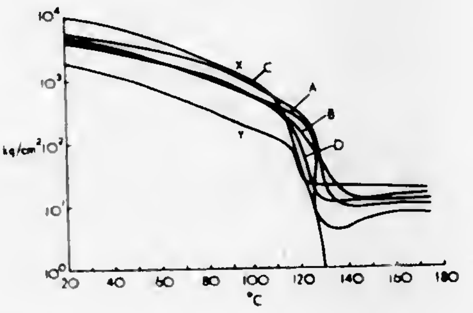
Robert Frederick Bates and Harry Brody, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 10, 1969, Ser. No. 790,285

Claims priority, application Great Britain, Jan. 23, 1968, 3,555/68

Int. Cl. C08f *1/60, 1/86, 27/00*

U.S. Cl. 260—78.4 **15 Claims**



A method of preparation of a shaped article of a cross-linked polyolefine, and in particular of crystalline polyethylene, which comprises melt-shaping a composition comprising

(i) 100 parts of a crystalline polyolefine having a crystalline melting point T_m,

(ii) 0.25 to 10 parts of a thermally activatable free-radical generator having a half-life ($t½$) longer than 20 minutes at T_m plus 10° C. and

(iii) preferably from 1 to 20 parts of a polymerisable nonconjugated polyene,

under conditions at which not more than 60% of the free-radical generator is dissociated while the composition is at a temperature above T_m and therefore heating the shaped composition at a temperature below T_m at which the free-radical generator is dissociated and cross-linking occurs.

3,567,698
THERMALLY STABLE SILARYLENE-1,3,4-OXADIAZOLE POLYMERS SOLUBLE IN ORGANIC SOLVENTS

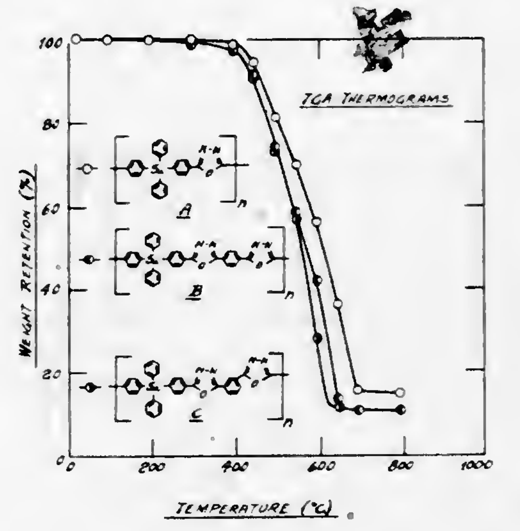
Hanna N. Kovacs, Kew Gardens, Alvin D. Delman, Old Bethpage, and Bernard B. Simms, Franklin Square, N.Y., assignors to the United States of America as represented by the Secretary of the Navy

Filed Sept. 2, 1969, Ser. No. 854,673

Int. Cl. C08g *31/32, 33/04, 47/00*

U.S. Cl. 260—78.4 **10 Claims**

Aromatic silicon-containing polyoxadiazoles that are soluble in organic solvents and are oxidation resistant and generally stable up to about 400° C. The polyoxadiazole poly[1,4 - phenylene(diphenylsilyl) - 1,4 - phenylene-2,5-(1,3,4-oxadiazole)] prepared by thermal cyclodehydration of the polyhydrazide obtained by copolymerization of bis(p - chlorocarbonylphenyl)diphenylsilane or bis(p-carbopentachlorophenoxyphenyl)diphenylsilane with either hydrazine or bis(p-carbohydrazidophenyl)diphenylsilane. Other polyhydrazide prepolymers are obtained by copolymerization of bis(p-carbohydrazidophenyl)diphenylsilane with dipentachlorophenyl terephthalate or dipentachlorophenyl isophthalate which yield poly[N-(p-diphenylsilylbenzoyl) - N,N″ - (terephthaloyl) - N‴ - (p-benzoyl) dihydrazide] and poly[N-(p-diphenylsilylbenzoyl)-N,N″-(isophthaloyl)-N‴-(p-benzoyl)dihydrazide], respectively. These polyhydrazide prepolymers convert by thermal cyclodehydration into the polyoxadiazoles poly[1,4-phenylene(diphenylsilyl) - 1,4 - phenylene - (1,3,4 - oxadiazole-2,5 - diyl) - 1,4 - phenylene - 2,5 - (1,3,4 - oxadiazole)] and poly[1,4 - phenylene(diphenylsilyl) - 1,4 - phenylene-(1,3,4 - oxadiazole - 2,5 - diyl) - 1,3 - phenylene - 2,5-(1,3,4-oxadiazole)], respectively. The previously recited polyoxadiazole poly[1,4 - phenylene(diphenylsilyl) - 1,4-phenylene-2,5-(1,3,4-oxadiazole)] is somewhat more heat resistant than the other oxadiazoles.



3,567,699
SULFUR-VULCANIZABLE COPOLYMERS OF ALPHA-OLEFINS AND POLYALKENYL-CYCLOALKANES AND PROCESS FOR PRODUCING SAME

Giulio Natta, Giorgio Mazzanti, Alberto Valvassori, and Vittorio Turba, Milan, Italy, and Guido Sartori, Roselle, N.J., assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation of application Ser. No. 623,177, Mar. 8, 1967, which is a continuation-in-part of application Ser. No. 273,316, Apr. 16, 1963. This application Oct. 22, 1969, Ser. No. 868,650

Claims priority, application Italy, Apr. 18, 1962, 7,639/62

Int. Cl. C08f *15/40, 27/06*

U.S. Cl. 260—79.5 **12 Claims**

There are disclosed vulcanizable, substantially linear, substantially amorphous, high molecular weight copolymerizates of ethylene and/or a higher alpha-olefin having the general formula $CH_2═CH—R$ in which R is an alkyl group containing 1 to 6 carbon atoms, and polyalkenylcycloalkanes containing 3 to 4 carbon atoms in the cycle.

3,567,700
SHORT STOPPING SYNTHETIC RUBBER POLYMERIZATION

Harry Elmer Albert and Paul Gordon Haines, Lafayette Hill, Pa., assignors to Pennwalt Corporation

No Drawing. Filed May 13, 1968, Ser. No. 728,806

Int. Cl. C08f *1/13;* **C08d** *1/09, 1/36*

U.S. Cl. 260—84.3 **5 Claims**

A process for shortstopping polymerizations, particularly polymerization processes for making synthetic rubber latices such as butadiene-styrene copolymers where the short stopping agent is diethylaniline N-oxide.

3,567,701
PROCESS FOR PREPARING POLYOLEFINS

Karl Diether Keil, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 1, 1968, Ser. No. 725,912

Claims priority, application Germany, May 20, 1967, F 52,468

Int. Cl. C08f *1/42, 3/06*

U.S. Cl. 260—88.2 **1 Claim**

The present invention relates to a process for the polymerization of ethylene or mixtures of ethylene with up to 10% by weight of higher α-olefins in the presence of a mixed catalyst composed of a trivalent chlorine-containing titanium compound and an aluminium-organic component obtained by reacting acetylenes with aluminum hydrocarbons.

3,567,702
PROCESS FOR PREPARATION OF HIGH MOLECULAR WEIGHT CIS-1,4 POLYISOPRENE AND POLYMERIZATION CATALYST THEREFOR

Kan Mori, Hiroharu Ikeda, and Shigetoshi Hirayanagi, Yokkaichi-shi, Isamu Shimizu, Kameyama-shi, and Akira Kogure, Yokkaichi-shi, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,922
Claims priority, application Japan, Oct. 7, 1967, 42/64,416
Int. Cl. C08d *3/10*
U.S. Cl. 260—94.3 3 Claims

An improved process for preparation of a high-molecular-weight polyisoprene consisting principally of cis-1,4 units commercially advantageously at high yield by using a novel three-component catalyst composed of (A) a titanium halide, (B) an organoaluminium compound expressed by the formula AlR_3, wherein R is a member selected from the group consisting of alkyl groups, aryl groups and cycloalkyl groups, and (C) an aromatic compound selected from the group consisting of phenol, substituted phenols, hydroxy-substituted diphenyls, naphthols, said three-component catalyst being obtained by adding component (A) to a mixture of component (B) and component (C), and substituted naphthols.

3,567,703
METHOD OF PRODUCING STRAIGHT CHAIN WAXES BY CATALYTIC POLYMERIZATION OF ETHYLENE

Gert G. Eberhardt, Philadelphia, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 279,341, May 9, 1963. This application Feb. 27, 1969, Ser. No. 803,082
Int. Cl. C08f *1/76, 3/06*
U.S. Cl. 260—94.9 19 Claims

Polyethylene waxes with molecular weights of 1000–3000 and melting points of 100–125° C. are made by polymerizing ethylene at 101–150° C. employing a catalyst prepared by combining LiR with a non-aromatic tertiary amine which contains bridgehead nitrogen or which is a chelating diamine. The products have utility in paper coating compositions, floor polishes and the like.

3,567,704
PEROXIDES VIA THE PHOTOSENSITIZED OXIDATION OF CERTAIN NAVAL STORES RAW MATERIAL

Walter H. Schuller, 406 Oak Ave.; Jacob C. Minor, 10 Hillside Drive; and Ray V. Lawrence, 621 W. De Soto St., all of Lake City, Fla. 32055

No Drawing. Filed Feb. 18, 1969, Ser. No. 800,284
Int. Cl. C09f *7/02*
U.S. Cl. 260—97.5 3 Claims

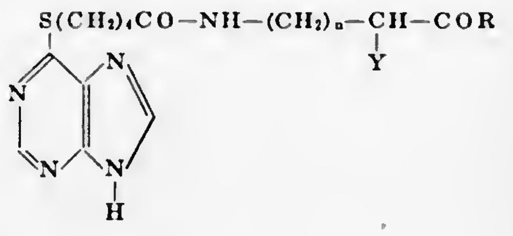
This invention relates to the photosensitized oxidation of certain naval stores raw materials. More particularly, this invention relates to the photosensitized oxidation of certain naval stores raw materials to give new peroxides useful as initiators for the polymerization of styrenated unsaturated polyester laminating resins.

3,567,705
N-[δ-(6-PURINYLTHIO)VALERYL]AMINO ACIDS AND PEPTIDES

Antonín Černý, Miroslav Semonský, and Václav Jelínek, Prague, Czechoslovakia, assignors to Spofa, United Pharmaceutical Works, Prague, Czechoslovakia

No Drawing. Filed June 26, 1967, Ser. No. 649,432
Claims priority, application Czechoslovakia, July 1, 1966, 4,436/66
Int. Cl. A61k *27/00;* **C07c** *103/52;* **C07d** *57/38*
U.S. Cl. 260—112.5 15 Claims

A compound of the general formula:



wherein:

n is an integer from 0 to 5;
R is a member selected from the group consisting of:

- (a) alkoxy having a straight or branched chain of 1 to 8 carbon atoms;
- (b) hydroxy;
- (c) a residue of a peptidically attached amino acid;
- (d) a residue of a dipeptide; the said amino-acid and dipeptide residues being in the form of their free carboxy acid;
- (e) a residue as at (c) and (d) wherein the carboxy group is esterified with an alcohol, having a straight or branched chain of 1 to 7 carbon atoms;

Y is a member selected from the group consisting of:

hydrogen;
alkyl having a straight or branched carbon chain of 1 to 5 atoms;
phenyl;
3-indolyl;
$—CH_2OH$, $—CH_2SH$, $—(CH_2)SCH_3$ and $—(CH_2)_mCOR_1$

m in the last member being an integer from 1 to 3 and R_1 being alkoxy having a straight or branched chain of 1 to 8 carbon atoms.

An example is N-[δ-(6-purinylthio)valeryl]glycine ethyl ester.

The compounds have shown an antineoplastic effect in certain specific transplantable mice tumors. They are distinguished by their high affinity to a particular organ or to the tissue of a particular organ and their acute and chronical toxicity is low.

3,567,706
REACTIVE AZO DYES CONTAINING A BENZOTRIAZINE-1-OXIDE

Kurt Brenneisen, Grenzach, Germany, Otmar Thumm, Basel, Switzerland, and Rudolf Wurster, Paterson, N.J., assignors to Sandoz Ltd., also known as Sandoz A.G., Basel, Switzerland

No Drawing. Filed Jan. 3, 1966, Ser. No. 523,497
Claims priority, application Switzerland, Dec. 31, 1964, 16,885/64; Nov. 25, 1965, 16,244/65
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. C09d *62/08;* **D06p** *1/02*
U.S. Cl. 260—153 6 Claims

Intermediates, 3-halo or hydroxy-1,2,4-benzotriazine-1-oxide-6- or -7-carboxylic acid or acid halide, are useful in the preparation of water-soluble reactive dyes having in their molecular structure, as a fiber-reactive group, at least one 3-halo-1,2,4-benzotriazine-1-oxide-6- or -7-carbonamido group.

3,567,707
DISAZO COUPLING PROCEDURE

Arthur S. Neave, Jr., Indian Hill, and Arthur J. Schroeder, Wyoming, Ohio, assignors to Sterling Drug, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 492,872, Oct. 4, 1965. This application Apr. 4, 1968, Ser. No. 718,936
Int. Cl. C09b *31/14*
U.S. Cl. 260—161 2 Claims

The process of coupling tetrazotized 3,3′-dichlorobenzidine with 3-methyl-1-p-tolyl-2-pyrazolin-5-one or 3-methyl-1-phenyl-2-pyrazolin-5-one at a pH of 0.5 to 1.0 results in the formation of known pigments having improved dry cleaning fastness and lightfastness.

3,567,708
PROCESS FOR THE PREPARATION OF FIBROUS WATER-INSOLUBLE CELLULOSE SULFATE SALTS

James H. Manning, Suffern, N.Y., and James W. Atkins and McDonald Moore, Mobile, Ala., assignors to International Paper Company, New York, N.Y.

No Drawing. Filed Aug. 25, 1969, Ser. No. 852,887
Int. Cl. C08b *5/14*
U.S. Cl. 260—215 9 Claims

A process for producing a flame-resistant, water-insoluble, cellulose sulfate salt which comprises a sulfating step employing dimethyl sulfoxide or a dimethyl sulfoxide-dimethyl formamide mixture in the presence of sulfur trioxide in complex with a Lewis base, a neutralization step, a water-washing step and a de-swelling step using a salt containing a polyvalent cation.

3,567,709
METHOD OF PREPARING THE SODIUM SALT OF 6 - (5 - METHYL - 3 - PHENYL - 4 - ISOXAZOLECARBOXAMIDO)-PENICILLANIC ACID MONOHYDRATE

Marina Alexeevna Panina, Ul. Gorkogo 4, kv. 59; Valentina Alexandrovna Averianova, Pulkovskaya ul. 11, korp. 3, kv. 310; and Ivan Timofeevich Strukov, Balaklavsky prosp. 20, korp. 3, kv. 209, all of Moscow, U.S.S.R.

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,330
Int. Cl. C07d *99/16*
U.S. Cl. 260—239.1 4 Claims

A method of producing the sodium salt of 6-(5-methyl-3-phenyl - 4 - isoxazolecarboxamido)-penicillanic acid monohydrate by the acylation of 6-aminopenicillanic acid with 5 - methyl - 3 - phenylisoxazole - 4 carbonyl chloride in aqueous acetone solution and in the presence of sodium bicarbonate. The resultant sodium salt of 6-(5-methyl - 3 - phenyl - 4 - isoxazolecarboxamido)-penicillanic acid is converted into the free acid by acidifying the reaction mixture to a pH of 2.5–3, the acid thus obtained is extracted with butyl acetate, and the solution of 6-(5-methyl - 3 - phenyl - 4 - isoxazolecarboxamido)-penicillanic acid is treated with an equimolecular amount of sodium hydroxide in alcoholic solution.

3,567,710
PROCESS FOR THE PREPARATION OF 1,3-DIHYDRO-2H-1,4-BENZODIAZEPIN-2-ONES

Rodney Fryer, North Caldwell, and Leo H. Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed June 3, 1968, Ser. No. 733,818
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 12 Claims

1,3-dihydro-2H-1,4-benzodiazepin-2-ones are prepared from corresponding substituted 2-aminobenzophenones by a multi-step process. The product compounds are known to be useful as tranquilizers, muscle relaxants, anti-convulsants and hypnotics.

3,567,711
PREPARATION OF α - HYDROXYLAMINO LACTAMS BY HYDROGENATION OF α-NITRO LACTAMS

Jan Frans Van Peppen, Chester, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 30, 1969, Ser. No. 862,514
Int. Cl. C07d *41/06*
U.S. Cl. 260—239.3 9 Claims

α-Nitrolactams can be catalytically hydrogenated using palladium-on-charcoal catalyst to afford C_5–C_{12} α-hydroxylamino lactams which are novel compositions of matter. These α-hydroxylamino lactams have biodynamic properties, including herbicidal, insecticidal, fungicidal, and acaricidal. Additionally, they are useful as transition metal chelating agents. They can also be oxidized to oximino lactams which are known chelating agents.

3,567,712
10β-AMINO-ESTRANES AND METHOD FOR THE PREPARATION THEREOF

Pietro de Ruggieri, Carmelo Gandolfi, and Umberto Guzzi, Milan, Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

No Drawing. Filed Oct. 19, 1967, Ser. No. 676,601
Claims priority, application Italy, Oct. 31, 1966, 29,501/66
Int. Cl. C07c *169/24*
U.S. Cl. 260—239.5 16 Claims

10β-amino-steroids of the estrane series and a method for the preparation thereof.

3,567,713
DERIVATIVES OF 2α,3α-EPITHIOANDROSTANE AND PROCESS FOR PREPARING THEM

Taichiro Komeno, Osaka-shi, Japan, assignor to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Filed Jan. 26, 1968, Ser. No. 700,719
Claims priority, application Japan, Jan. 28, 1967, 42/5,718
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.5 10 Claims

Hormonal (anabolic, myogenic, androgenic, uterotropic, antiuterotropic, antiestrogenic, contragestive, etc.) 17β - (1 - alkoxycycloalkyl)oxy - 2α,3α-epithio-5α-androstanes, for enteral and parenteral administration, pharmaceutical preparations containing one or more of them and process for preparing those compounds.

3,567,714
N - (OXA- OR THIACYCLOALKYL)METHYL-5-SULFAMOYLANTHRANILIC ACID DERIVATIVES

James W. Wilson, Wayne, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Sept. 3, 1965, Ser. No. 485,116
Int. Cl. C07d *5/04, 7/04, 63/04, 65/04*
U.S. Cl. 260—239.6 6 Claims

Anthranilic acid derivatives, prepared by reacting a 2-halo-4-chloro(or bromo, fluoro or trifluoromethyl)-5-sulfamoylbenzoic acid or ester with an N-[(oxa- or thiacycloalkyl)methyl]amine, have diuretic and natriuretic activity and are useful in treating hypertension.

3,567,715
SULFANILAMIDOPYRIMIDINYLSULFONAMIDES

Aubrey A. Larsen, Frederick A. Grunwald, and William E. Kreighbaum, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,037
Int. Cl. A61k *27/00;* **C07d** *51/44*
U.S. Cl. 260—239.75 7 Claims

N - methylalkanesulfonamido-substituted sulfanilamido pyrimidines and the pharmaceutically acceptable metal salts thereof are useful as short-acting antibacterial agents having a low hypersensitivity liability.

3,567,716
1,8-NAPHTHYRIDINE DERIVATIVES AND INTERMEDIATES THEREOF

Sadao Nishigaki, Tokyo, Takeo Naito, Ichikawa-shi, Yasuo Oshima, Tokyo, Renzo Dohmori, Chiba-gun, Senkichi Nagasaki, Chofu-shi, and Shizuo Kadoya and Isao Takamura, Tokyo, Japan, assignors to Daiichi Seiyaku Company, Limited, Tokyo, Japan
No Drawing. Filed May 31, 1967, Ser. No. 642,303
Claims priority, application Japan, June 14, 1966, 41/38,024; July 22, 1966, 41/47,638; Dec. 2, 1966, 41/78,658; Dec. 6, 1966, 41/79,554
Int. Cl. C07d *31/32, 31/28*
U.S. Cl. 260—240 **25 Claims**

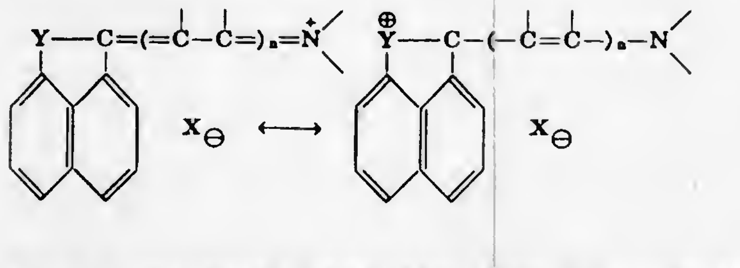
These compounds, 1-substituted-1,4-dihydro-7-[2(5-nitro-2-furyl)vinyl]-4-oxo-1,8-naphthyridine-3 - carboxylic acids, are derivatives of 1,8-naphthyridine and are useful as antibacterial agents.

Lower-alkyl 4 - hydroxy-7-methyl-1,8-naphthyridine-3-carboxylate is reacted with 5-nitrofurfural to produce lower-alkyl 4 - hydroxy - 7-[2-(5-nitro-2-furyl)vinyl]-1,8-naphthyridine-3-carboxylate, then thus obtained product is hydrolyzed to produce 4-hydroxy-7-[2-(5-nitro-2-furyl)vinyl]-1,8-naphthyridine - 3 - carboxylic acid, and then various radicals are introduced into the 1-nitrogen atom of the 1,8-naphthyridine nucleus to produce 1-substituted-1,4-dihydro-7-[2-(5-nitro-2-furyl)vinyl] - 4 - oxo-1,8-naphthyridine-3-carboxylic acids.

3,567,717
NEW CATIONIC DYESTUFFS AND PROCESSES FOR THEIR PREPARATION

Robert F. M. Sureau, Enghien-les-Bains, Gilbert V. H. Kremer, Ermont, and Marie-Josephe J. Allcot, Soisy-sous-Montmorency, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,348
Claims priority, application France, Aug. 11, 1967, 117,725
Int. Cl. C09b *23/04*
U.S. Cl. 260—240 **4 Claims**

Dyestuffs are provided containing an atom grouping of the following formulae:



in which X represents a monovalent anion, Y represents an oxygen or sulphur atom and *n* represents 1 or 2. Processes for the preparation of these dyestuffs are also provided.

3,567,718
NOVEL DIETHYLAMINE COMPOUNDS AND MEANS FOR THEIR PRODUCTION

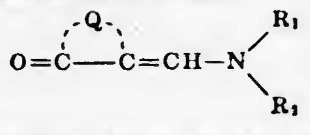
Edward F. Elslager, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.
No Drawing. Filed Nov. 18, 1968, Ser. No. 776,800
Int. Cl. C07c *119/10;* **C07d** *33/54*
U.S. Cl. 260—240 **3 Claims**

N,N''-(p-phenylenedimethylidyne)bis[N' - [2-(diethylamino)-ethyl]-1,4-naphthalenediamine] and 5,5'-[p-phenylenebis(methylidyneimino)]bis[8 - [[2-(diethylamino)-ethyl]amino]-quinoline] are provided by reacting respectively N-[2-(diethylamino)ethyl] - 1,4-naphthalenediamine and 5-amino-8-[[2-(diethylamino)ethyl]amino]-quinoline with terephthalaldehyle. The products have antiparasitic properties and are useful schistosomacides.

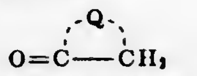
3,567,719
METHODS FOR PREPARING DYES AND NOVEL DYE INTERMEDIATES

Carl H. Eldredge and John D. Mee, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed May 17, 1967, Ser. No. 639,050
Int. Cl. C09b *23/10*
U.S. Cl. 260—240.4 **6 Claims**

Novel compounds of the formula



where Q represents the atoms to complete a nucleus of from 5 to 6 atoms, and R_1 and R_2 each represents a lower alkyl group, the preparation of these compounds by heating a compound of the formula



with an inorganic acid halide and dialkyl formamide, and the preparation of merocyanine dyes with these compounds as starting material are described.

3,567,720
PROCESS FOR IMPROVING THE STORAGE STABILITY OF 2-(MORPHOLINOTHIO)-BENZOTHIAZOLE

Albert F. Hardman, 1759 Smith Road,
Akron, Ohio 44313
No Drawing. Filed June 21, 1968, Ser. No. 738,778
Int. Cl. C07d *87/46*
U.S. Cl. 260—247.1 **13 Claims**

Actively contacting a liquid form of an impure 2-(morpholinothio)-benzothiazole product with a gaseous material to improve the storage stability of the 2-(morpholinothio)-benzothiazole.

3,567,721
INDAZOLECARBOXYLIC ACIDS AND DERIVATIVES THEREOF

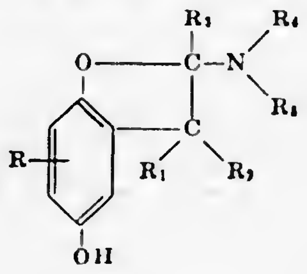
Abraham Wajngurt, Riverdale, N.Y., assignor to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,170
Int. Cl. C07d *49/18*
U.S. Cl. 260—247.2 **14 Claims**

1-(o,o' - disubstituted benzoyl)indazole - 3 - carboxylic acids, esters and amides are anti-inflammatory and analgesic agents. An illustrative embodiment is 1-(2,6-dichlorobenzoyl)-3-carbomethoxy indazole.

3,567,722
2-MORPHOLINO-3-SPIRO CYCLOALKENYL-5-HYDROXY-2,3 DIHYDRO BENZOFURANS

Kurt Ley, Helmut Walz, and Wolfgang Redetzky, Leverkusen, and Helmut Freytag, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation of application Ser. No. 634,783, Jan. 26, 1967, which is a division of application Ser. No. 550,899, May 18, 1966, now Patent No. 3,344,109, which in turn is a continuation-in-part of applications Ser. No. 267,930, Mar. 26, 1963, and Ser. No. 398,421, Sept. 22, 1964. This application Sept. 8, 1969, Ser. No. 856,924
Int. Cl. C07d *87/32*
U.S. Cl. 260—247.7 **3 Claims**

Compounds of the general formula

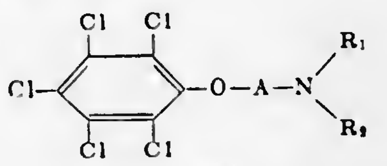


wherein the several R substituents are H or organic substituents, wherein R_1 and R_2 can form part of a carbocyclic ring, and R_4 and R_5 can be bonded to one another through a carbon or hetero atom bridge. The compounds are useful as age resister additives for rubber compositions.

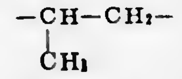
3,567,723
TERTIARY AMINOALKYL PENTACHLOROPHENYL ETHERS

Shigeo Seki, Tokyo, and Tomio Matsuni, Yokohama-shi, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan
No Drawing. Filed May 17, 1967, Ser. No. 639,063
Claims priority, application Japan, May 21, 1966, 41/32,063
Int. Cl. C07d *87/32*
U.S. Cl. 260—247.7 **6 Claims**

Alkylaminoalkyl pentachlorophenyl ethers represented by the general formula:



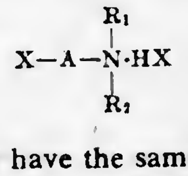
wherein A stands for a chain selected from the group consisting of ethylene, trimethylene and propylene



$$-\underset{\displaystyle CH_3}{CH}-CH_2-$$

and R_1 and R_2 are selected from the group consisting of alkyl and aralkyl radicals but both of R_1 and R_2 cannot represent ethyl radical simultaneously; and R_1 and R_2 together with the adjacent nitrogen atom may form a heterocyclic ring selected from the group consisting of pyrrolidine, piperidine and morpholine, which are new and useful as fungicide.

A process for the production of alkylaminoalkyl pentachlorophenyl ethers of the above-mentioned general formula which comprises reacting an excess of an alkali metal salt of pentachlorophenol with a hydrohalogenic acid salt of an alkylaminoalkyl halide of the formula:



$$X-A-\overset{\displaystyle R_1}{\underset{\displaystyle R_2}{N}}\cdot HX$$

wherein A, R_1 and R_2 have the same meanings as defined above, respectively and X stands for a chlorine or bromine, in a solvent consisting of a lower alkyl alcohol or dioxane.

ERRATUM

For Class 260—248 see:
Patent No. 3,566,835

3,567,724
HEXAHYDRO-1,3,5-TRIS-(4-HYDROXYARYL)-s-TRIAZINES

Warren L. Beears, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,363
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 **7 Claims**

Novel hexahydro-1,3,5-tris-(4-hydroxyaryl)-s-triazines have been prepared. These compounds are effective stabilizers for organic materials, such as α-olefin polymers and copolymers, acetal polymers, polyamides, polyesters and polyurethanes, against the deleterious effects of oxygen, heat and light.

3,567,725
PROCESS FOR PREPARATION OF 1H-IMIDAZO-[4,5-b]PYRAZIN-2-ONES

Edward J. J. Grabowski, Iselin, Edward W. Tristram, Cranford, and Roger J. Tull, Metuchen, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Nov. 20, 1968, Ser. No. 777,478
Int. Cl. C07d *51/76*
U.S. Cl. 260—250 **20 Claims**

A process is described for the preparation of 5-amino-(or substituted amino) - 6 - chloro - 1H - imidazo[4,5-b]-pyrazin-2-ones which comprises heating a 3 - amino - 5-amino(or substituted amino)-6-chloropyrazinoylaminimide either in a suitable solvent or as a solid until rearrangement and ring closure is complete. The products have utility as antihypertensive agents.

3,567,726
SYNTHESIS OF β,β-DI-ALKYL PYRROLIDINES

Robert D. Dillard and Nelson R. Easton, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Application July 12, 1967, Ser. No. 652,690, now Patent No. 3,452,015, dated June 24, 1969, which is a continuation-in-part of application Ser. No. 311,305, Sept. 25, 1963. Divided and this application Dec. 18, 1968, Ser. No. 810,875
Int. Cl. G07d *51/76*
U.S. Cl. 260—250 **1 Claim**

A propargyl is semi-hydrogenated to the corresponding allyl malonate which is hydrolyzed to the malonic acid. Decarboxylation of the acid is readily effected by heat, resulting in the production of an unsaturated acid which is readily cyclized to a 4-methyl-gamma lactone. The latter is converted to 2-methyl-beta,beta-substituted pyrrolidines via the corresponding 5-methyl-2-pyrrolidones.

3,567,727
6-(4-ALKYLPIPERAZIN-1-YL)PHENANTHRIDINES

Harry James Barber, Romford, Essex, and David Henry Jones, Rayleigh, Essex, England, assignors to May & Baker Limited
No Drawing. Filed Oct. 10, 1968, Ser. No. 767,060
Claims priority, application Great Britain, Oct. 11, 1967, 46,496/67
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 **5 Claims**

6-(4-alkylpiperazin-1-yl)phenanthridines in which the alkyl group contains from one to six carbon atoms, and their non-toxic salts are active on the central nervous system as antidepressants and muscle-relaxants. They may be administered orally to an adult in a dose of, e.g., 50 to 500 mg. per day.

3,567,728
PROCESS FOR THE PREPARATION OF PHENAZINE DI-N-OXIDES AND RELATED COMPOUNDS

James David Johnston, Old Saybrook, and Marwan J. Abuel-haj, Groton, Conn., assignors to Pfizer Inc., New York, N.Y.
No Drawing. Filed July 5, 1968, Ser. No. 742,514
Int. Cl. C07d *51/80*
U.S. Cl. 260—267 **27 Claims**

A process for the preparation of phenazine-di-N-oxides which comprises reacting an isobenzofuroxan with a phenol in the presence of a base.

3,567,729

DIQUATERNARY AMMONIUM HALIDES

Morton Lewis, Elmhurst, and Thomas W. Findley, Chicago, Ill., assignors to Swift & Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 553,019, May 26, 1966. This application Jan. 12, 1968, Ser. No. 697,291
Int. Cl. C07d *51/72*
U.S. Cl. 260—268 **5 Claims**

Quaternary ammonium salts are produced by reacting in the liquid phase, in the presence of water, tertiary amines and 1-halo, 2-hydroxy, 3-alkoxypropanes or by reacting tertiary amine hydrohalides and glycidyl ethers. The compositions possess surfactant properties and can be used as emulsifying agents, germicides, etc.

3,567,730

DIBENZOCYCLOHEPTATRIENE DERIVATIVES AND THEIR PREPARATION

Jean Clement Louis Fouche, Hauts-de-Seine, France, assignor to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed June 15, 1966, Ser. No. 557,604
Claims priority, application France, June 18, 1965, 21,444; May 4, 1966, 60,266
The portion of the term of the patent subsequent to Nov. 25, 1986, has been disclaimed
Int. Cl. C07d *29/10, 27/02, 87/28, 51/70, 87/38*
U.S. Cl. 260—268 **8 Claims**

New 2 - substituted - 11 - aminoalkyldibenzo[a,d]cycloheptatrienes have useful pharmacodynamic properties as, inter alia, neuroleptics, sedatives, tranquilizers, antihistaminics, anti-emetics, and analgesics.

3,567,731

METAL NITROSYL HALIDE COMPLEXES

Donald H. Kubicek and Roger F. Kleinschmidt, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,067
Int. Cl. C07d *31/24;* **C07f** *11/00*
U.S. Cl. 260—270 **7 Claims**

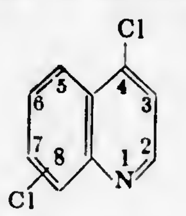
A Group VI–B metal carbonyl complex is contacted with nitrosyl halide to produce a Group VI–B metal nitrosyl halide complex.

3,567,732

PROCESS FOR THE PREPARATION OF CHLORINATED QUINOLINES

Robert Joly, Montmorency, Julien Warnant, Neuilly-sur-Seine, and Bernard Goffinet, Paris, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Jan. 8, 1968, Ser. No. 696,135
Claims priority, application France, Jan. 10, 1967, 90,543
Int. Cl. C07d *33/14*
U.S. Cl. 260—283 **1 Claim**

This invention relates to a process for the preparation of chlorinated quinolines of the formula



wherein the chlorine attached to the benzene nucleus is in a position selected from the group consisting of the 5, 6, 7 and 8 positions. The said process involves reacting a 2, 3 or 4-chloroaniline with a compound selected from the group consisting of β-propiolactone and a compound of the formula

$$CH_2{=}CH{-}COOR$$

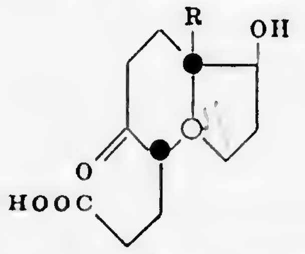
wherein R is selected from the group consisting of hydrogen and lower alkyl, cyclizing the 3-(chloroanilino)-propionic acid formed with polyphosphoric acid, chlorinating the resulting 5, 6, 7 or 8-chloro-4-oxo-1,2,3,4-tetrahydroquinoline with phosphorus oxychloride and recovering said chlorinated quinoline. The dichloroquinolines are known products useful as intermediates in the production of known compounds having therapeutic activity.

3,567,733

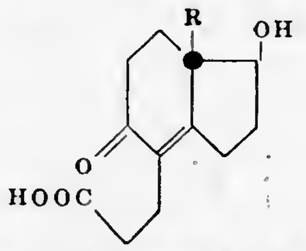
PROCESS FOR THE PREPARATION OF INTERMEDIATES FOR THE SYNTHESIS OF STEROIDS

Gerard Nominé, Noisy-le-Sec, France, and Arturo Bladé, Barcelona, Spain, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Sept. 19, 1967, Ser. No. 668,954
Claims priority, application France, Sept. 22, 1966, 77,301
Int. Cl. C07d *33/48*
U.S. Cl. 260—287 **14 Claims**

This invention relates to a process for the preparation of 1β-hydroxy 5-oxo-4-(2′-carboxyethyl)-7aβ-R-3aα,4β,5,6,7,7a-hexahydroindanes of the formula



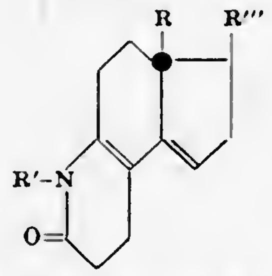
wherein R is lower alkyl, which comprises the steps of (1) subjecting a 1β - hydroxy-5-oxo-4-(2′-carboxyethyl)-7aβ-R-5,6,7,7a-tetrahydroindane of the formula



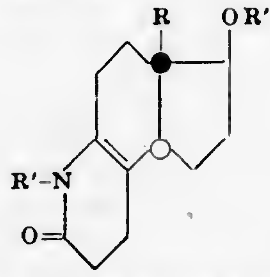
wherein R has the above-assigned value, to the action of a lactamizing agent of the formula

$$R''{-}COO^{\ominus}R'NH_3$$

wherein R′ is selected from the group consisting of hydrogen, lower alkyl and aryl-lower alkyl and R″ is lower alkyl, (2) esterifying the resultant lactam by the action of a lower alkanoic acid esterifying agent, (3) selectively reducing the 14–15 double bond of the resultant 17β-OR.‴-13β-R-des-A-10-aza-$\Delta^{8,14}$-gonadiene - 5 - one of the formula



wherein R and R′ have the above-assigned values and R‴ is lower alkanoyl, by catalytic hydrogenation, (4) hydrolyzing the resultant 17β-OR‴-13β-R-des-A-10-aza-Δ^8-gonene-5-one of the formula



wherein R, R′ and R‴ have the above-assigned values, with a strong acid hydrolyzing agent, and (5) recovering said 1β - hydroxy - 5 - oxo-4(2′-carboxyethyl)-7aβ-R-3aα,4β,5,6,7,7a-hexahydroindanes. The latter is useful as an intermediate in the total synthesis of steroids.

3,567,734

QUATERNARY IMIDAZOLINIUM SALTS

Keith Liddell Johnson, Matteson, Ill., assignor to Swift & Company, Chicago, Ill.
No Drawing. Filed Oct. 20, 1966, Ser. No. 587,997
Int. Cl. C07d *49/34;* **C07c** *87/30*
U.S. Cl. 260—309.6 **2 Claims**

Preparation of cationic detergents comprising quaternization of a tertiary nitrogen atom of a fatty amine or a fatty imidazoline with polyalkylene glycol halide. Alternatively, a detergent composition is prepared by quaternization of a tertiary amine with a polyalkylene glycol halide, the hydroxyl group of which has been reacted with an epoxy group or carboxylic acid group.

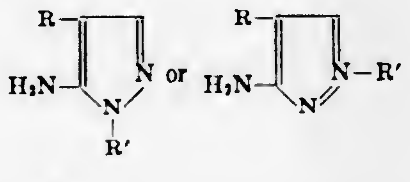
3,567,735

β - (SUBSTITUTED-HYDRAZINO) - α - CYANO ACRYLIC ACIDS AND DERIVATIVES, AND PROCESS FOR PREPARING N-SUBSTITUTED PYRAZOLES

Jean Druey, Riehen, and Paul Schmidt, Therwil, Switzerland, assignors to Ciba Corporation, New York, N.Y.
No Drawing. Division of application Ser. No. 452,908, May 3, 1965, now Patent No. 3,408,362, which is a division of application Ser. No. 815,824, May 26, 1959, now Patent No. 3,187,006, which is a continuation-in-part of application Ser. No. 775,356, Nov. 21, 1958, which in turn is a continuation-in-part of application Ser. No. 637,895, Feb. 4, 1957. This application Oct. 3, 1967, Ser. No. 672,428
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 **1 Claim**

Process of reacting mono-substituted hydrazines with α-cyano-α-formyl-acetic acid esters or their reactive aldehyde derivatives, such as enol ethers, acetals or mercaptals and quite generally with α-cyano-α-formyl-acetic acid or its acid derivatives, or the reactive aldehyde derivatives thereof such as are mentioned above. Acid derivatives to be used are pimarily those which contain an oxo, thioketo, or imino group, such as esters, amides or amidines but also other derivatives may be used, such as the nitrile. Esters are preferably those of alkanols, such as lower alkanols, e.g. methanol, ethanol, propanol or butanol.

Also products having the formulae



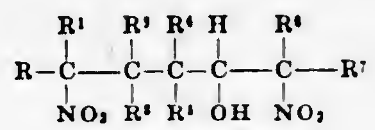
wherein R stands for a carboxyl group or a derivative thereof and R′ for the substituent of the hydrazine used for the reaction such as an alkyl, oxaalkyl, hydroxyalkyl, cycloalkyl, aryl or heterocyclic radical, useful as intermediates for preparing a variety of pyrazolo-pyrimidines. The invention also includes, as intermediates for the pyrazoles, β-(N_1-R-N_2-R″-hydrazino)-α-cyano-acrylic acid, its lower alkyl esters, amide, thioamide, amidine and nitrile in which R represents a member of the group consisting of lower alkyl, cycloalkyl, lower mono-hydroxyalkyl, lower alkoxy alkyl, phenyl, halophenyl, lower alkylphenyl, nitrophenyl and pyridyl, said cycloalkyl having from 5 to 6 carbon atoms and R″ represents a member selected from the group consisting of lower alkanoyl and arylidene.

3,567,736

PROCESS FOR PRODUCING 2-PYRROLIDINONES

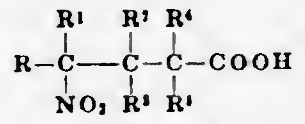
John M. Larkin, Hopewell Junction, and Kenneth L. Kreuz, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,145
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 **17 Claims**

A method for preparing a 2-pyrrolidinone by contacting a dinitroalcohol having at least 5 carbon atoms corresponding to the formula:



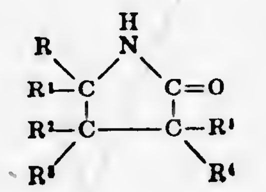
$$R{-}\underset{NO_2}{\overset{R^1}{C}}{-}\underset{R^3}{\overset{R^2}{C}}{-}\underset{R^5}{\overset{R^4}{C}}{-}\underset{OH}{\overset{H}{C}}{-}\underset{NO_2}{\overset{R^6}{C}}{-}R^7$$

with an acidic oxidizing agent at a pH not exceeding 4 thereby forming a 4-nitroalkanoic acid of the formula:



$$R{-}\underset{NO_2}{\overset{R^1}{C}}{-}\underset{R^3}{\overset{R^2}{C}}{-}\underset{R^5}{\overset{R^4}{C}}{-}COOH$$

and thereafter hydrogenating the 4-nitroalkanoic acid in an alcoholic medium in the presence of a minor amount of a mineral acid and a hydrogenation catalyst preferably selected from the groups of platinum metals at temperatures ranging from about 20 to 200° C. and under hydrogen pressures of from 1 to 100 atmospheres. The 2-pyrrolidinones contemplated correspond to the formula:



and are useful as solvents for polymers, insecticides and petroleum processing and separation; as plasticizers for acrylic polymers and copolymers; and as decolorizing agents.

3,567,737

DERIVATIVES OF [2-CYCLOALKYL-1-PHENYL-3,4-DIHYDRONAPHTHALENES AND] 2 - CYCLOALKYL - 1 - PHENYL - 1,2,3,4 - TETRAHYDRONAPHTHALENES

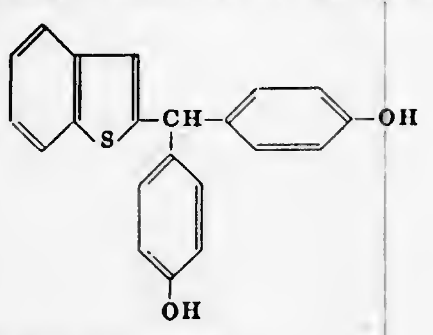
Daniel Lednicer, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,811
Int. Cl. C07d *27/02;* **C07c** *37/00*
U.S. Cl. 260—326.5 **9 Claims**

Derivatives of 2-cycloalkyl-1-phenyl-3,4-dihydronaphthalenes, cis- and trans-isomers of derivatives of 2-cycloalkyl - 1 - phenyl-1,2,3,4-tetrahydronaphthalene and processes for the preparation of the same. The novel compounds have utility as anti-fertility, estrogenic, anti-estrogenic, anti-spermatogenic, cholesterol lowering and lipid normalizing agents.

3,567,738
BIS(4-HYDROXYPHENYL)THIANAPHTHYL-2-METHANE

Ronald J. Meyer, Orville E. Horsley, and Herman J. Eichel, Cincinnati, Ohio, assignors to American Hoechst Corporation, New York, N.Y.
No Drawing. Filed June 26, 1968, Ser. No. 740,091
Int. Cl. A61k *27/00;* **C07d** *63/22*
U.S. Cl. 260—330.5 **1 Claim**

Bis(4 - hydroxyphenyl)thianaphthyl-2-methane having laxative (cathartic) properties of the formula:



and a process for preparing it.

3,567,739
PRODUCTION OF PURIFIED TETRABROMO-PHTHALIC ANHYDRIDE

Joseph Eugene Sanger, St. Louis, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.
No Drawing. Filed Oct. 4, 1968, Ser. No. 765,021
Int. Cl. C07c *63/18*
U.S. Cl. 260—346.3 **6 Claims**

Tetrabromophthalic anhydride which had been produced in an acid medium such as oleum, is treated with dioxane to remove all of the residual acid, is washed with water and dried, preferably in an oven at about 110° C. The crystals are washed with the dioxane, not dissolved and recrystallized.

3,567,740
CYCLOPROPANECARBOXYLIC ACID ESTERS

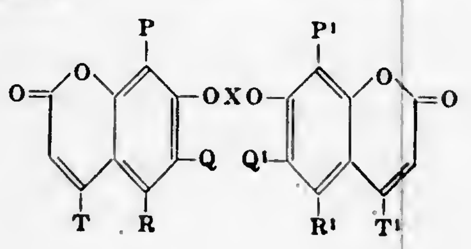
Masanao Matsui, Tokyo, Kenzo Ueda Saitama-ken, Toshio Mizutani, Ikeda-shi, Nobushige Itaya and Shigeyoshi Kitamura, Minoo-shi, Akira Fujinami, Takarazuka-shi, Keimei Fujimoto, Kyoto, and Yositosi Okuno, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed Aug. 21, 1967, Ser. No. 661,799
Claims priority, application Japan, Aug. 24, 1966, 41/55,974, 41/55,975
Int. Cl. A01n *9/24;* **C07c** *69/74;* **C07d** *63/10*
U.S. Cl. 260—347.4 **14 Claims**

New cyclopropanecarboxylates are prepared by reacting cyclopropanecarboxylic acid or acid halide or anhydride thereof with a primary alcohol.

3,567,741
BIS-COUMARINYL COMPOUNDS

Colin Fitzmaurice and Thomas Brian Lee, Holmes Chapel, England, assignors to Fisons Pharmaceuticals Limited, Loughborough, Leicestershire, England
No Drawing. Filed Nov. 21, 1968, Ser. No. 777,868
Claims priority, application Great Britain, Nov. 22, 1967, 53,077/67
Int. Cl. C07d *7/20*
U.S. Cl. 260—343.2 **9 Claims**

The invention provides the bis-coumarinyl compounds of the formula:



wherein Q, R, Q^1 and R^1 may be the same or different and each is selected from hydrogen; alkyl, alkoxy, substituted alkyl and alkoxy; hydroxy and halogen; P and P^1 are selected from hydrogen and acyl; T and T^1 may be the same or different and each is selected from alkyl and aryl; and X is a saturated or unsaturated, substituted or unsubstituted, straight or branched hydrocarbon chain, any carbon of which may be replaced by one or more carbocyclic or heterocyclic rings, carbonyl groups or oxygen atoms.

3,567,742
DIETHYL ALPHA-FLUORO-ALPHA-SUBSTITUTED MALONATES

Bruno Cavalleri, Milan, and Elvio Bellasio, Albate, Italy, and Emilio Testa, Ticino, Switzerland, assignors to Lepetit S.p.A. Gruppo per la Ricerca Farmaceutica, Milan, Italy
No Drawing. Filed May 3, 1968, Ser. No. 726,557
Claims priority, application Great Britain, May 12, 1967, 22,258/67
Int. Cl. C07c *69/76;* **C07d** *5/44*
U.S. Cl. 260—346.2 **3 Claims**

The invention is concerned with diethyl α-fluoro-α-arylmalonate and diethyl α-fluoro-α-(2-dibenzofuranyl)-malonate and a process for their preparation. The new substances possess high antiinflammatory activity.

3,567,743
NOVEL EPOXY ORGANIC ACIDS AND DERIVATIVES

Martin Anderson, Whitstable, Kent, England, assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed Aug. 13, 1968, Ser. No. 752,149
Claims priority, application Great Britain, Aug. 21, 1967, 38,435/67
Int. Cl. C07d *1/20, 1/22*
U.S. Cl. 260—348 **3 Claims**

Epoxycyclohexyl pentadienoyl compounds such as 3-methyl-5-(1,2-epoxy-2,6,6-trimethylcyclohexyl)-penta - 2, 4-dienoic acid, useful as plant growth regulants.

3,567,744
PROCESS FOR PRODUCING FUROIC ACID DERIVATIVES

Shizuya Tanaka, Minoo-shi, Japan, Hirosuke Yoshioka, Austin, Tex., and Akio Higo, Kobe, and Osamu Magara, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed July 15, 1968, Ser. No. 744,693
Claims priority, application Japan, Aug. 14, 1967, 42/52,143, 42/52,144; Aug. 17, 1967, 42/53,029, 42/53,030
Int. Cl. C07d *5/18, 5/20*
U.S. Cl. 260—347.3 **10 Claims**

A novel process for producing 5-substituted 3-furoic acid derivatives useful as intermediates in a synthesis of insecticides. For example 5-benzyl-3-furoic acid is produced by reacting ethylene ketal of ethyl levulinate with ethyl formate in the presence of sodium hydride to yield ethylene ketal of ethyl α-formyl-levulinate, ring-closing the resultant ethylene ketal of ethyl α-formyl-levulinate by contacting it with hydrochloric acid to yield ethyl 5-methyl-3-furoate, brominating the resultant ethyl 5-methyl-3-furoate to yield ethyl 2-bromo-5-bromomethyl-3-furoate, reacting the resultant ethyl 2 - bromo-5-bromo-methyl-3-furoate with benzene in the presence of aluminum chloride to yield ethyl 2-bromo-5-benzyl-3-furoate and, after hydrolyzing the ester to an acid, reacting the resultant 2-bromo - 5 - benzyl - 3-furoic acid with zinc powder in an aqueous ammonia solution to yield 5-benzyl-3-furoic acid.

3,567,745
2-(2-AZIDO-N-METHYLACETAMIDO)-5-CHLORO-BENZOPHENONE

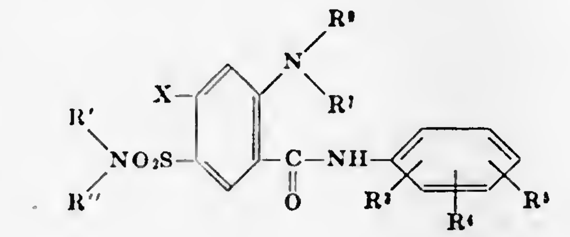
John Brammer Petersen, Haifa, Israel, assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Application Oct. 15, 1968, Ser. No. 767,838, now Patent No. 3,520,878, which is a continuation-in-part of application Ser. No. 579,500, Sept. 15, 1966. Divided and this application Aug. 5, 1969, Ser. No. 864,242
Claims priority, application Denmark, Sept. 17, 1965, 4,783/65
Int. Cl. C07c *117/00*
U.S. Cl. 260—349 **1 Claim**

In abstract, this invention is directed to a process for preparing diazepam, comprising subjecting 2-(2-azido-N-methylacetamido)-5-chlorobenzophenone to reductive cyclization, and recovering the thus formed diazepam, all as recited hereinafter.

3,567,746
N-ARYL BENZAMIDES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation
No Drawing. Filed July 10, 1968, Ser. No. 743,615
Int. Cl. C07c *143/80*
U.S. Cl. 260—397.7 **19 Claims**

Compounds useful in preparing quinazolinone compounds having superior diuretic properties have the following generic formula:



or the pharmaceutically acceptable salts thereof, wherein X is halogen or trifluoromethyl; R′ and R″ are hydrogen, lower alkyl, phenylloweralkyl or phenyl; R^6 and R^7 are hydrogen, lower alkyl, phenyl, phenyl lower alkyl, amino lower alkyl; lower alkyl amino lower alkyl, lower alkanoyl or hydroxy lower alkyl, and R^3, R^4 and R^5 are hydrogen, lower alkyl, hydroxy, lower alkoxy, amino, lower alkoxy lower alkyl, halogen, sulfamyl or trifluoromethyl.

The above compounds are made, for example, by reacting 4-chloro-5-sulfamyl anthranilic acid with liquid phosgene in glacial acetic acid and the product dried over P_2O_5 to produce 7-chloro-6-sulfamylisatoic anhydride. This compound was then reacted with o-toluidine, p-chloroaniline, or other substituted aniline to give the amide of this invention.

3,567,747
SULFUR CONTAINING FATTY ACID DERIVATIVES AND PROCESS FOR THE PREPARATION OF SAME

Gordon G. Moore, Willow Grove, and Edward S. Rothman, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Nov. 19, 1968, Ser. No. 777,169
Int. Cl. C07c *143/90*
U.S. Cl. 260—399 **14 Claims**

Sulfur containing fatty acid derivatives are prepared by reacting at a temperature range of from 70 to 200° C. the isopropenyl ester of a fatty acid containing from 14 to 18 carbon atoms with a mercaptan, a thiophenol, a thiol acid or a sulfonamide.

3,567,748
THE REACTION PRODUCT OF ISOPROPENYL STEARATE WITH DIETHYLMALONATE OR METHYL STEARATE AND THE CATALYZED PRODUCTION THEREOF

Edward S. Rothman, Philadelphia, Pa., assignor to the United States of America as represented by the Secretary of Agriculture
No Drawing. Continuation-in-part of application Ser. No. 549,806, May 13, 1966. This application Nov. 2, 1967, Ser. No. 680,052
Int. Cl. C11c *3/14*
U.S. Cl. 260—410.9 **4 Claims**

Isopropenyl stearate and a high boiling ester such as methyl stearate or diethylmalonate are heated in the presence of a proton-providing acid catalyst to produce a novel compound, described hereinafter, which functions as a chelating agent and is useful as a metal complexing agent.

3,567,749
PROCESS FOR THE PRODUCTION OF CARBOXYLIC ACID ESTERS FROM NITRILES WITH RECOVERY OF AMMONIA

Walter Neugebauer, Lothar Schmidt, and Gerhard Sperka, Konstanz (Bodensee), Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed Aug. 8, 1966, Ser. No. 570,688
Claims priority, application Germany, Aug. 11, 1965, D 47,939
Int. Cl. C07c *67/00*
U.S. Cl. 260—468 **15 Claims**

Carboxylic acid esters are prepared by reacting carboxylic acid nitriles with alcohols in the presence of water in acid melt at a temperature between 90 and 300° C., the carboxylic acid ester and any unconverted nitrile and alcohol from the melt and heating the melt to a temperature between about 300 and 500° C. to drive off ammonia taken up by the acid salt.

3,567,750
REACTION PRODUCTS OF CERTAIN SILICON-CHLORINE-CONTAINING COMPOUNDS WITH THE REACTION PRODUCT OF A BORATE ESTER AND THE CHLORIDE OF CERTAIN METALS

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass.
No Drawing. Continuation-in-part of application Ser. No. 786,447, Dec. 23, 1968, now Patent No. 3,515,738, which is a continuation-in-part of application Ser. No. 670,417, Sept. 25, 1967, which in turn is a division of application Ser. No. 670,419, Sept. 25, 1967, now Patent No. 3,455,976. This application Dec. 23, 1968, Ser. No. 786,448
Int. Cl. C07f *7/00, 9/00, 15/02*
U.S. Cl. 260—429 **20 Claims**

The invention relates to products of unknown chemical structure prepared by reacting a borate ester such as trimethyl borate, triethyl borate, tripropyl borate, tributyl borate, trihexyl borate, trihexylene glycol biborate, tri-m,p-cresyl borate, and trimethoxylboroxine with a chloride of a metal selected from the group consisting of Ti(IV), Zr(IV), Hf(IV), Sn(IV), Al(III), Fe(III), Ga(III), In(III), Mo(V), Nb(V), Ta(V), and W(VI) in a molar ratio of at least 0.33 mole of the selected borate ester for each mole of the chloride of the selected metal in a substantially anhydrous diluent, such as an excess of the selected borate ester, methylene chloride, chloroform, and carbon tetrachloride, at a temperature between room temperature and about 200° C. until the reaction mixture ceases to give off organic chloride thereby forming a liquor comprising the diluent and a compound of complex chemical structure comprising the selected metal, boron, carbon, hydrogen, chlorine, and oxygen. Then there is added to said liquor a silicon-containing compound conforming to the formula Cl_nSiR_{4-n} where *n* is an integer from 1 to 4 and R is an alkyl or aryl radical in a molar quantity not greater than that of the chloride of the selected metal to react with said complex compound at a temperature between room temperature and about 200° C. thereby forming a second compound of complex chemical structure. The second compound of complex chemical structure may be isolated by removing volatile material from the reaction mixture by evaporation. Silicon tetrachloride, dimethyl-dichlorosilane, diphenyldichlorosilane and trimethylchlorosilane are illustrative of compounds conforming to the formula Cl_nSiR_{4-n}.

3,567,751

COBALT COMPLEXES AND PROCESS FOR PRODUCING THE SAME

Giacomo Costa and Giovanni Mestroni, Trieste, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

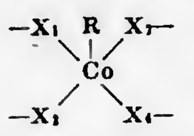
No Drawing. Filed Feb. 16, 1968, Ser. No. 705,906

Claims priority, application Italy, Feb. 17, 1967, 12,760/67

Int. Cl. C07f *15/06;* **B01j** *1/10*

U.S. Cl. 260—439 **11 Claims**

A process for producing an organometallic tetradentate complex of cobalt by reacting an organometallic tetradentate complex of cobalt of the formula:



wherein X_1, X_2, X_3 and X_4, which form the tetradentate complex, may be the same or different and each represents a nitrogen, oxygen, sulphur or phosphorus atom; and R is an alkyl, aryl, alkaryl or cycloalkyl radical with carbon monoxide or nitrogen monoxide and with a mobile hydrogen compound represented by the formula R'H, said R' being an oxyalkyl, oxyaryl, oxycycloalkyl amino, hydroxy or mercaptan radical, in the presence of visible or ultraviolet radiation is disclosed. The resulting products are also disclosed and claimed. They find particular utility as catalysts in various organic reactions such as oxidations, oxo-reactions and nitrosations.

3,567,752

SUBSTITUTED HYDROXYETHYLGLYCINE COMPOUNDS

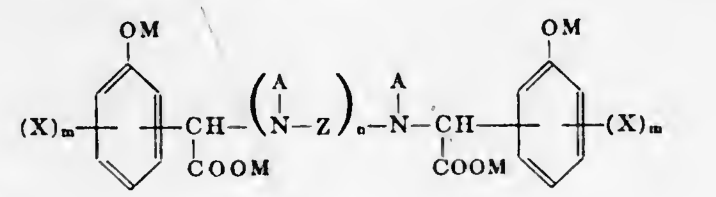
Nasser Israily, 8 Browne St., Brookline, Mass. 02146

No Drawing. Continuation-in-part of application Ser. No. 675,322, Oct. 16, 1967. This application Aug. 25, 1969, Ser. No. 852,901

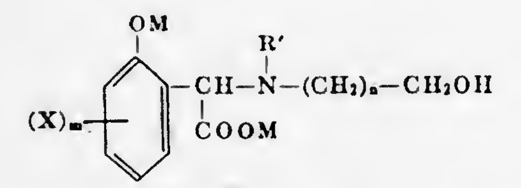
Int. Cl. C07f *15/02;* **C07c** *101/72*

U.S. Cl. 260—439 **8 Claims**

Chelating agents of the formula



and



where A is hydrogen or $—RCH—CH_2OH$ provided that at least one A is $—RCH—CH_2OH$; R is hydrogen or alkyl having up to 13 carbon atoms; R' is R or alkanol having up to 13 carbon atoms; Z is alkylene having 2 to 4 carbon atoms; X is alkyl or alkoxy having up to 13 carbon atoms, hydroxy, chloro or bromo; M is hydrogen, sodium, potassium, ammonium and amine derivatives; *m* is a whole integer equal to from 0 to the number of replaceable hydrogen atoms on the benzene nucleus and *n* is a whole integer of from 1 to 5.

3,567,753

POLYSILOXANE-POLYOXYALKYLENE COPOLYMERS

Jean Claude Auguste Delaval and Paul Alfred Eugene Guinet, Lyon, Jean Marius Ernest Morel, Bron, and Robert Raphael Puthet, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

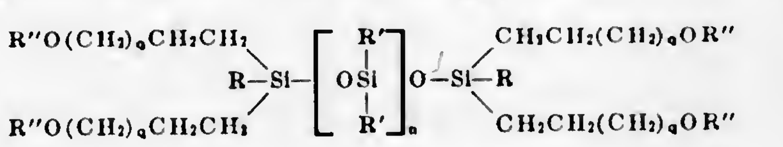
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,726

Claims priority, application France, Dec. 23, 1966, 88,710

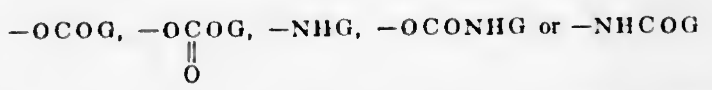
Int. Cl. C07f *7/08;* **C08f** *11/04;* **C09g** *53/08*

U.S. Cl. 260—448.2 **9 Claims**

The invention relates to novel diorganopolysiloxane polyoxyalkylene copolymers of formula:



wherein R and R' are lower alkyl or cycloalkyl or aryl groups, *n* is between 2 and 700, *q* is 0 or an integer up to 3, the group R''O is $A(—C_xH_{2x}O—)_y$, wherein *x* is an integer from 2 to 4, *y* is an integer of at least 1 and A is a formyloxy,



$$-OCOG,\ -O\underset{\underset{O}{\|}}{C}OG,\ -NHG,\ -OCONHG \text{ or } -NHCOG$$

group wherein G is a hydrocarbon radical. The invention also relates to a process for preparing polyurethane foams employing these copolymers.

3,567,754

ALKYLMETHYLSILANES

Richard W. Alsgaard, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 15, 1968, Ser. No. 752,778

Int. Cl. C07f *7/08*

U.S. Cl. 260—448.2 **4 Claims**

Alkylmethylsilanes and alkyldimethylsilanes having alkyl groups of 12 to 45 carbon atoms are disclosed. The alkylmethylsilanes are useful as evaporation retardants.

3,567,755

PRODUCTION OF ORGANO-SILICON COMPOUNDS

Klaus Seyfried, Cologne, Hans-Horst Steinbach, Schildgren, and Walter Noll, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

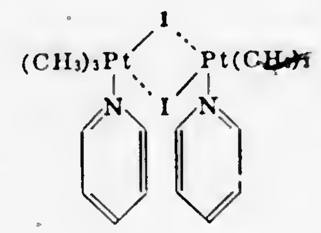
No Drawing. Filed May 23, 1968, Ser. No. 731,648

Claims priority, application Germany, May 27, 1967, F 52,522

Int. Cl. C07f *7/08, 7/18*

U.S. Cl. 260—448.2 **7 Claims**

In a process for production of an organo-silicon compound by the addition of a hydrogen-silane or -siloxane to an olefinically-unsaturated organic compound in the presence of a catalyst, the catalyst according to the invention is hexamethyl-dipyridnne-diplatinum diiodide of the formula



3,567,756

PRODUCTION OF LOWER TRIALKOXY SILANES

Wilfried Rothe, Strotzbach, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,455

Claims priority, application Germany, Sept. 6, 1967, P 16 43 885.0

Int. Cl. C07f *7/04*

U.S. Cl. 260—448.8 **7 Claims**

Alkoxy silanes are produced by reacting silicochloro form with the corresponding alkanols in aromatic solvents at temperatures between —40 and —90° C. while continuously passing an inert gas through the reaction mixture to remove the HCl formed.

3,567,757

PROCESS FOR PREPARING OMEGA-AMINOALKANENITRILES

Kenzaburo Ida, 19, 2-chome, Matsuzono-cho, Mizuho-ku; Seiya Suzuki, 8 Denjiyama, Narumi-cho, Midori-ku; Yasuo Iizuka, 64, 1-chome, Shijo-cho, Minami-ku; Tsutomu Setsuda, 64, 1-chome, Shijo-cho, Minami-ku; and Shin-ichi Taira, 31 Yakushiyama, Narumi-cho, Midori-ku, all of Nagoya, Japan

No Drawing. Filed Feb. 2, 1968, Ser. No. 702,523

Int. Cl. C07c *121/02*

U.S. Cl. 260—465.2 **4 Claims**

Process for preparing omega-aminoalkanenitriles which comprises dehydrating the corresponding lactams in the presence of an excess of ammonia in the vapor phase with the aid of a dehydrating catalyst obtained by calcining at 300–550° C. a metal salt of phosphoric acid in which a metal is selected from the group consisting of magnesium, calcium, barium, zinc, cadmium and aluminum.

3,567,758

PREPARATION OF HYDROXYBENZONITRILES

Basil Jason Heywood, Dagenham, England, assignor to May & Baker Limited, Essex, England

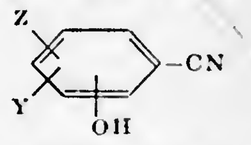
No Drawing. Filed May 2, 1968, Ser. No. 726,225

Claims priority, application Great Britain, May 5, 1967, 21,145/67; Aug. 25, 1967, 39,302/67

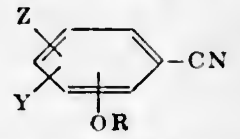
Int. Cl. C07c *121/74*

U.S. Cl. 260—465 **16 Claims**

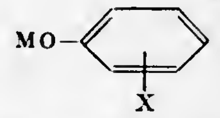
Hydroxybenzonitriles of the general formula:



wherein Y represents hydrogen or halogen, or alkyl of from 1 through 4 carbon atoms, and Z represents hydrogen or halogen, or alkyl of from 1 through 4 carbon atoms, or alkali metal salts thereof, are prepared by dealkylating an alkoxybenzonitrile of the general formula:



(wherein R represents alkyl of from 1 through 4 carbon atoms) by reaction with a phenol derivative of the general formula:



(wherein M represents hydrogen or an atom of an alkali metal, and X represents hydrogen or halogen, or alkyl of from 1 through 4 carbon atoms) and, when M represents an alkali metal atom, optionally converting the alkali metal salt of hydroxybenzonitrile product thus obtained into the hydroxy compound.

3,567,759

DIMERIZATION OF ACRYLONITRILE

Victor Tullio, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 256,227, Feb. 5, 1963. This application Apr. 30, 1963, Ser. No. 277,030

Int. Cl. C07c *121/02, 121/20*

U.S. Cl. 260—465.8 **8 Claims**

Alpha-methyleneglutaronitrile is prepared by dimerizing acrylonitrile in the presence of tertiary phosphine catalysts.

3,567,760

PROCESS FOR DIMERIZATION OF UNSATURATED NITRILES UTILIZING A NITROGEN-CONTAINING CATALYST

Julian Feldman, Bernard A. Saffer, and Jack Kwiatek, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed Dec. 27, 1967, Ser. No. 693,711

Int. Cl. C07c *121/26*

U.S. Cl. 260—465.8 **7 Claims**

A process for dimerization of unsaturated nitriles in which a nitrogen-containing compound is employed as the catalyst. The preferred catalyst systems comprise tertiary amines or quaternary ammonium compounds in the presence of an alcohol.

3,567,761

OXALIC ACID SALTS OF N-DIALKYLAMINOETHYL-α-(NAPHTHYL - 1) DELTA-PENT-4-ENOIC ACID

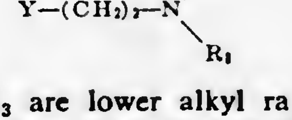
Etienne Szarvasi, Ecully, and Michel Bayssat, Lyon, France, assignors to Lipha, Lyonnaise Industrielle Pharmaceutique

No Drawing. Original application Mar. 18, 1964, Ser. No. 352,963, now Patent No. 3,334,096, dated Aug. 1, 1967. Divided and this application Apr. 3, 1967, Ser. No. 627,682

Int. Cl. C07c *69/76*

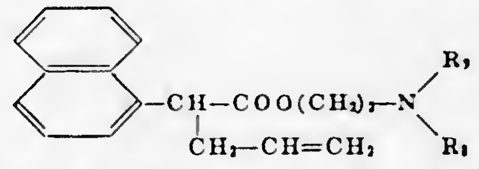
U.S. Cl. 260—469 **3 Claims**

Acid salts of esters of α-(1-naphthyl)-delta-pent-4-enoic acid are obtained by the reaction of the acid with an amino derivative of the formula



$$Y-(CH_2)_2-N\begin{matrix}R_3\\ \\R_2\end{matrix}$$

wherein R_2 and R_3 are lower alkyl radicals and Y is selected from the group consisting of the halogens and the hydroxy radical to obtain esters of the formula



which can then be converted to the acid salts.

3,567,762

PALLADIUM CATALYZED DIMERIZATION OF 1,2-ALKADIENES

George D. Shier, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 22, 1967, Ser. No. 624,987

Int. Cl. C07c *67/04*

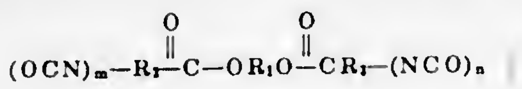
U.S. Cl. 260—476 **9 Claims**

1,2-alkadienes dimerize in the presence of a palladium II salt and an organic carboxylic acid to form a mixture of 1,3-butadiene derivatives including mono- and diesters. These dimers are reactive monomers, cross-linking agents and dienophiles.

3,567,763
ESTER POLYISOCYANATES

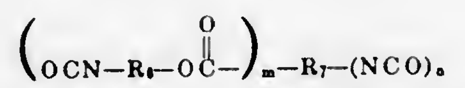
William D. Emmons, Huntingdon Valley, and Jerome F. Levy, Bethayres, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa.
No Drawing. Filed Jan. 6, 1966, Ser. No. 518,977
Int. Cl. C07c *69/00*
U.S. Cl. 260—478 **6 Claims**

There are provided ester isooctanes having the formulae



$$(OCN)_m-R_2-\overset{O}{\overset{\|}{C}}-OR_1O-\overset{O}{\overset{\|}{C}}R_3-(NCO)_n$$

and



$$\left(OCN-R_6-O\overset{O}{\overset{\|}{C}}-\right)_m-R_7-(NCO)_n$$

wherein *m* and *n* are either one or two, R_1 is the diester residue of an alkane or cycloalkane diol having two primary hydroxyl groups, from 2 to 18 carbon atoms, and up to one hetero oxygen or sulfur atom, R_2 and R_3 are alkylene or cycloalkylene, R_6 is an alkylene radical having 2 to 8 carbon atoms and up to one hetero oxygen or sulfur atom, and R_7 is alkylene or cycloalkylene.

3,567,764
HERBICIDAL ALKYLCARBAMOYLOXYPHENYL BIURETS

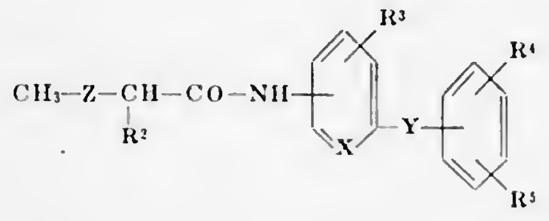
Richard K. Brantley, Westminster, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,056
Int. Cl. C07c *127/24*
U.S. Cl. 260—479 **2 Claims**

Alkylcarbamoyloxyphenyl biurets such as 5-[3-(t-butylcarbamoyloxy)phenyl]-1,3-dimethylbiuret and 5-[3-(cyclohexylcarbamoyloxy)phenyl] - 3 - ethyl - 1,1 - dimethylbiuret are useful as selective herbicides.

3,567,765
N-AROMATIC SUBSTITUTED ACID AMIDES AND ESTERS

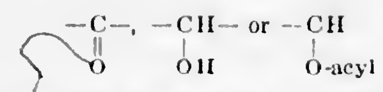
Kurt Thiele, Frankfurt am Main, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Continuation-in-part of application Ser. No. 682,616, Nov. 13, 1967, now Patent No. 3,474,107, dated Oct. 21, 1969. This application July 10, 1969, Ser. No. 840,816
Claims priority, application Germany, Nov. 19, 1966, D 51,561; Sept. 1, 1967, D 53,982
Int. Cl. C07c *69/00, 93/26*
U.S. Cl. 260—490 **8 Claims**

N-aromatic substituted acid amide compounds of the formula



wherein:

Z is



$$-\underset{O}{\underset{\|}{C}}-,\ -\underset{OH}{\underset{|}{CH}}-\text{ or }-\underset{\text{O-acyl}}{\underset{|}{CH}}$$

wherein the acyl is the acyl group of a lower aliphatic, preferably, alkyl carboxylic acid or of a monoaliphatic preferably, alkyl ester of carbonic acid,

R^2 is H or lower alkyl,

R^3 is H, halogen, lower alkyl or lower alkoxy,

each of R^4 and R^5 taken individually is hydrogen, halogen, lower alkyl, nitro, trifluoromethyl, lower alkoxy, lower alkyl amino, amino, hydroxy, acyl-oxy as defined above or acyl-amino as defined above,

X is =N— or =CH— and

Y is —CH_2— or —NH—

and wherein when Z is

$$-\underset{O}{\underset{\|}{C}}-$$

X is CH and Y is NH at least one of R^2, R^3, R^4 and R^5 is other than hydrogen.

Such compounds have valuable pharmaceutical properties, such as, anti-inflammatory, analgesic, antipyretic and/or anti-spasmodic properties.

3,567,766
PREPARATION OF METHYL ACETATE

Richard E. Crocker, Anaheim, and John W. Wagner, Westminster, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,757
Int. Cl. C07c *67/00*
U.S. Cl. 260—491 **6 Claims**

A process for reacting methyl alcohol with vinyl chloride in the liquid phase in the presence of a $PdCl_2$ catalyst to produce methyl acetate is disclosed.

3,567,767
PROCESS FOR GAS PHASE SYNTHESIS OF VINYL ESTERS

Teruo Yasui and Seishiro Nakamura, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Okayama Prefecture, Japan
No Drawing. Filed Dec. 9, 1966, Ser. No. 600,391
Claims priority, application Japan, Dec. 17, 1965, 40/77,266
Int. Cl. C07c *67/04*
U.S. Cl. 260—497 **10 Claims**

An improved process for the preparation of vinyl esters by a process which comprises contacting a gaseous mixture composed of ethylene, oxygen, and organic aliphatic mono-carboxylic acid having up to 4 carbon atoms with a catalyst system composed of palladium, an acetate of an alkali metal on a catalyst carrier at an elevated temperature, and recovering the formed corresponding vinyl ester, the improvement which comprises employing as said catalyst carrier alumina having a surface area of 60–150 m.^{2}/g. and a purity of no lower than 99%, said catalyst carrier being prepared by the steps comprising forming a basic aluminum sulfate sol by adding carbonate to an aqueous aluminum sulfate solution, heating the sol to gel the same, removing sulfate ions therefrom, drying and calcining the same at a temperature of 750 to 1100° C., the oxygen being present in said gaseous mixture in an amount of from 5–20% based on the sum volume of ethylene and oxygen while said organic aliphatic mono-carboxylic acid is present from 5–15% based on the sum volume of ethylene and oxygen.

3,567,768
PROCESS FOR PREPARING AMINO ALKYLENEPHOSPHONIC ACIDS

Chung Yu Shen and Steven J. Fitch, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation of application Ser. No. 362,451, Apr. 24, 1964. This application Oct. 2, 1967, Ser. No. 672,393
Int. Cl. C07f *9/38*
U.S. Cl. 260—502.5 **12 Claims**

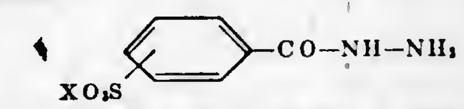
Processes for preparing amino alkylenephosphonic acids by reacting a nitrogenous material such as ammonia, an organic carbonyl compound such as formaldehyde and

orthophosphorous acid in order to form such amino alkylene phosphonic acid, said reaction being carried out in the presence of a halide catalyst and the orthophosphorous acid is utilized 20% in excess of the stoichiometric amount required to react with the ammonia and formaldehyde.

3,567,769
SULFOBENZOYL HYDRAZIDES AND SALTS THEREOF

Andre Girard and Andre Ray, Paris, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed Dec. 20, 1967, Ser. No. 691,957
Claims priority, application France, Dec. 26, 1966, 88,827
Int. Cl. C07c *143/84*
U.S. Cl. 260—507 **4 Claims**

This invention relates to a sulfobenzoyl hydrazide of the formula

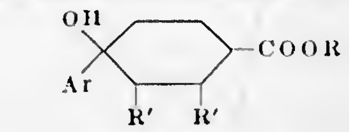


wherein the SO_3X group is in the position selected from the group consisting of meta and para and X is selected from the group consisting of hydrogen, a metal cation and an organic base. The sulfobenzoyl hydrazides of the invention are useful in the preparation of hydrazones of aldehydes, ketones or quinones, which hydrazones in the form of their alkali metal salts are very soluble in water.

3,567,770
ARYL SUBSTITUTED - HYDROXY SUBSTITUTED CYCLOHEXANECARBOXYLIC ACIDS AND ESTERS

George Karmas, Bound Brook, N.J., assignor to Ortho Pharmaceutical Corporation
No Drawing. Filed Aug. 2, 1967, Ser. No. 662,295
Int. Cl. C07c *101/72*
U.S. Cl. 260—519 **10 Claims**

Hydroxyacids and hydroxyesters of the formula:



wherein R is hydrogen or lower alkyl, R′ is lower alkyl and Ar is substituted aryl, are intermediates in the preparation of 2-lower alkyl-3-lower alkyl - 4 - arcyl - cyclohexenecarboxylic acids and esters which are active agents for the suppression of animal reproduction.

3,567,771
DIBASIC ACID

Herbert L. Wehrmeister, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y.
No Drawing. Filed Feb. 27, 1967, Ser. No. 619,042
Int. Cl. C07c *65/02*
U.S. Cl. 260—521 **1 Claim**

This application relates to 2-(5-carboxypentyl)-4,6-dimethoxybenzoic acid and to a method for its preparation.

3,567,772
PROCESS FOR THE PRODUCTION OF ACRYLIC ACID

Masaya Yanagita, Tokyo, and Masao Kitahara, Chibashi, Japan, assignors to Toa Gosei Chemical Industry Co. Ltd., and Rikagaku Kenkyusho, both of Tokyo, Japan
No Drawing. Filed Mar. 27, 1967, Ser. No. 625,940
Claims priority, application Japan, Mar. 30, 1966, 41/19,846
Int. Cl. C07c *51/26*
U.S. Cl. 260—530 **8 Claims**

A high yield process for producing pure acrylic acid by the vapor phase oxidation of acrolein with molecular oxygen employing a highly active catalyst composition consisting of molybdenum, vanadium and aluminum oxides such as MoO_3, V_2O_5 and Al_2O_3 and at least one oxide of a metal such as Cu, Ge, U, Mn, Ba, Si, Au, Se, Co, Ti, Sr, Ag, Mg, B, Sn, W, Pb and As.

3,567,773
PRODUCTION OF UNSATURATED ALIPHATIC ACIDS

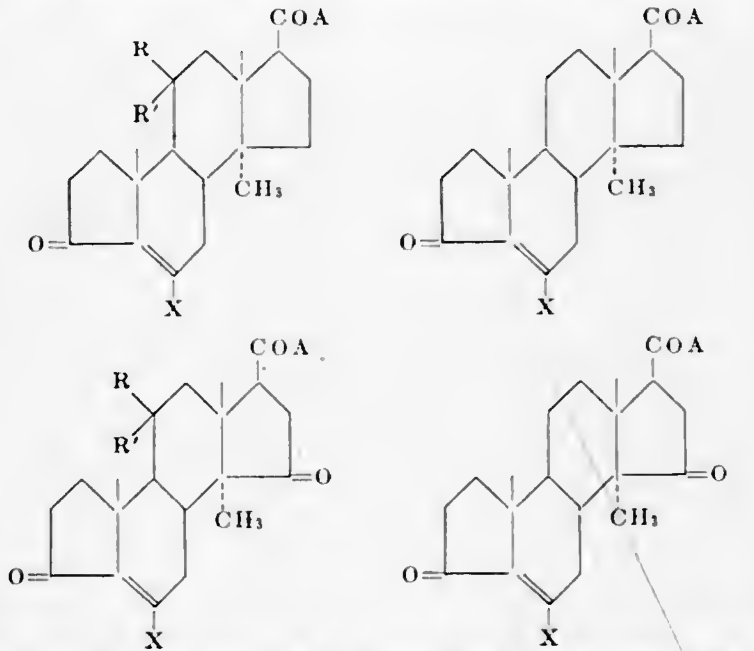
Goichi Yamaguchi and Shigeo Takenaka, Gunmaken, Japan, assignors to Nippon Kayaku Company, Ltd., Tokyo, Japan
No Drawing. Filed Mar. 29, 1967, Ser. No. 626,712
Claims priority, application Japan, May 21, 1966, 41/32,060
Int. Cl. C07c *51/26*
U.S. Cl. 260—530 **4 Claims**

The vapor phase oxidation of olefinically unsaturated aldehydes such as acrolein to the corresponding olefinically unsaturated carboxylic acids such as acrylic acid in the presence of a mechanically stable oxidation catalyst composed of a form of the combined oxides of molybdenum, vanadium and tungsten, which catalyst is preferably on a silica carrier.

3,567,774
6-LOWER ALKYL-A-NOR-Δ^5-ANDROSTENE AND -$\Delta^{5,9(11)}$ANDROSTADIENE - 17 - CARBOXYLIC ACID HALIDES

Josef Fried, Princeton, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Original application Sept. 13, 1963, Ser. No. 308,693, now Patent No. 3,393,230, dated Jan. 15, 1968. Divided and this application Dec. 13, 1967, Ser. No. 725,965
The portion of the term of the patent subsequent to Feb. 23, 1982, has been disclaimed and dedicated to the Public
Int. Cl. C07c *63/44*
U.S. Cl. 260—544 **1 Claim**

This invention relates to compounds of the formulae



wherein A is halogen; R is hydrogen; R′ is hydroxy; and together R and R′ is oxo; and X is lower alkyl. These compounds are useful as chemical intermediates in making compounds which possess anti-androgenic activity.

3,567,775
PROCESS FOR THE PREPARATION OF CYCLOPROPANECARBOXYLIC ACID FLUORIDE

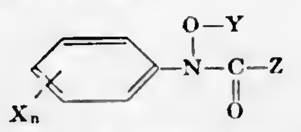
Robert E. A. Dear, Convent Station, and Everett E. Gilbert, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed May 8, 1967, Ser. No. 636,587
Int. Cl. C07c *51/58*
U.S. Cl. 260—544 **26 Claims**

This application relates to a novel process for the preparation of cyclopropanecarboxylic acid fluoride. This process involves first reacting an alkali metal fluoride selected from the group consisting of potassium, cesium rubidium and sodium fluoride with a halobutyryl halide having the formula $X(CH_2)_3COX'$, where X and X′ are halogens independently selected from the group consisting of chlorine and bromine. The resultant halobutyryl fluoride compound, $X(CH_2)_3COF$, is then reacted at a temperature above at least about 190° F. with an alkali metal fluoride selected from the group consisting of potassium, cesium and rubidium fluoride to produce cyclopropanecarboxylic acid fluoride. The two steps of this process are preferably carried out substantially simultaneously by conducting the first reaction above about 190° C. with an alkali metal fluoride selected from the group consisting of potassium, cesium and rubidium fluoride. Under these conditions the second reaction proceeds substantially simultaneously with the first.

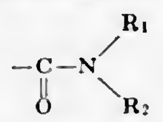
3,567,776
N-ARYL AMIDES

John Krenzer, Oak Park, and Sidney B. Richter, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,042
Int. Cl. C07c *53/00, 63/04, 63/06*
U.S. Cl. 260—545 **7 Claims**

A compound of the formula:



wherein *n* is an integer of from 0 to 3; X is selected from the group consisting of halogen, an aliphatic radical, nitro, hydroxy, alkoxy and alkylsulfonyl and where Y is selected from the group consisting of alkyl and a carbamoyl radical of the formula:

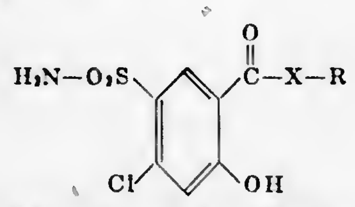


wherein R_1 and R_2 are independently selected from the group consisting of hydrogen, alkyl and phenyl; and Z is selected from the group consisting of an aliphatic radical, a cycloaliphatic radical, aryl, aralkyl and phenoxyalkyl. These compounds are useful as pesticides particularly as insecticides, nematocides, fungicides and herbicides.

3,567,777
4-CHLORO-5-SULFAMYL SALICYLIC ACID-(2′,6′-DIMETHYL) ANILIDE

Walter Liebenow, Hamburg, Germany, assignor to P. Beiersdorf & Co. Aktiengesellschaft, Hamburg, Germany
No Drawing. Filed June 13, 1966, Ser. No. 556,860
Claims priority, application Germany, June 19, 1965, B 82,474
Int. Cl. C07c *143/78*
U.S. Cl. 260—556 **1 Claim**

4-chloro-5-sulphamyl salicylic acid derivatives of the general formula:



in which X represents an oxygen atom or an NH— group and R represents an alkyl group having 1 to 3 carbon atoms, an unsubstituted phenyl residue, or a phenyl residue mono- or di-substituted by halogen atoms, trifluoro methyl-, hydroxyl-, nitro-, alkyl or alkoxy groups; and ammonium and alkali metal salts of the derivatives. A process for production of the compounds and pharmaceutical compositions containing them are also disclosed.

3,567,778
PROCESS FOR PREPARING NITROSALICYLHYDRAZIDES

David F. Gavin, Cheshire, Conn., assignor to Olin Corporation
No Drawing. Filed June 17, 1968, Ser. No. 737,293
Int. Cl. C07c *103/33*
U.S. Cl. 260—559 **5 Claims**

The manufacture of nitrosalicylic hydrazides by the reaction of a hydrazine with lower alkyl esters of nitrosalicylic acid is improved by the addition to the reaction mixture of substantially stoichiometric amounts of an alkali metal hydroxide.

3,567,779
COLOR STABILIZED DIMETHYLETHANOLAMINE

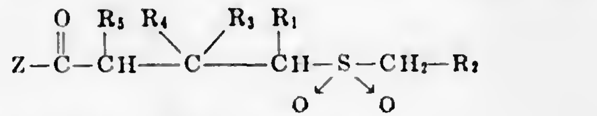
Vernon A. Currier and Ada Lichaa, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Nov. 20, 1967, Ser. No. 684,493
Int. Cl. C07c *89/04*
U.S. Cl. 260—584 **2 Claims**

Dimethylaminoethanol is stabilized against color change at its reflux boiling temperatures by incorporating in the dimethylaminoethanol a stabilizing amount of a mono- or di-lower alkanolamine.

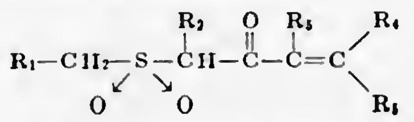
3,567,780
SUBSTITUTED METHYL-BUTYL-4-ONE SULFONES AND METHYL-BUTYL-2-ONE SULFONES

Jacques Martel, Bondy, and Chanh Huynh, Villemomble, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Original application June 30, 1965, Ser. No. 468,625, now Patent No. 3,398,160, dated Aug. 20, 1968. Divided and this application Apr. 8, 1968, Ser. No. 761,353
Claims priority, application France, July 3, 1964, 980,627
Int. Cl. C07c *49/76, 49/80*
U.S. Cl. 260—590 **4 Claims**

This invention relates to linear sulfones selected from the group consisting of (A) compounds of the formula



and (B) compounds of the formula



wherein R_1 and R_2 are members selected from the group consisting of hydrogen, vinyl, substituted vinyl, phenyl and substituted phenyl; R_3 and R_4 are members selected from the group consisting of hydrogen, alkyl, aralkyl, aryl and substituted aryl, and cycloalkyl having three to seven carbon atoms; R_5 is a member selected from the group consisting of hydrogen and lower alkyl; and Z is a member selected from the group consisting of R and OR, wherein R is a member selected from the group consisting of alkyl, aralkyl and aryl. These linear sulfones are useful as intermediates in the preparation of derivatives of tetrahydrothiapyran.

3,567,781
PROCESS FOR THE PREPARATION OF POLY AROMATIC ETHERS AND THIOETHERS

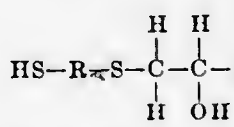
Frank S. Clark, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Apr. 24, 1967, Ser. No. 632,920
Int. Cl. C07c *149/32, 41/04*
U.S. Cl. 260—609 **14 Claims**

A process for the preparation of a group of compounds representative of which are polyphenyl ethers, mixed polyphenyl ether-thioethers, phenoxybiphenyls and phenoxyphenylmercaptobiphenyls comprising the steps of interacting an aromatic iodo, bromo or chloro compound with an alkali metal salt of an aromatic hydroxy compound in the presence of certain dipolar aprotic solvents representative of which are sec- and tert-amides, phosphorus amides and sulfones. The above compounds have many uses, among which are use as hydraulic fluids and jet engine lubricants.

3,567,782
HYDROXY CONTAINING THIOL SULFIDES

Paul F. Warner, Phillips, and Edward E. Huxley, Borger, Tex., assignors to Phillips Petroleum Company
No Drawing. Filed Aug. 8, 1968, Ser. No. 751,060
Int. Cl. C07c *149/18;* **C09g** *1/02;* **B01j** *1/16*
U.S. Cl. 260—609 **2 Claims**

Compounds represented by the formula



$$HS-R-S-\overset{H}{\underset{H}{C}}-\overset{H}{\underset{OH}{C}}-R'$$

wherein R is an alkylene group of 1 to 5 carbon atoms and R′ is a saturated aliphatic hydrocarbon radical having from 10 to 20 carbon atoms, inclusive, are prepared by the reaction of a dimercaptan with a long chain epoxide. The compounds produced are suitable for prevention of tarnish on silver, copper, and other tarnishable metal.

3,567,783
PROCESS FOR PREPARING POLYPHENYL ETHERS

Gordon P. Brown, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Filed Aug. 24, 1960, Ser. No. 51,500
Int. Cl. C07c *43/22*
U.S. Cl. 260—613 **2 Claims**

Polyphenyl ethers which have utility as lubricants, hydraulic fluids and heat transfer agents and process for the preparation of said polyphenyl ethers.

3,567,784
ALCOHOL ALKOXYLATES

William T. Tsatsos, San Mateo, Calif., Richard F. Schimbor, New Brunswick, N.J., and Rupert C. Morris Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 661,546, Aug. 18, 1967. This application June 13, 1969, Ser. No. 833,160
Int. Cl. C07c *43/00*
U.S. Cl. 260—615 **7 Claims**

Certain ethylene oxide-propylene oxide-ethylene oxide derivatives of mixtures of C_{10}–C_{15} detergent range alcohols of critical ethylene oxide-propylene oxide ratios and critical ratios of ethylene oxide to carbon atoms in the alcohol moiety, useful as surfactants, exhibit superior physical properties such as high cloud points and low gel temperatures.

3,567,785
METHOD OF ISOLATING METHOXYETHYLCHLORIDE

Wilhelm Vogt, Cologne-Sulz, Hermann Richtzenhain, Post Marialinden, Gemeinde Much, and Alfons Mersmann, Ranzel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Dec. 20, 1967, Ser. No. 691,997
Claims priority, application Germany, Dec. 30, 1966, D 51,917
Int. Cl. C07c *41/12*
U.S. Cl. 260—616 **5 Claims**

Separation of methoxyethylchloride from a mixture thereof with methanol, water and dichloroethane by liquid-liquid extraction with a halogenated hydrocarbon, an aromatic hydrocarbon, or an ether which is immiscible with water and with a mixture of methanol, dichloroethane and methoxyethyl chloride.

3,567,786
OXIDATION OF TERTIARY ALKYL-SUBSTITUTED ARYL COMPOUND TO TERTIARY ALCOHOL

Logan C. Bostian, William D. Griffin, and Zalik Oser, Morris Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 165,960, Jan. 12, 1962. This application July 31, 1967, Ser. No. 659,559
Int. Cl. C07c *31/14, 73/06*
U.S. Cl. 260—618 **5 Claims**

The production of tertiary alcohols by oxidizing a tertiary aliphatic carbon atom in an organic compound in which said tertiary carbon atom is attached to one carbon of a carbocyclic aryl nucleus, to one hydrogen atom, to two other saturated carbon atoms each in turn attached only to a member of the group consisting of carbon atoms and hydrogen atoms, in liquid phase with a gas containing elemental oxygen and with aqueous caustic of the group consisting of sodium hydroxide and potassium hydroxide in concentrations of about 40–90 weight percent in the aqueous solution and in proportions of about 20–400 grams of the aqueous caustic solution per 100 ml. of the compounds, at temperatures in the range of about 100° C.–300° C.

3,567,787
2,2′-TRIMETHYLENEDIHYDROXYAROMATIC SYNTHESIS

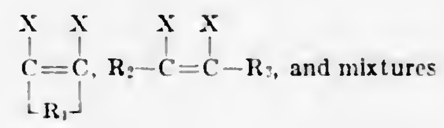
Henry E. Hennis, Coleman, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Sept. 22, 1967, Ser. No. 669,706
Int. Cl. C07c *37/00, 39/16*
U.S. Cl. 260—619 **7 Claims**

2,2′-trimethylenedihydroxyaromatic compounds useful in resin production are made by hydrogenation of their corresponding 6H, 12H-6,12-methano[b,f][1,5]-dioxocin in the presence of a noble metal catalyst and an inert solvent at temperatures between 75° and 100° C.

3,567,788
PREPARATION OF FLUORINE-CONTAINING COMPOUNDS

Russell L. K. Carr, Grand Island, N.Y., and Charles F. Baranauckas, Edina, Minn., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Continuation-in-part of abandoned applications, Ser. No. 161,255, Dec. 21, 1961, and Ser. No. 263,071, Mar. 5, 1963, which in turn is a continuation-in-part of application Ser. No. 161,255, Dec. 21, 1961. This application July 25, 1967, Ser. No. 655,744
Int. Cl. C07c *17/20, 21/18, 23/02*
U.S. Cl. 260—648 **10 Claims**

Compounds of the formulas

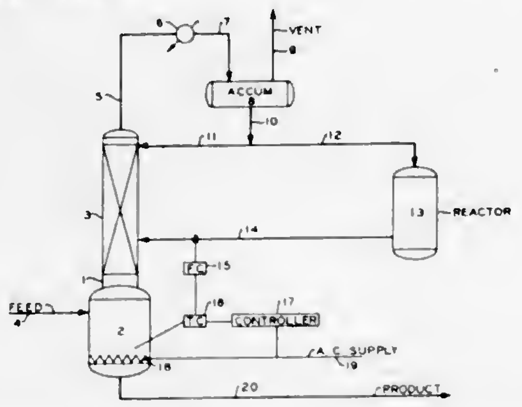


$$\overset{X}{C}=\overset{X}{C}\ (\text{ring closed by } R_1),\quad R_2-\overset{X}{C}=\overset{X}{C}-R_3, \text{ and mixtures}$$

of these, wherein the R's are perhalogenated hydrocarbon radicals and the X's are halogens, are fluorinated with an alkali metal fluoride in an inert polar organic solvent, such as dimethylformamide or dimethyl sulfoxide.

3,567,789
PROCESS FOR THE PRODUCTION OF BIS(CYCLOALKENYL)-SUBSTITUTED OLEFINS

Roy C. Harrison, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Nov. 10, 1969, Ser. No. 875,362
Int. Cl. C07c *5/00*
U.S. Cl. 260—666 **11 Claims**



Bis(cycloalkenyl)-substituted olefins are prepared from alkenyl-substituted alkenes in a process where the feedstock and the raw product are simultaneously treated in a single fractionating vessel.

3,567,790
PROCESS FOR PRODUCING CYCLODODECENE

Migiho Morita, Yoshisuke Iwal, Jo Itakura, and Hiroo Ito, Nagoya, Japan, assignors to Toagosel Chemical Industry Co., Ltd., and Akira Misono, both of Tokyo, Japan
No Drawing. Filed Dec. 23, 1969, Ser. No. 887,786
Claims priority, application Japan, May 26, 1969, 44/40,765
Int. Cl. C07c *5/02*
U.S. Cl. 260—666 **5 Claims**

An improved process for producing cyclododecene by selectively hydrogenating 1,5,9-cyclododecatriene with a hydrogen gas using as a catalyst a complex compound comprising a cobalt carbonyl and a tertiary phosphine, in which the hydrogenation is effected in the presence of a small amount of carbon monoxide thereby preventing the catalyst from degradation to obtain the desired product with advantages.

3,567,791
EXTRACTION PROCESS

Everett J. Fuller, Gillette, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed May 12, 1969, Ser. No. 823,958
Int. Cl. C07c *7/10*
U.S. Cl. 260—674 **18 Claims**

A separation process in which aromatics are extracted from a feed stream by contacting said feed stream with a slurry. The slurry comprises a substance capable of forming an insoluble inclusion compound with the aromatic and a liquid solvent. The solvent has the capacity to solvent-extract the aromatics and to further permit the formation of separate liquid layers, one layer containing primarily feed stream depleted in aromatics, the other containing the solvent, enriched in aromatics and an insoluble inclusion compound.

3,567,792
DIOLEFIN-OLEFIN CONDENSATION PROCESS

John E. Bozik, Pittsburgh, Harold E. Swift, Gibsonia, and Ching Yong Wu, Pittsburgh, Pa., assignors to Ameripol, Inc., Cleveland, Ohio
No Drawing. Filed Dec. 26, 1968, Ser. No. 787,257
Int. Cl. C07c *3/00*
U.S. Cl. 260—677 **18 Claims**

Process for the preparation of triolefins comprising condensing diolefins and olefins in contact with a catalyst system comprised of: (1) a nickel salt, (2) an organoaluminum compound and (3) a secondary phosphine ligand.

3,567,793
OXIDATIVE DEHYDROGENATION OF ORGANIC COMPOUNDS

Philip M. Colling and Johnny C. Dean, Houston, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.
No Drawing. Filed Sept. 28, 1967, Ser. No. 671,236
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 **23 Claims**

Oxidative dehydrogenation of organic compounds in vapor phase utilizing manganese ferrite. The manganese ferrite is formed in the presence of halogen.

3,567,794
PROCESS FOR PREPARING 1,2-BUTADIENE

Kenneth C. Eberly, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed July 18, 1968, Ser. No. 745,686
Int. Cl. C07c *11/16, 1/26*
U.S. Cl. 260—680 **9 Claims**

The process disclosed herein comprises a method for preparing 1,2-butadiene by the zinc dust, etc. dehydrochlorination of dichlorobutene, specifically 2,3-dichloro-1-butene, or 1,2-dichloro-2-butene, or a mixture thereof. Such dichlorobutene can be prepared by the reaction of 1,2,3-trichlorobutane with solid KOH. Advantageously the trichlorobutane is prepared by the reaction of chlorine with either 1-chloro-2-butene or 3-chloro-1-butene or a mixture thereof. One of the advantages of the present process is the fact that 1,3-butadiene can be reacted with concentrated hydrochloric acid to give a mixture of the above mentioned monochlorobutenes. Thus the process provides a relatively inexpensive method of preparing 1,2-butadiene from 1,3-butadiene.

3,567,795
REFINING PROCESS OF HYDROCARBON POLYMER

Tetsuo Ishikawa and Yoshio Kadowaki, Tokyo, and Teruo Kajikawa and Shinji Uehara, Kawasaki, Japan, assignors to The Furukawa Chemical Industries Co., Ltd., Tokyo, Japan
No Drawing. Filed June 17, 1968, Ser. No. 737,323
Int. Cl. C07c *3/18*
U.S. Cl. 260—683.15 **6 Claims**

Process of refining hydrocarbon polymers obtained by liquid phase polymerization with a Friedel-Crafts catalyst, wherein the polymer solution, containing catalyst, is contacted with an aqueous solution of a water-soluble salt selected from the group consisting of nitrates, sulphates, thiosulphates, phosphates, oxalates and silicates, making it possible to eliminate the catalyst as a decomposition product.

3,567,796
HYDROCARBON CONVERSION PROCESS WITH A HALOGENATED CATALYST UTILIZING HYDROCARBONS AND DERIVATIVES THEREOF IN ITS PREPARATION

John H. Estes and Robert M. Suggitt, Wappingers Falls, and Stanley Kravitz, Wiccopee, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 646,458, June 16, 1967, which is a continuation-in-part of application Ser. No. 600,021, Dec. 8, 1966. This application Apr. 2, 1969, Ser. No. 812,914
Int. Cl. C07c *5/30;* **B01j** *11/78*
U.S. Cl. 260—683.68 9 Claims

A hydrocarbon conversion process in which a hydrocarbon is contacted at conversion conditions with a catalyst consisting essentially of (1) alumina, (2) a metal

selected from the group consisting of ruthenium, rhodium, palladium and platinum, and (3) chlorine or bromine wherein at least a portion of said chlorine or bromine is introduced into said catalyst by contacting a composite of alumina and said metal at elevated temperature with a selected organic compound in the presence of chlorine or bromine. The catalyst so prepared is useful in hydrocarbon conversion processes as isomerization, hydrocracking, alkylation, hydrogenation and polymerization.

3,567,797
CURABLE COMPOSITIONS COMPRISING (A) A BIS(1,2 - EPOXYALKYL)CYCLOALIPHATIC COMPOUND, (B) A POLYETHER POLYEPOXIDE AND (C) A CURING AGENT

Frank D. Mango, Oakland, and Herbert A. Newey, Lafayette, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 700,041, Jan. 24, 1968. This application Dec. 9, 1968, Ser. No. 782,445
Int. Cl. C08g *30/14, 45/00*
U.S. Cl. 260—830 **8 Claims**

Polymer compositions having improved physical properties are obtained by mixing a bis(1,2-epoxyalkyl)cycloaliphatic compound having at least 5 carbon atoms in the carbocyclic ring thereof with a polyether polyepoxide possessing more than one vic-epoxy group. The mixture may be cured through the use of conventional curing agents to produce polymeric compositions which are useful in the preparation of surface compositions, castings, and impregnating and sealing compositions.

3,567,798
BLOCK COPOLYMERS CONTAINING CERTAIN POLAR END BLOCKS

Walter R. Haefele, Orinda, and Alfred W. Shaw and Eugene T. Bishop, Moraga, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Feb. 28, 1967, Ser. No. 619,142
Int. Cl. C08f *15/00*
U.S. Cl. 260—880 **3 Claims**

Novel block copolymers exhibiting improved processability have the configuration A—B—A—C wherein the polymer blocks A are relatively low molecular weight vinyl arene blocks imparting good processability, B is a polymer block of a conjugated diene and C is a polymer block of certain polar polymerizable monomers selected from the group consisting of monovinyl pyridines, acrylic acid esters, methacrylic acid esters, acrylonitriles, methacrylonitriles, monovinylquinolines and acrylamides, imparting improved stress-strain properties. The subject block copolymers find particular utility in improved adhesive compositions.

3,567,799
METHOD OF PREPARING STABILIZED HIGH MOLECULAR WEIGHT POLYESTER RESIN BY CONDENSING LOW MOLECULAR WEIGHT POLYESTER RESIN AND PHOSPHOROUS CONTAINING POLYESTER RESIN

Dusan C. Prevorsek, Princeton, N.J., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Continuation of application Ser. No. 373,045, June 5, 1964. This application Jan. 25, 1968, Ser. No. 700,650
Int. Cl. C08g *17/133, 39/10, 51/58*
U.S. Cl. 260—860 **14 Claims**

The invention relates to process for stabilizing polyester resin by adding phosphorus modified polyester resin to a low molecular weight polyester resin and condensing to form high molecular weight polymer. Resins of improved stability are produced.

3,567,800
DIALKYL-2-(PHENALKOXYCARBONYL)-1-METHYLVINYL PHOSPHATE

Donald W. Stoutamire, Modesto, and Milton Silverman, La Habra, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Apr. 25, 1968, Ser. No. 724,240
Int. Cl. C07f *9/08;* **A01n** *9/36*
U.S. Cl. 260—941 **8 Claims**

Novel dialkyl 2-(phenalkoxycarbonyl) - 1 - methylvinyl phosphates substituted on the phenyl moiety by a sulfur-containing functional group, primarily useful as miticides.

3,567,801
AMINOALKYL PHOSPHONATES

Walter Stamm, Tarrytown, and Silvio L. Giolito, Whitestone, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Nov. 3, 1967, Ser. No. 680,301
Int. Cl. C07f *9/40*
U.S. Cl. 260—944 **1 Claim**

A composition of matter consisting of the reaction product of nitrogen containing alkylphosphonic acids and an alkylene oxide. The alkylene oxide can be selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, epichlorohydrin, 1,1,1-trichloropropylene oxide, styrene oxide, cyclohexene oxide, vinyl cyclohexene diepoxide and mixtures thereof. The compositions are useful as reactive flame retardants such as in the process of making polyurethane foam and can be used in mixtures or in lieu of polyalcohols.

3,567,802
PERFLUOROPOLYOXOALKANE SUBSTITUTED PHOSPHINATES

Bruce H. Garth, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Dec. 3, 1968, Ser. No. 780,871
Int. Cl. C07f *9/32*
U.S. Cl. 260—950 **5 Claims**

Perfluoropolyoxoalkane substituted phosphinates having the formula $R_fO(C_3F_6O)_mCFXCH_2OP(:O)(C_6H_5)_2$ or

$$(C_6H_5)_2P(:O)OCH_2CFX(C_3F_6O)_mCFXCH_2OP(:O)(C_6H_5)_2$$

wherein R_f is a perfluoroalkyl group of 1–6 carbon atoms, m is an integer in the range 3–50, and X is $—F$ or $—CF_3$, useful as high temperature lubricants and hydraulic fluids, and as corrosion and degradation inhibitors for poly(hexafluoropropylene oxide) oils having the formula

$$R_f(C_3F_6O)_nR'_f$$

$$R_fO(C_3F_6O)_nCF(CF_3)H, \text{ or}$$

$$R_fO[CF(CF_3)CF_2O]_nCF(CF_3)CF(CF_3)[OCF_2CF(CF_3)]_nOR_f$$

wherein R_f is as defined above, R'_f is a perfluoroalkyl group of 1–2 carbon atoms, and n is an integer, said oils also having an average molecular weight of at least 3,000, a pour point not in excess of 10° C., and a volatility of less than 50% at 204.4° C.

3,567,803
PREPARATION OF VINYL PHOSPHATES

Loyal F. Ward, Jr., Modesto, Calif., Donald D. Phillips, Westfield, N.J., and Richard R. Whetstone, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 302,446, Aug. 15, 1963. This application July 27, 1967, Ser. No. 656,366
Int. Cl. A01n *9/36;* **C07f** *9/08*
U.S. Cl. 260—972 **19 Claims**

Process for preparing insecticidal enol esters of acids of pentavalent phosphorus by reacting a halide of an acid of pentavalent phosphorus with an alpha-haloketone in the presence of a base.

3,567,804

PROCESS OF MAKING LIGHT-POLARIZING FILMS FROM VINYL CHLORIDE POLYMERS

Yasunori Nishijima, Kyoto-shi, Sumio Takadono, Namerikawa-shi, Morio Watanabe, Uozu-shi, Taisuke Saito, Namerikawa-shi, and Kazuo Miyoshi, Uozu-shi, Japan, assignors to Nippon Carbide Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed May 20, 1968, Ser. No. 730.506
Claims priority, application Japan, May 30, 1967, 42/33,960; June 1, 1967, 42/34,506; Oct. 21, 1967, 42/67,622; Oct. 23. 1967. 42/67.833
Int. Cl. B29d *11/00;* **G02b** *5/30*
U.S. Cl. 264—2 **8 Claims**

A solution comprising a vinyl chloride polymer, a specified weakly basic amine or nitrogen containing heterocyclic compound as conversion agent and a solvent is cast to prepare a sheet. The sheet containing said conversion agent is subjected first to heating and then to stretching or vice versa to obtain a light-polarizing film. The resulting product has a color of blue-purple-reddish orange and shows good dichroism throughout all of the visible spectrum. The product is uniform in optical properties over a wide area as well as excellent in chemical and mechanical properties. The dichroism can be varied in a wide range by changing the stretching ratio. The process is simpler than the prior processes, resulting in a lower cost of the product. The process involves a reaction throughout the polymer sheet producing a larger number of conjugated polyene linkages which are responsible for the light polarization phenomenon.

3,567,805

METHOD OF MAKING A PROPELLANT GRAIN CONTAINING METAL WIRE STAPLE

Everette M. Pierce, Somerville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 23, 1965. Ser. No. 516,167
Int. Cl. C06b *21/02*
U.S. Cl. 264—3 **7 Claims**

Staple-containing propellant pellet grains are prepared by intimately mixing metal staples with a binder, plasticizer and oxidizer, forming the mixture into small pellets with length approximately equal to diameter, mixing the staple-containing pellets with additional propellant ingredients at a proportion such that the staple-containing pellets comprise 5 to 70 weight percent of the mixture to form a viscous slurry, casting the slurry and curing the resulting grain. Burning characteristics and performance are substantially improved over grains prepared by previous slurry casting methods, because the staples are randomly oriented and not aligned parallel to the motor case wall or motor mandrel.

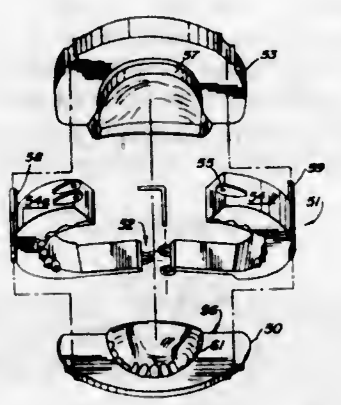
3,567,806

METHOD FOR MAKING TRAY DENTURES

John P. Dyal, 6006 N. Mesa,
El Paso, Tex. 79912

Filed Apr. 22, 1968, Ser. No. 722,965
Int. Cl. A61c *9/00, 13/04*
U.S. Cl. 264—18 **3 Claims**

An entire denture is prefabricated on a non-anatomical base tray. The tray is then at least partially covered with a self-conforming material and placed in a patient's mouth, thereby building an anatomical base conforming to the patient's alveolar ridges. Following this, the anatomical base is given a custom fit by means of suitable trimming and edge sealing. The invention encompasses the equipment for making the prefabricated denture and for fitting the denture to the patient's mouth.

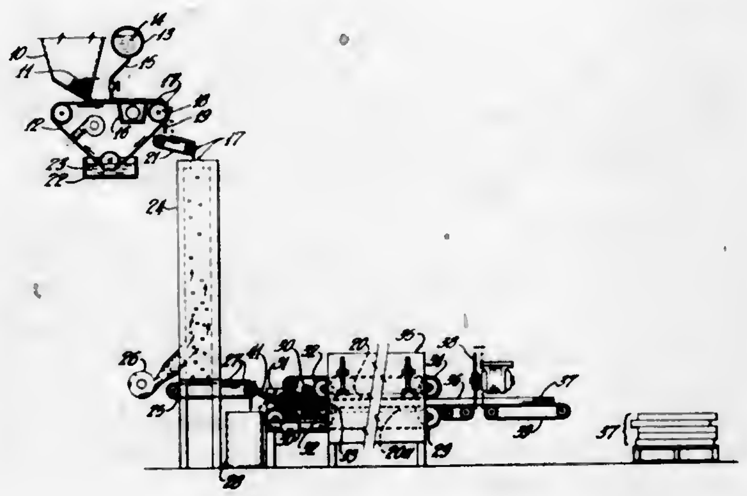


3,567,807

METHOD OF FORMING AND CARBONIZING A COMPOSITE ARTICLE OF INORGANIC PARTICLES BONDED WITH FOAMED PHENOL FORMALDEHYDE RESIN

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation

Continuation-in-part of application Ser. No. 473,099, July 19, 1965, which is a continuation-in-part of application Ser. No. 107,946, May 5, 1961. This application May 19, 1967, Ser. No. 639,782
Int. Cl. B29c *25/00*
U.S. Cl. 264—29 **4 Claims**



A method of forming heat insulation material comprising pressing inorganic particles which are surrounded with a foamable phenol-formaldehyde resin into generally abutting contact, foaming the resin; heating in an oxidizing atmosphere of air to a nonkindling temperature between approximately 400° F. and approximately 600° F. for a sufficient period of time to carbonize at least part of the foam.

3,567,808

PRODUCTION OF LOW DENSITY-HIGH STRENGTH CARBON

Mark J. Smith, Emporium, Pa., assignor to Air Reduction Company, Incorporated, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 665,307, Sept. 5, 1967. This application Nov. 18, 1969, Ser. No. 877,846
Int. Cl. C01b *31/02*
U.S. Cl. 264—29 **4 Claims**

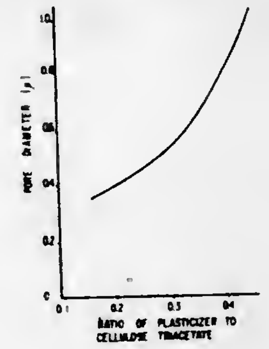
The production of low density, high strength carbon articles using ammonium lignin sulfonate, coconut shell particles, and pitch binders as basic starting materials.

3,567,809

METHOD OF VARYING THE PORE DIAMETERS OF FINE PORES IN CELLULOSE ACETATE FILM

Wataru Ueno and Hideo Kawaguchi, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

Filed Oct. 6, 1967, Ser. No. 673,404
Claims priority, application Japan, Oct. 7, 1966, 41/66,097
Int. Cl. B29d *27/04;* **C08b** *21/06, 27/42*
U.S. Cl. 264—41 **16 Claims**



A method for varying the pore diameter of fine pores in a cellulose acetate film. The film is made by casting a solution containing two cellulose derivatives, each having an acetate linkage, a plasticizer and water, and drying in two stages, first at from 15° to 45° C., and secondly at from 80° to 120° C. Control of pore size is effected by varying type and amount of plasticizer which is a single or a mixture of glycerine derivative, glycol derivative and organic phosphate plasticizers.

3.567.810

PROCESS FOR MAKING HIGH-FLOW ANISOTROPIC MEMBRANES

Richard W. Baker, Cambridge, Mass., assignor to Amicon Corporation, Lexington, Mass.

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,899
Int. Cl. B29d *27/04*
U.S. Cl. 264—41 **4 Claims**

This invention relates to a novel process for forming improved polymeric anisotropic membranes comprising the additional step of subjecting a cast polymer film suitable for formation of such an anisotropic membrane to an evaporation step prior to precipitation of the membrane, said evaporative step controlled to selectively evaporate solvent from the surface of said film and thereby selectively increase the polymer concentration at the surface of said film. The improved membranes formed by the process of the instant invention are characterized by improved rejection characteristics while retaining liquid flux characteristics which are surprisingly high in view of the rejection characteristics.

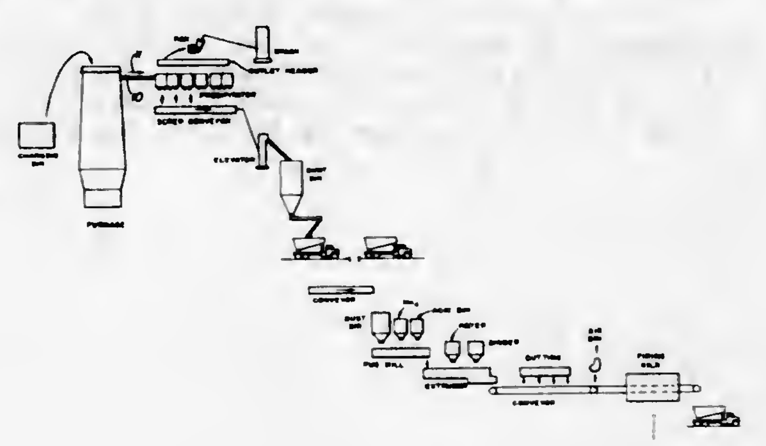
3.567.811

METHOD OF PRODUCING STRONG FIRED COMPACTS FROM IRON OR IRON OXIDE CONTAINING MATERIAL

Clyde W. Humphrey, 1 N. Old State Road,
Norwalk, Ohio 44857

Continuation-in-part of application Ser. No. 756,694, May 9, 1968, which is a continuation-in-part of application Ser. No. 443.523, Mar. 29, 1965. This application Oct. 20, 1969, Ser. No. 871,473
Int. Cl. C21b *1/08, 1/10, 1/30*
U.S. Cl. 264—63 **16 Claims**

Iron or iron oxide fines such as BOF dust, iron ore, and mill scale are formed into strong ceramic bonded compacts suitable as raw material feed for steel making operations, e.g. blast furnace feed. A novel combination of additives, ammonium hydroxide, a mineral acid such as hydrochloric acid, a carbohydrate binder such as molasses, and water, provide the necessary low temperature strength until a ceramic bond is established. The compacts are formed from the cohesive mass, preferably by extrusion, dried and fired in a conventional manner.

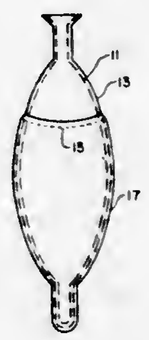


3,567,812

STREAMLINE BALLOON FABRICATION

Moses Sharenow, Asbury Park, and Eric Nelson, Fort Lee, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed July 8, 1969, Ser. No. 839,827
Int. Cl. B29c *13/04;* **B29h** *3/02*
U.S. Cl. 264—100 **2 Claims**



A method of fabricating a streamline balloon that comprises forming a first balloon and laying a partial nonadhering surface thereon. A second balloon is formed on part of the adhering surface of the first balloon. Both balloons are inflated, then deflated and cured. One of the balloons is turned inside-out to provide a tail for desired streamline effect.

3,567,813

PROCESS FOR PREPARING COLOR AND MELT VISCOSITY STABLE POLYCARBONATE RESINS

John J. Keane and John M. Tome, Pittsfield, Mass., assignors to General Electric Company

No Drawing. Filed July 11, 1968, Ser. No. 743,984
Int. Cl. B29f *3/03;* **C08g** *17/13, 53/20*
U.S. Cl. 264—102 **3 Claims**

A process for preparing an aromatic carbonate polymer having excellent resistance to thermal discoloration and thermal degradation, which process involves incorporating 0.1–5.0 weight percent of water, based on the weight of the total composition with the aromatic carbonate polymer, and then extruding the mixture through a heated, vacuum vented extruder. A vacuum is applied to the mixture while in the molten state.

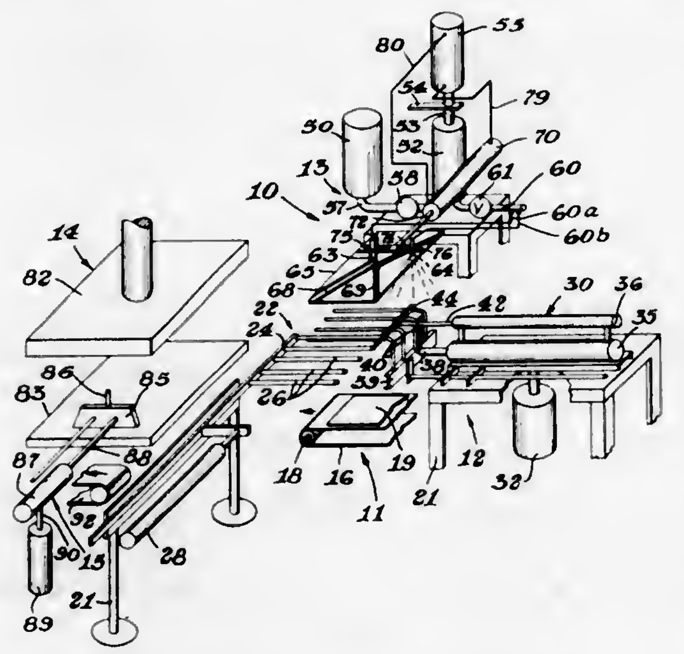
3,567,814
METHOD FOR THE PREPARATION OF SHAPED ARTICLES

William K. Glesner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of application Ser. No. 679,926, Nov. 1, 1967, which is a division of application Ser. No. 451,811, Apr. 29, 1965, now Patent No. 3,382,530, dated May 14, 1968. This application Sept. 24, 1969, Ser. No. 866,062

Int. Cl. B29b *5/06*

U.S. Cl. 264—137 **10 Claims**



Automated matched die molding employing glass fiber preforms is accomplished using a resin dispenser that applies a fixed quantity of resin to each preform in a predetermined pattern which permits distribution of the resin on closing of the press without significant disturbance or dislocation of the reinforcing preform. Uniform high quality moldings are obtained.

3,567,815
RECLAMATION OF LOW DENSITY EXTRUDABLE THERMOPLASTIC MATERIAL

Alan I. W. Frank, Pittsburgh, Pa., assignor to The Alan I. W. Corporation, Pittsburgh, Pa.

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,404

Int. Cl. B29c *29/00;* **B29f** *3/00*

U.S. Cl. 264—176 **2 Claims**

A process of reclaiming low density extrudable thermoplastic material which comprises extruding such material and thereby increasing its density and rendering it suitable for formation of products which are desirably formed with relatively high density extrudable thermoplastic material. The extrudate may be in the form of a sheet, rod, tube, slab or film from which the product may be vacuum formed or otherwise manufactured. Alternatively, the extrudate may be granulated and re-extruded. A quantity of relatively high density extrudable thermoplastic material may be added to the low density extrudable thermoplastic material before extrusion resulting in a significant increase in the extrusion rate and in uniformity of shape of the extrudate. The quantity of relatively high density extrudable thermoplastic material which is added to the low density extrudable thermoplastic material may be equal to between about five and about thirty percent by volume of the quantity of low density extrudable thermoplastic material. The bulk density of the low density extrudable thermoplastic material may be of the order of one-half to fifteen pounds per cubic foot and the bulk density of the relatively high density extrudable thermoplastic material may be of the order of fifteen to fifty pounds per cubic foot.

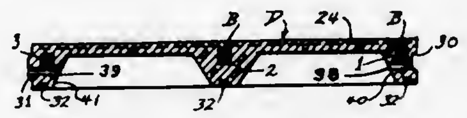
3,567,816
METHOD OF PRETENSIONING AND REINFORCING A CONCRETE CASTING

Earl P. Embree, 1493 Gardner Blvd.,
San Leandro, Calif. 94577

Filed Apr. 10, 1969, Ser. No. 814,989

Int. Cl. B28b *19/00;* **E04c** *3/10*

U.S. Cl. 264—228 **2 Claims**



A hollow reinforcing form with projections on its exterior surface, is filled with cement under pressure but when the cement sets it will contract and permit the hollow metal reinforcing form to return to normal position. The reinforcing form is then heated to about 150° F. and placed in a mold. The metal form will expand to a greater extent than the cement within it due to the heating. Concrete is poured around the reinforcing form and fills the mold so as to embed the reinforcing form. If necessary the mold can be vibrated for causing all voids in the mold to be filled with concrete. When the concrete sets, the reinforced concrete casting is removed from the mold and the hollow reinforcing material with the cement therewithin will return to ambient temperature. The hollow reinforcing material will tend to contract to a greater extent than the cement within it. The contracting form through its projections will tend to compress the concrete and will thus pretension the concrete casting. The cement in the hollow reinforcing material will add greater strength to the form and material.

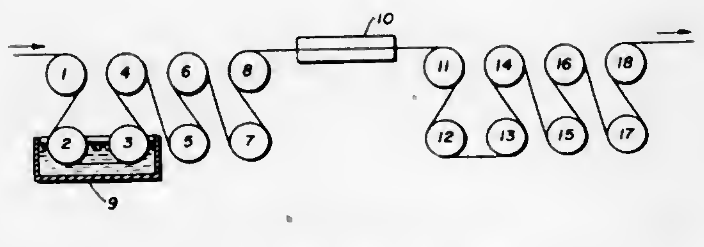
3,567,817
POLYESTER TOW PREHEATING AND DRAWING PROCESS

Herbert A. Spillier, Decatur, Ala., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 734,632, June 5, 1968, which is a continuation-in-part of application Ser. No. 434,438, Feb. 23, 1965. This application May 19, 1969, Ser. No. 825,541

Int. Cl. D02j *1/22*

U.S. Cl. 264—290 **1 Claim**



In a high speed continuous drawing process where polyester tows are preconditioned for drawing at speeds of greater than about 50 yards per minute, unoriented polyester tow is subjected to a first inert bath maintained at higher than the optimum pre-draw temperature; exposed to a cooling medium lower than the optimum pre-draw temperature, whereby the uniform optimum pre-draw temperature is obtained throughout the thickness of the tow, after which the tow is subjected to temperatures higher than that of the optimum pre-draw temperature while being drawn at least 2×. The first inert bath is maintained at 75–100° C. and dwell time is 0.2–5.0 seconds. The cooling medium is maintained at 40–60° C. and exposure time is 5–40 seconds. The optimum pre-draw temperature achieved is about 62° C. This processing results in improved tenacity, elongation and/or modulus of the tow.

3,567,818
PELLETS FOR SUPPLYING COPPER TO RUMINANTS

Reginald Gordon Hemingway, Bearsden, and Norman S. Ritchie, Glasgow, Scotland, assignors to The University Court of the University of Glasgow, Glasgow, Scotland

No Drawing. Filed Dec. 12, 1966, Ser. No. 600,746

Claims priority, application Great Britain, Dec. 17, 1965, 53,316/65

Int. Cl. A61j *3/00*

U.S. Cl. 424—14 **12 Claims**

Copper necessary for the nutrition of ruminants may be supplied by administering thereto a pallet or bullet comprising an alloy containing between 40% and 70% by weight copper, from 0 to 15% by weight of aluminium and a total of from 0 to 5% by weight of one or more of a trace element selected from the group consisting of cobalt, zinc and manganese, the balance being magnesium. It has also been found that the rate of release of copper from the pellet in the ruminal juices can be controlled by varying the proportion of aluminium.

3,567,819
COLD TABLET

Bernard Idson, Leonia, and Michael Stanley Weiss, Paramus, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Jan. 30, 1969, Ser. No. 795,351

Int. Cl. A61j *3/10;* **A61k** *9/00, 27/12*

U.S. Cl. 424—16 **4 Claims**

Pleasantly flavored, chewable tablets containing aspirin and a decongestant are provided.

3,567,820
COMPOSITIONS AND TREATMENT FOR THE ALLEVIATION OF DIAPER RASH

George S. Sperti, 1842 Madison Road,
Cincinnati, Ohio 45206

No Drawing. Continuation-in-part of application Ser. No. 523,542, Jan. 25, 1966. This application Apr. 9, 1969, Ser. No. 814,835

Int. Cl. A61k *15/02*

U.S. Cl. 424—79 **8 Claims**

A method and composition for the prevention and alleviation of diaper rash whereby the skin is treated with a composition consisting essentially of a vehicle, a respiration stimulating factor, a cellular proliferation factor and a quantity of dispersed, finely divided cation exchange resin capable of absorbing ammonia and ammonium irritants.

3,567,821
MEDICAMENT FOR THE AFFECTIONS OF MUCOUS MEMBRANES

Lucien Nouvel, 91 Avenue des Ternes, Paris 17, France

No Drawing. Continuation of application Ser. No. 410,758, Nov. 12, 1964. This application May 23, 1968, Ser. No. 732,497

Claims priority, application France, Nov. 13, 1963, 953,570; May 14, 1964, 974,500

The portion of the term of the patent subsequent to Feb. 20, 1985, has been disclaimed

Int. Cl. A61k *17/00*

U.S. Cl. 424—93 **10 Claims**

1. Medicament for the affection of mucous membranes constituted gastric mucin and sialic acid in an amount sufficient to provide 0.5 to 40% by weight of N-acetylneuraminic acid on a dry basis.

2. Medicament as claimed in claim 1 which comprises 20 to 60 parts by weight of a lyophilisate of a culture of *Bacillus bifidus* and 10 to 35 parts by weight of a mixture of gastric mucin and sialic acid, said mixture containing in the dry state, from 0.5 to 40% of sialic acid.

3,567,822
SUBSTANCES IMPARTING A NON-SPECIFIC IMMUNITY AND STIMULATING THE NATURAL DEFENSES OF THE SYSTEM

Raymond Francois Jacques Sarbach and Dimitri Yavordios, Chatillon-sur-Chalaronne, Ain, France, assignors to Institut de Recherche Scientifique (I.R.S.), Chatillon-sur-Chalaronne, Ain, France

No Drawing. Filed July 11, 1968, Ser. No. 743,962

Claims priority, application France, July 12, 1967, 114,081

Int. Cl. A61k *27/00*

U.S. Cl. 424—92 **3 Claims**

Substances imparting a non-specific immunity and stimulating the natural defenses of the system obtained in a soluble state from a *Neisseria perflava* germ by the action of amino-acids entailing the lytic conversion of living microbial bodies.

3,567,823
SILVER AMMONIA FLUORIDE SOLUTION AND METHOD OF ITS USE

Reiichi Yamaga, 1–15, Tondayanagawa-cho, Takatsuki-shi, Osaka-fu, Japan, and Ichiro Yokomizo, 45, Shitiku-kami-honmachi, Kita-ku, Kyoto-shi, Kyoto-fu, Japan

Filed June 5, 1968, Ser. No. 734,668

Claims priority, application Japan, June 9, 1967, 42/36,864

Int. Cl. A61k *5/00*

U.S. Cl. 424—132 **9 Claims**

A stable aqueous solution of silver ammonia fluoride which is prepared by dissolving silver fluoride in an aqueous ammonia or introducing gaseous ammonia into an aqueous solution of silver fluoride and adjusting the solution to pH 6.5~9.5. The silver ammonia fluoride solution can be effectively stabilized by addition of 1~2 w./v. percent of ammonium fluoride. The thus prepared solution is useful for prevention of dental diseases including caries and hypersensitivity. There is also disclosed a mouthpiece which comprises a horseshoe shaped body made of a spongy material saturated with a silver ammonia fluoride solution and a coating made of a water-impermeable material which covers the outer perimeter except for the surface being brought in contact with the affected part.

3,567,824
NON-SLUDGING DIMETHYL - 1,2-DIBROMO-2,2-DICHLOROETHYL PHOSPHATE-FUEL OIL COMPOSITIONS

Joseph E. Moore, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Feb. 15, 1965, Ser. No. 432,868

Int. Cl. A01n *9/00;* **C10l** *1/26*

U.S. Cl. 424—225 **3 Claims**

Pesticidal compositions comprising dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate, fuel oil and a salt of the reaction product obtained by reacting at a temperature between 300–415° F. an aliphatic monocarboxylic acid having between 14–18 carbon atoms with a polyalkylene polyamine having one more nitrogen atom per molecule than there are alkylene groups in the molecule, in a molar proportion of acid to amine varying between about 1:1 and X:1, X representing the number of nitrogen atoms in the polyalkylene polyamine reactant. The salt inhibits sludge formation in the composition.

3,567,825

ANTIMICROBIAL PREPARATIONS

Herbert Klesper, Cologne-Flittard, Fritz Steinfatt, Opladen, Klaus Langheinrich, Leverkusen, and Walter Lorenz, Wuppertal-Vohwinkel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 15, 1965, Ser. No. 507,672

Claims priority, application Germany, Nov. 20, 1964, F 44,483

Int. Cl. A01n *9/26*

U.S. Cl. 424—230 **4 Claims**

Antimicrobial preparations based on reaction products of an amide and paraformaldehyde.

3,567,826

THERAPEUTIC COMPOSITION CONTAINING 2-AMINO-OXAZOLIN-4-ONE DERIVATIVES

Jan Marcel Didier Aron-Samuel, 118 Rue Carnot, 92 Suresnes, Hauts-de-Seine, France

No Drawing. Filed May 2, 1966, Ser. No. 546,542

Claims priority, application Great Britain, May 10, 1965, 19,674/65

Int. Cl. A61u *27/00*

U.S. Cl. 424—250 **7 Claims**

A therapeutic composition for the treatment of patients requiring an anti-inflammatory, anti-pyretic or analgesic agent comprises a pharmaceutically acceptable carrier and from about 5 mg. to about 1 g. of a derivative of 2-amino-oxazolin-4-one in which the substituent in the 5-position may be alkyl of 1–14 carbon atoms, phenyl, halophenyl, lower alkoxyphenyl or methylene-dioxyphenyl, the amino nitrogen being a part of a piperidine, pyrrolidine, morpholine or piperazine ring, which ring may also contain a C-lower alkyl or C-di-lower alkyl substituent, and when the ring is piperazine, there may be substituted on the second nitrogen atom thereof an alkyl, hydroxyalkyl, N-dialkylaminoalkyl, phenyl, halophenyl, alkylphenyl, alkoxyphenyl, benzyl, alkanoyl, benzoyl, halobenzoylalkyl, or trialkoxybenzoyl group.

3,567,827

METHOD OF CONTROLLING FLIES UTILIZING 2,3-DIHYDRO-2-PHENYL-4(1H)-QUINAZOLINONE

Barbara Stearns, Highland Park, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed June 3, 1968, Ser. No. 733,823

Int. Cl. A01n *9/22*

U.S. Cl. 424—251 **3 Claims**

Insects are controlled by contacting the insect with insecticidal amounts of 2,3-dihydro-2-phenyl-4(1H)-quinazolinone, and salts thereof.

3,567,828

ORGANIC COMPOUNDS

Edward Fluckiger, Binningen, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Aug. 12, 1968, Ser. No. 751,751

Claims priority, application Switzerland, Aug. 17, 1967, 11,603/67

Int. Cl. A61h *27/00*

U.S. Cl. 424—261 **6 Claims**

The invention provides a pharmaceutical composition incorporating (a) a reserpine constituent, (b) a dihydroergocristine constituent, and (c) N-(cis-2,6-dimethylpiperidino)-4-chloro-3-sulphamoyl benzamide.

The composition produces a pronounced blood pressure lowering effect and is therefore useful in the treatment of high blood pressure illnesses.

3,567,829

COMPOSITION AND METHOD FOR CONTROLLING INFLUENZA A$_2$ VIRUS INFECTIONS WITH 2-AZA-ADAMANTANE

Andre R. Gagneux, Basel, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,650
Claims priority, application Switzerland, Oct. 13, 1967, 14,366/67

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **3 Claims**

2-aza-adamantane possesses anti-influenza A$_2$ viral properties. Pharmaceutical compositions comprising this compound and the use thereof are provided.

3,567,830

COMPOSITIONS AND METHODS FOR PRODUCING A SEDATIVE AND DEPRESSANT EFFECT IN A MAMMAL WITH AN AZASPIROALKYL-BUTYROPHENONE

Rolf Denss and Hugo Ryf, Basel, and Daniel Prins, Oberwil, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 734,182, Mar. 11, 1968, which is a division of application Ser. No. 565,753, July 18, 1966, now Patent No. 3,424,755, which in turn is a continuation-in-part of application Ser. No. 438,047, Mar. 8, 1965. This application Oct. 16, 1968, Ser. No. 768,178

Claims priority, application Switzerland, Mar. 10, 1964, 2,994/64; July 26, 1965, 10,444/65; June 15, 1966, 8,670/66

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **8 Claims**

Therapeutic compositions containing an azaspiro-alkylbutyrophenone or a pharmaceutically acceptable acid addition salt thereof, exhibit sedative and depressant actions on the central nervous system. Illustrative embodiments and to compositions useful for this purpose. More fluorobutyrophenone and 4-(3-phenyl-1,5-dioxa-9-azaspiro[5.5]undec-9-yl)-4′-fluorobutyrophenone.

3,567,831

PHARMACEUTICAL COMPOSITIONS CONTAINING 2,2,5,5-TETRAKIS(POLYFLUOROMETHYL) IMIDAZOLIDINES AND IMIDAZOLINES AND METHODS OF USING SUCH

William J. Middleton, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Division of application Ser. No. 521,317, Feb. 9, 1966, now Patent No. 3,459,766, which is a continuation-in-part of application Ser. No. 461,151, June 3, 1965, which in turn is a continuation-in-part of application Ser. No. 439,476, Mar. 12, 1965. This application Apr. 17, 1969, Ser. No. 817,201

Int. Cl. A61k *27/00*

U.S. Cl. 424—273 **18 Claims**

Described and claimed are pharmaceutical compositions containing psychotropic or muscle-relaxant 2,2,5,5-tetrakis(polyfluoromethyl)imidazodilines and imidazolines of my copending Ser. No. 521,317, and the use of the pharmaceutical compositions.

3,567,832

NEW HYPOTENSIVE AND ODDIAN SPASMOLYTIC PHARMACEUTICAL METHODS EMPLOYING VARIOUS HYDROXY COUMARINES

Eugène Boschetti, Venissieux, Darius Molho, Boulogne-sur-Seine, and Louis Fontaine, Lyon, France, assignors to LIPHA, Lyonnaise Industrielle Pharmaceutique

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,043

Claims priority, application France, Nov. 20, 1967, 128,850

Int. Cl. A61k *27/00*

U.S. Cl. 424—281 **3 Claims**

A new hypotensive and oddian spasmolytic pharmaceutical composition, containing as active principle a hydroxycoumarine selected from the group consisting of 8-hydroxycoumarine, 7,8 dihydroxycoumarine, 4,5,7-trihydroxycoumarine, 4,6,7-trihydroxycoumarine, 4,7,8-trihydroxycoumarine, 7-hydroxycoumarine, 3 - carboxy-7,8-dihydroxycoumarine, 3 - methyl - 4,7,8 - trihydroxycoumarine, 3-phenyl-4,5,7-trihydroxycoumarine, 3-chloro-4-methyl-7,8-dihydroxycoumarine, 3 - chloro-4-methyl-5,7-dihydroxycoumarine, 3-chloro-4-methyl - 6,7 - dihydroxycoumarine, 3-amino-7,8-dihydroxycoumarine.

3,567,833

POLYCYCLIC POLYHALOGENATED PESTICIDES

Edward D. Weil, Apt. 8B, 495 Odell Ave., Yonkers, N.Y. 10710, and Paul E. Hoch, 455 Church St., Youngstown, N.Y. 14174

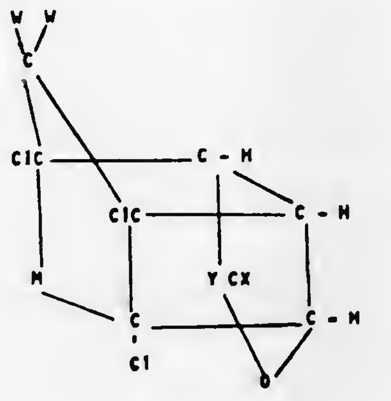
No Drawing. Division of application Ser. No. 551,246, May 19, 1966, now Patent No. 3,494,938, which is a continuation-in-part of applications Ser. No. 325,519, Dec. 2, 1963, now Patent No. 3,331,860, and Ser. No. 510,072, Nov. 26, 1965, now Patent No. 3,322,622.

This application Jan. 7, 1969, Ser. No. 812,505

Int. Cl. A01n *9/28*

U.S. Cl. 424—285 **7 Claims**

A method for the control of pests is described comprising applying to the locus of said pests, a pesticidally effective amount of the compound of the formula



wherein X and Y are independently selected from the group consisting of chlorine and hydrogen, M is selected from the group consisting of carbonyl and hydroxymethylene, and W independently is selected from the group consisting of bromine, fluorine, chlorine, alkyl bromides, fluorides, and chlorides wherein the alkyl group consists of 1 to 5 carbon atoms, and alkyl groups of 1 to 5 carbons, wherein at least one of the W's is halogen.

3,567,834

METHOD OF PRODUCING SEDATION

Edmund Stanley Granatek and Alphonse Peter Granatek, Baldwinsville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 605,156, Dec. 28, 1966. This application June 16, 1969, Ser. No. 833,739

Int. Cl. A61k *27/00*

U.S. Cl. 424—311 **5 Claims**

2,2,2-tribromoethyl glycinate and 2,2,2-trichloroethyl glycinate, and the pharmaceutically acceptable salts thereof, are compounds possessing sedative-narcosis activity in mammals.

The compounds of the invention, particularly the 2,2,2-trichloroethyl glycinate hydrochloride, have been found to be as effective as chloral hydrate in producing sedation when administered on a molar equivalent dosage basis to mammals.

3,567,835

MUCOLYTIC SALTS, COMPOSITIONS AND PROCESS FOR TREATING MUCUS

Henri Morren, Forest, Belgium, assignor to UCB (Union Chimique Chemische Bedrijven), S.A., Saint-Gilles-les-Brussels, Belgium

No Drawing. Original application May 2, 1966, Ser. No. 546,592. Divided and this application Dec. 13, 1968, Ser. No. 807,147

Claims priority, application Great Britain, May 7, 1965, 19,370/65

Int. Cl. A61u *27/00*

U.S. Cl. 424—315 **5 Claims**

Mucolytic compositions, especially effective for fluidifying mucus in humans, comprising a mucolytically effective amount of a salt and/or mixture of salts of a mercapto-alkane-sulfonic acid of the formula HS—X—SO$_3$H, wherein X is an alkylene radical having 2–6 carbon atoms and at least one non-toxic pharmaceutically effective carrier.

3,567,836

FLUORINE CONTAINING ETHYL DISULFIDE FUNGICIDES

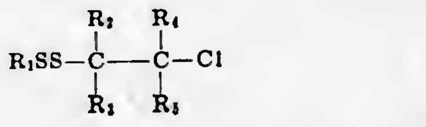
Don R. Baker and Harry A. Pacini, Pinole, and Thomas B. Williamson, Santa Clara, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Division of application Ser. No. 606,545, Jan. 3, 1967, now Patent No. 3,474,146, dated Oct. 21, 1969. Continuation-in-part of application Ser. No. 520,091, Jan. 12, 1966, which is a continuation of application Ser. No. 351,533, Mar. 12, 1964. This application June 4, 1969, Ser. No. 841,178

Int. Cl. A01n *9/12*

U.S. Cl. 424—336 **11 Claims**

Fluorine-containing ethyl organic disulfides of the formula



$$R_1SS-\underset{R_3}{\overset{R_2}{C}}-\underset{R_5}{\overset{R_4}{C}}-Cl$$

wherein R$_1$ can be an alkyl having from 1 to 8 carbon atoms, cyclohexyl, lower alkenyl, phenyl, halophenyl, lower alkyl phenyl wherein said lower alkyl portion contains 1 to 4 carbon atoms, phenalkyl, wherein said alkyl portion contains 1 to 4 carbon atoms, and naphthyl; R$_2$, R$_3$, R$_4$ and R$_5$ can be hydrogen, fluorine, and chlorine, at least two of said R$_2$, R$_3$, R$_4$ and R$_5$ are fluorine or chlorine of which at least one is a fluorine atom; for example, 2,2-difluoro-2-chloroethyl n-butyl disulfide, 1,1-difluoro-2-chloroethyl n-butyl disulfide, 2,2-difluoro-1,1,2-trichloroethyl benzyl disulfide, and 1-fluoro-1,2,2,2-tetrachloroethyl phenethyl disulfide. Extremely effective for controlling and inhibiting the growth of fungi such as *Aspergillus niger* and *Penicillium sp.*, and controlling the acarid, two-spotted mite, *Tetranychus telarius* (Linn.).

ELECTRICAL

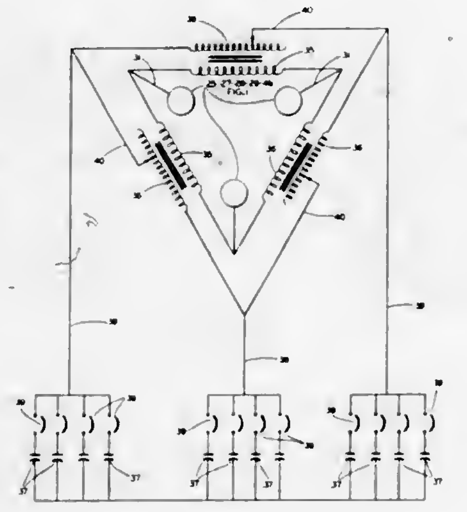
3,567,837
ELECTRIC FURNACE FOR ARC MELTING

Jack A. Van Nostran, and Otis D. Jordan, North Canton, Ohio, assignors to Ohio Ferro-Alloys Corporation, Canton, Ohio

Original application Dec. 3, 1968, Ser. No. 780,668. Divided and this application Nov. 19, 1969, Ser. No. 877,985

Int. Cl. H05b *7/18*

U.S. Cl. 13—12 **4 Claims**



An electric furnace for arc melting having electrodes connected to a main source of electrical power. A transformer having high voltage windings and low voltage windings is provided. There is means for independently connecting the electrodes to the low voltage windings of said transformer, and means for connecting the high voltage windings of the transformer to power factor correctional devices. The transformer is a three phase transformer and there are a plurality of power factor correctional devices connected to the high voltage winding of each phase of the transformer. The power factor correctional devices are preferably capacitors. Circuit breakers are provided for connecting the capacitors to the high voltage windings and disconnecting them therefrom and for changing the amount of capacitance connected to the high voltage windings.

3,567,838
MUSICAL INSTRUMENT RHYTHM SYSTEM HAVING PROVISION FOR INTRODUCING AUTOMATICALLY SELECTED CHORD COMPONENTS

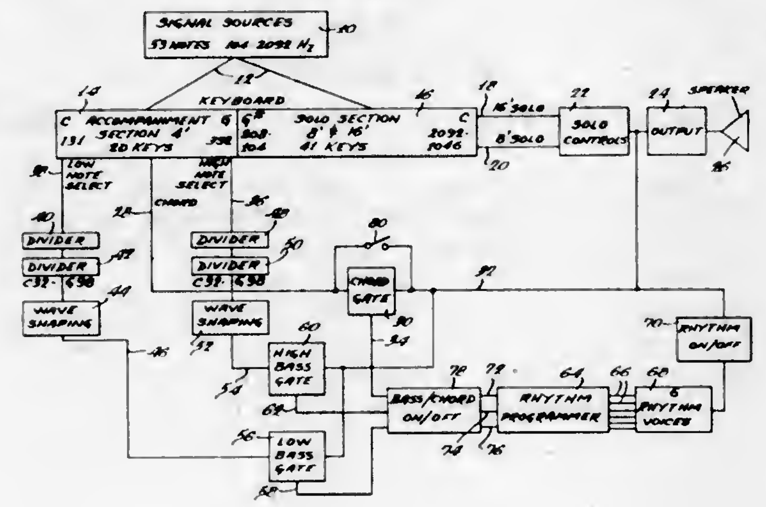
Charles J. Tennes, Palatine, and Donald R. Kern, Buffalo Grove, Ill., assignors to Hammond Corporation, Deerfield, Ill.

Filed Nov. 12, 1969, Ser. No. 875,915

Int. Cl. G10h *1/00;* **G10f** *1/00*

U.S. Cl. 84—1.01 **11 Claims**

An organ rhythm system of the automatic programmed type which at the various beats in a measure or between beats can give automatically the chord being played and/or the root and the fifth of the chord as bass notes, or a musically acceptable substitute intermixed as desired with selected noise type sounds present simultaneously or as other beats. The root and fifth bass notes or the equivalents for this purpose are obtained respectively by frequency division and wave shaping of signals obtained from a low note select and a high note select preference circuit operating over the compass of the accompaniment section of the instrument. Other automatic musical responses are also available from the high and low note select preference circuits and the chord circuit.



3,567,839
PERCUSSIVE ELECTRONIC MUSICAL INSTRUMENT WITH OUTPUT LEVEL CONTROLLED BY INTENSITY OF KEY DEPRESSION

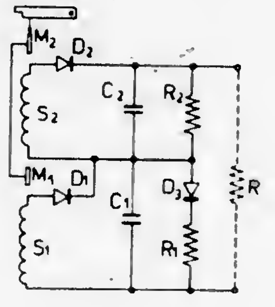
Popko Reinder Dijksterhuis, Deceased, Late of Bilthoven, and Casper Antonius Henricus Mulkens, Administrator, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 12, 1968, Ser. No. 759,532

Claims priority, application Netherlands, Sept. 15, 1967, 6712682

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.26 **5 Claims**



A unit for controlling the output level of a tone generator of an electronic musical instrument according to the intensity with which a key of the instrument is depressed. A diode used in its nonlinear range is employed in the unit for graduating a normally abrupt change between time constants of the output waveform of the unit.

3,567,840
TAPE DRIVE MECHANISM FOR ELECTRICAL MUSICAL INSTRUMENTS

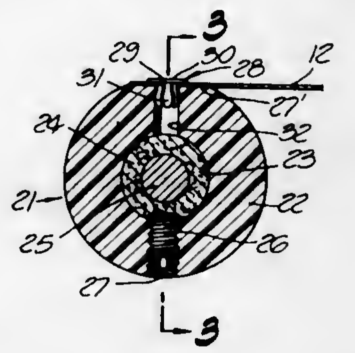
Harry C. Chamberlin, 354 Winn Drive, Upland, Calif.

Filed June 20, 1968, Ser. No. 738,495

Int. Cl. G10h *3/06, 3/04*

U.S. Cl. 84—1.28 **12 Claims**

A record tape drive mechanism for electrical musical instruments in which the tape is movable in opposite directions over a sound pickup, the tape having one end anchored on one side of the pickup, and its other end connected with a tape winding element on the outer side of the pickup and which is continuously driven by power means through a friction driving connection to wind up the tape to a start position as determined by the tape anchor. Also, on said one side there are normally ineffective power driven means for overriding a friction driving force and moving the tape in an unwinding direction from the winding element and away from the start position for reproducing the recorded sound. Manually actuated control means includes a manually movable key operable for effecting operation of the tape moving means for reproduction of sound from the record tape, and upon release permits rewind to its start position.



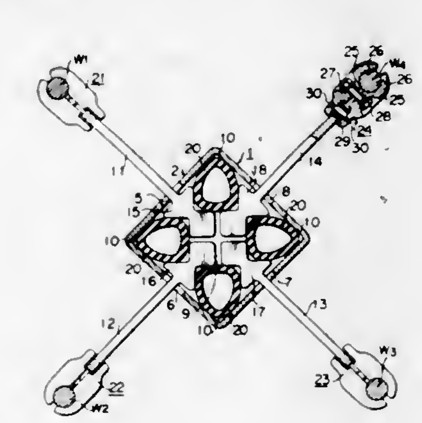
3,567,841
DAMPER SPACER FOR USE WITH BUNDLE CONDUCTORS

Masashi Kobayshi, Kawasaki, Japan, assignor to Asabi Denki Kabrishiki Kaisha, Kawasaki, Japan

Filed Oct. 29, 1969, Ser. No. 872,116

Int. Cl. H02g *7/14, 7/12*

U.S. Cl. 174—42 **2 Claims**



A damper spacer for use with bundle conductors comprises a hollow box-shaped main body and as many arm members as conductors. Each of the arm members, fixing at its outer end a conductor grasping member rigidly mounting a conductor, is introduced into the box-shaped main body at its inner end so that between the outer surface of the inner end of the respective arm members and the inner surface of the boxlike main body there is provided a space having any desired configuration into which space is disposed an elastic body so that the respective arm member is held elastically with respect to the main body.

3,567,842
WALL STRUCTURE

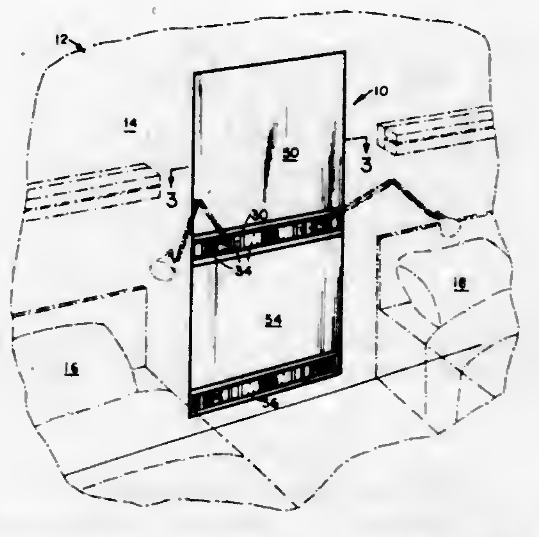
Ronald K. Meyer, 171 Minna St., San Francisco, Calif. 94105

Filed Sept. 5, 1968, Ser. No. 757,614

Int. Cl. H02g *3/10*

U.S. Cl. 174—48 **4 Claims**

A wall structure adapted to be built into a wall, the wall having service conduits passing therewithin, having a framework made up of a pair of horizontal members and a pair of vertical members, and a console having a plurality of outlets therein, the console being mounted to the framework, and the outlets being connected to the service conduits, whereby they become service outlets.



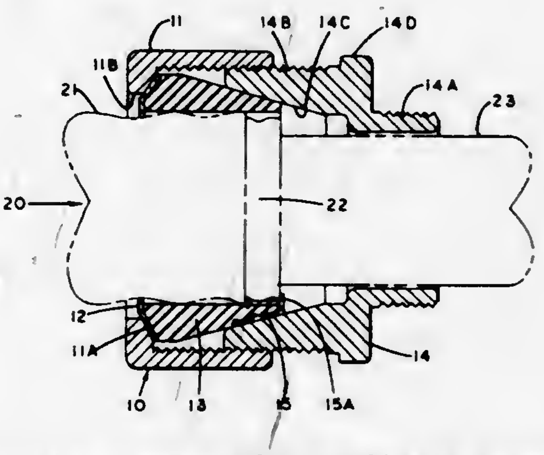
3,567,843
ELECTRICAL CONNECTOR FOR WATERPROOF JACKETED ARMORED CABLE

Kenneth M. Collins, Markham, Ontario, and John B. Davis, Oakville, Ontario, Canada, assignors to Grouse - Hinds Company, Syracuse, N.Y.

Filed Nov. 6, 1968, Ser. No. 773,823

Int. Cl. H01r *3/04;* **H02g** *3/18*

U.S. Cl. 174—51 **3 Claims**



An electrical connector for attaching an armored cable having an exterior waterproof jacket to a junction box, such that the cable is rigidly mechanically gripped by the connector, is electrically grounded thereto, and is sealed therein in a watertight seal, consists of a resilient grommet surrounding the cable jacket and compressed between two threaded members to provide a watertight seal and mechanical gripping, and a plurality of metallic stirrups straddling the inner and outer surfaces of the grommet at one end thereof to coact both with an exposed portion of the metallic armor of the cable and the metal of the connector to provide electrical grounding and additional mechanical gripping of the cable, the connector being further provided with an additional threaded portion for attachment to the junction box.

3,567,844
TERMINAL PAD FOR PERFORATED CIRCUIT BOARDS AND SUBSTRATES

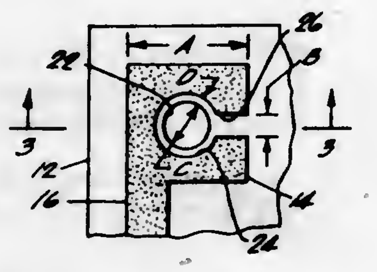
Ludwig L. Krcmar, Simi, Calif., assignor to McDonnell Douglas Corporation

Filed June 23, 1969, Ser. No. 835,567

Int. Cl. H05k *3/32*

U.S. Cl. 174—68.5 **6 Claims**

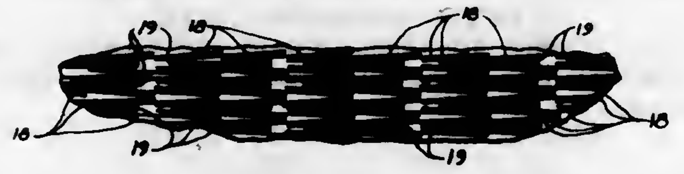
Printed terminal pad structure is formed on a circuit board or substrate surface around and adjacent to the periphery of a terminal pin opening, the pad structure being characterized by a radially extending slot of appropriate width therein to prevent the pin opening from being plugged during a subsequent dip soldering process when a coating of solder is applied to the exposed surface of the pad structure. A solder-coated terminal pad around a solder-free terminal pin opening is thus obtained from the printed terminal pad structure.



3,567,845

INSULATED CABLE JOINT

George Bahder, Edison, N.J., assignor to General Cable Corporation, New York, N.Y.
Filed Jan. 16, 1970, Ser. No. 003,448
Int. Cl. H01b *7/02;* **H02g** *15/08*
U.S. Cl. 174—84 **12 Claims**

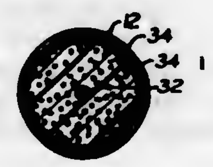


The conductor at a cable joint is insulated by successive layers of a rubber type tape, such as butyl rubber or ethylene propylene rubber tape, around the conductors and incorporating a plurality of layers of another type of tape, such as cross-linked polyethylene or polypropylene tape, which has a lower electric loss value than the rubber type tape, in successive single layers with at least two layers of the rubber type tape under each layer of the other type. The layers of rubber type tape are bonded to each other and each layer of the other type is preferably arranged in an open spiral so that the layer of rubber type tape above bonds to the one below Also, each layer of the other type is preferably shrunk on the layer of the rubber type below it.

3,567,846

METALLIC SHEATHED CABLES WITH ROAM CELLULAR POLYOLEFIN INSULATION AND METHOD OF MAKING

William J. Brorein, Whippany, and Fred F. Polizzano, Allendale, N.J., assignors to General Cable Corporation, New York, N.Y.
Filed May 31, 1968, Ser. No. 733,528
Int. Cl. H01b *7/18*
U.S. Cl. 174—102 **9 Claims**

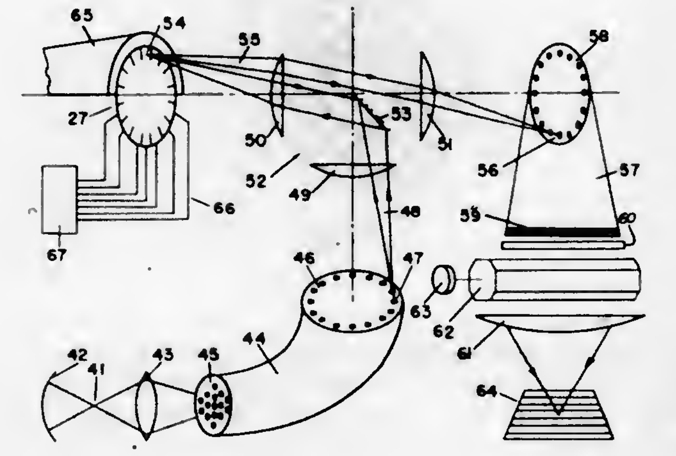


The metallic sheathed electrical cables of this invention have foamed cellular polyolefin dielectric insulation which is fusion-bonded to the inside of an annealed sheath to obtain better electrical and mechanical characteristics. The sheath is applied to a foam-insulated core and then sunk down by drawing through a die or reducing rolls to make the tube fit the insulated core snugly. Controlled heating of the sheathing melts the part of the insulation, or adhesive material, when used, which is in contact with the sheath to produce the fusion bond. The heating period is short and is followed by a quench. This controlled heating and cooling is also used to anneal the metallic sheath.

3,567,847

ELECTRO-OPTICAL DISPLAY SYSTEM

Edgar E. Price, 648 Applegrove Circle, Webster, N.Y.
Filed Jan. 6, 1969, Ser. No. 789,317
Int. Cl. H04n *9/14, 5/74*
U.S. Cl. 178—5.4 **12 Claims**

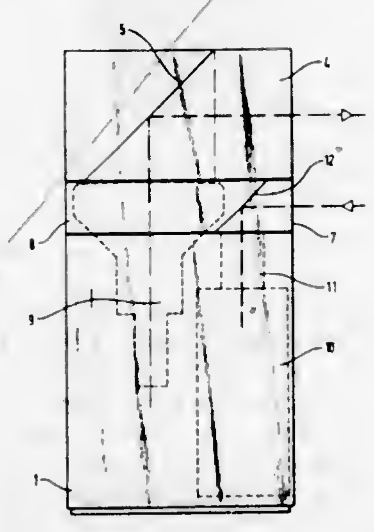


An electro-optical display system particularly for projecting an enlarged color television image on a screen in which the transmitted signals are converted into points of light modulated by a Fabry-Perot multiple interferometric light modulator assembly.

3,567,848

TELEPHONE-TELEVISION EQUIPMENT

Paul Hans Thies, Munich, and Rainer Bergmann, Dortmund, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Mar. 18, 1968, Ser. No. 713,773
Claims priority, application Germany, Mar. 17, 1967, S108,885
Int. Cl. G02b *27/00;* **H04n** *5/64, 7/06*
U.S. Cl. 178—6 **16 Claims**

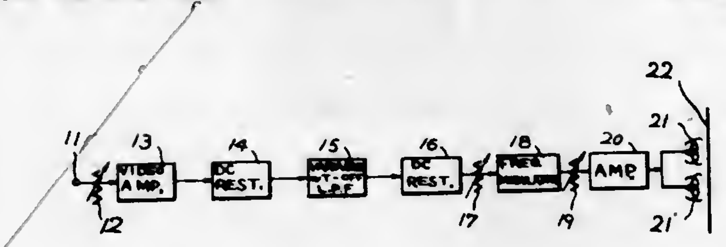


Apparatus for use in conjunction with telephone-television equipment wherein subscribers may simultaneously communicate acoustically and visually. At each subscriber station, the television camera is arranged in relation to the television receiver such that the user must be positioned within viewing range of the television camera to observe the image reproduced by the television receiver. This insures automatic transmission of a television signal to the associated connected subscriber which represents the image of the user.

3,567,849

VARIABLE BANDWIDTH MAGNETIC RECORDING SYSTEM

Kenjiro Takayanagi; Tomiyuki Tanaka, and Yoshihiko Ota, Tokyo, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Filed Oct. 30, 1967, Ser. No. 678,857
Claims priority, application Japan, Oct. 29, 1966, 41/71,226
Int. Cl. H04n *1/28, 5/78, 7/12*
U.S. Cl. 178—6.6 **5 Claims**

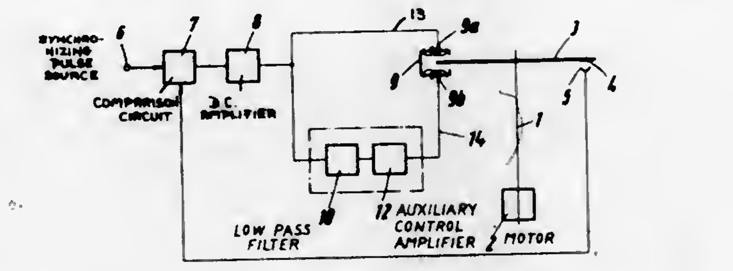


A variable bandwidth magnetic recording system records a modulated carrier wave which is frequency-modulated by a video signal that is to be transmitted. The transmitted frequency band can be varied in accordance with the instantaneous value of the voltage or voltages of the low frequency component of the video signal, which include a mean brightness in a horizontal scanning period or in a vertical scanning field. When the instantaneous value voltage or voltages are high, the width of the transmitted frequency band is increased. When the instantaneous value voltage or voltages are low, the width of the transmitted frequency band is reduced.

3,567,850

ARRANGEMENT FOR PHASE-CORRECT REGULATION OF THE SPEED OF A ROTATING SHAFT

Fritz Habel, Berlin, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany
Filed Feb. 7, 1969, Ser. No. 797,648
Claims priority, application Germany, Feb. 8, 1968, P 16 38 155.8
Int. Cl. H04m *5/76;* **H02k** *7/104*
U.S. Cl. 178—6.6 **9 Claims**



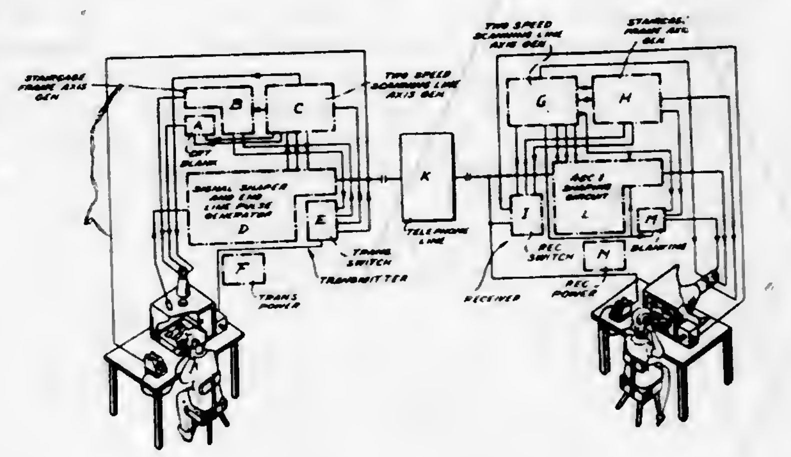
An arrangement for improved regulation of the phase position of a rotating shaft includes an auxiliary circuit branch connected in parallel with the current path of a control signal, which auxiliary branch consists of a filter member and an auxiliary control amplifier, the arrangement being provided so that phase deviations of the control signal, which last for an extended period of time, as they might appear during changes of the synchronizing pulse frequency or of the mechanical friction conditions, become effective as an additional control value for the compensation of these changes.

3,567,851

ELECTRONIC SYSTEM FOR FAST TRANSMISSION OF TWO TONALITIES FIXED IMAGES

Aurelio Beltrami, Via Circo 4, Milan, Italy
Filed Apr. 24, 1967, Ser. No. 633,190
Claims priority, application Italy, Aug. 6, 1966, 21,177
Int. Cl. H04n *7/12*
U.S. Cl. 178—6.8 **5 Claims**

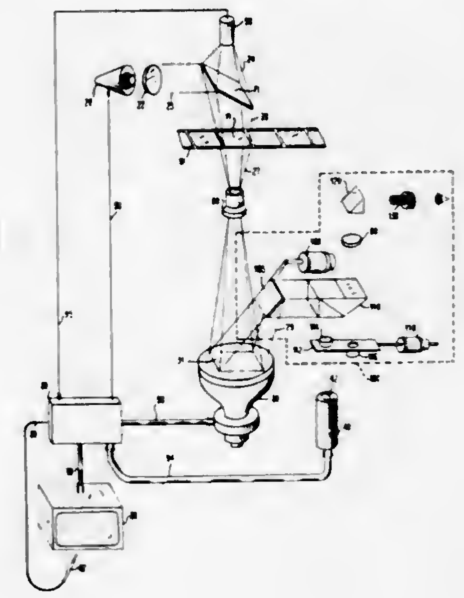
An electronic system for fast transmission of two tonalities fixed images, through telephone plants wherein there is transmitted only a pulse corresponding to the points where there is a variation of tonality and to the points corresponding to the starting of the end line pulses. At the reception end, the image is reconstructed on a picture tube, by means of a raster having a two speed line axis and a staircase frame axis.



3,567,852

FILM DISPLAY SYSTEM

Allen H. Ett, Bethesda, Md., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 1, 1968, Ser. No. 764,136
Int. Cl. H04n *5/36, 7/18*
U.S. Cl. 178—6.8 **6 Claims**



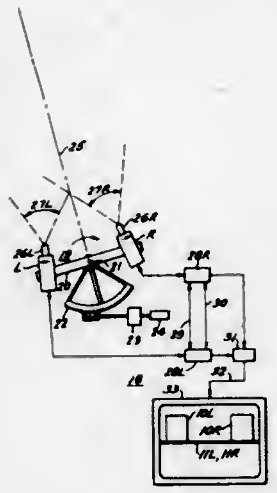
An information retrieval system for reading and displaying information contained on a photographic film, in which the combination of the reading and displaying functions is accomplished by using multiplexing techniques. A single light path transmits light in two directions to achieve perfect registration between the information read from the film and the information displayed from the film.

3,567,853

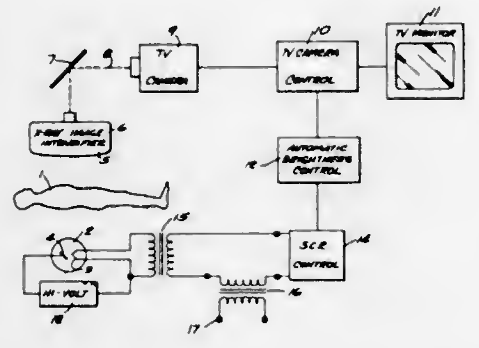
TELEVISION POSITION INDICATING APPARATUS

Leonard E. Green, Dundalk, Md., assignor to Bethlehem Steel Corporation
Filed Feb. 27, 1969, Ser. No. 802,834
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **3 Claims**

Closed circuit TV indicates the alignment position of a coil lifter on a remotely controlled subway car with the vertical center of a coil of metal strip located randomly along skids on a floor above the car. Two vidicon TV cameras, one modified for opposite-hand horizontal scanning, are attached to a remotely controlled azimuthal aiming mount and imaged from opposite side of an aiming axis which extends perpendicular to car movement. This produces two opposite-hand video signals of adjacent views of the same field. The video signals are continuously mixed and fed to a TV monitor where full opposite-hand images are observed in superposed relationship. Two horizontally displaced images of the coil, or an illuminated target carried by the subway car at the lifter, converge toward one another during movement of the aiming mount or the car, whereby said alignment is indicated by maximum convergence of their TV images.



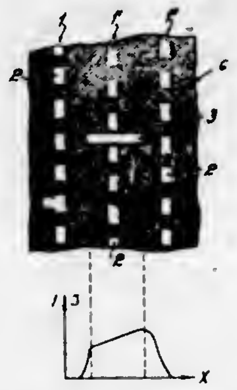
3,567,854
AUTOMATIC BRIGHTNESS CONTROL FOR X-RAY IMAGE INTENSIFIER SYSTEM
Leslie G. Tschantz, Brookfield, and William H. Wesbey, New Berlin, Wis., assignors to General Electric Company
Filed Oct. 23, 1968, Ser. No. 769,963
Int. Cl. H04n *1/38, 7/18*
U.S. Cl. 178—6.8 **6 Claims**



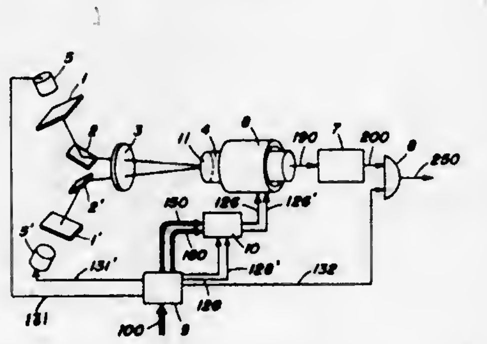
The visual image in x-ray image intensifier is viewed with a TV camera and displayed on a monitor. Constant picture brightness is maintained regardless of x-ray transparency differences in various regions of the subject by peak detecting the video signals corresponding with a specific picture region and using the signals in a closed-loop system to control the x-ray tube current and, hence, the intensity of the x-ray through the subject.

3,567,855
SCANNING APPARATUS WITH AUTOMATIC BEAM CENTERING
Hansjoachim Hamisch, Berlin, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 3, 1969, Ser. No. 803,858
Claims priority, application Germany, Mar. 1, 1968, 1,613,990
Int. Cl. H04n *5/82;* **G05b** *1/06;* **G11b** *7/00*
U.S. Cl. 178—7.1 **14 Claims**

An elongated focal light spot whose intensity gradually varies along its length, crosses a track of a record carrier having light permeable recordings and scans the same. When the record carrier is undesirably displaced, signals whose intensity varies pass through the light permeable recordings and are received by a photocell which produces varying output signals controlling regulating means by which the focal light spot is again centered on the track.



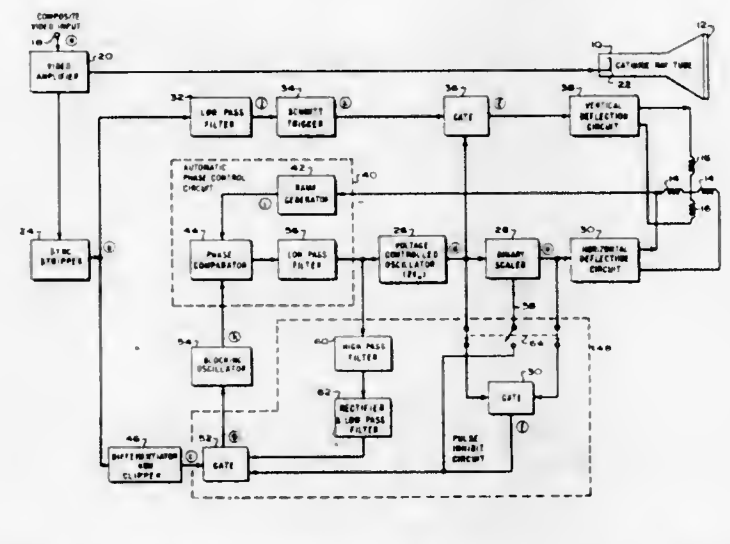
3,567,856
PATTERN GENERATOR APPARATUS
Koji Nezu, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Feb. 18, 1969, Ser. No. 800,151
Claims priority, application Japan, Feb. 20, 1968, 43/10879
Int. Cl. H04n *5/30*
U.S. Cl. 178—7.2 **10 Claims**



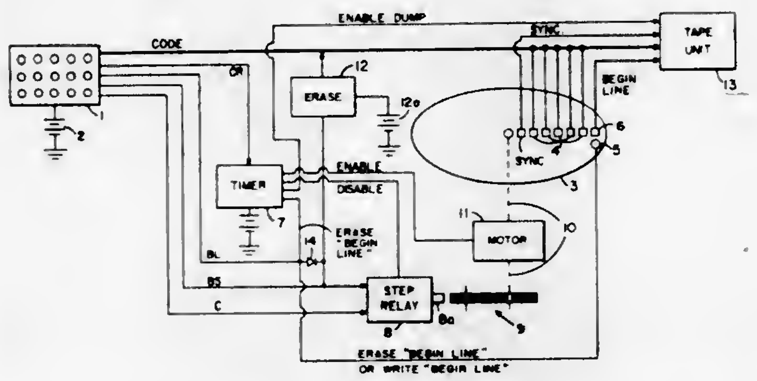
Pattern generator apparatus is provided according to the present invention wherein image pickup means relying upon electron beam scanning is utilized to accomplish the translation of digital information into characteristic and symbolic information. In addition, prescanning of the target face of the image pickup means is relied upon prior to the read scanning thereof so that any residual image present thereon due to a preceding generation sequence in the area of the said target face to be read scanned may be erased. However, as such prescanning is restricted solely to the area of the target face which is to be read scanned, a high speed mode of generation is maintained. According to one embodiment of the present invention, the pattern generator apparatus includes a plurality of pattern carrying films and a plurality of associated flash tubes positioned in light communication with the target face of image pickup means having an electron beam scan, the plurality of associated flash tubes are adapted to be energized on a time division basis by digital signals applied thereto and said electron beam is adapted for prescanning and thereafter read scanning a predetermined portion of the target face of said image pickup tube in response to digital signals applied to the control means therefor.

3,567,857
PULSE INHIBIT CIRCUIT
Robert E. Lynn, Somerville, N.J., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Mar. 15, 1968, Ser. No. 713,331
Int. Cl. H04n *5/10*
U.S. Cl. 178—7.3 **18 Claims**

The picture signal is removed from an amplified composite video input signal by a sync stripper. Vertical sync pulses extracted from the remaining composite synchronizing signal periodically enable a gate to pass portions of a timing signal from an oscillator operating at twice the horizontal line rate. The gated portions of this timing signal periodically trigger a vertical deflection circuit to initiate retrace of the vertical field scans of an electron beam of a cathode ray tube. A binary scaler halves the repetition rate of the timing signal from the oscillator. The resultant signal periodically triggers a horizontal deflection circuit to initiate retrace of the horizontal line scans of the electron beam of the cathode ray tube. An automatic phase control circuit locks the oscillator in phase with the composite synchronizing signal and stabilizes the rate of the timing signal at twice the horizontal line rate. In response to the signals from the oscillator and the binary scaler a control gate passes the horizontal timing portions of the composite synchronizing signal and inhibits passage of double frequency portions in the vertical synchronizing interval of the composite synchronizing signal. The horizontal timing portions are regenerated by a blocking oscillator and supplied to the automatic phase control circuit for phase and frequency comparison with a ramp signal generated in phase with and at the rate of the signal from the binary scaler. When the compared signals are not within the pull-in range of the automatic phase control circuit another control circuit prevents the inhibit cycle of the control gate.

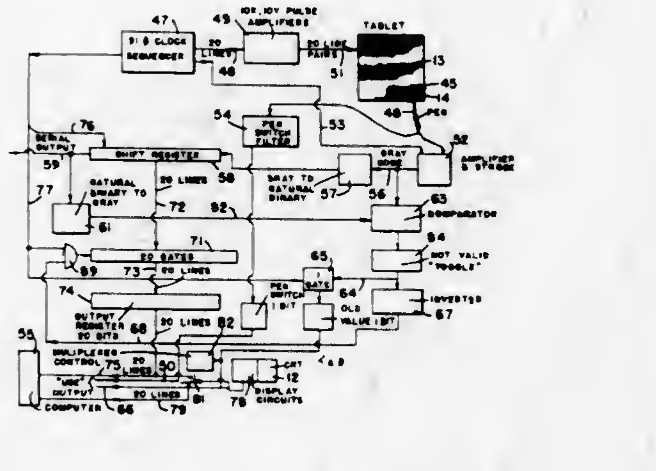


3,567,858
APPARATUS FOR CONVERTING SLOW ERRATIC DATA TO HIGH EVEN DATA
John W. Ecklin, 40 Alexis Road, Woodbridge, Va. 22191
Filed June 6, 1968, Ser. No. 735,040
Int. Cl. H04l *13/08*
U.S. Cl. 178—17.5 **3 Claims**



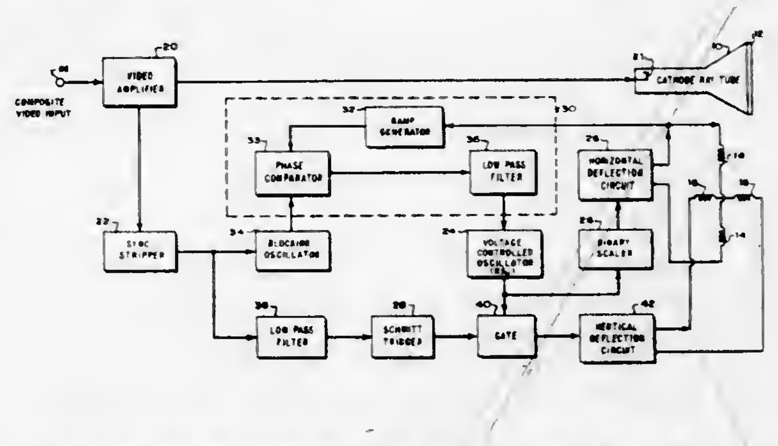
Data to be fed into a computer is typed on the keyboard of a modified teleprinter, providing a record. The electrical signals from the teleprinter are stored on a magnetic disc memory. On a carriage-return signal from the teleprinter, the memory rapidly reads out at a rate compatible to computer magnetic tape. If a typing error is made, the teleprinter carriage is backspaced, and the error manually erased from the print record by the typist. A signal is sent from the teleprinter to the memory when a backspace is performed, which signal backspaces the disc, and erases the last stored data signal. When the correct key of the keyboard is depressed, the correct signal is stored in memory and is typed on the print record.

3,567,859
CAPACITIVELY COUPLED GRAPHIC INPUT SYSTEM
Thomas O. Ellis, Palos Verdes Estates, and Malcolm R. Davis, Woodland Hills, Calif., assignors to the United States of America as represented by the Secretary of the Army
Original application , Ser. No. 378,786, now Patent No. 3,399,401. Divided and this application Feb. 16, 1968, Ser. No. 724,657
Int. Cl. H08b *5/00*
U.S. Cl. 178—18 **5 Claims**



A graphic input device includes an electrical tablet having an insulated wire screen in which two sets of parallel wires are disposed at right angles to each other and a stylus capacitively coupled to the tablet. The tablet wires are cyclically energized according to a binary coding pattern by a set of capacitively coupled encoding pads.

3,567,860
TELEVISION SYNCHRONIZING SYSTEM
Bernard M. Oliver, Los Altos Hills; Richard E. Monnier, Sunnyvale, and Gregory Justice, Mountain View, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Mar. 7, 1968, Ser. No. 711,414
Int. Cl. H04n *5/10*
U.S. Cl. 178—69.5 **14 Claims**

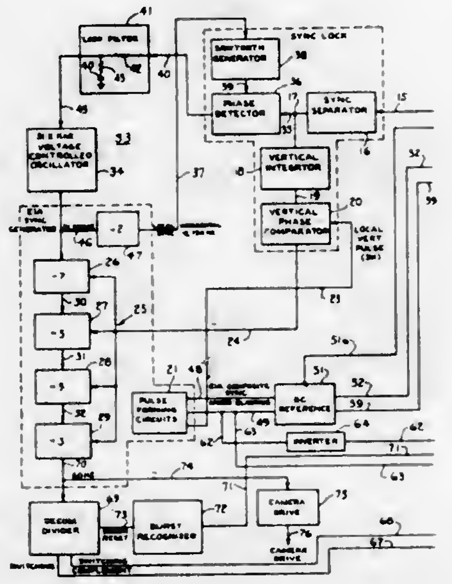


A sync stripper removes the picture signal from the composite video input signal leaving a composite synchronizing signal that includes horizontal and vertical sync pulses. An oscillator produces a periodic timing signal having a repetition rate equal to twice that of the horizontal sync pulses. This timing signal is supplied to a binary scaler to produce a synchronizing signal for periodically triggering a horizontal deflection circuit at a repetition rate equal to that of the horizontal sync pulses. A feedback circuit, responsive to this synchronizing signal and to the composite synchronizing signal, phase locks the oscillator to the composite synchronizing signal and maintains the repetition rate of the oscillator at twice that of the horizontal sync pulses. The timing signal is also supplied to a gate that is periodically enabled in response to the vertical sync pulses to provide a synchronizing signal for periodically triggering a vertical deflection circuit at a repetition rate equal to that of the vertical sync pulses.

3,567,861
VIDEO/SYNC PROCESSOR

Darrow L. Webb, Cocoa, and Francis Byrne, Cocoa Beach, Fla. Assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 11, 1968, Ser. No. 782,956
Int. Cl. H04n *5/04*
U.S. Cl. 178—69.5 **2 Claims**



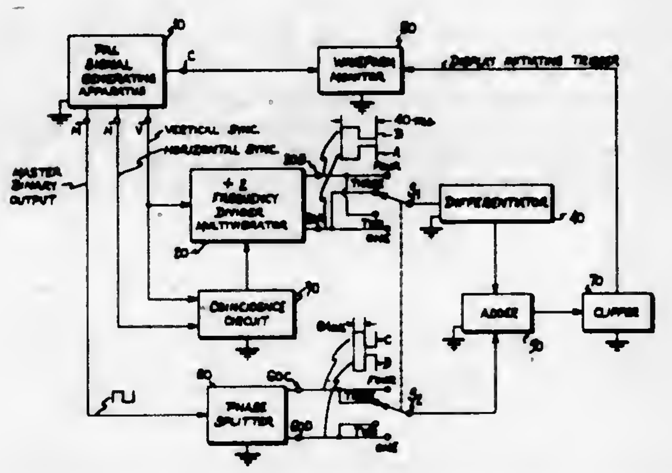
A video sync processor which includes a phase locked loop which compares the horizontal sync of an incoming video signal to the horizontal sync of a local sync generator and thereby locks a voltage control oscillator of the processor to a master oscillator carried in the remote transmitting station. In this manner all local processing equipment is referenced to the remote master oscillator. Frequently, when signals are received from remote stations, such as spacecrafts, there is a low signal-to-noise ratio and the quality of the signal is poor. In order to improve the stability of the composite signal the sync and blanking portion are stripped from the incoming video signals and a clean sync and blanking signal from the local sync generator is inserted therein. Therefore, as long as horizontal phase-lock is maintained all ground recording and monitoring equipment are presented with video and clean sync regardless of the signal-to-noise ratio of the signal received.

3,567,862
MONITORING OF PAL SIGNAL WAVEFORMS

Peter Swift Carnt, Herrliberg, and Theodore Ernest Bart, Zurich, Switzerland, assignors to RCA Corporation

Filed Feb. 19, 1968, Ser. No. 706,463
Claims priority, application Great Britain, Feb. 24, 1967, 8835/67
Int. Cl. H04n *7/02*
U.S. Cl. 178—5.4 **6 Claims**

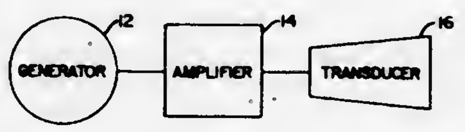
Apparatus and methods for the selective identification and display of four unique fields in the PAL system. Trigger pulses are generated to enable selective display by a waveform monitor of the vertical blanking interval waveforms of any desired field in the four field sequence. Pursuant to a first embodiment, particularly useful where there is available from equipment being monitored (half line frequency) master binary output keyed to the burst phase alternation as well as sync pulse outputs, the trigger pulse generation is achieved by apparatus including coincidence circuits responding to sync signals and master binary waveforms. In accordance with a further embodiment, of more universal applicability, the trigger pulse generating apparatus requires only a composite video signal input. In the latter embodiment, facilities are provided for simultaneously displaying the four unique vertical interval waveforms, one above the other, in a predetermined position sequence. The latter embodiment further provides facilities for determining the field phase coincidence of differently sourced PAL signals.



3,567,863
METHOD OF SONIC CONDITIONING

Thomas G. Morrissey, 5700 W. 28th Ave., Denver, Colo.

Filed Aug. 25, 1967, Ser. No. 663,424
Int. Cl. H04r *3/00*
U.S. Cl. 179—1 **7 Claims**



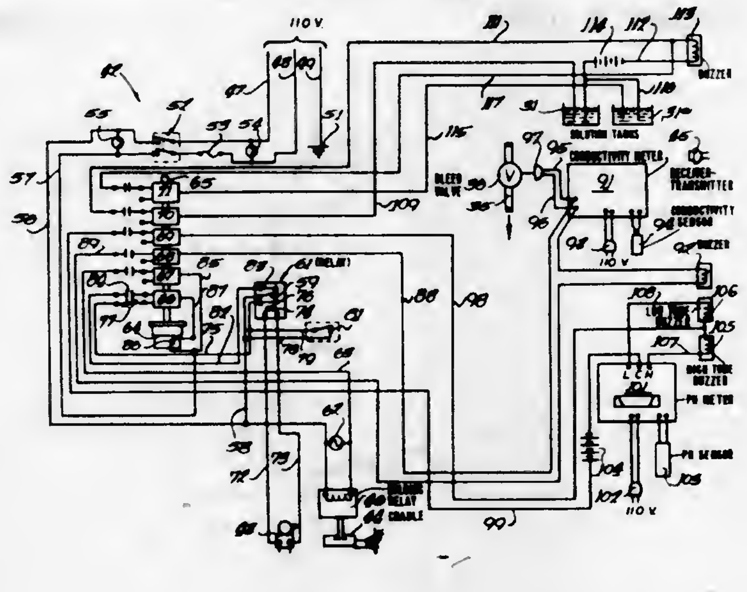
A method of sonic conditioning an area comprising the step of radiating in said area a cyclic sonic pattern having random variations of predetermined limits of amplitude in the audible frequency range, said limits of amplitude falling within a range of approximately 85 to 100 percent of the maximum amplitude for said sound pattern (and preferably within a range of approximately 88 or 90 to 100 percent of said maximum amplitude), said cyclic sound pattern having a sound pressure level sufficient to mask environmental sounds within said area. This method of sound conditioning may also include an additional step of transmitting to or radiating in said area from a second location a second cyclic sonic pattern as aforedescribed. This method of sound conditioning in an area may also include the step of transmitting to said area at a predetermined time interval or delay a second identical cyclic sound pattern either from the same or a different location. The frequency variation for the cyclic sound pattern contemplated by this invention falls within a range between approximately 30 cycles per second to 10,000 cycles per second.

3,567,864
MONITORING AND REPORTING SYSTEM

George E. Palmer, Hinsdale, and Peter W. Smith, Lombard, Ill., assignors to Culligan Inc., Northbrook, Ill.

Filed Feb. 23, 1968, Ser. No. 707,730
Int. Cl. H04m *11/04*
U.S. Cl. 179—5 **9 Claims**

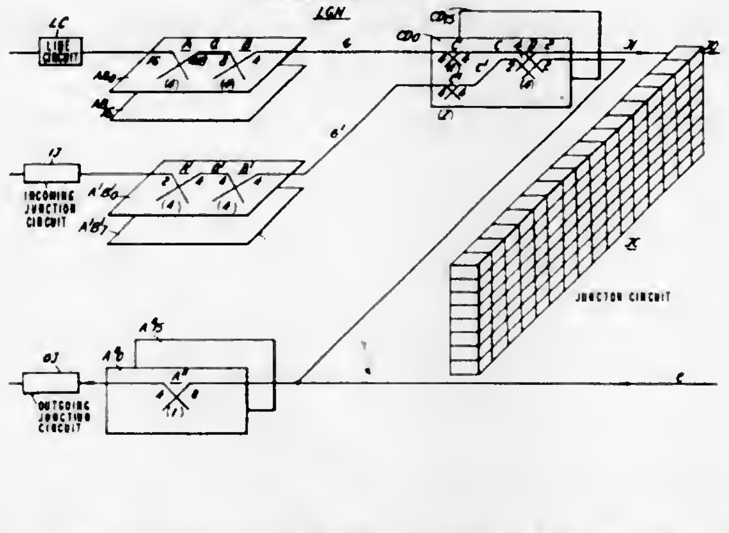
A monitoring and reporting system utilized to check on the condition of a water circulating and treating system by means of a private telephone line where the dialing of the number for a telephone set at the situs of the system and the ringing of the telephone sets a control circuit into operation. The circuit includes a timer motor rotating a series of cams for snap switches which, when closed, actuate a circuit to sense a condition of the system and provide a short interval audible signal that is picked up by the telephone receiver. One snap switch actuates a device which lifts the cradle for the telephone handset, and a series of buzzers are positioned adjacent the receiver which are connected to the condition indicators such as for conductivity, pH level, and chemical solution levels in the solution containers. The signals are controlled by the timer motor to be actuated at fixed time intervals.



3,567,865
CROSS POINT SWITCHING NETWORK IN A TELECOMMUNICATION SYSTEM

Pe Tsi Chu, Vence, France; Hans Helmut Adelaar, Kapellenbos, and Alois Rene Termote, Edegem, Belgium, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Jan. 18, 1968, Ser. No. 698,924
Claims priority, application Netherlands, Jan. 23, 1967, 6,701,049
Int. Cl. H04g *3/60*
U.S. Cl. 179—18 **17 Claims**

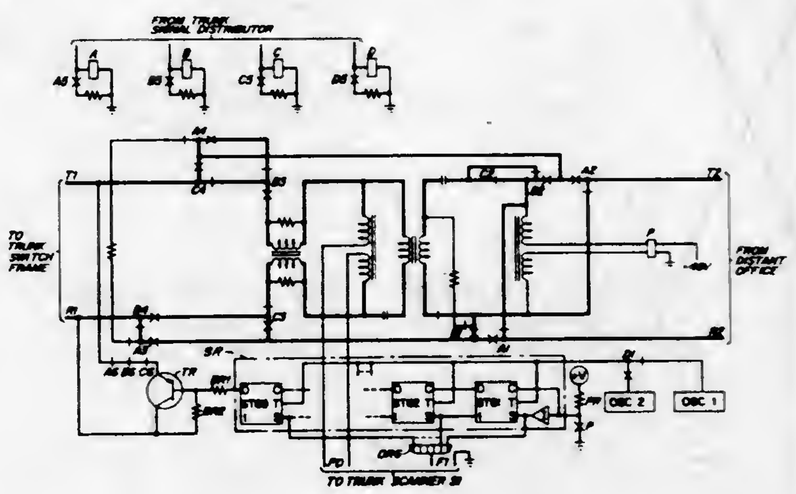


In a telecommunication system having a plurality of line terminals and common control means, a novel switching network having a first and a second part is provided through which communication paths are established between selected pairs of the line terminals coupled to the first part. A first group of a plurality of output terminals of the first part is connected to a plurality of input terminals of the second part. A second group of the output terminals of the first part is directly connected to a selected group of output terminals of the second part. This manner of interconnection between the first and second parts eliminates the need for an additional switching network otherwise required in prior art devices for completing the communication paths between selected pairs of the line terminals.

3,567,866
TRUNK CIRCUIT WITH PULSE DELAY

Bruce E. Briley, Countryside, and Victor Hachenburg, Naperville, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 11, 1968, Ser. No. 736,171
Int. Cl. H04q *1/32*
U.S. Cl. 179—18 **10 Claims**

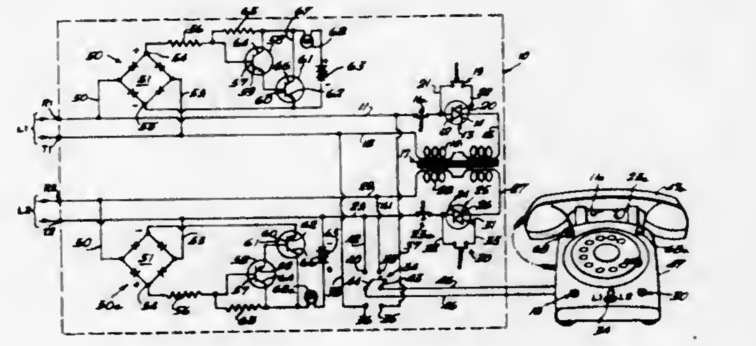


In an electronic telephone-switching system a trunk circuit is disclosed for connection to incoming trunks from step-by-step telephone-switching systems. The trunk circuit incorporates delay means for delaying all incoming dial pulses for a predetermined period thereby allowing the switching system sufficient time after trunk seizure to establish a connection from the trunk circuit to a dial pulse receiver by means of a switching network.

3,567,867
SUPERVISORY LAMP SYSTEM FOR TELEPHONE CONFERENCE CONNECTION AND CALL TRANSFER DEVICES

Charles F. Rice, Miami Shores, and Charles Kimtantas, Miami Springs, Fla.

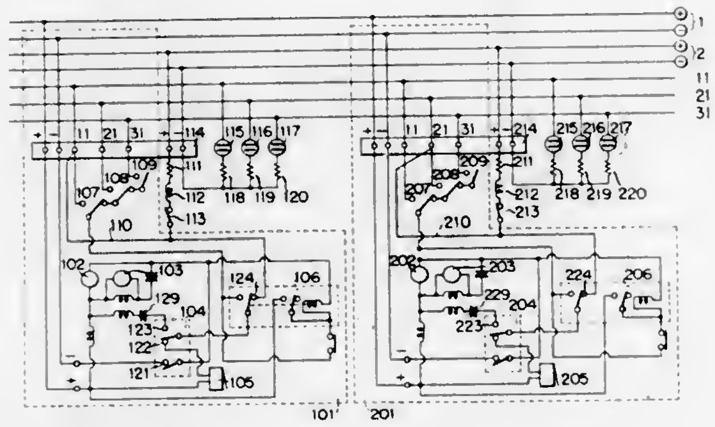
Continuation-in-part of application Ser. No. 572,045, Aug. 12, 1966, now Patent No. 3,470,322. This application Sept. 30, 1969, Ser. No. 862,188
Int. Cl. H04m *3/42*
U.S. Cl. 179—81 **6 Claims**



A supervisory lamp system for use in conjunction with a conference connection and call transfer device for effecting call transfer or conference connection between two or more mutually remote telephone subscribers at a subscriber station having a plurality of telephone circuit subscriber lines is described. Connection of or "seizing" of any of the interconnected lines is signalled by the lighting of an associated supervisory lamp at the controlling subscriber station, which supervisory lamp automatically goes out upon disconnect effected by "hanging up" of the associated remote subscriber set. When setting up conference connection between two or more remote subscriber stations without monitoring at the controlling subscriber station, accidental actuation of disconnect switches at the controlling station is prevented by having said switches arranged within the cradle of the controlling subscriber desk set in such a manner that when the handset portion is placed upon the cradle, said switches are protectively covered.

3,567,868
INTERPHONE DEVICE HAVING PRESENCE INDICATOR MEANS

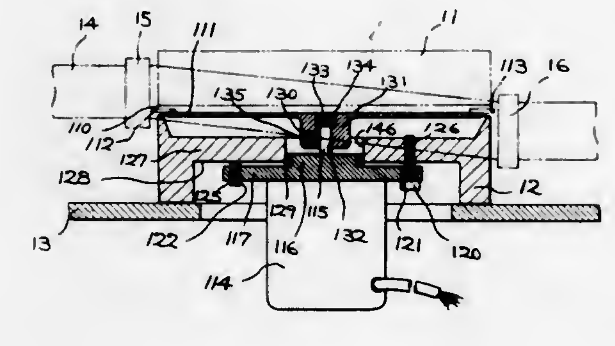
Toru Mukae, and Tadashi Akiyama, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Aug. 27, 1968, Ser. No. 755,621
Int. Cl. H04m *1/00*
U.S. Cl. 179—81 **4 Claims**



An interphone designed for mutual conversation-type interphone systems and having a plurality of high impedance lamps the turning-on of which indicates the presence of personnel by the corresponding other interphones. A capacitor is connected to the lamp source supply lines for preventing crosstalk.

3,567,869
MAGNETIC RECORDING AND REPRODUCING APPARATUS WITH ROTATING HEAD INCLINATION AND HEIGHT-ADJUSTING MEANS

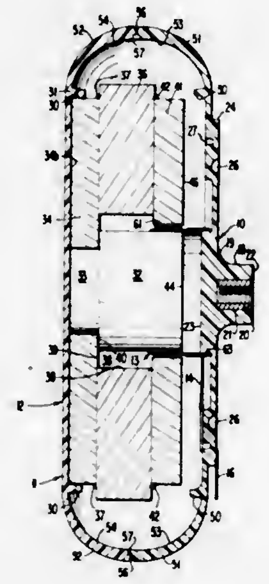
Akira Hirota, Chigasaki; Keiichi Sekine, and Junichi Ura, Yokohama, Japan, assignors to Victor Company of Japan Limited, Yokohama, Japan
Filed Mar. 6, 1968, Ser. No. 710,907
Claims priority, application Japan, Mar. 7, 1967, 13920
Int. Cl. G11b *5/52, 21/24;* **H04n** *1/24*
U.S. Cl. 179—100.2 **1 Claim**



A magnetic recording and reproducing apparatus has a rotating member, provided with magnetic heads, in a cylindrical magnetic tape guide member assembly. A magnetic tape travels over the guide obliquely relative to the axis of rotation of said rotating member to successively record or reproduce high-frequency signals such as television video signals in oblique tracks. The apparatus permits the matching of tracks on the magnetic tape by adjusting the angle of inclination of the axis of rotation of the rotating member and the height of the rotating member.

3,567,870
WALL SURFACE TRANSDUCER SYSTEM

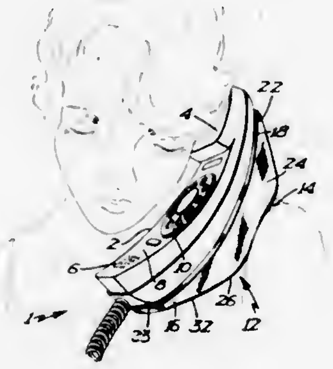
Benigno A. Rivera, Rio Piedras, Puerto Rico, assignor to Harold D. Linden and Lawrence A. Gordon, San Juan, Puerto Rico
Filed July 25, 1968, Ser. No. 747,699
Int. Cl. H04r *9/00*
U.S. Cl. 179—115.5 **4 Claims**



A transducer assembly for mounting on a wall surface or other surface for converting electrical energy to sound or vice versa. The invention is an improvement on prior art devices of similar character in providing improvement in frequency response and truer sound reproduction. The improvement comprising a housing formed from two cup-shaped members whose edges of peripheral joinment are curved surfaces, the curvature of said surfaces being identical, equal, and complementary to each other. Consult the specification for other features and details of the invention.

3,567,871
SHOULDER SUPPORT AND HAND GRIP FOR TELEPHONE

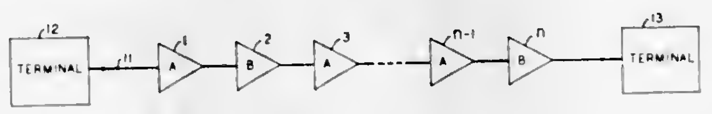
Charles F. Walter, 4124 46th Ave. S., Minneapolis, Minn.
Filed Nov. 14, 1968, Ser. No. 775,847
Int. Cl. H04m *1/04*
U.S. Cl. 179—157 **4 Claims**



A telephone handset support block having a concave, shoulder-engaging pocket with an inclined surface which serves to tilt the handset receiver and transmitter portions towards the user at a convenient angle. A slightly convex surface on a base portion of the support block serves as a hand grip by means of which a telephone handset of the type having a built-in dial may be balanced and supported when dialing.

3,567,872
THIRD ORDER COMPENSATION IN REPEATERED TRANSMISSION LINES

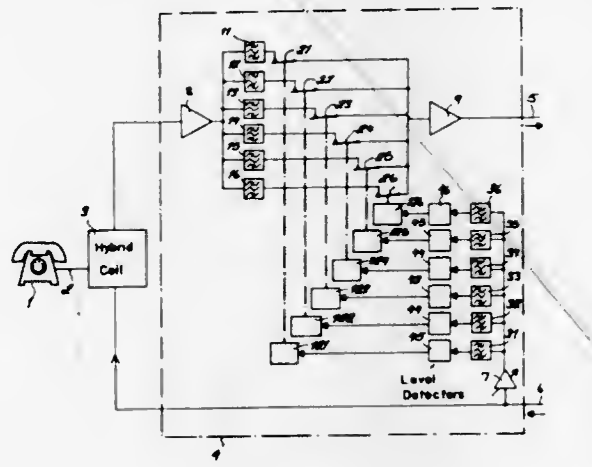
Sundaram Narayanan, Lawrence, Mass., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed June 9, 1969, Ser. No. 831,563
Int. Cl. H04b *3/36*
U.S. Cl. 179—170 **5 Claims**



In a repeatered transmission line, in-phase addition of third order intermodulation products is prevented to greatly reduce accumulated intermodulation noise. With this system, some repeater amplifiers are adapted by manipulation of bias voltage and load resistance to generate these products in opposite phase relation to those generated by the remaining repeaters, thereby causing cancellation.

3,567,873
ECHO-SUPPRESSION AND NOISE-ELIMINATION SYSTEM FOR TELEPHONE CIRCUITS

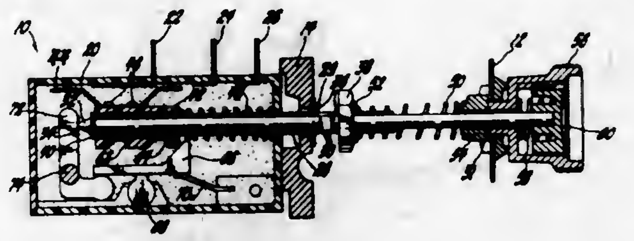
Bruno Peroni, Rome, Italy, assignor to Consiglio Nazionale delle Ricerche, P. le delle Scienze and Fondazione U. Bordoni, Rome, Italy
Filed Dec. 22, 1967, Ser. No. 692,783
Claims priority, application Italy, Dec. 24, 1966, May 27, 1967, 43785;37064
Int. Cl. H04b *3/24*
U.S. Cl. 179—170.2 **9 Claims**



An incoming and an outgoing telephone channel, connected to a local line via a hybrid coil, are each provided with a multiplicity of parallel branch paths including respective band-pass filters selecting different subbands in a band of voice frequencies to be transmitted or received, the filters of each channel being in series with respective relay contacts so controlled in response to incoming voice signals that subbands whose frequencies predominate in the incoming signal are selectively received by the local line while being blocked in the outgoing channel for the suppression of echoes. The selective opening of some relay contacts may be limited to periods of two-way communication, with the aid of a monitoring circuit responding to the concurrent presence of different frequencies in the two channels; alternatively, the monitoring circuit may be responsive to a single pilot frequency which is suppressed at the receiving side of the hybrid coil so that its presence in the outgoing channel can be due only to a voice signal originating at the local station.

3,567,874
ELECTRICAL SLIDE SWITCH WITH IMPROVED CONTACT CARRIER LATCHING MEANS

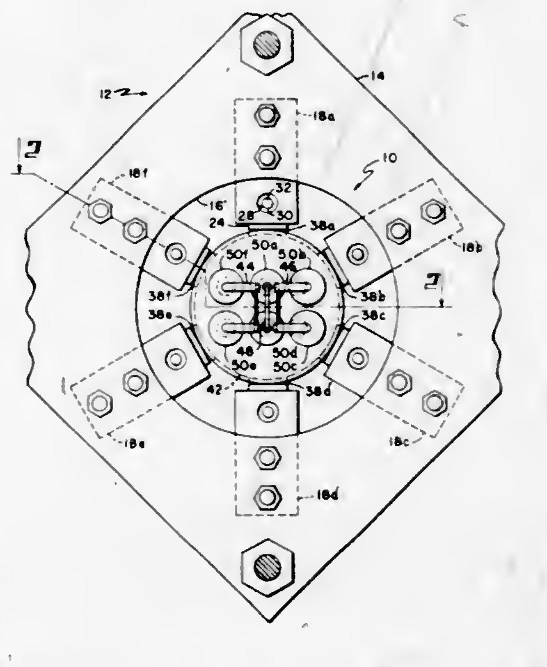
Robert T. Strobel, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 26, 1969, Ser. No. 880,333
Int. Cl. H01h *15/00, 15/18*
U.S. Cl. 200—16 **3 Claims**



An electrical switch assembly includes a shaft member resiliently maintained in a neutral position and slidably carrying a spring-biased shuttle member. The shaft member is bodily shiftable in a first direction from the neutral position and operable to move the shuttle member to an active position in which the latter is maintained by a detent lever while the shaft member is resiliently returned to the neutral position. The shaft member is bodily shiftable in the opposite direction from the neutral position to activate release means to disengage the detent lever from the shuttle member so that the latter may be displaced from the active position.

3,567,875
ELECTRICAL SWITCH APPARATUS

Richard E. Perrin, and Billy A. Hopper, Tulsa, Okla., assignors to Avco Corporation, Tulsa, Okla.
Filed June 30, 1969, Ser. No. 837,744
Int. Cl. H01h *15/00*
U.S. Cl. 200—16 **4 Claims**

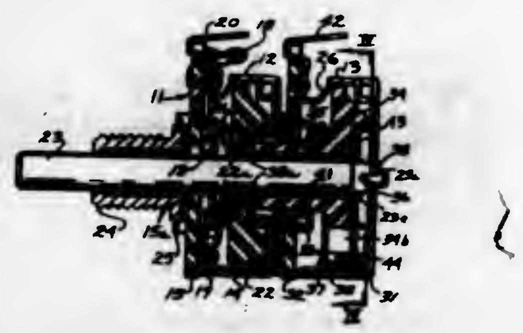


An electrical switch apparatus is disclosed in which making and breaking of electrical contact is made through the sliding engagement of two contact members, one of which is mounted for limited movement normal to the axis of movement of the second contact member.

3,567,876
COMBINATION VARIABLE RESISTANCE AND ELECTRICAL SWITCH ACTUATING MEANS

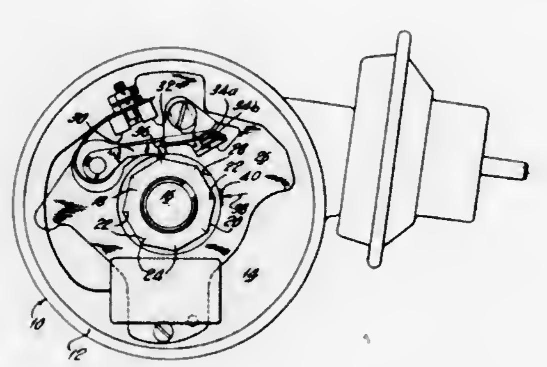
John Zdanys, Jr., Edwardsburg, Mich., assignor to C T S Corporation, Elkhart, Inc.
Filed Sept. 23, 1968, Ser. No. 761,602
Int. Cl. H01h *3/00*
U.S. Cl. 200—17 **11 Claims**

An electrical control has a variable resistance control combined with a normally open switch. Any manual adjustment made to the variable resistance control causes the switch contacts to be closed before actual adjustment of the variable resistance control begins and, after the force causing manual adjustment of the control is removed, the switch contacts are opened without disturbing the resistance setting of the control.



3,567,877
IMPROVED ADJUSTMENT MEANS FOR DISTRIBUTOR CONTACTS AND BEARINGS

Herbert Y. Awaya, 3268 Kilihune Place, Honolulu, Hawaii
Filed July 3, 1969, Ser. No. 838,979
Int. Cl. H01h *19/00*, *19/62*
U.S. Cl. 200—19 **9 Claims**

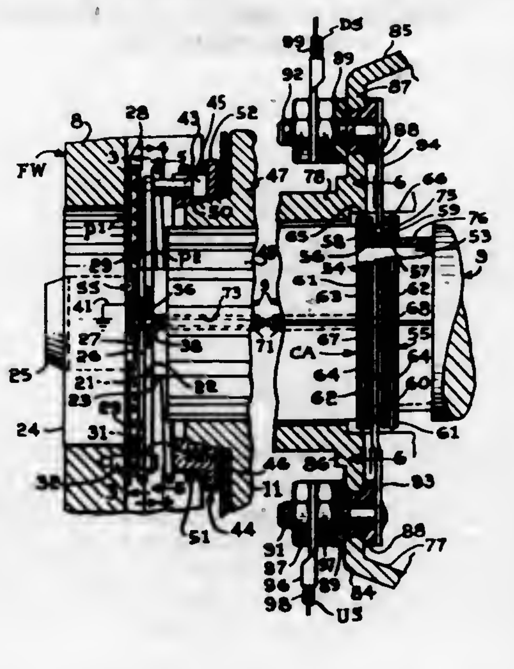


A distributor for internal combustion. The distributor has a rotary cam provided with a number of lobes, and these lobes are respectively provided with marks which precisely indicate the crests of the lobes. A breaker plate surrounds the cam and carries a swingable contact arm one end of which is successively engaged by the cam lobes. This end of the contact arm and the breaker plate are respectively provided with marks which when respectively aligned with a pair of the marks of a pair of cam lobes indicate that the points are set at their widest gap, so that it then becomes possible to adjust the gap between the points.

3,567,878
SYNCHRONIZING CONTROL SWITCH ADAPTED FOR FRICTION CLUTCH USE

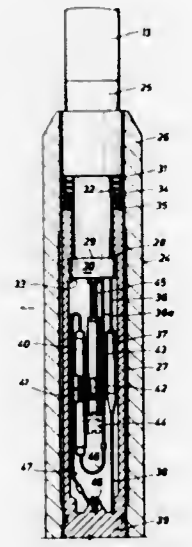
Glenn T. Randol, Mountain Park, 3E 2nd Ave. P. O. Box 275, Loch Lynn Heights, Md. 21550
Filed Jan. 13, 1969, Ser. No. 790,672
Int. Cl. H01h *35/00*
U.S. Cl. 200—52 **12 Claims**

A synchronizing mechanism having an actuatable switch embodied in the flywheel-carried friction clutch used in motor vehicles and the like, for activating carburetor throttle-closing and opening means to modulate engine speed accordingly into synchronism with that of the clutch driven member prior to clutch lockup.



3,567,879
APPARATUS FOR FACILITATING THE DESCENT OF CABLE-SUSPENDED WELL TOOLS THROUGH DEVIATED WELL BORES

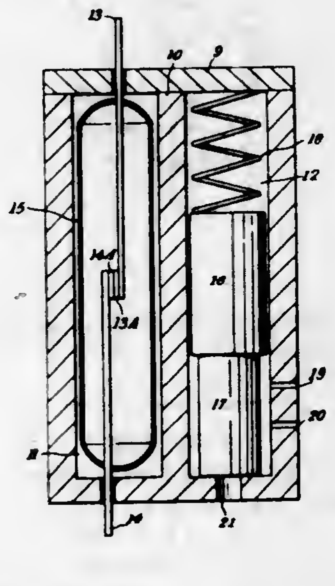
Stanley T. Dueker, and John E. Key, Jr., Houston, Tex., assignors to Schlumberger Technology Corporation, New York, N.Y.
Filed May 2, 1969, Ser. No. 821,254
Int. Cl. H01h *35/14*, *36/00*
U.S. Cl. 200—52 **4 Claims**



As one embodiment of the new and improved apparatus disclosed herein, a well tool having force-responsive signalling means thereon is dependently coupled to an electrical logging cable that is uniquely constructed to withstand limited axial compressive loading without undue lateral bending. In this manner, by selectively moving the suspension cable downwardly from the surface, corresponding axial forces are imposed on the well tool for assisting its continued descent through substantially-deviated well bore intervals. The motion-responsive signalling means are responsive, therefore, to the application of such forces to the tool for indicating that these axial compressive forces are being transmitted through the cable to the tool.

3,567,880
SUBMARINE SIGNALLING DEVICE AND FAIL-SAFE SWITCH

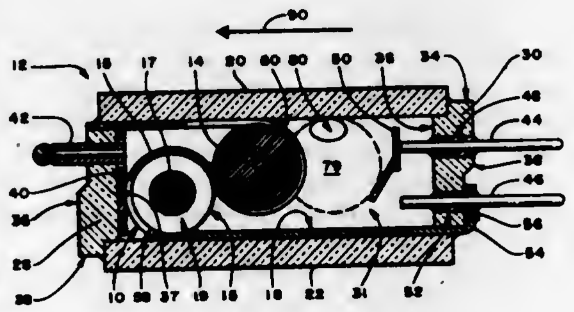
Malcolm George Palmer, Blakedown, near Kidderminster; Frederick Arthur Ridgway, Stourbridge, and Edwin Leslie Minshull Roberts, Harborne, Birmingham, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England
Filed May 13, 1969, Ser. No. 824,058
Claims priority, application Great Britain, May 24, 1968, 24991/68
Int. Cl. H01h *35/00*
U.S. Cl. 200—61.08 **10 Claims**



A submarine detonation device comprises a sea water switch and/or a fail-safe switch. The sea water switch comprises an anode, a cathode and a floodable interelectrode interspace. The fail-safe switch comprises two terminals held in nonoperative position by the field of a magnet, which magnet is retained in position by a water-soluble retaining plug. On submersion the retaining plug disintegrates so allowing displacement of the magnet by a displacing means and consequent transposition of the terminals into an operative position under the influence of a spring means.

3,567,881
ROLLER-BAND INERTIAL SWITCH

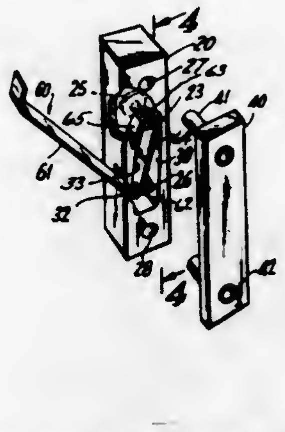
Fred A. Duimstra, and Douglas O. Schuler, Albuquerque, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 10, 1969, Ser. No. 883,736
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.53 **10 Claims**



A roller-band inertial switch operable over a predetermined temperature range including a housing; a roller-band cluster disposed within the housing and having a first roller, a second spool-shaped roller and a tension band supporting the rollers within the housing, said band including an oblong orifice adjacent the spool-shape roller and a force-biasing opening adjacent the other roller to bias the cluster adjacent an end wall of the housing; electrical sensing means disposed at the other end wall of the housing to sense movement of the cluster to the other end wall; and a damping fluid in the housing filling the housing at a temperature above the predetermined temperature range and a method for forming the housing.

3,567,882
BURGLAR ALARM SWITCH

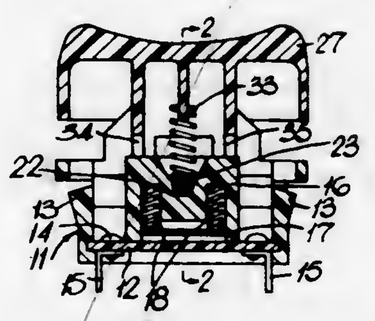
Jack Beck, 1730 Montgomery Ave., Bronx, N.Y. 10453
Filed May 15, 1970, Ser. No. 37,783
Int. Cl. H01h *3/02*
U.S. Cl. 200—61.93 **5 Claims**



A burglar alarm and switch system comprising a switch having a unitary springlike contact element positioned within a recess of an integral block and resiliently held between two contact screws to provide a normally open or a normally closed switch. One end of the contact element is substantially fixed in position or anchored in the block contacting one of the contact screws while the extending portion is bent around in the recess to resiliently make and break contact with the other contact screw.

3,567,883
SNAP ACTION SWITCHES WITH IMPROVED OPERATING MECHANISM

Keith Lewis, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Feb. 10, 1969, Ser. No. 797,880
Claims priority, application Great Britain, Feb. 16, 1968, 7640/68
Int. Cl. H01h *15/18*
U.S. Cl. 200—68 **2 Claims**



The electrical switch includes a casing having a base carrying fixed contacts, and a movable contact assembly slidable relative to the base, the movable contact of the assembly being engageable with the fixed contacts. Detent means are provided on the movable contact assembly and the casing for locating the movable contact relative to the base in any one of a number of operative positions, and an operating member is provided for moving the movable contact assembly. Resilient means acts between the movable contact assembly and the operating member, and the operating member is provided with cam means for releasing said detent means during movement of the operating member. During movement of the operating member as the detent means is released, said resilient means is stressed so that when the detent means releases the resilient means moves the movable contact assembly relative to the fixed contacts.

3,567,884

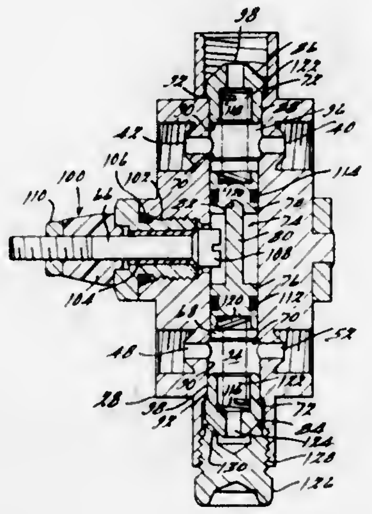
SAFETY SIGNAL FOR BRAKING SYSTEMS

Joseph W. Douglas, Southfield, and Bernard J. Besso, Grosse Pointe, Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Dec. 23, 1965, Ser. No. 515,882

Int. Cl. H01h *35/38, 35/40*

U.S. Cl. 200—82 **3 Claims**



A warning apparatus composed of a signal device and a hydraulic differential pressure responsive control for indicating damage or failure of one of the brake circuits in a dual brake system. The control includes a housing having a bore in which is slidably disposed a piston having end portions in sealing engagement with the bore and an intermediate portion of reduced diameter, the piston ends, reduced diameter portion, and the bore forming a chamber which is at atmospheric pressure throughout operation of the brakes. The housing has passageways at both ends of the piston which enable fluid to flow through the housing and contact the outer faces of the piston. A switch connected in circuit to the signal device is mounted on the housing and has a switch actuating portion which extends into the bore between the piston end portions and in engageable relationship therewith when the piston moves in response to a pressure differential acting thereon. Pressure imbalance due to failure of one of the brake circuits causes the piston to contact the switch actuating portion so as to complete the circuit and actuate the signal device.

3,567,885

ISOLATOR SWITCH WITH BRIDGING RESISTANCE AND EXTINGUISHING GAS CONTROL

Rintje Boersma, Harmelen, Netherlands, assignor to N.V. "-COQ" , Utrecht, Netherlands

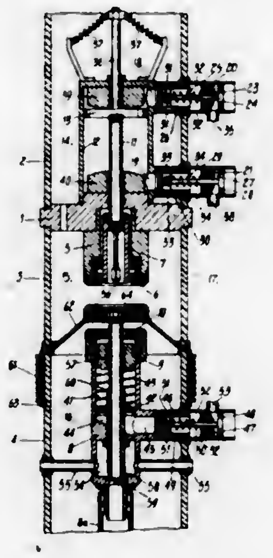
Filed Aug. 19, 1968, Ser. No. 753,612

Claims priority, application Netherlands, Aug. 23, 1967, 67.11576

Int. Cl. H01h *33/80*

U.S. Cl. 200—148 **5 Claims**

A gas blast circuit-breaker for isolating purposes and switching normal loads only, comprising a fixed main contact, a movable main contact cooperating therewith and two cooperating movable arcing contacts, of which the first one is rigidly connected with the movable main contact and the second one is electrically connected with the fixed main contact and is adapted to move, during the switching-off operation, together and in contact with the first arcing contact till a little past the separation of the main contacts, said second arcing contact being formed as a nozzle contact, the passage of which is opened during the switching-off operation as to allow extinguishing gas to escape from the switching chamber to quench the switching arc set up between the arcing contacts after their separation.



3,567,886

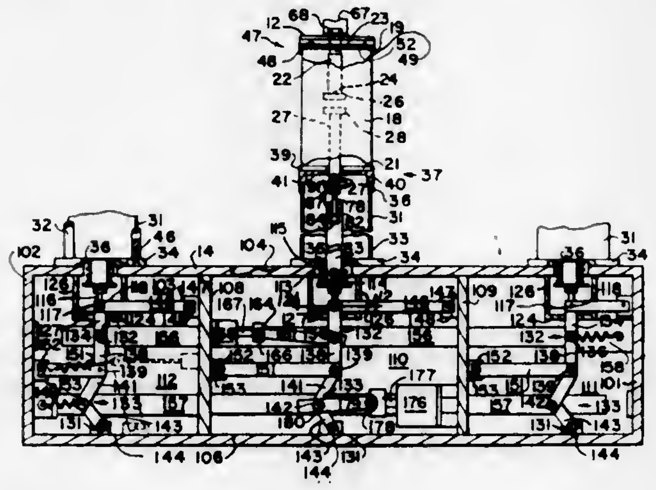
CIRCUIT BREAKER OPERATING MEANS COMPRESSING COOPERATIVELY CONNECTED TOGGLE PAIRS

Hugh C. Ross, 11915 Shadybrook Court, Saratoga, Calif.

Filed Feb. 16, 1968, Ser. No. 710,431

Int. Cl. H01h *3/46, 9/28, 33/52*

U.S. Cl. 200—153 **15 Claims**



A circuit breaker is provided including a pair of switch contacts and an actuating mechanism enclosed within a supporting housing. The switch contacts are supported on the housing, and the actuating mechanism includes toggles and links connected to trip and close solenoids within the housing. A single circuit breaker embodying a single pair of switch contacts may be utilized to interrupt DC or single-phase conductors. The circuit breaker may be expanded to include two or three or additional switches.

For interrupting 3-phase circuits, three separate switches cooperate to form a single circuit breaker having three pairs of contacts to separately control each phase of a 3-phase electrical circuit. The three switches are securely mounted on the top panel of a single housing within which is enclosed the mechanism actuable to insure substantially simultaneous operation of the three switches upon closing or opening action. Actuating rods on the three switches extend through the top panel into the housing, where the actuating rods are interconnected by toggles and thrust links under the control of the trip and close solenoids to actuate the three switches simultaneously.

When constructed as a transfer circuit breaker assembly to transfer a load between preferred and alternate power sources, a pair of identical circuit breakers are arranged side-by-side and interconnected so that when one circuit breaker is actuated to make a circuit through the alternate source, the opposite circuit breaker is actuated to break the circuit through the preferred source. The relationship of the two circuit breakers arranged for performance of a transfer function is such that the 3-phase circuit through the preferred source is broken before the adjacent circuit breaker makes the circuit through the alternate source, or vice versa.

3,567,887

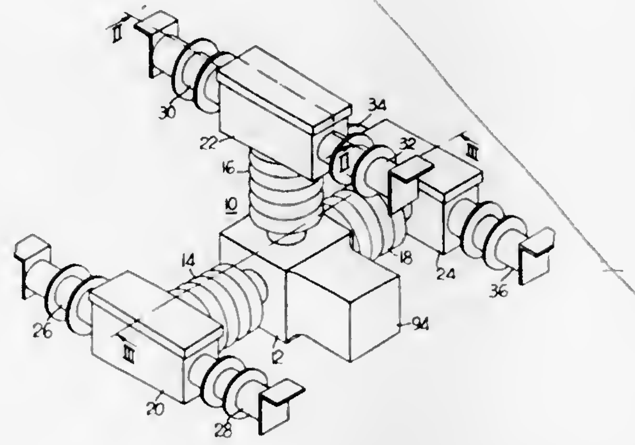
MULTIPHASE ELECTRIC CIRCUIT BREAKER WITH PHASES ARRANGED RADIALLY ABOUT A COMMON HOUSING AND OPERATED BY A COMMON RECIPROCAL CAM

John J. Maloney, Brockton, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 13, 1968, Ser. No. 783,566

Int. Cl. H01h *3/42, 33/42, 33/66*

U.S. Cl. 200—153 **4 Claims**



A three phase circuit breaker comprises a supporting housing having three insulating columns mounted on three different sides thereof but in the same plane. Each column has a casing mounted at its end. A pair of series connected vacuum switches are mounted on opposite sides of each casing in axial alignment with each other and transverse to the aforesaid plane. Each vacuum switch has a contact which is axially movable by a cam plate in the associated casing. Each cam plate is moved by a push rod which extends from the associated casing, through the associated insulating column into the housing. All push rods are operated by a single cam in the housing.

3,567,888

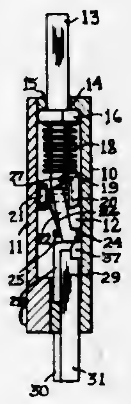
MOMENTARY PUSHBUTTON SWITCH WITH SPRING-BIASED PIVOTED ACTUATING MEANS MOMENTARILY ACTUATING CONTACTS AFTER COMPLETE DEPRESSION OF BUTTON

Eric L. Long, Highland Park, Ill., assignor to Cherry Electrical Products Corporation, Highland Park, Ill.

Filed Aug. 25, 1969, Ser. No. 852,747

Int. Cl. H01h *13/50, 13/22*

U.S. Cl. 200—160 **6 Claims**



An electrical switch having a two-part actuator, the first part of which has a guided path of movement that is substantially linear and the second part being pivotally attached to one end of the first part of the actuator and having an independent pivotal movement in one direction under spring tension during which it closes the switch contacts disposed in its path to momentarily pulse the switch irrespective of any directional movement of the first part of the actuator after the same has moved a predetermined distance.

3,567,889

KNIFE SWITCH WITH PARTICULARLY SHAPED CONTACT BLADE

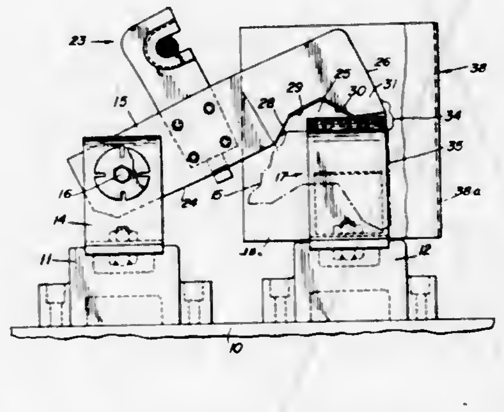
Charles Franklin Latter, Brampton, Ontario, Canada, assignor to Square D Company Canada Limited, Toronto, Ontario, Canada

Filed Nov. 15, 1968, Ser. No. 776,102

Claims priority, application Canada, Mar. 20, 1968, 015,367

Int. Cl. H01h *1/42, 21/54*

U.S. Cl. 200—162 **3 Claims**



An edge of a free end portion of the contact blade facing the jaw members of the knife switch has a cutaway portion positioned toward the pivot axis of the blade from the free end of the blade. An outer side edge of the cutaway portion is chamfered and defines one side of an outer nose portion of the blade. The nose portion has a chamfered leading edge disposed at an acute angle with respect to the free end face of the blade.

3,567,890

LIMIT SWITCH

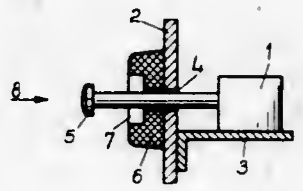
Rudi Kombuchen, Adlerstrasse 70, Dusseldorf, Germany

Filed Mar. 25, 1969, Ser. No. 810,284

Claims priority, application Germany, Apr. 10, 1968, A29,625

Int. Cl. H01h *21/28*

U.S. Cl. 200—166 **8 Claims**



An electric limit switch for use with a movable storage unit including a sensing member disposed through a buffer whereby the buffer acts to absorb forces to protect both the movable storage unit and the electric limit switch.

3,567,891

CONTACT ASSEMBLY FOR SLIDING SWITCHES

Rudolf Hinkelmann, Bad Neustadt/Saale, Germany, assignor to PREH Elektro-Feinmechanische Werke, Jakob Preh Nachf, Bad Neustadt Saale, Germany

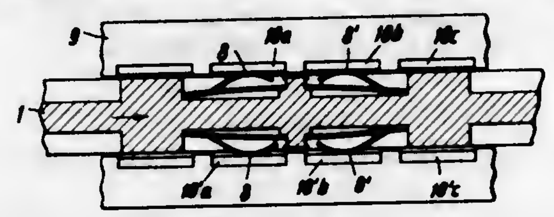
Filed Aug. 18, 1969, Ser. No. 850,924

Claims priority, application Germany, Aug. 29, 1968, P 17 90 026.4

Int. Cl. H01h *15/06*

U.S. Cl. 200—166 **5 Claims**

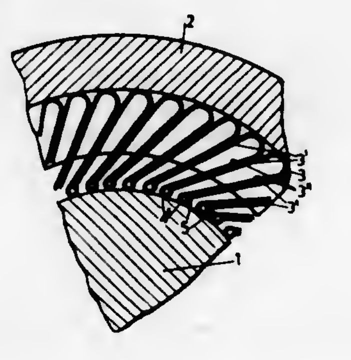
A contact assembly for a sliding switch having a contact bridge made in one piece and disposed in a chamber in a slide for cooperation with relatively fixed contacts spaced one from another in the direction of sliding movement of the contact bridge. The contact bridge having a substantially rectangular frame with the short sides formed integrally with inwardly directed convex contact arms and the long sides provided midway with recesses engaged by projections of the chamber walls. The middle regions of the long sides rest on ledges provided in and at opposite sides of the chamber.



3,567,892
ELECTRIC SWITCHES OF LARGE POWER COMPRISING AXIALLY MOVABLE SWITCHING RODS AND RESILIENT ANNULAR FIXED CONTACTS WHICH ARE IN PERMANENT CONTACT WITH SAID SWITCHING RODS AND CONTACT STRIPS FOR SUCH FIXED CONTACTS

Rintje Boersma, Harmelen, and Gijsbert W. Irik, Bilthoven, Netherlands, assignors to N.V. "COQ", Utrecht Kanaalweg, Netherlands

Filed Oct. 20, 1969, Ser. No. 867,796
Claims priority, application Netherlands, Apr. 15, 1969, 69.05749
Int. Cl. H01h *1/10*
U.S. Cl. 200—166 **6 Claims**



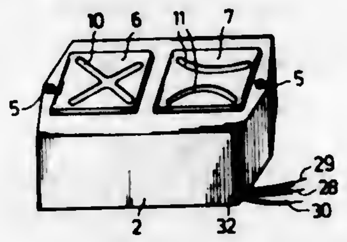
An electric switch having an axially movable switching rod and a fixed contact which is in permanent contact with said switching contact. The fixed contact comprising a zigzag folded metal contact strip which is bent in the shape of an uninterrupted ring. The inner circumference of said ring is bent in the shape of longitudinally split tubes extending in the direction of the width of said strip and interconnecting the parts of the folded strip that adjoin each other at said inner circumference.

3,567,893
ELECTRIC CONTROL DEVICE, ESPECIALLY FOR THE REMOTE CONTROL OF SWITCHES, SIGNALS, AND THE LIKE, FOR TOY AND MODEL RAILROAD INSTALLATIONS

Max Ernst, 85 Lohengrinstr. 14, Nuremburg, Germany

Filed July 1, 1969, Ser. No. 838,160
Claims priority, application Germany, July 4, 1968, P1,703,742
Int. Cl. H01h *9/18*
U.S. Cl. 200—167 **11 Claims**

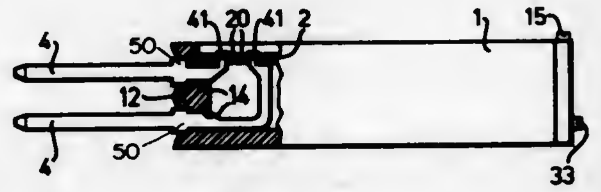
The invention relates to a switch arrangement especially for use with model railway systems and the like in which the switch comprises a housing consisting of a base member and a member resting thereon consisting of a top plate and a depending peripheral portion. A pair of switch keys are mounted in the top plate and elements of normally open switches are mounted on the base plate for actuation by the aforementioned keys. The switch elements have connected and in parallel therewith, lamp bulbs with the lamp bulb pertaining to the switch elements operated by one key being located under the other key. The elements of the switches are in the form of metal strips secured to the base member by tabs which extend through slots in the base member and which are bent over on the bottom of the base member.



3,567,894
HOUSING EQUIPPED WITH CIRCUIT BOARD FOR ELECTRICAL SWITCH MECHANISM

Helmuth Spreitzer, Zurich, Switzerland, assignor to Contraves A G, Zurich, Switzerland

Filed June 3, 1969, Ser. No. 830,056
Claims priority, application Switzerland, Mar. 11, 1969, 3609/69
Int. Cl. H01h *9/02*
U.S. Cl. 200—168 **4 Claims**

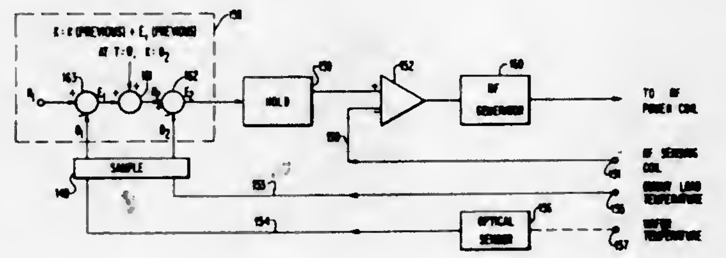


A novel housing is disclosed, the housing having at least one stationary circuit board for an electrical switch or other device therein. Current conducting tracks leading to contact ends are disposed in the plane of the stationary circuit board, such contact ends being arranged along a housing wall disposed transverse to the plane of the circuit board. Connecting pin members having connection legs which are flexed toward the circuit board extend transversely through the housing wall and are mechanically retained therein. The flexed connection legs of the connecting pin members pass through the circuit board in each instance at the region of the contact ends of the current conducting tracks and are electrically and mechanically connected therewith.

3,567,895
TEMPERATURE CONTROL SYSTEM

Oded Paz, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 11, 1969, Ser. No. 849,029
Int. Cl. H05b *9/06, 5/00*
U.S. Cl. 219—10.77 **16 Claims**

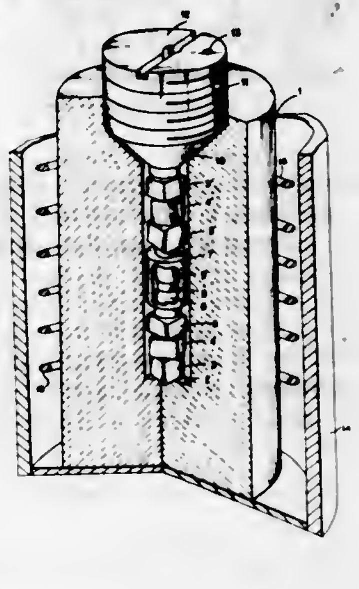


A temperature control system useful for epitaxial growth of silicon wafers in a reactor comprising in one embodiment an RF feedback loop and two temperature feedback loops, e.g. a thermocouple loop and an optical sensor loop. The structure and method disclosed generate error signals so that correctional factors sequentially derived, in cascade form from the optical sensor loop, the thermocouple loop and the RF loop, provide a resultant signal employed to correct the reactor temperature.

3,567,896
METHOD AND APPARATUS FOR HOT PRESSING

Ji Young Chang, Oak Ridge, Tenn., assignor to the United States of America, as represented by the United States Atomic Energy Commission

Filed Sept. 25, 1969, Ser. No. 860,879
Int. Cl. H05b *1/00*
U.S. Cl. 219—50 **6 Claims**

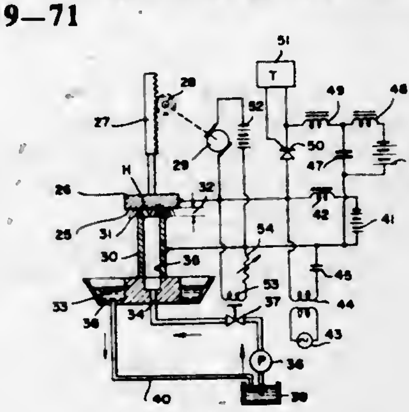


A method and apparatus for generating pressures wherein a highly anisotropic pyrolytic graphite body having its highest coefficient of linear thermal expansion in the direction of an axis thereof is confined in a pressing vessel together with a compactible material which is positioned along said axis. Heating of the anisotropic body expands the same along said axis to compress the compactible material. The pressing vessel is composed of a material having a low coefficient of thermal expansion relative to the anisotropic body. Preferably, the pressing vessel is composed of isotropic graphite, so that high pressures can be generated by furnacing the entire assembly at temperatures as high as 2200° C.

3,567,897
HEATING THE UNDERSURFACE OF A CONDUCTIVE BODY BY ELECTRIC CURRENT CONDUCTED THERETO BY A SHAPED STREAM OF ELECTROLYTE

Kiyoshi Inoue, 100 Sakato, Kawaski, Kanagawa, Japan

Filed Mar. 11, 1968, Ser. No. 719,288
Claims priority, application Japan, Mar. 17, 1967, 42/16756;42/16757
Int. Cl. B23p *1/04, 1/08*
U.S. Cl. 219—71 **5 Claims**

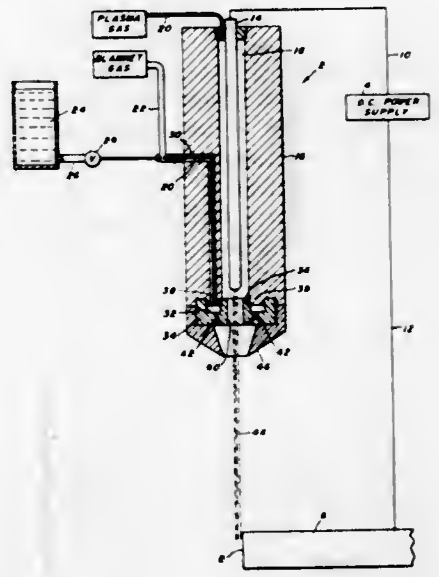


In a system for applying a predetermined pattern to the surface of a metallic workpiece a tubular electrode is prepared with a cross section transverse to the direction of flow of an electrolyte through the electrode, corresponding to the desired pattern. A jet of electrolyte is trained upwardly from this tubular electrode against the underside of the workpiece at a distance of 0.1—10 mm therefrom while an electrolytic heating current is applied between the electrode and the workpiece. The pattern corresponding to the electrode cross section is found to be formed on the workpiece surface.

3,567,898
PLASMA ARC CUTTING TORCH

Samuel Fein, Irwin, Pa., assignor to Crucible Inc., Pittsburgh, Pa.

Filed July 1, 1968, Ser. No. 741,593
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 **7 Claims**

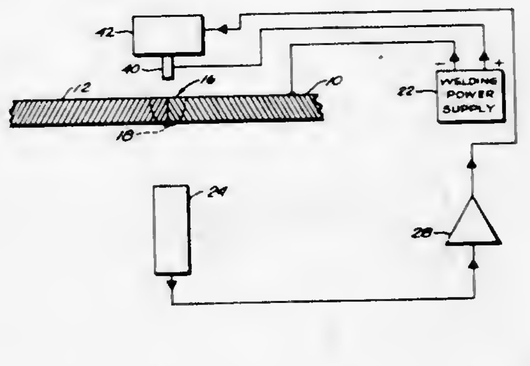


Water introduced to a plasma jet near its base dissociates into hydrogen and oxygen, adding material and force to the jet and tending to make it more straight-sided and stable. Near the tip of the plasma jet, the hydrogen and oxygen recombine, affording heat. Materials difficult to cut with a torch using known methods, such as inch-thick plates of stainless steel or high-speed tool steel, may be cut at substantially higher traverse rates. Moreover, the kerf is straight-sided and lustrous, rather than being concave and having a dull, oxidized appearance.

3,567,899
WELD-PENETRATION CONTROL

William F. Iceland, Los Alamitos, and Martin E. O'Dor, Downey, Calif., assignors to North American Rockwell Corporation

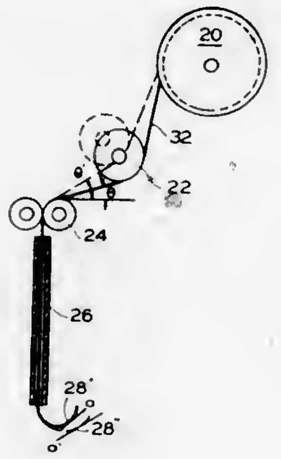
Filed Mar. 30, 1966, Ser. No. 538,650
Int. Cl. B23k *9/12*
U.S. Cl. 219—125 **10 Claims**



In order to provide improved weld-penetration control, the temperature produced by the welding operation is monitored; and resultant control-signals are used to produce improved welding.

3,567,900
WELDING METHOD AND APPARATUS

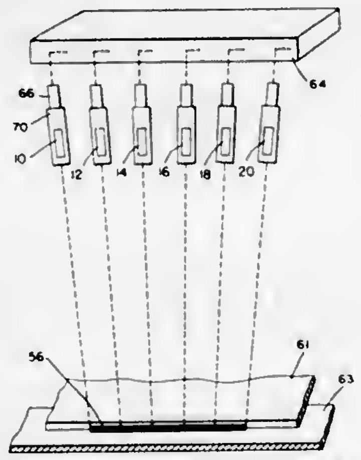
Jerome W. Nelson, Houston, Tex.; Robert E. Pollock, Hilliard, and Robert P. Meister, Columbus, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Continuation-in-part of application Ser. No. 570,868, Aug. 8, 1966. This application Aug. 14, 1968, Ser. No. 756,721
Int. Cl. B23k *9/26*
U.S. Cl. 219—130 **15 Claims**



A method and apparatus for welding metal members wherein a consumable welding wire having a permanent set imparted thereto is directed into the joint and emerges at a constant predetermined angle toward one of the members. The wire is oscillated about its longitudinal axis during feeding whereby the emerging arcuate portion travels in a predetermined arcuate pattern within the joint.

3,567,901
WELDING MONITOR SYSTEM USING PHOTOCELLS

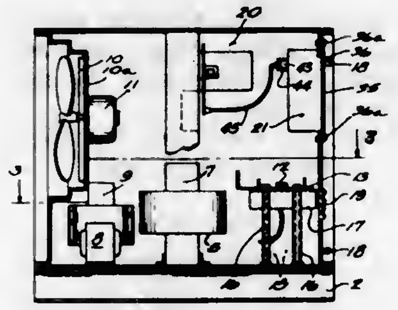
Harry T. Deininger, Jr., Willingboro, N.J., and Jay F. Whitsel, Southampton, Pa., assignors to The Budd Company, Philadelphia, Pa.
Filed Dec. 18, 1968, Ser. No. 784,848
Int. Cl. B23k *9/00*
U.S. Cl. 219—131 **10 Claims**



Apparatus for detecting the presence or absence of an arc weld along a path of an article to be welded includes a plurality of photocells responsive to light from the arc to generate output signals. A detector circuit is actuated by the output signals to indicate a complete or incomplete weld of the article.

3,567,902
ARC WELDING POWER SUPPLY ASSEMBLY

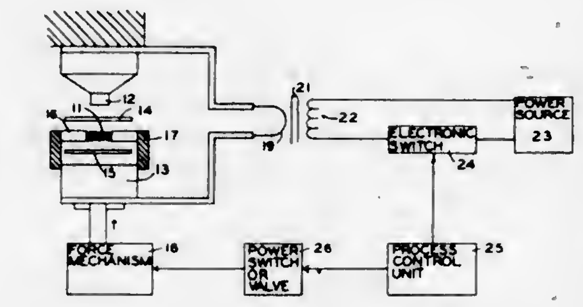
James B. Stearns, Elm Grove, and Robert W. Wendelburg, Milwaukee, Wis., assignors to Chemetron Corporation, Chicago, Ill.
Filed Apr. 25, 1969, Ser. No. 819,333
Int. Cl. B23k *9/10*
U.S. Cl. 219—131 **10 Claims**



The physical housing of an arc welding transformer-rectifier unit having a feedback control system for controlling the slope, the output inductance and the output voltage. The control system includes separate printed circuit cards for each control function interconnected into a master printed circuit board. The control system is mounted within a housing immediately behind a removable control box having individual control elements for each card. The box is releasably connected to the cards through a cable connected to the master board.

3,567,903
METHOD OF BONDING PARTICLES INTO UNITARY BODIES

John C. Parker, Bloomfield Hills, Mich., assignor to Quanta Welding Company, Melvindale, Mich.
Filed July 19, 1968, Ser. No. 746,055
Int. Cl. B21j *1/06;* **H05b** *1/00*
U.S. Cl. 219—149 **15 Claims**

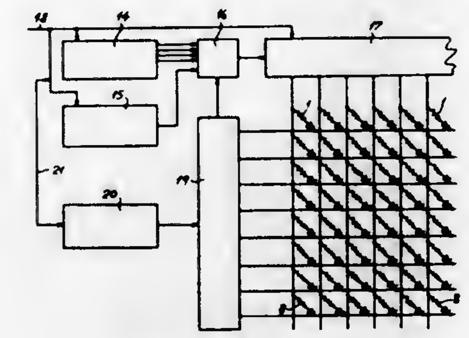


A method for bonding particles into an integrated mass by placing the particles, which may be in powder form, in a confining structure, and applying to the body of powder a controlled pulse, impulse or burst of electrical or electromagnetic energy, or a combination thereof, in conjunction with a controlled pressure pulse.

3,567,904
THERMOPRINTING DEVICES

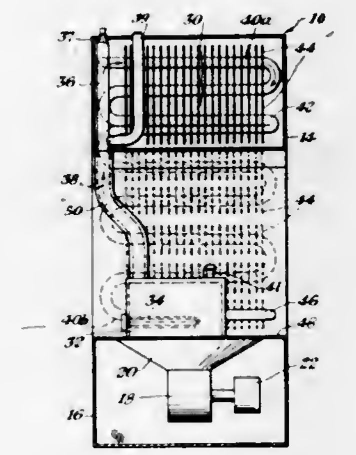
Henning Gunnar Carlsen, 2900 Vedbaek, Sandbjergvej, Sandbjerg Osterskov, and Erling Carlsen, 2800 Kgs. Lyngby, Fuglevadsvej 71, Denmark
Filed Feb. 6, 1969, Ser. No. 796,955
Claims priority, application Denmark, Feb. 8, 1968, 493/68
Int. Cl. H05b *1/00*
U.S. Cl. 219—216 **5 Claims**

In a thermoprinting device the electric resistors forming the printing elements serving to print marks on a thermosensitive sheet by thermocopying consist of film deposits in a plurality of superposed microlayers on a surface on an electrically insulated base member, said layers being separated by electrically insulating films. Important forms of superposed printing elements are complementary bar groups of a bar mosaic, and a full selection of full character printing elements placed on top of one another. Electronic means are provided for either activating the printing elements of a row successively or simultaneously, or simultaneously activating selected printing elements in a plurality of rows, thereby increasing printing speed, where signals representative of lines of characters to be printed are available in rapid succession, such as from data processing equipment.



3,567,905
HOT WATER SPACE HEATER

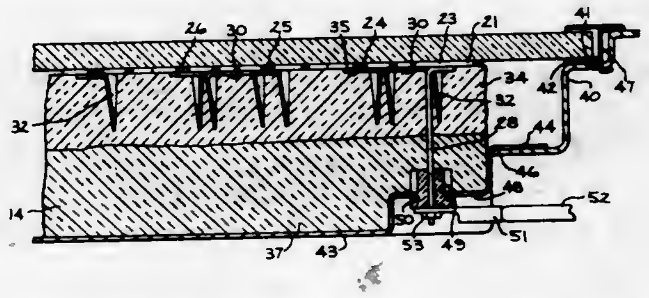
Emanuel Ferraro; Oliver Ferraro; James Ferraro, and Paul Ferraro, 916 Baldwin St., Pittsburgh, Pa. 15234
Filed Sept. 21, 1967, Ser. No. 669,434
Int. Cl. H05b *3/00*
U.S. Cl. 219—365 **13 Claims**



A hot water forced air circulation heater is disclosed and is particularly adapted for use with one or more electric immersion heating elements. The space heater includes a casing having an upper heat exhanger section and a lower blower section. A convector structure is mounted within the heat exchange section and arranged for the output of the blower to flow thearound. The convector is of serpentine or double serpentine construction and its ends are coupled to a reservoir for water or other heat exchange medium heated by one or more of the heating elements mounted in the reservoir. The convector-conduit and convecting fins associated therewith are sized such that heat exchange water is returned to the reservoir with a substantial quantity of sensible heat to minimize thermal cycling of the heating element or elements and to increase the effective heat transfer area of the convector. The blower output is blown longitudinally of the convector or upwardly through the heat exchange section to maximize contact between the air and the convector. In one arrangement the circulating water reservoir is mounted near the base of the convector on a projecting portion of the casing and is connected through a riser conduit to the inlet at the top of the convector. The upper portion of the convector can be arranged to overhang the reservoir to facilitate connection of the convector to the riser conduit and to give direction to hot air issuing from the space heater.

3,567,906
PLANAR SURFACE HEATER WITH INTEGRAL FASTENERS FOR HEATING ELEMENT

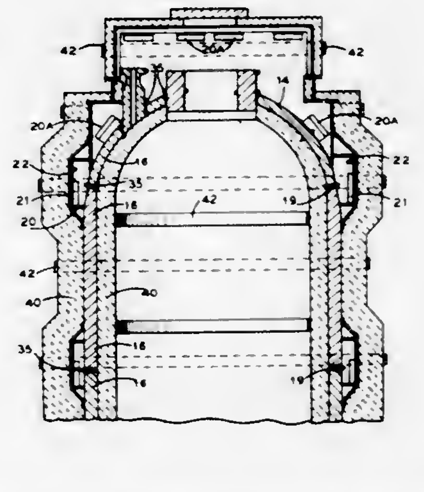
Bohdan Hurko, Louisville, Ky., assignor to General Electric Company
Filed Apr. 14, 1969, Ser. No. 815,649
Int. Cl. H05b *3/68, 3/06, 3/16*
U.S. Cl. 219—464 **4 Claims**



A heated cooktop having a top glass-ceramic plate with one or more electrical resistance heating units adjacent the underside thereof to form one or more heated areas of the plate upon which a cooking utensil could be positioned for heating or cooking purposes. A heating unit has a base plate upon which are supported a first lower layer of resilient insulation material, a second layer of semirigid insulating board, and a closely wound, sinuous, electrical resistance heating wire of flattened cross section, where the resistance wire is provided on its underside with fastening spikes that are embedded in the top of the insulating board. The top of the resistance wire is in heat transfer relationship with the glass-ceramic plate. The top plate is seated on a supporting surface independently of the heating units. One embodiment incorporates a strip of elastic material under the peripheral edge of the top plate and in contact with the supporting surface to prevent direct contact between the top plate and supporting surface, while sealing the joint therebetween from the accumulation of liquids and soil.

3,567,907
APPARATUS FOR HEAT TREATING A PRESSURE VESSEL

Otis R. Carpenter, Barberton, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Apr. 30, 1968, Ser. No. 725,352
Int. Cl. C21d *1/30*
U.S. Cl. 219—483 **10 Claims**



An arrangement of apparatus for heat treating a pressure vessel including a plurality of heat radiating heaters of the electrical resistance type mounted on the pressure vessel and electrically connected to a source of current, a plurality of thermocouples mounted on the pressure vessel for measuring the temperature of the vessel in the vicinity of each of the heaters, and an insulating material blanketing both the interior and exterior of the vessel. Means are provided for displaying the temperature of the vessel as measured by each of the thermocouples and the current to each of the heaters is adjusted in consideration of the measured temperatures to heat treat the vessel to a predetermined tensile strength. A plurality of timers are provided to adjust the current to the heaters, at least one electrical contact being associated with each timer and operable thereby. The contact of each timer acts as a switch in the electrical connection between the source of current and a particular heater. Each timer is preset to open and close the contact associated therewith for predetermined time intervals in consideration of the tensile strength of the pressure vessel adjacent the heater associated with that contact.

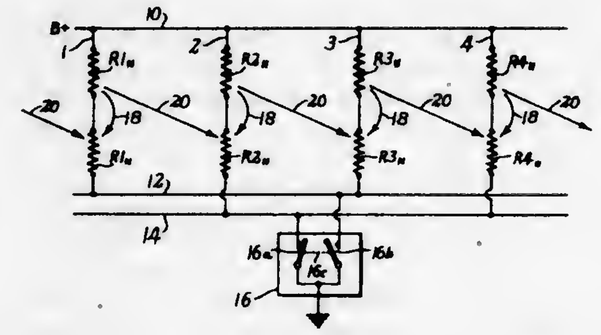
3,567,908
DRIVE CIRCUITS FOR SOLID STATE CLOCK DISPLAYS

Michael J. Ingenito, Bronx, N.Y., assignor to General Time Corporation, Stamford, Conn.

Filed Jan. 23, 1969, Ser. No. 793,492

Int. Cl. H05b *3/10;* **H01j** *39/12*

U.S. Cl. 219—486 **25 Claims**



The disclosed solid state clock drive circuit comprises cascaded ring counters, whose stages comprise at least one heater element and one thermistor. A bistable switch, in response to timing pulses, alternately connects alternate stages of each ring counter to a current source such that energizing current flows through only one stage of each ring counter. Thermal coupling between the heater element and thermistor of adjacent stages controls the transfer of energizing current flow from stage to stage upon operation of the switches. A material applied to each heater element produces a visual effect when heated, thus developing a time display.

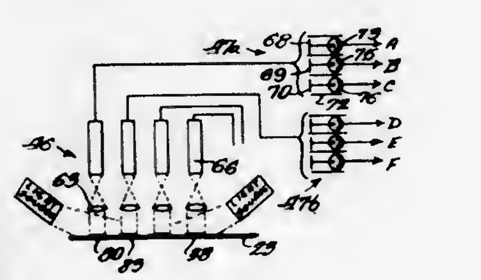
3,567,909
INFORMATION HANDLING SYSTEM

Dillis V. Allen, 208 Euclid Ave., Arlington Heights, Ill.

Filed Nov. 9, 1967, Ser. No. 681,754

Int. Cl. G06k *7/10*

U.S. Cl. 235—61.11 **3 Claims**



An optical information handling system including an encoded information carrier in which information is represented by marks which transmit one of a plurality of optical wave length signals, the marks being arranged in quadricode form, and a reading and decoding network for receiving the optical wave length signals from the marks, translating the signals into a modified binary representation and decoding the modified binary representation into a true binary output.

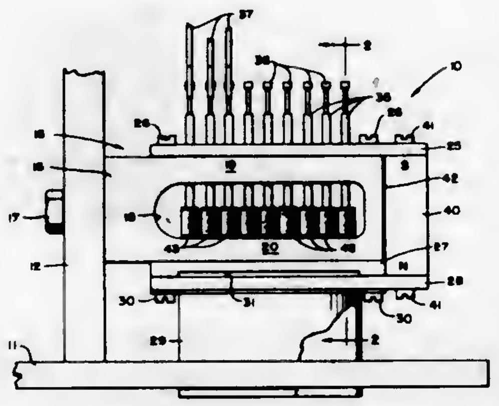
3,567,910
TAPE READER

Richard E. Sims, Des Plaines, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Feb. 5, 1968, Ser. No. 702,988

Int. Cl. G06k *5/02*

U.S. Cl. 235—61.11 **8 Claims**



A tape reader or verifier including a reading member or punch pin for penetrating a hole in a document, a member mounted for engagement by the reading member or punch pin upon penetration, a permanent magnet for magnetically coupling the reading member or punch pin and the member mounted for engagement by the reading member or punch pin thereby forming a normally open magnetic circuit that is closed upon penetration of the document and a coil of conductive wire positioned around the reading member or punch pin for producing an electric pulse upon an increase in the amount of flux flowing the magnetic circuit caused by the closure thereof thereby producing a signal indicative of penetration of the document.

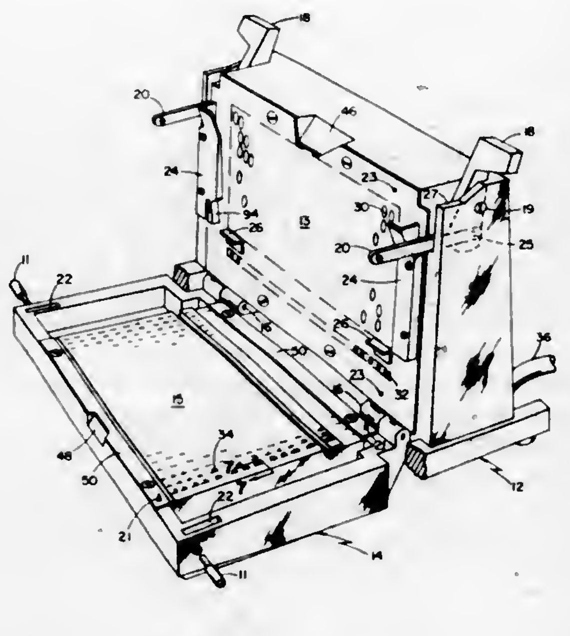
3,567,911
SENSOR FOR PUNCHED CARDS

Donald Nestor Grundberg, Stoneham, and Ge Yao Chu, Lincoln, Mass., assignors to Wang Laboratories, Inc., Tewksbury, Mass.

Filed Apr. 23, 1968, Ser. No. 723,516

Int. Cl. G06k *7/06;* **H01h** *43/08;* **H01r** *25/00, 29/00*

U.S. Cl. 235—61.11 **10 Claims**



A sensor for punched cards and the like providing arrays of self-cleaning contacts of high reliability economically fabricated from standardized modular components. Contact combs having a linear set of bifurcated contact fingers are interleaved with spacers to form a planar array of contact pairs.

3,567,912
COUNTING DEVICES INCLUDING AN ESCAPEMENT

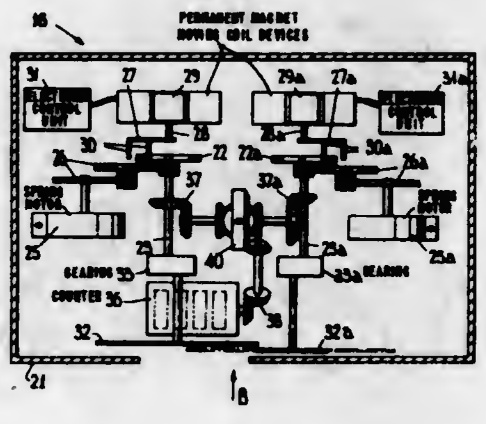
Donald William Neild, Gatley, England, assignor to The General Electric Company Limited, London, England

Filed Apr. 16, 1968, Ser. No. 722,140

Claims priority, application Great Britain, Apr. 20, 1967, 18224/67

Int. Cl. G06m *3/08;* **G08g** *1/065*

U.S. Cl. 235—92 **5 Claims**



A counting device for use in a road toll charging or similar system has a number of escape members each driven by a long-life clockwork-type mechanism differently linked to a counter so that under the control of input means responsive to different signals radiated by roadside sources the counter is operated by a different amount corresponding to the particular input signal received. In particular whole units or fractions of units can be registered when a vehicle carrying the counting device uses a road zone or a parking zone respectively.

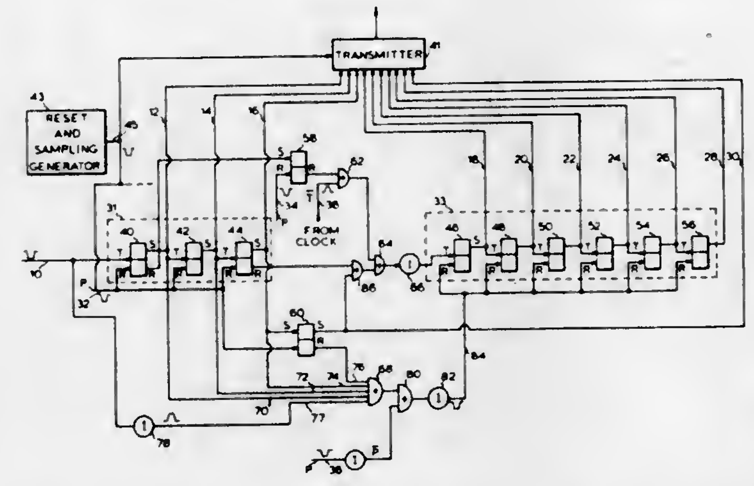
3,567,913
COUNTER

James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of William E. Baumer, San Peoro, and John D. Timm, Camarillo, Calif.

Filed Apr. 24, 1968, Ser. No. 723,827

Int. Cl. H03k *2/16;* **G06m** *3/02*

U.S. Cl. 235—92 **7 Claims**



Pulse counting apparatus capable of operating over a wide range of pulse rates, which indicates the exact time of occurrence of pulses occurring at long intervals and the pulse rate for pulses occurring at short intervals. The circuit comprises a first portion for registering the first seven pulses to be received, a second portion for counting the number of clock signals generated before a first pulse is received by the counting apparatus, and a third portion for erasing the clock signal count in the second portion and enabling the second portion to count additional pulses received by the counter when seven or more pulses have been received.

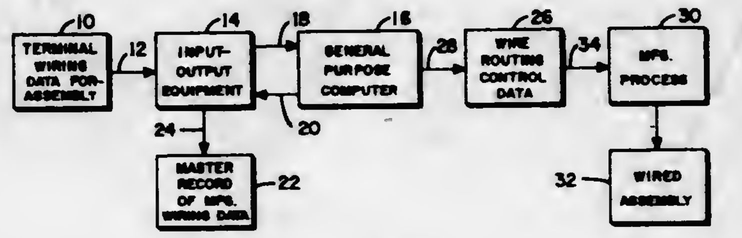
3,567,914
AUTOMATED MANUFACTURING SYSTEM

Jerry L. Neese, St. Paul; Harold J. Lindee, Minneapolis; Edward F. Melin, St. Paul; John H. Pemberton, St. Paul; Clarence C. Pittenger, St. Paul Park, and William M. Swenson, St. Paul, Minn., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 31, 1964, Ser. No. 422,682

Int. Cl. G06f *15/46;* **G05b** *19/18*

U.S. Cl. 235—151.1 **12 Claims**



The method of fabricating printed circuit terminal interconnection assemblies including the steps of (a) reading manifestations from a record medium indicative of predetermined terminal interconnections to be formed between designated terminals in a coordinate array; (b) providing signals ordered according to a predetermined system indicative of ordered terminal interconnections in response to the manifestation so read and staring said signals; (c) reading the stored signals and generating terminal interconnection numerical control parameters defining nonintersecting printed circuit paths to be formed on a predetermined coordinate terminal array; and (d) recording the numerical control parameters on a record medium for use in the control of the operation of a numerically controlled reproduction apparatus.

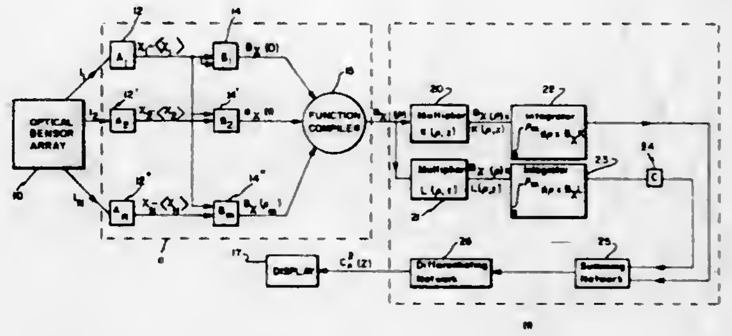
3,567,915
METHOD OF AN APPARATUS FOR REMOTELY DETERMINING THE PROFILE OF FLUID TURBULENCE

Saul Altshuler, Manhattan Beach; Donald Arnush; Leonard Glatt, Palos Verdes, and Arthur Peskoff, Los Angeles, Calif., assignors to TRW Inc, Redondo Beach, Calif.

Filed July 22, 1969, Ser. No. 843,418

Int. Cl. G01b *15/04*

U.S. Cl. 235—151.3 **11 Claims**



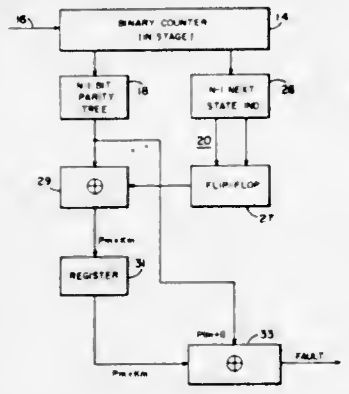
Apparatus and a method for remotely determining the profile of fluid turbulence such, for example, as clear-air turbulence. The intensity of an acoustic wave passing through a liquid, such as water, or the intensity of an electromagnetic wave, such as light, passing through air is determined at a plurality of different locations. In the electromagnetic case this may be done by a set of spaced telescopes and photosensitive devices or by optically scanning the density of a previously exposed photographic plate. An electric signal representative of the intensity of the acoustic or electromagnetic wave is then developed, and a second electrical signal is obtained which is representative of the spatial correlation function of the fluctuations of the logarithm of the first electrical signal. Thus, specifically the logarithm of the intensity is taken and the spatial correlation of the fluctuations is derived. Finally, a third signal is derived from the second signal. This third signal is representative of the integro-differential transform of the second signal. This third signal then represents the desired profile of, for example, the clear-air turbulence.

3,567,916
APPARATUS FOR PARITY CHECKING A BINARY REGISTER

James M. Fulton, Jr., Greensboro, N.C., assignor to the United States of America, as represented by the Secretary of the Army

Filed Jan. 22, 1969, Ser. No. 792,931
Int. Cl. G06f *11/08*

U.S. Cl. 235—153 **2 Claims**



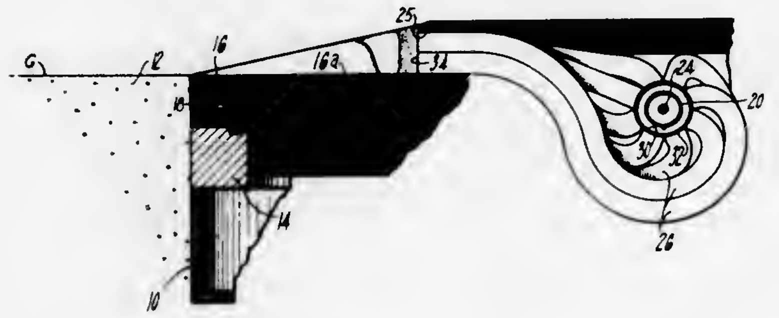
The parity of a shift register and a binary counter are checked by predicting what the parity change should be and comparing this with what the actual parity is. In checking a shift register the parity of the next state is determined by sensing the number of "ones" entering and leaving the register. This gives the change in the number of "ones" in the register; therefore, letting one know whether the parity will change or not. The same is done in checking a binary counter. All the consecutive "ones" (starting with the lowest order stage) are counted. With this any change in the parity of the next count can be predicted.

3,567,917
RUNWAY LIGHT

William C. Daley, Suffield, Conn., assignor to Structural Electric Products Corp., Windsor Locks, Conn.

Filed Aug. 6, 1968, Ser. No. 750,637
Int. Cl. B64f *1/20*

U.S. Cl. 240—1.2 **6 Claims**



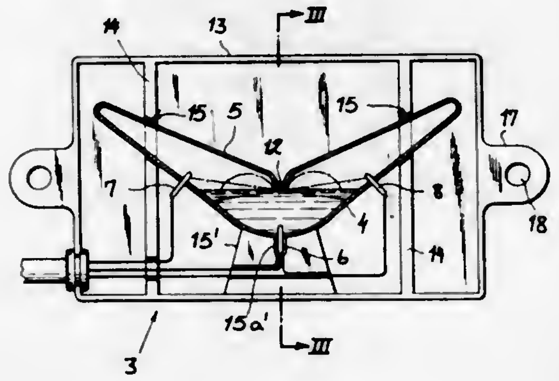
An inset runway light having a shallow optical system for collecting the light generated by a light source and elevating and bending the light rays so that the emitted light hugs the runway in a prescribed pattern and direction. The light-collecting ends of a plurality of flexible light-conveying conduits are arranged in contact with each other in longitudinal and peripheral rows on a transparent support tube surrounding the light source and are bonded thereto to pick up the generated light. The light exit ends of the conduits are hermetically sealed in an exit port of the light fixture and may be pointed substantially parallel to the surface of the runway to emit the light over a light ramp parallel with the surface of the runway. The receiving end emitting ends of the light conduits may be enlarged or reduced in size and formed of any cross section to accommodate the geometry of the exit port and the transparent support tube which may also serve as the evaporator for a refrigerator conducting heat to the cover for the fixture.

3,567,918
CENTRIFUGALLY OPERATED CORNERING ILLUMINATOR FOR AUTOMOTIVE VEHICLES

Karl Schable, 68 Fersenbruch, Gelsenkirchen, Germany

Filed Oct. 22, 1968, Ser. No. 769,614
Claims priority, application Germany, Oct. 24, 1967, 1,655,189
Int. Cl. B60q *1/12*

U.S. Cl. 240—8.24 **7 Claims**



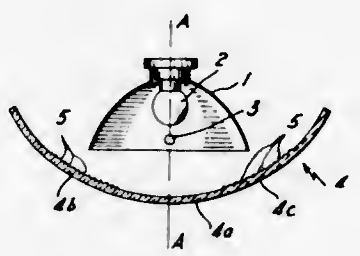
A light system for directing headlight beams in the direction of vehicle turning in which at least one lamp on the vehicle is trained in each cornering direction and a centrifugally operated switch selectively illuminates the lamps. The switch comprises a hollow body containing a centrifugally displaceable liquid (e.g. mercury) and has upwardly divergent arms each receiving a respective contact in an electrical circuit with the corresponding layer. A central contact may be connected to one pole of the supply network. The switch preferably lies in a vertical plane perpendicular to the direction of travel on the vehicle.

3,567,919
SWIVELLING HEADLAMPS FOR SELF-PROPELLED VEHICLES

Jacques Alphen, La Celle Saint-Cloud, France, assignor to Societe dite: Projecteurs Cibie

Filed June 11, 1968, Ser. No. 736,103
Claims priority, application France, June 13, 1967, Apr. 19, 1968, 110111;148692
Int. Cl. B60q *1/12*

U.S. Cl. 240—8.25 **7 Claims**



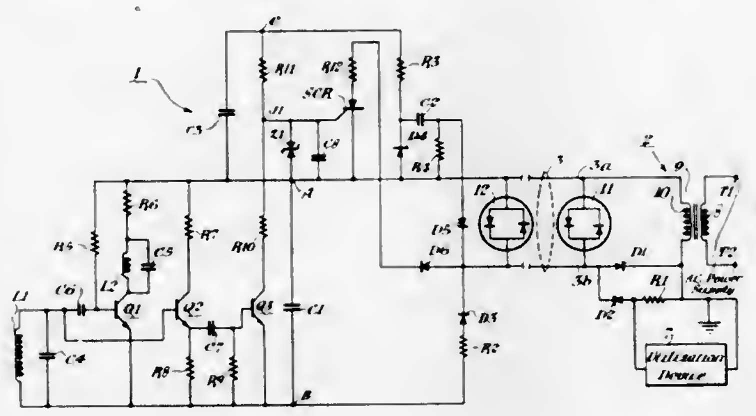
Swivelling headlamp includes reflector pivotable about a vertical axis and adapted to swing in response to turning of a vehicle's front wheels. A stationary lens having a substantially smooth central portion causing little light despersion, and fluted lateral areas serving to spread the beam width and reduce its height is fix to the coachwork of the vehicle in front of the pivotable reflector. The pivotable reflector may be carried adjacent to stationary reflectors of other lamps.

3,567,920
PROXIMITY DETECTOR

Richard D. Campbell, Harmarville, Pa., assignor to Westinghouse Air Brake Company, Swissoale, Pa.

Filed Feb. 6, 1968, Ser. No. 707,362
Int. Cl. B61l *1/08*

U.S. Cl. 246—249 **13 Claims**



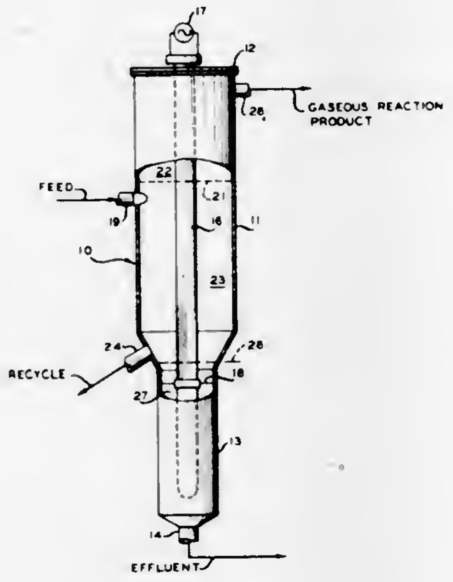
An electronic proximity detector for detecting a vehicle wheel traversing a track rail having a rail-mounted oscillating, amplifying and switching unit and a remotely located power and utilization unit electrically interconnected by an interface circuit having a rectifier network and a pair of electrical conductors for constantly supplying operating power to the rail-mounted unit and for operably providing an output signal to the remotely located unit during the presence of a vehicle wheel.

3,567,921
APPARATUS FOR THE CONTINUOUS PHOTOHALOGENATION OF HYDROCARBONS

Allan D. Holiday, Bartlesville, Okla., assignor to Phillips Petroleum Company

Original application Feb. 9, 1967, Ser. No. 614,932, now Patent No. 3,494,844, dated Feb. 10, 1970. Divided and this application Sept. 22, 1969, Ser. No. 870,860
Int. Cl. G01j *3/42*

U.S. Cl. 250—45 **9 Claims**



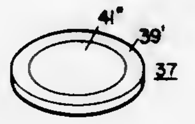
A photohalogenation apparatus having a gas liberation region above a reaction region, a gas outlet, a feed inlet and a product recovery outlet. A light source is associated with the reaction region to promote the halogenation reaction. Reactants flow downwardly in the vertical apparatus; the halogenated product being recovered from the lower portion of the apparatus.

3,567,922
THERMOLUMINESCENT DOSIMETER AND METHOD

Gerald E. Blair, Santa Barbara, Calif., assignor to EG & G. Inc.

Continuation of application Ser. No. 432,804, Feb. 15, 1965. This application July 1, 1968, Ser. No. 746,727
Int. Cl. C09k *1/06;* **G01n** *21/38*

U.S. Cl. 250—71 **5 Claims**



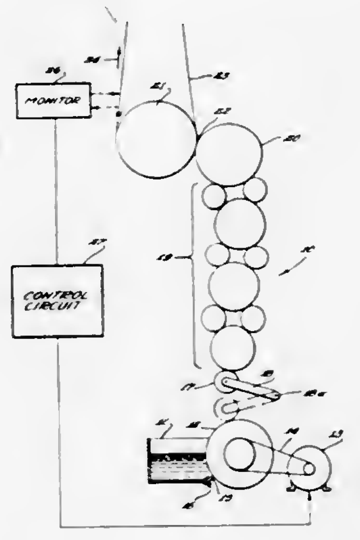
Thermoluminescent dosimeter and method of making the same including compressing thermoluminescent material under high pressure and at an elevated temperature while flushing the same with a dry inert gas thus forming the thermoluminescent material into a solid that may be sliced into dosimeter wafers. The process also activates coprecipitated calcium fluoride and manganous fluoride.

3,567,923
SYSTEM FOR MONITORING AND CONTROLLING THE COLOR DENSITY OF INK DURING PRINTING

Joel F. Hutchison, Danville, Ill., assignor to Hurletron Incorporated, Danville, Ill.

Filed Apr. 3, 1968, Ser. No. 718,618
Int. Cl. G01n *21/26;* **B41f** *31/12*

U.S. Cl. 250—226 **12 Claims**



A system for monitoring and controlling the color density of ink applied to a surface of a moving web. A fountain roller receives ink from an ink supply and applies the ink to a printing cylinder which, in turn, applies the ink to the web surface. A sensing device senses the color density of the ink on the web surface and generates a control signal. The control signal is compared with a reference signal to develop an error signal. A storage circuit receives the error signal and, a sampling circuit is connected to the storage circuit to generate a control voltage which controls the amount of ink applied to the printing cylinder.

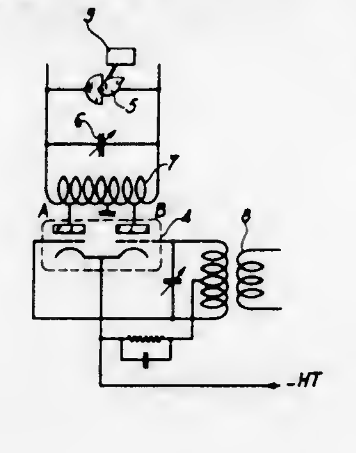
3,567,924
METHOD AND APPARATUS FOR BOMBARDMENT OF A TARGET BY MODULATED CIRCULAR SWEEPING

Guy Moisand, Dijon, and Michel Roche, Guetigny, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Aug. 29, 1967, Ser. No. 664,184
Claims priority, application France, Sept. 16, 1966, 76732
Int. Cl. H01j *37/28;* **G01n** *23/00*

U.S. Cl. 250—49.5 **6 Claims**

Bombardment of a target is performed by means of a method and apparatus for circularly sweeping said target with a beam of charged particles subjected to the electric fields of two pairs of deflector plates to which are applied sinusoidal voltages displaced in phase by π/II; specifically, the method consists in forming a well focused particle beam

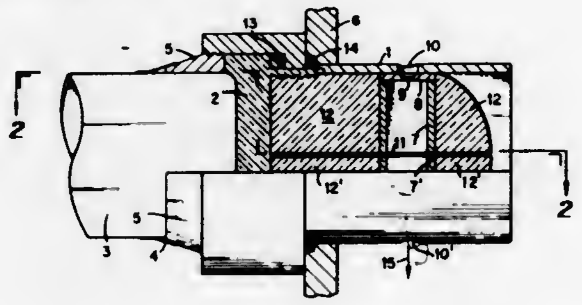


and in modulating said sinusoidal voltages so that they have the form

$$U=U_0(t)\ \sin.\ \frac{2\pi t}{T},$$

wherein U_0 varies as a function of time according to a relation of the form $U_0(t)=\sqrt{at+b}$.

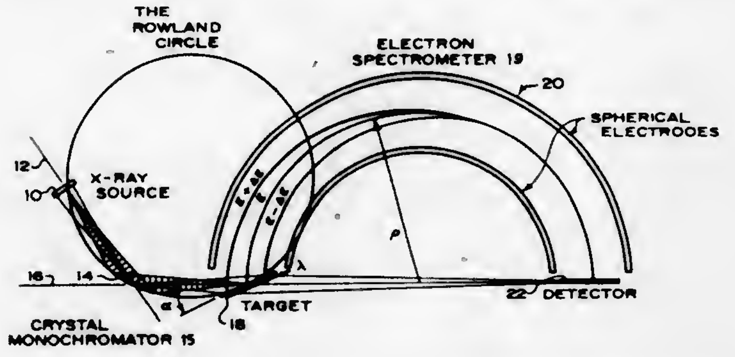
3,567,925
AN IMPROVED CHARGED PARTICLE DETECTOR
Marvin Luis Muga, Gainesville, Fla., and Howard E. Taylor, Oak Ridge, Tenn., assignors to the United States of America, as represented by the United States Atomic Energy Commission
Filed July 26, 1968, Ser. No. 748,067
Int. Cl. G01b *1/20*
U.S. Cl. 250—71.5 **3 Claims**



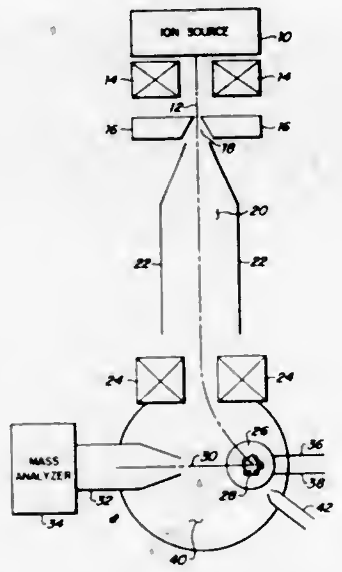
A new time-of-flight particle detector comprises an ultra thin plastic scintillator placed perpendicular to the face of a photomultiplier tube and sandwiched between two Lucite light pipes. The Lucite enclosure has a large hole for passage of fragments through the thin scintillator with a minimum energy loss, as small as 1 percent for fission fragments. A fission fragment, upon passing through the scintillator, triggers a light flash which traverses the film and light pipes and in turn is detected by the photomultiplier tube. Rise times of the order of 2 nanoseconds are achieved and the efficiency of detection is 100 percent for fission fragments. This detector has the great advantage of providing a clear distinction between time pulses and background noise.

3,567,926
ELECTRON SPECTROSCOPY SYSTEM WITH DISPERSION COMPENSATION
Kai M.B. Siegbahn, Uppsala, Sweden, assignor to Hemlett-Packard Company, Palo Alto, Calif.
Filed Oct. 4, 1968, Ser. No. 765,140
Int. Cl. G01n *23/22*
U.S. Cl. 250—49.5 **6 Claims**

A source of X-radiation and a target under study are mounted on the Rowland circle of a monochromator so that a characteristic line in the X-ray spectrum of the source is focused by the monochromator on the target. An electron spectrometer is employed to analyze the photoelectrons emerging from the irradiated target and to focus them on a detector. The geometry of the system is arranged to make the dispersion of the monochromator equal in magnitude to and opposite in sign from the dispersion of the electron spectrometer so that these dispersions cancel out and the width of the X-ray line used to irradiate the target does not contribute to the width of the electron line detected by the detector.



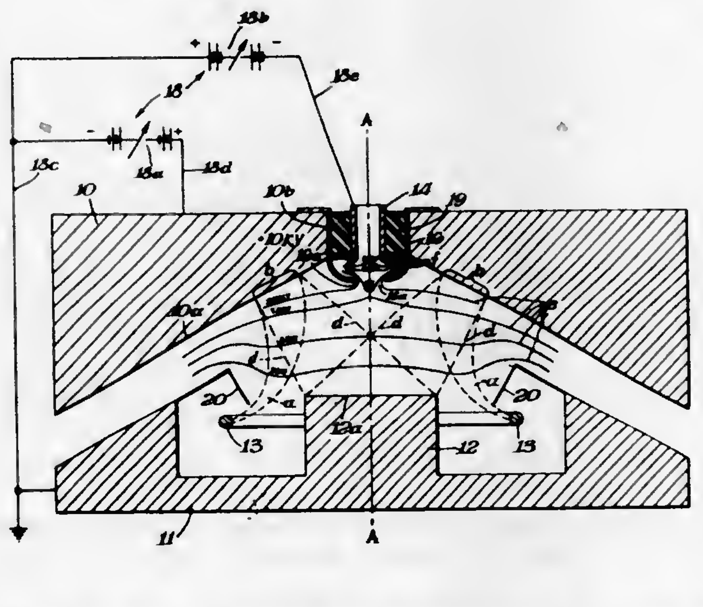
3,567,927
ION MICROPROBE MASS SPECTROMETER FOR ANALYZING FLUID MATERIALS
Alfred E. Barrington, Lexington, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 11, 1969, Ser. No. 815,367
Int. Cl. H01j *37/00;* **G01n** *23/00*
U.S. Cl. 250—49.5 **8 Claims**



An improved ion microprobe mass spectrometer type apparatus is provided that is suitable for analyzing trace amounts of a fluid. The present invention utilizes a target electrode for holding the sample, and a means for cooling the surfaces of the target to below a fixed temperature for a determined period of time. A stream of sample fluid is directed over the cooled surfaces of the target and is condensed thereon after which the target surface is sputtered by an incident, high intensity primary beam directed obliquely onto the surface thereof. Thereafter, means is provided for focusing the electrically charged ions of sample material that result in a secondary beam produced due to the bombardment of the sample layer. Additional means is provided to remove the prior material from the target surfaces after each analysis, so that the target surface is prepared for another sample layer.

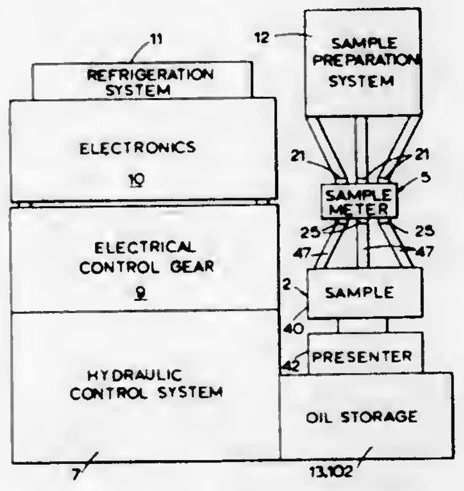
The invention described herein was made by an employee of the United States Government and may be manufactured and used by or for the Government for governmental purposes without the payment of any royalties thereon or therefor.

3,567,928
FLUORESCENT ANALYTICAL RADIATION SOURCE FOR PRODUCING SOFT X-RAYS AND SECONDARY ELECTRONS
Robert D. Davies, and Heribert K. Herglotz, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed June 12, 1969, Ser. No. 832,562
Int. Cl. G01n *23/22*
U.S. Cl. 250—51.5 **3 Claims**



A fluorescent analytical radiation source concurrently producing fluorescent soft X-ray and secondary electron emissions with high efficiency provided with means for selective energy cut off of the secondary electrons in order to isolate secondary electron emission characteristic of specific elements under analysis.

3,567,929
APPARATUS AND METHODS FOR MAINTAINING SINTER FEED MIXTURES BY X-RAY FLUORESCENCE ANALYSIS
Gordon White, Bradway; Peter Hedley Barker, Sheffield, and Kenneth George Ridgeway, Wickersley, near Rotherham, England, assignors to British Iron & Steel Research Association, London, England
Filed Oct. 24, 1967, Ser. No. 677,641
Claims priority, application Great Britain, Oct. 26, 1966, 47989/66
Int. Cl. G01n *23/20*
U.S. Cl. 250—51.1 **16 Claims**

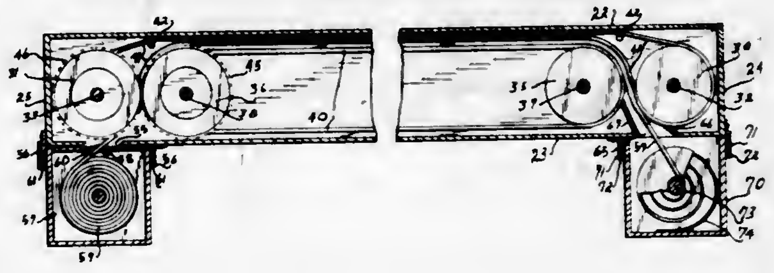


A machine for forming samples of powder into pellets and analyzing the pellets by X-ray fluorescence analysis. The pellets are formed by compacting powder in a die ring at a first position of the die which is then moved on a rotatable turret head to a second position under an analyzer head for analysis. The pellet is then disposed of as the die ring moves back from its second to its first position. The powder is compacted by means of a ram operable into one end of the die ring, the other end of the ring being closed by a movable pressure plate held in position during compacting by an annular and sleeve arrangement, the sleeve providing a passage for the powder to be fed initially to the die ring.

3,567,930
IMAGE ENHANCING METHOD FOR PHOTOGRAPHS, OIL PAINTINGS, AND WATER COLOR PAINTINGS
Max Jacobson, 8 East 83rd St., New York, N.Y.
Filed June 29, 1967, Ser. No. 649,866
Int. Cl. H01j *37/22;* **G03b** *41/16*
U.S. Cl. 250—65 **5 Claims**

The method of enhancing the quality of permanent images by the process of irradiating the image with electromagnetic ionizing radiations such as gamma and X-rays from a weak proximately located source.

3,567,931
RADIOGRAPHIC FILM TRANSPORT WITH FILM CONVEYOR BELTS WHICH FUNCTION AS INTENSIFYING SCREENS
Herman H. Eelkema, 2121 Iglehart Ave, St. Paul, Minn.
Filed Oct. 10, 1969, Ser. No. 865,455
Int. Cl. G03b *41/16*
U.S. Cl. 250—66 **4 Claims**



Two continuous flexible sheets of material opaque to light but transparent to X-rays, each having on one side thereof a coating of crystaline material which emits light upon the impinging thereon of X-rays, the continuous sheets being mounted for continuous rotation with portions of each sheet being parallel and the coated surfaces of said portions being in juxtaposition, a strip of film having emulsion on at least one side thereof positioned between the juxtaposed portions of the sheets and means for simultaneously advancing each of the sheets and the film equal distances.

3,567,932
FLUORESCENT TRACER PROCESSES EMPLOYING A FLUORESCENT EUROPIUM CHELATE
James R. Alburger, 5007 Hillard Ave., La Canada, Calif.
Continuation-in-part of application Ser. No. 492,674, Oct. 4, 1965, now abandoned , Continuation-in-part of application Ser. No. 323,529, Nov. 13, 1963, now abandoned , Continuation-in-part of application Ser. No. 149,061, Oct. 31, 1961, now abandoned , Continuation-in-part of application Ser. No. 82,374, Jan. 13, 1961, now abandoned. This application Mar. 6, 1968, Ser. No. 711,105
Int. Cl. G01n *21/16, 21/38;* **C09k** *1/00*
U.S. Cl. 250—71 **2 Claims**

An inspection process and inspection tracer compositions which utilize fluorescent coordination compounds dissolved in liquid or resinous carriers. The fluorescent metal-organic coordination compounds provide unique effects of transparency to white light along with novel characteristics of fluorescent color. The tracer compositions disclosed may be utilized for the detection of surface defects in parts, as display elements (image-forming screens), or as marking materials.

3,567,933

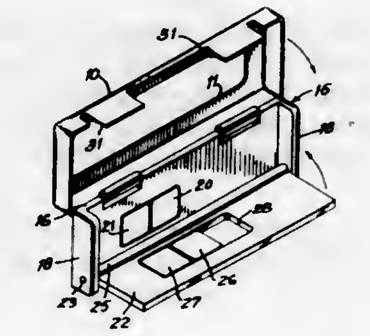
HINGED RADIOLOGICAL FILM BADGE WITH FOLD-OVER FILM PACKET

Robert J. Prest, Concord, Mass., assignor to Technical Operations Incorporated, Burlington, Mass.

Filed Sept. 28, 1967, Ser. No. 671,390

Int. Cl. G01h *23/02*; **G01t** *1/08*

U.S. Cl. 250—83 **7 Claims**



A radiation monitoring film pack and a holder therefor are disclosed. The film pack has a wrapper with a flap extending from it for identifying data. The holder has means to hold the film pack, with suitable radiation filters, and a frame which overlies the film-holding structure and holds the flap framed on it with a surface visible on which the identifying data may appear.

3,567,934

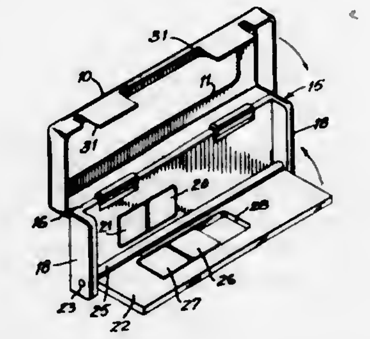
FILM BADGE WITH IMPROVED RADIATION FILTERING STRUCTURES

Eric T. Clarke, Lexington, Mass., assignor to Technical Operations, Incorporated, Burlington, Mass.

Filed Aug. 30, 1968, Ser. No. 756,582

Int. Cl. G01t *1/08*

U.S. Cl. 250—83 **2 Claims**



A radiation monitoring film pack and a holder therefor are disclosed. The film pack has a wrapper with a flap extending from it carrying identifying data. The holder defines a slot for receiving the film pack, novel U-shaped radiation filters for shielding the film from edgewise, as well as head-on radiation, and a frame which overlies the film-holding structure and holds the flap such that a surface on which the identifying data appears is visible.

3,567,935

MEASURING APPARATUS AND METHOD

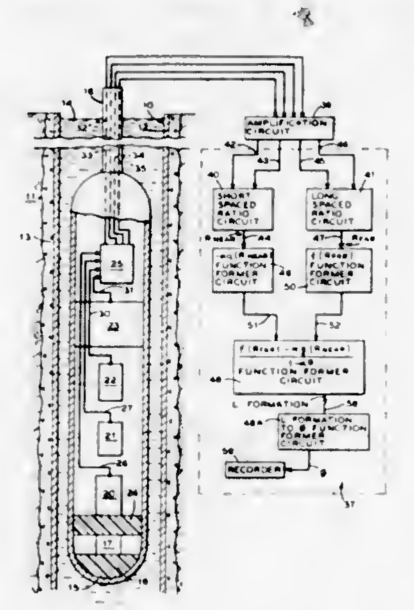
Walter A. Nagel, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Feb. 7, 1968, Ser. No. 703,678

Int. Cl. G01t *3/00*; **G01v** *5/00*

U.S. Cl. 250—83.1 **6 Claims**

An earth formation porosity logging tool in accordance with an illustrative embodiment of the invention comprises a neutron source and four neutron detectors spaced at different distances from the source for transport through a borehole. Signals are obtained that correspond to the ratios of the counts registered by the two short-spaced detectors and the two long-spaced detectors. The effect of the borehole on the formation porosity measurement is compensated by combining these ratio signals to eliminate the influence of the borehold neutron relaxation length and converting the resultant signal into an output signal that more accurately indicates the formation porosity.



3,567,936

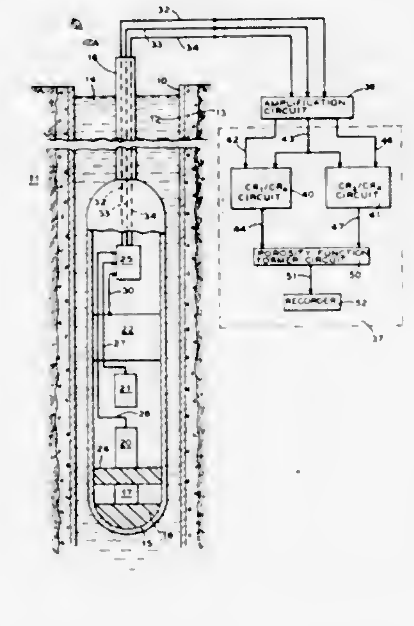
MULTIPLE NEUTRON DETECTOR BOREHOLE LOGGING TOOL

Jay Tittman, Danbury, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Feb. 7, 1968, Ser. No. 703,679

Int. Cl. G01t *1/16*; **G01v** *5/00*

U.S. Cl. 250—83.1 **1 Claim**



An earth formation porosity logging tool in accordance with an illustrative embodiment of the invention comprises a neutron source and four neutron detectors spaced at different distances from the source for transport through a borehole. Signals are obtained that correspond to the ratios of the counts registered by the two short-spaced detectors and the two long-spaced detectors. The effect of the borehole characteristics on the formation porosity measurement is compensated by directly contrasting these ratio signals with each other. A second illustrative embodiment of the invention using only three neutron detectors also is shown and described.

3,567,937

METHOD AND APPARATUS FOR DETERMINING THE MASS OF MICROFINE PARTICLES

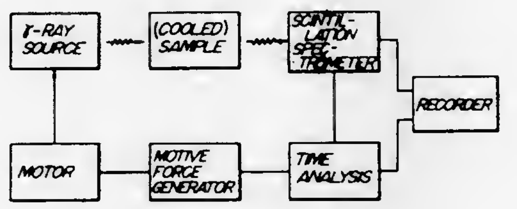
Yoshimasa Murayama, Hachioji-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed June 13, 1967, Ser. No. 645,658

Claims priority, application Japan, June 27, 1966, 41/41371

Int. Cl. G01t *1/16*

U.S. Cl. 250—83.3 **4 Claims**



A method and an apparatus for determining the mass of a particle by making use of resonance absorption of γ-ray. An emission and absorption of γ-ray is caused between nuclei of the same kind contained in both a microfine particle and a solid body which are in relative motion; the recoil energy of the particle which recoils inversely proportionally to its mass at the time of the emission and absorption of γ-ray is compensated for by the said relative motion to cause resonance absorption. The mass of the particle is determined from the relative velocity.

3,567,938

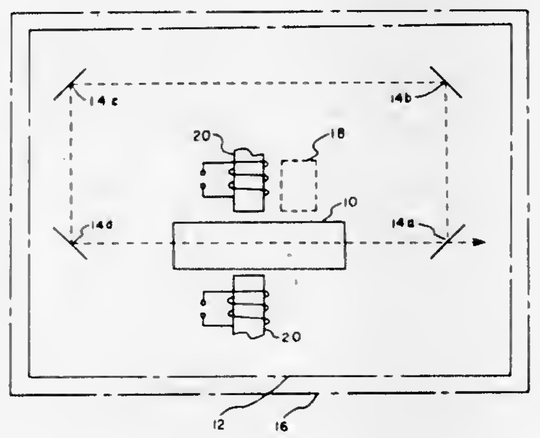
GAMMA RAY LASER

Lawrence J. Piekenbrock, Longmont, Colo., assignor to Credo, Inc., Boulder, Colo.

Filed Feb. 14, 1968, Ser. No. 705,401

Int. Cl. G21h *3/00*

U.S. Cl. 250—84 **5 Claims**



Gamma ray laser device, wherein a coherent beam of gamma radiation is generated through stimulation of gamma transitions in excited atomic nuclei in a biologically shielded and low temperature closed resonating cavity.

3,567,939

METHOD AND APPARATUS FOR MITIGATING SURFACE DISRUPTION OF X-RAY TUBE TARGETS

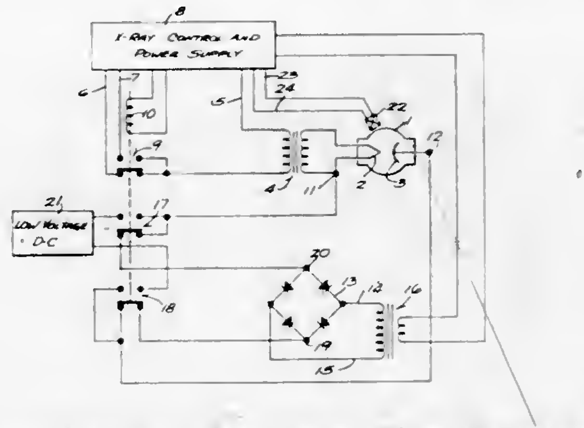
Harvey W. Schadler, Scotia, N.Y., and William P. Holland, West Redding, Conn., assignors to General Electric Company

Filed Nov. 4, 1968, Ser. No. 772,926

Int. Cl. H01g *1/32*

U.S. Cl. 250—103 **4 Claims**

An x-ray tube target is heated to a temperature at which it is essentially ductile by directing a medium energy electron beam on it prior to and between normal high energy x-ray exposures. This permits the target surface to undergo plastic deformation rather than brittle fracture when it is subjected to the high mechanical stress caused by the large thermal gradients incidental to an exposure. Thus, target surface disruption is mitigated.



3,567,940

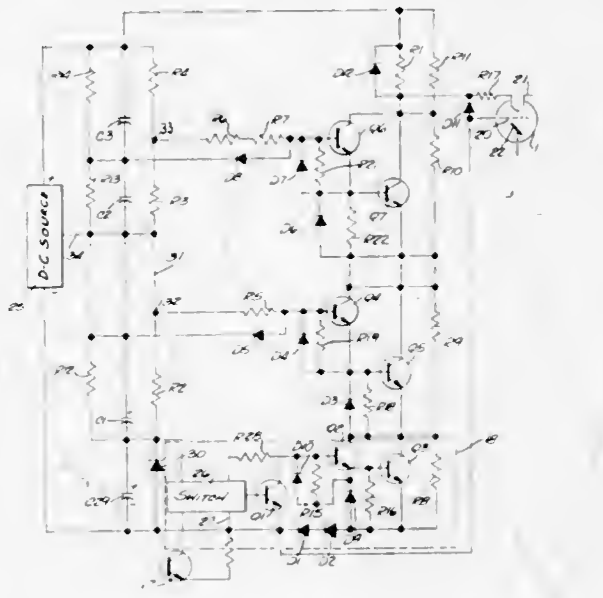
CINERADIOGRAPHIC X-RAY TUBE GRID PULSING CIRCUIT EMPLOYING SERIES CONNECTED HIGH VOLTAGE SWITCHING TRANSISTORS

Thomas W. Lambert, Hales Corners, Wis., assignor to General Electric Company

Filed Feb. 24, 1969, Ser. No. 801,376

Int. Cl. H05g *1/20, 1/60*

U.S. Cl. 250—102 **8 Claims**



A light-emitting diode is pulsed at a preselected rate. Emitted light is conducted through a glass image conduit to a phototransistor which operates a solid state control switch at the same rate. The solid state switch controls conduction of a series connected string of transistors whose collectors swing from essentially zero voltage when the transistors are conducting to a high voltage when they are not conducting. The circuit features means for turning all of the transistors off in such manner that no transistor is subjected to overvoltage. The voltage pulses developed on the collector of the last transistor in the series may, for example, be applied to the grid of an x-ray tube to control its conduction intervals during high rate cinefluorography with an x-ray image converter. A signal that depends on image brightness is used to modulate the width of the pulses and, hence, the output of the x-ray tube so that each film frame has uniform exposure.

3,567,941

PORTABLE, NONELECTRICAL RADIOGRAPHIC DEVICE

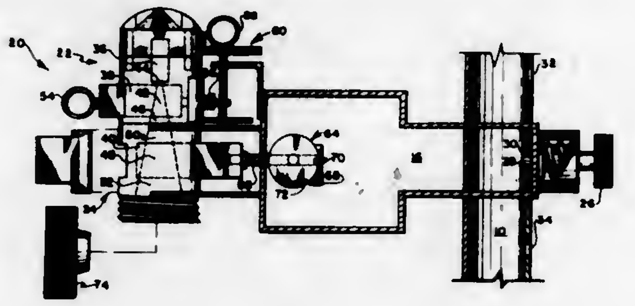
Dennis R. Russell, and Samuel C. Crosby, Jr., Fort Worth, Tex., assignors to General Dynamics Corporation, Fort Worth, Tex.

Filed Dec. 23, 1968, Ser. No. 786,190

Int. Cl. G21h *5/00*

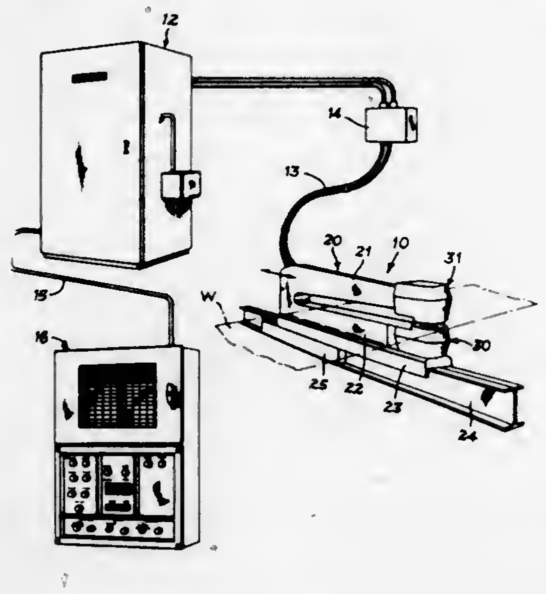
U.S. Cl. 250—106 **10 Claims**

A readily conveniently portable nonelectrical radiographic device for exposing X-ray sensitive film by utilizing a radiation source which emits electromagnetic radiation at or near the X-ray region (such as pure thulium 170 as the preferred source) as a gamma ray emission source and which incorporates multiple safety features integrally interrelated in such a manner as to enable a relatively untrained operator to utilize the machine or exchange power sources.



3,567,942
NUCLEONIC MEASURING APPARATUS WITH AUTOMATIC FIRE SAFETY RADIATION SOURCE SHUTTER CLOSING AND LOCKING MEANS CONTROLLED BY A FUSIBLE ELEMENT WHICH MELTS AT HIGH TEMPERATURES

Richard E. Bach, Hilliard, Ohio, assignor to Industrial Nucleonics Corporation
Filed Apr. 27, 1967, Ser. No. 634,366
Int. Cl. G01t *1/17*
U.S. Cl. 250—106 10 Claims

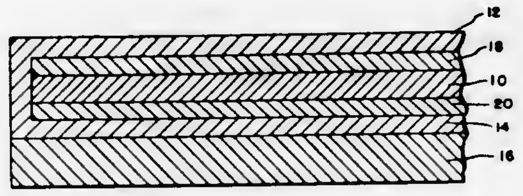


A nucleonic measuring instrument wherein a housing contains a radiation source and has an aperture controlled by a shutter which is spring loaded to a closed position for confining and shielding the radiation and is movable by a linear actuator to an open position for releasing the radiation, the actuator power being applied through a heat sensitive fuse so that it is deenergized and the shutter closes in response to a predetermined high ambient temperature such as may be caused by a fire, and including a spring-biased shutter locking pin retained in a retracted position by a meltable metal barrier which melts to release the pin in response to attainment of a predetermined higher ambient temperature and lock the shutter in the closed position.

3,567,943
RADIOACTIVE PLATING FOR RADIOACTIVE FOILS

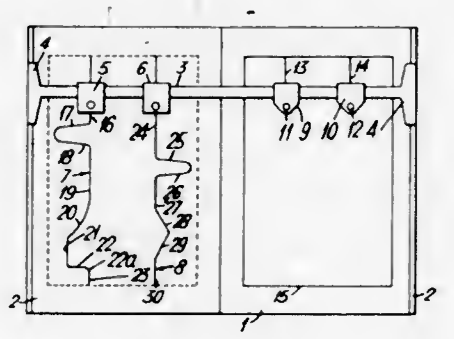
Clarence W. Wallhausen, Bernardsville, N.J., and Walter F. Buck, Bloomsburg, Pa., assignors to Nuclear Radiation Developments, Inc., Grand Island, N.Y.
Filed July 19, 1967, Ser. No. 654,328
Int. Cl. G21h *5/00*
U.S. Cl. 250—106 7 Claims

A radioactive product, and particularly a radioactive foil, comprising a radioactive core and a protective plating disposed over the core comprising gold alloyed with from 0.10 to 25.0 percent by weight of cobalt, cadmium, nickel, copper or silver.



3,567,944
METHOD AND APPARATUS FOR SIMULTANEOUSLY FOLLOWING A PLURALITY OF OUTLINES

George J. Trapp, 105 Aylward Road, Merton Park, London, SW. 20, England
Filed Sept. 3, 1968, Ser. No. 756,879
Claims priority, application Great Britain, Mar. 19, 1968, 13288/68
Int. Cl. G05b *11/32;* **H02p** *5/50*
U.S. Cl. 250—202 13 Claims

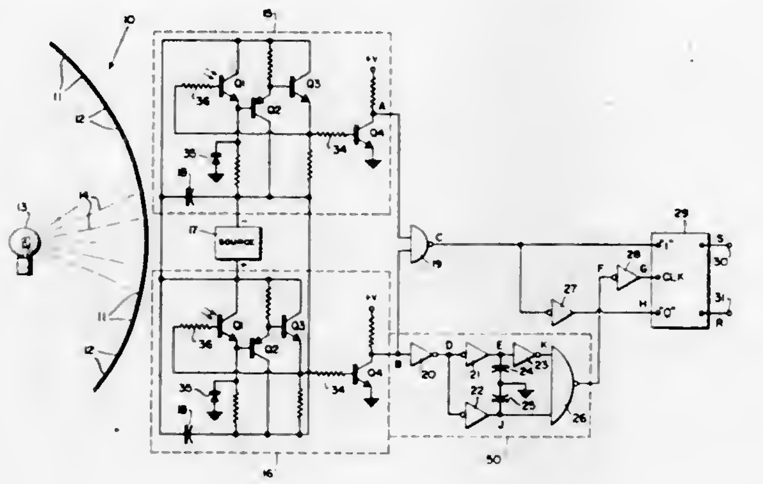


Method and apparatus for simultaneously following a plurality of separate outlines by means of separate photoelectric line followers mounted for simultaneous longitudinal movement and independent transverse movement and each guiding a separate tool, in which movement signals from the line followers are compared, the signal which at any instant corresponds to the slowest longitudinal movement is selected, and the line followers are driven in the longitudinal direction at a speed related to the selected signal. In a modification one or more of the line followers may make reverse longitudinal movements while the others are stopped.

3,567,945
PHOTOELECTRIC ROTATIONAL DIRECTION SENSOR

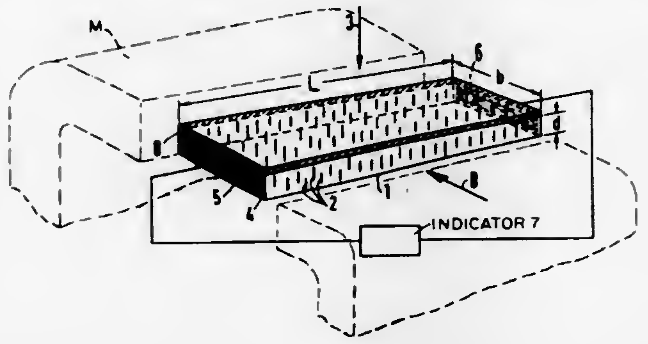
Vernon L. Appleby, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 23, 1968, Ser. No. 786,261
Int. Cl. G01d *5/30, 5/247;* **H03k** *5/01*
U.S. Cl. 250—209 8 Claims

There is provided a system including a light source, which, in accordance with the operation of a rotating device, produces pulses of light which are applied to a logic circuit. The circuit is capable of detecting the relative phase relationship between the light pulses and producing an output signal which is indicative of the direction of rotation of the rotating device.



3,567,946
RADIATION DETECTOR HAVING SEMICONDUCTOR BODY EXHIBITING A PHOTOTHERMOMAGNETIC EFFECT

Bernt Paul, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Sept. 26, 1969, Ser. No. 861,354
Claims priority, application Germany, Sept. 27, 1968, 1,789,046
Int. Cl. H01j *39/12*
U.S. Cl. 250—211 5 Claims

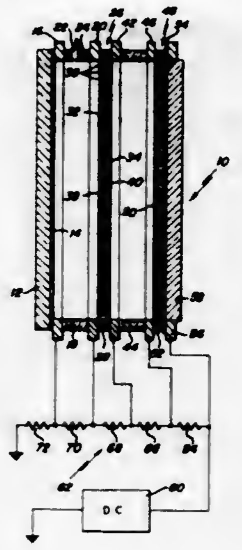


A layer of SiO_x is provided on a surface of a semiconductor body of indium antimonide to which radiation is directed. x is equal to or less than 2 and equal to or greater than 1. The indium antimonide has embedded needle-shaped inclusions of a metal which is of better electrical conductance characteristic than the indium antimonide. The inclusions are in mutually parallel alignment parallel to the direction of radiation to be detected and perpendicular to the direction of a magnetic field in which the semiconductor body is positioned. The semiconductor body exhibits a photothermomagnetic effect.

3,567,947
IMAGING SCREEN ASSEMBLY FOR IMAGE INTENSIFIER TUBE

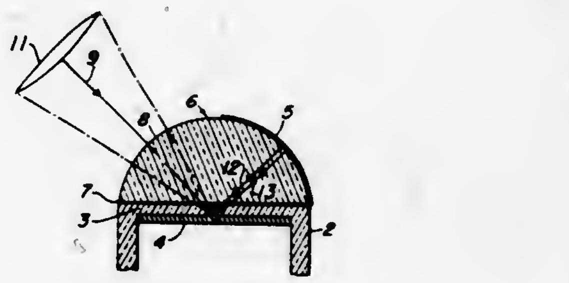
Charles D. Robbing, Los Altos Hills, Calif., assignor to The Machlett Laboratories Incorporated, Springdale, Colo.
Filed Mar. 26, 1969, Ser. No. 810,458
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 9 Claims

An image intensifier tube having an imaging screen assembly provided with means for preventing particles of imaging screen material and flakes of reflective coating material from being drawn electrostatically away from the imaging screen assembly, which means include an electrode comprising a layer of light-transmissive material disposed between the imaging screen and the output face plate of the tube.



3,567,948
METHOD AND APPARATUS FOR IMPROVING THE QUANTUM EFFICIENCY OF PHOTOTUBES

John B. Oke, Altadena, and Rudolph E. Schild, South Pasadena, Calif., assignors to the United States of America, as represented by the Secretary of the Navy
Filed Apr. 14, 1969, Ser. No. 815,728
Int. Cl. H01j *39/12*
U.S. Cl. 250—216 9 Claims



An end-on photomultiplier tube has a fused quartz dome covering its light-receiving face plate or window and further has its photocathode interfaced with the window and with the tube vacuum. The dome is a partial hemisphere so shaped that, in combination with the window thickness, the two members form a true hemisphere centered on the cathode. An incident light beam passing through the dome and directed onto the cathode center is reflected back into the dome from both the inner and outer interfaces of the cathode. The exterior surface of the dome lying in the path of these reflected beams is aluminized and, since the radius of curvature of the dome is centered on the cathode, these reflected beams are normal to the aluminized surface and thus re-reflected and reimaged back onto the cathode center. The arrangement achieves quantum efficiency gains by permitting a multiple photon traversal of the cathode and by controlling the angle of incidence to promote maximum interface reflectance. Also the reduction in size of the effective photocathode area minimizes photomultiplier dark current.

3,567,949

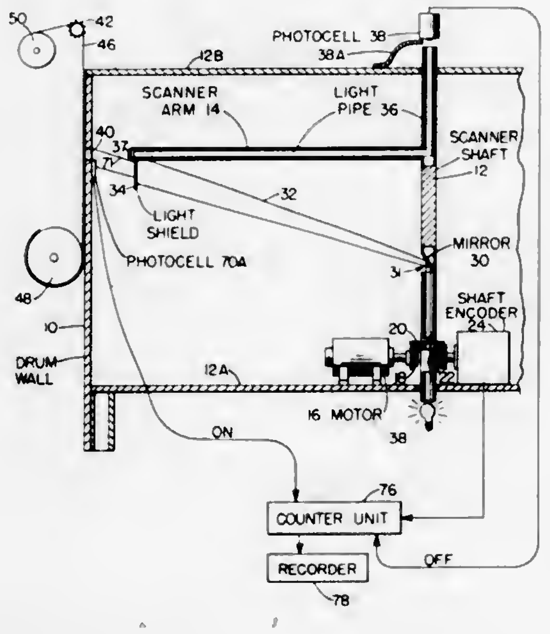
SYSTEM FOR CONVERTING WELL LOGS FROM ANALOGUE-TO-DIGITAL INFORMATION

James M. Forgotson, Jr., and Ralph H. Lindley, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.

Continuation of application Ser. No. 540,055, Apr. 4, 1966, now abandoned. This application May 12, 1969, Ser. No. 827,089

Int. Cl. G01n *21/30;* G01v *1/00;* G08c *5/00*

U.S. Cl. 250—219 **14 Claims**



Conventional well logs in the past have been recorded to a large extent in analogue form as a visual trace on a strip of paper. With the advent of the digital computer, it is now desired to convert these logs into digital form so that they can be processed in such modern computers. Such well logs are transferred to long strips of precision ruled, perforated paper. A drum with windows placed around its periphery is provided. Means are provided to drive these logs by these windows in a direction parallel to the axis of the drum. At the same time, scanning means are provided to scan by each window. These scanning means include means for measuring the distance between a base line and the log itself. This measurement is converted to a digital representation of the log at that point. Sufficient scanning is done to obtain digital information defining each well log.

3,567,950

DRAWING-TO-TAPE PROGRAMMER WITH PHOTOELECTRIC SCAN POSITION ENCODING

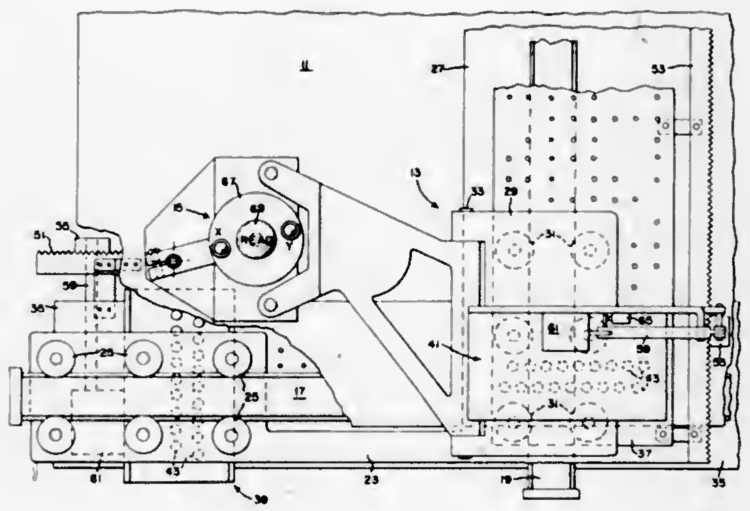
Heinrich Meyer, Liverpool, N.Y., assignor to General Electric Company

Filed Aug. 25, 1969, Ser. No. 852,699

Int. Cl. G08c *9/06;* G01n *21/30*

U.S. Cl. 250—219 **5 Claims**

Apparatus for translating position coordinates of points on a multidimensional display into binary information for recording in form suitable for use with numerical control equipment. More specifically, a drawing-to-tape programmer is described comprising a scanning assembly movable along orthogonally related coordinate axes into registration with each point to be recorded, the position coordinates of that point being encoded by photoelectric sensor arrays movable with the scanning assembly along binary coding scales each paralleling one of the coordinate axes and apertured to pass light to the associated photosensor array in a coded pattern providing unambiguous indication of the position coordinate along that axis. Rack and detent members with the rack teeth spaced correspondingly to the coding scale aperture spacing are provided for assuring alignment of the photosensor array with those coding scale apertures nearest to correspondence with the point to be translated, then locking the scanning assembly against further movement along that coordinate axis until read-out is completed. Means also are provided for marking each point as read, for preventing repeat of read-out, and for limiting read-out information, to the minimum essential to define position coordinates newly changed.



3,567,951

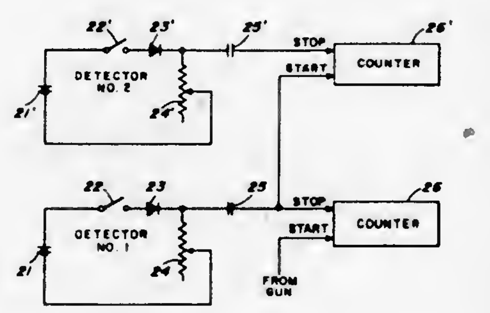
LASER PROJECTILE DETECTION SYSTEM

Hugh E. Montgomery, Jr., Knoxville, Tenn.; Conrad W. Brandts, Dahlgren, and Richard A. Frazer, King George, Va., assignors to the United States of America as represented by the Secretary of the Navy

Filed Apr. 14, 1969, Ser. No. 815,689

Int. Cl. G01p *3/68*

U.S. Cl. 250—222 **3 Claims**



The present invention is directed to a system which measures the ejection time and muzzle velocity of a gun. The system utilizes a laser whose beam is split and then directed across the projectile ejection path to two photodetectors. When the gun is triggered, a projectile is fired and a first counter is activated. When the projectile leaves the gun barrel it breaks the first light path between the laser and the first photodetector and turns off the first counter. Simultaneously, it initiates a second counter which is deactivated when the light path to the second photodetector is broken by the projectile.

3,567,952

PROCESS FOR ELECTRICAL POWER GENERATION AND WATER PURIFICATION SYSTEM

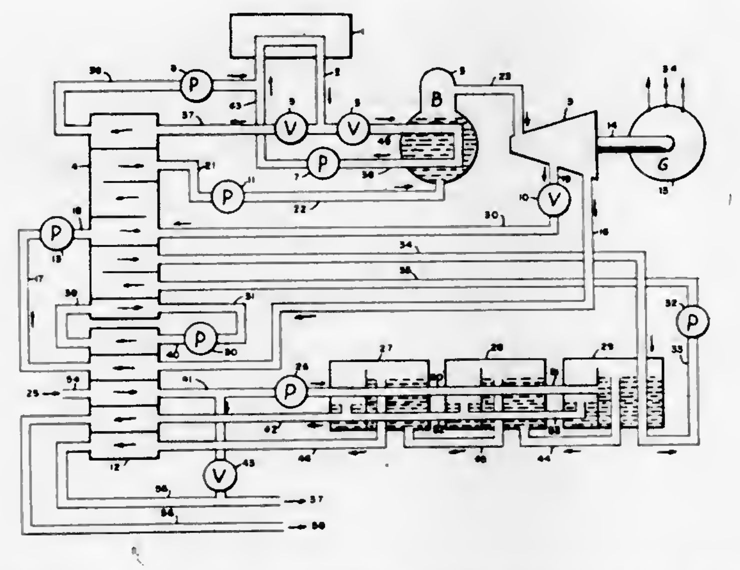
George D. Doland, 1103 Westgate Road, Mount Prospect, Ill.

Filed Feb. 3, 1966, Ser. No. 527,393

Int. Cl. C02b *1/06*

U.S. Cl. 290—1 **3 Claims**

The invention described herein relates to an improved water and power plant system. The system consists of a means for producing steam which is used for a steam turbine prime mover driving an electrical generator. Steam is extracted from the steam expansion cycle to operate the water plant. High efficiency is achieved by operating the turbine at pressures and temperatures similar to a power-only plant. Thermal economy for the water plant is gained by using the exhaust steam of the turbine to preheat the water plant feed. Additional thermal economy is gained by recovering energy from the water plant discharged concentrated impure water and product water.



3,567,953

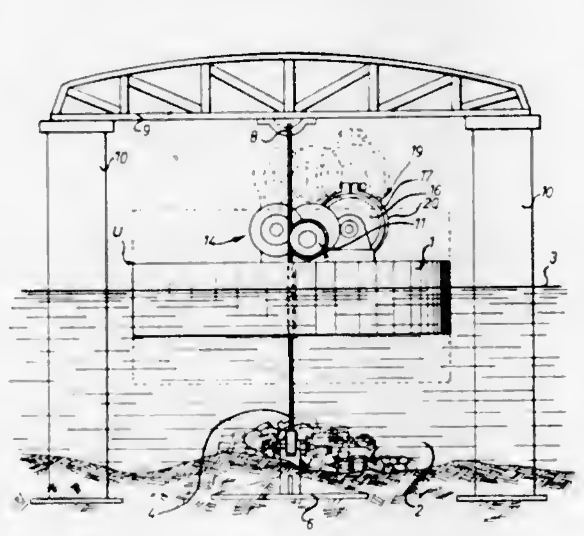
TIDE-OPERATED POWER PLANT

Bruno Lord, Lac Bellemare, St. Mathieu, Province of Quebec, Canada

Filed Mar. 10, 1969, Ser. No. 805,681

Int. Cl. F03b *13/12*

U.S. Cl. 290—42 **2 Claims**



A tide-operated power plant consisting of an electric generator mounted on a float, a driving train for said generator, including a reverse and operated by a member stationary with respect to the water bottom, whereby up-and-down movement of the float will drive the generator.

3,567,954

INTERCONNECTING MEANS FOR ELECTRIC POWER SYSTEMS

Tsuneo Mitsui, and Muneyuki Udo, Tokyo, Japan, assignors to Tokyo Electric Power Co., Inc., Toyko, Japan and Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

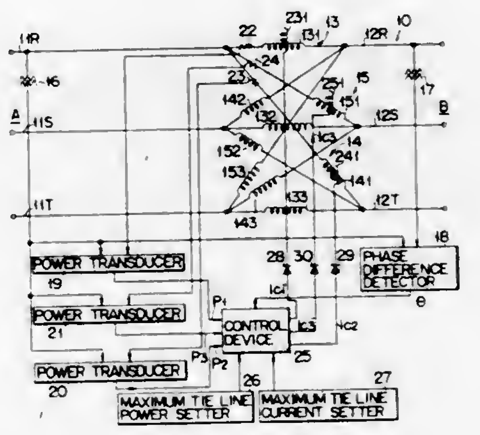
Filed Aug. 25, 1969, Ser. No. 852,821

Claims priority, application Japan, Aug. 28, 1968, 43/61270;43/61269

Int. Cl. B62d *55/14*

U.S. Cl. 307—20 **4 Claims**

An interconnecting means for AC electric power systems is composed of a plurality of DC excited saturable reactors located within a tie line connecting said electric power systems. These DC excited saturable reactors are arranged between the corresponding phase lines, as well as between the different phase lines, of the tie line. Thus in the normal state where there is little phase difference between the interconnected power systems, only the reactors disposed between the corresponding phase lines are reduced in impedance by regulating their DC excitation so as to allow sufficient power to flow therethrough. But under the stepout condition between said power systems, all the saturable reactors are controlled in DC excitation to have their impedance reduced in turn according to the degree of the phase difference between said interconnected power systems, whereby the tie line power flows across those phase lines of the tie line which have the smallest phase difference.



3,567,955

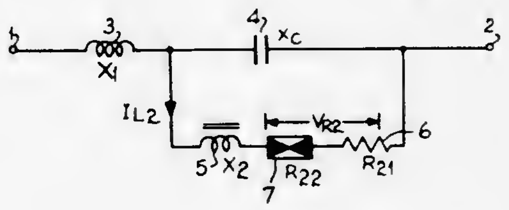
CIRCUITS FOR INTERCONNECTING ALTERNATING CURRENT NETWORKS

Hemesh Laxmidas Thanawala, Stretford, Manchester, England, assignor to Associated Electrical Industries Limited, London, England

Filed Oct. 3, 1966, Ser. No. 583,828

Int. Cl. H02j *1/10*

U.S. Cl. 307—51 **6 Claims**



An AC circuit includes an inductance and capacitance combination which is practically resonant at a conventional power frequency and a shunt for the capacitance including a saturable reactor and a resistance. A means, which may, for example, comprise a nonlinear resistance included in the shunt connection, is included to provide a damping effect on circuit transients as well as to assist the recovery of the reactor.

3,567,956

AUTOMATIC DECELERATION WARNING SWITCH

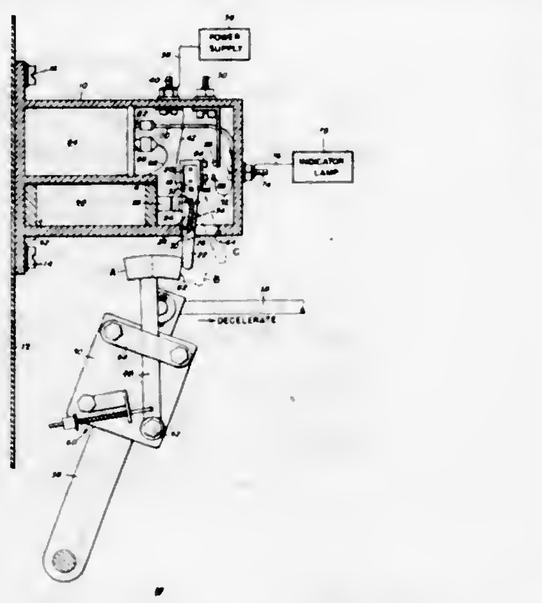
Fred A. McNiel, 611 Bouldin Ave., Austin, Tex.

Filed May 13, 1969, Ser. No. 824,081

Int. Cl. H01h *35/00*

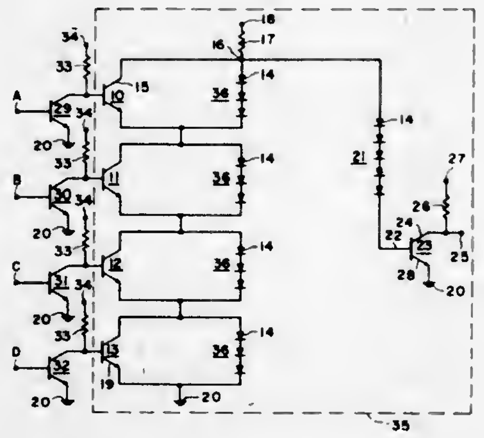
U.S. Cl. 307—121 **9 Claims**

The subject invention relates to a switching device which will be activated by the sudden release of an automotive accelerator pedal. A pendulum arm is secured to the accelerator linkage and will operate when the position of the linkage is suddenly changed, but will not operate when the position is changed at a normal speed. A switch unit enclosed in a casing has a clevice type switch arm which extends through the casing to engage the pendulum arm when the accelerator pedal is released suddenly thereby to close two pairs of contacts. Three circuits are completed by the closing of the contacts through which current from a power source causes the vehicle's stop lamp to illuminate, a signal lamp within the visual range of the vehicle driver to illuminate, and a flasher unit to energize. The flasher unit, after a predetermined period of time, conveys current to an electromagnet secured within the casing which causes the switch unit to reset, whereby the contacts are disengaged and the circuits are broken.



3,567,957
THRESHOLD LOGIC CIRCUITS UTILIZING SERIES CONNECTED TRANSISTORS AND LEVEL SHIFTING DIODES

Dwight W. Aten, Washington, N.J., assignor to The Singer Company, New York, N.Y.
Filed Mar. 25, 1969, Ser. No. 810,137
Int. Cl. H03k *19/42, 19/44, 5/08*
U.S. Cl. 307—211 **5 Claims**

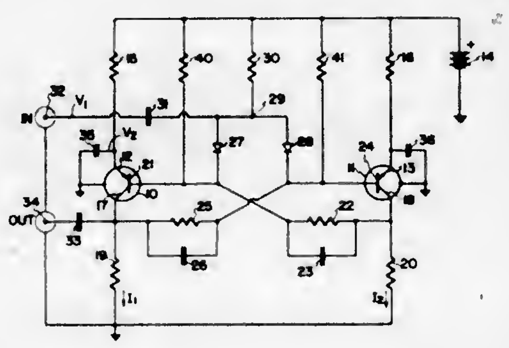


A string of series-connected transistors having discrete inputs provides a variable clamping voltage to a common junction point by controlling the shunting of individual groups of diodes connected in series with the junction point and ground. An output transistor has its base connected through a series of level-shifting diodes to the common junction point to establish a threshold level. The number of level-shifting diodes is chosen so that when certain ones of the series-connected transistors are saturated, the clamping voltage goes below that necessary to bias the output transistor to conduction and it turns off producing a "1" at the output.

3,567,958
HIGH-SPEED TRANSISTOR BINARY FREQUENCY DIVIDER

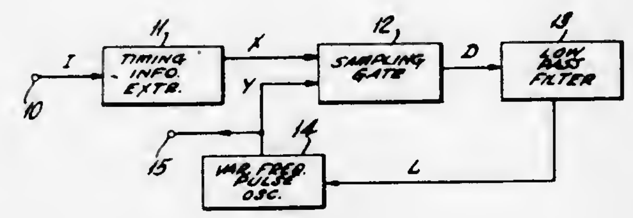
Robert H. Bickley, Milford, Conn., assignor to The Singer Company, New York, N.Y.
Filed July 12, 1968, Ser. No. 744,533
Int. Cl. H03k *21/00*
U.S. Cl. 307—220 **4 Claims**

A circuit is disclosed in which a pair of collector-base cross-coupled transistors operating as intermittent amplifiers are adapted to operate conductively in their active regions only during alternate negative half cycles of an AC input signal and results in an output signal from either transistor having one-half the frequency of the input signal. The transistors operate in their active regions only during every fourth half cycle of the input wave form and during the rest of the time they are purposely cut off by reverse bias. A "-memory" capacitor connected from each emitter to ground maintains the emitter voltage so that the transistor is cut off during its next normal opportunity to conduct thus amplification is prevented during alternate half cycles of input voltage. This capacitor also provides low AC emitter-to-ground impedance thus allowing transistor amplification of the input half wave when the transistor is not cut off. This circuit permits high-speed operation because the transistors are never operated in their saturated region and the time delay required to turn off a saturated transistor is thus avoided. As a result, this circuit can be made to divide with nearly constant sensitivity over the entire input frequency range of from 60 megahertz to frequencies above one gigahertz.



3,567,959
PHASE-LOCKED PULSE GENERATOR WITH FREQUENCY MAINTAINING FUNCTION

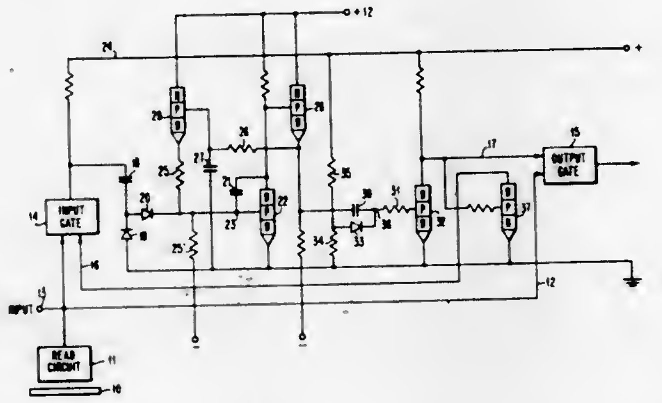
Hisashi Kaneko; Atsushi Tomozawa, and Yukio Takimoto, Tokyo-to, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan
Filed Oct. 16, 1967, Ser. No. 675,402
Claims priority, application Japan, Oct. 20, 1966, 41/69163
Int. Cl. H03k *5/20*
U.S. Cl. 307—232 **7 Claims**



A phase-locked pulse generator for producing clock pulses for reception of digital signals including timing information of varying density and comprising a sampling type phase comparator and a low pass filter for temporarily holding, in the case of a reduction in the timing information density, the timing information detected by the phase comparator. Due to this holding action, the frequency of the pulse generator is controlled by the output of the low pass filter and is maintained substantially unchanged even when the timing information is not continually included in the digital signal.

3,567,960
GATING CIRCUIT FOR DISPLACED PULSES

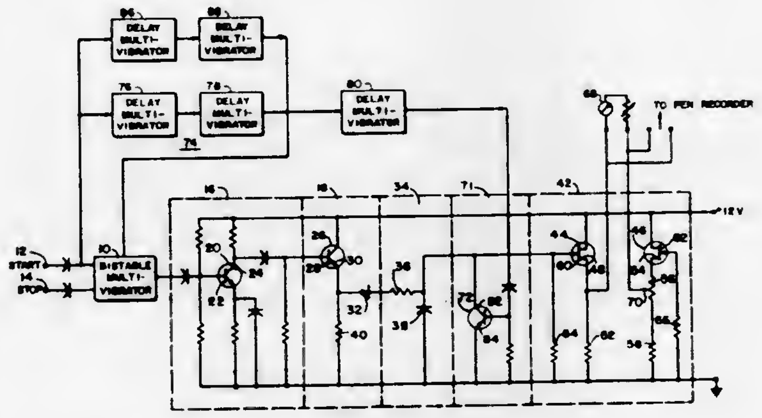
Charles E. Owen and Christopher N. Wallis, Chandler's Ford, England, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 4, 1968, Ser. No. 734,287
Claims priority, application Great Britain, Aug. 26, 1967, 39369/67
Int. Cl. H03k *5/20*
U.S. Cl. 307—232 **10 Claims**



A gating circuit useful for separating data pulses from clock pulses in a double frequency detection system includes a signal generator that provides a sawtooth waveform having ramp portions of the same slope and a flyback interval of fixed magnitude. When the sawtooth signal is above a variable threshold, an input gate is enabled to allow the clock pulses to initiate flyback. The proportions of the sawtooth waveform above and below the threshold remain constant, so that early or late arrival of a clock pulse does not affect the gating of succeeding clock pulses. Thus, an output gate is made to operate to block clock pulses while passing data pulses.

3,567,961
ANALOGUE TIME INTERVAL COUNTER

Walter Koechner, Santa Monica, Calif., assignor to the United States of America as represented by the Secretary of Army
Filed July 31, 1968, Ser. No. 749,075
Int. Cl. H03r *5/20*
U.S. Cl. 307—232 **3 Claims**

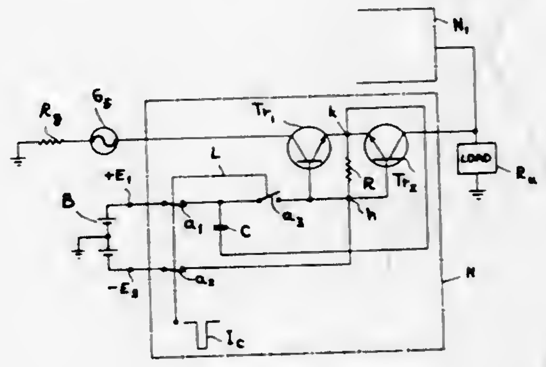


A system for producing an analogue voltage of the time interval between a start and stop pulse. The start pulse initiates circuitry for generating a charging voltage proportional to the time duration between a start and stop pulse, and the charging voltage is applied to a relatively slow response panel meter connected through a differential source follower amplifier consisting of two field effect transistors. The panel meter is connected across the respective source electrodes of the field effect transistors. If the time between two successive start pulses is smaller than the response time of the meter, pulse averaging takes place. If one assumes a response time of one second on the panel meter, then the displayed result represents the average value over *n*-range measurements where *n* is the pulse repetition rate of the system.

The invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

3,567,962
GATING NETWORK FOR TIME-SHARING COMMUNICATION SYSTEM

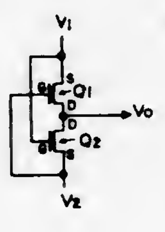
Ferdinando Formenti, Milan, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
Filed July 5, 1968, Ser. No. 742,837
Claims priority, application Italy, July 6, 1967, 18,051A/67
Int. Cl. H03k *17/00*
U.S. Cl. 307—246 **10 Claims**



A signal patch including two transistors connected back-to-back is closed by the discharge of a condenser through a biasing resistance which is connected in parallel across the bases and the emitters of these transistors, preferably in series with a diode, the condenser having a charging circuit which is closed during a blocking period and which is open during an unblocking period during which a normally open discharge circuit through the biasing resistance is closed.

3,567,963
FIELD EFFECT TRANSISTOR LOGIC GATE

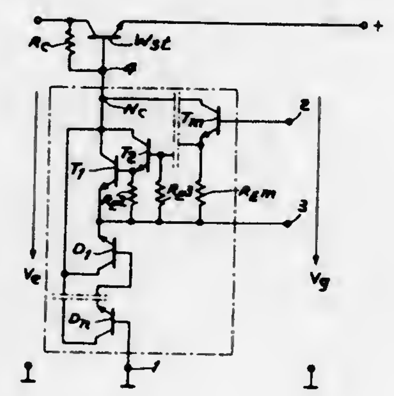
Gary A. Magee, Indianapolis, Ind., assignor to the United States of America as represented by the Secretary of Navy
Filed May 22, 1969, Ser. No. 826,968
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 **5 Claims**



A field effect transistor logic gate having a pair of field effect transistors coupled through their source and drain terminals between information and timing input signals with the source terminal of each field effect transistor coupled to the gate terminal of the other field effect transistor and their drain terminals coupled in common as an output to gate through the information signal in time relation with the timing input signal on their respective source terminals, constituting an AND circuit which AND circuit is readily converted to a half-bit delay circuit by adding a field effect transistor serially in the output and gated by one of the input signals and which half-bits are readily paired and cascaded to 1-bit delay circuits and circulating memory logic circuits.

3,567,964
INTEGRATED CIRCUIT FOR REFERENCE AMPLIFIER

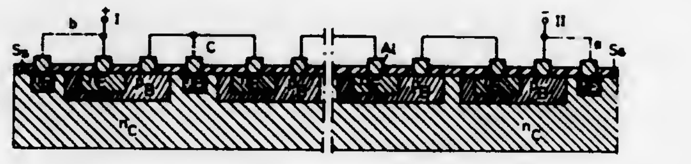
Hartmut Bleher, Fishkill, N.Y., assignor to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 24, 1969, Ser. No. 793,782
Claims priority, application Germany, Jan. 27, 1968, P 16 38 010.2
Int. Cl. H01l *19/00*
U.S. Cl. 307—303 **1 Claim**



This is an integrated circuit for reference amplifiers having a plurality of two sets of transistors formed within a semiconductor body with all of the transistors having a common collector region. The first set of transistors have their emitter base junctions forward biased and connected in series. The second set of transistors have their emitter base junctions connected in series and reverse biased so as to operate as zener diodes.

3,567,965
TEMPERATURE COMPENSATED ZENER DIODE

Hans Weinerth, Eindhoven-Woensel, Netherlands, and Hartmut Bleher, Fishkill, N.Y., assignors to International Standard Electric Corporation, New York, N.Y.
Filed Dec. 5, 1968, Ser. No. 781,358
Claims priority, application Germany, Dec. 9, 1967, 1,589,707
Int. Cl. H01l *17/00*
U.S. Cl. 307—303 **11 Claims**

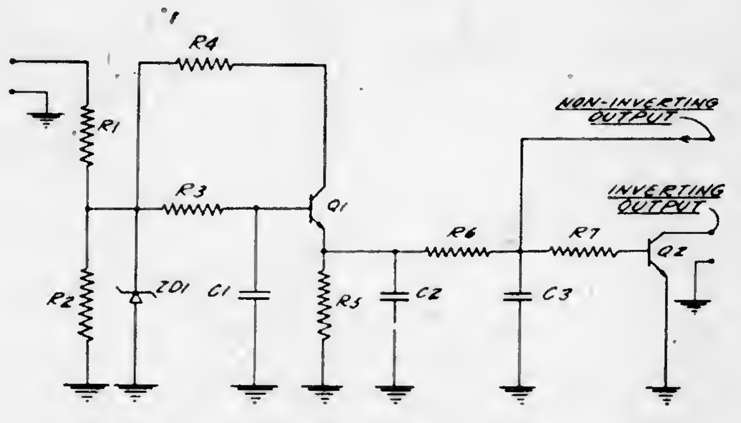


This is a temperature compensated zener diode wherein the compensation is provided by having a transistor structure with two base emitter junctions, one operating in forward bias and the other (zener) being reversed biased. This device has a number of these transistor structures cascaded to give the desired zener voltage and temperature compensation. The negative voltage variation with respect to temperature of a forward biased emitter base junction compensates for the positive voltage variation of the zener diode.

3,567,966
TRANSIENT SUPPRESSION CIRCUIT

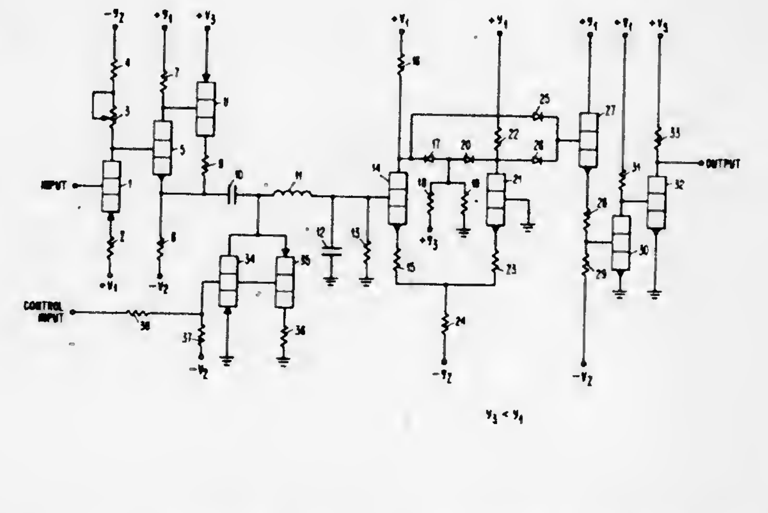
Lyman F. Gilbert, Somers, and William W. Landon, Jr., Andover, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed Apr. 10, 1968, Ser. No. 720,060
Int. Cl. H03k *5/20*
U.S. Cl. 307—234 **7 Claims**

Solid-state circuitry for coupling input signals of relatively long duration to a logic system, the circuitry comprising an integrator which, in response to input signals of the proper magnitude, duration and polarity, provides a ramp voltage to a level detector. Improved transient suppression is achieved by employing input signals to provide, after integration, the base and collector drive for an input transistor. The circuitry is also characterized by adjustable turn on and turn off times which may be made symmetrical if desired.



3,567,967
VELOCITY DEVIATION DETECTOR

Benjamin Carmel Fiorino, Longmont, and Juan Alfonso Rodriguez, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 9, 1968, Ser. No. 727,810
Int. Cl. H03k *5/13*
U.S. Cl. 307—235 **2 Claims**

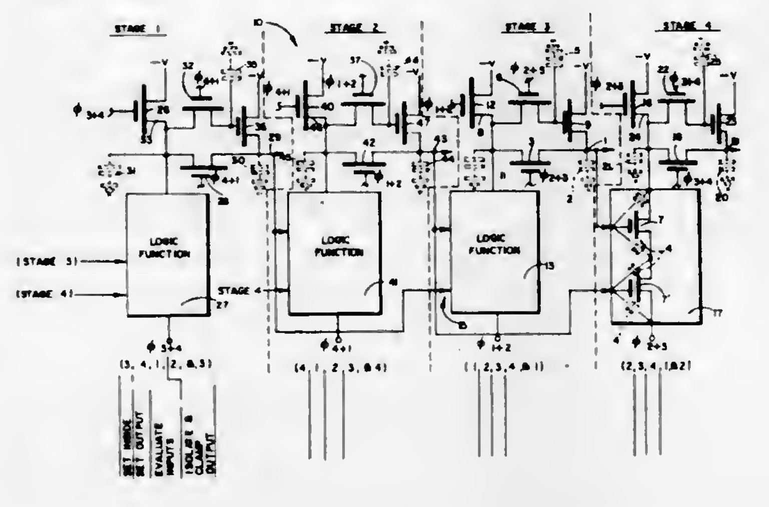


A velocity deviation detector comprising a variable gain control amplifier, a power driving stage, AC coupling, a squelching network, a low pass filter, and a bidirectional voltage comparator stage. The velocity deviation detector produces an output signal whenever the velocity being measured changes by a percentage value greater than the dictated allowable percentage values as specified by the velocity deviation detector.

3,567,968
GATING SYSTEM FOR REDUCING THE EFFECTS OF POSITIVE FEEDBACK NOISE IN MULTIPHASE GATING DEVICES

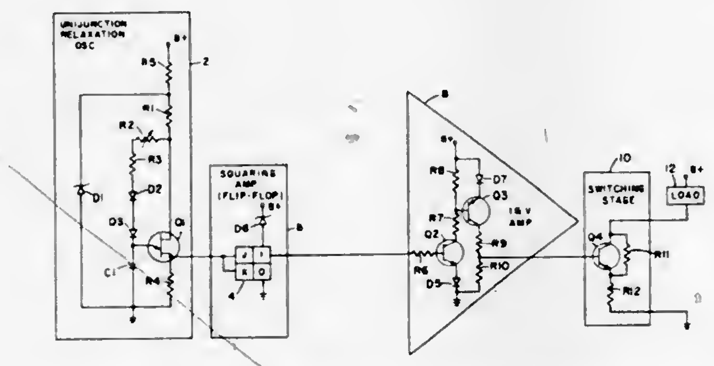
Robert K. Booher, Downey, Calif., assignor to North American Rockwell Corporation
Filed Mar. 13, 1967, Ser. No. 622,578
Int. Cl. H03k *19/08, 17/00, 21/00*
U.S. Cl. 307—251 **2 Claims**

A multiphase gating system which reduces the effects of positive noise normally present at the outputs of stages comprising prior art multiphase gating systems by providing switching means for clamping the outputs of particular stages previously set to a logical true level, to said level during the periods that the stage of the outputs of particular stages are being evaluated as inputs to other stages. If the outputs had been set false before the evaluation, the switching means would not be actuated.



3,567,969
HIGH POWER MODULATOR

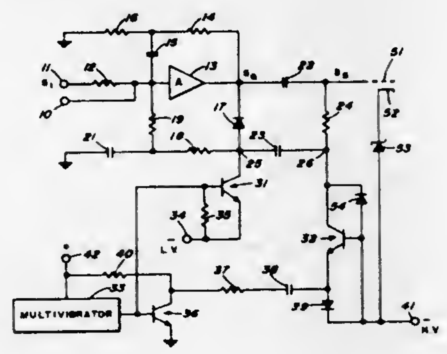
Johnny W. Goode, West Point, Miss.; Raymond A. Brandt, Huntsville, Ala., and The First National Bank of Huntsville, Administrator, assignors to the United States of America as represented by the Secretary of Army
Filed Aug. 6, 1968, Ser. No. 751,010
Int. Cl. H03k *17/00*
U.S. Cl. 307—253 **3 Claims**



A device providing medium voltage, high current switching into a load with nonlinear characteristics. The square wave output of a clocked flip-flop is amplified and used to operate a switching transistor which controls the power to the load.

3,567,970
DIRECT CURRENT COUPLER

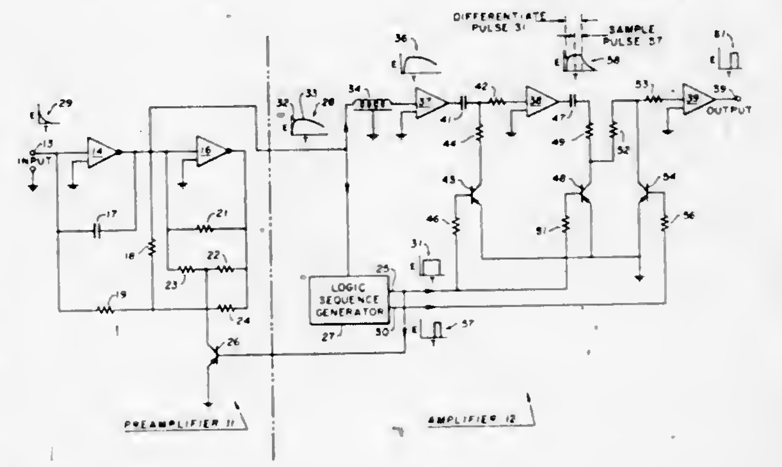
Ted W. Berwin, Los Angeles, Calif., assignor to the United States of America as represented by the Secretary of Navy
Filed Aug. 23, 1968, Ser. No. 754,867
Int. Cl. H03k *17/00*
U.S. Cl. 307—254 **5 Claims**



This invention is directed to a direct current coupling circuit which couples a voltage signal from one DC level to another. The circuit utilizes an operational amplifier and a resistive-capacitive network connected to the output of the amplifier. The shift in DC level is provided by a DC potential which is connected across one of the capacitors in the resistive-capacitive network. Connection of this potential is achieved by means of a high-speed switching circuit.

3,567,971
TIME-SAMPLING-PULSE AMPLIFIER

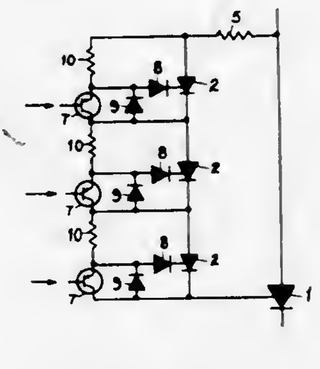
William W. Goldsworthy, Orinda, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 27, 1968, Ser. No. 763,258
Int. Cl. H03k *1/18*
U.S. Cl. 307—267 **7 Claims**



A pulse amplifier particularly designed for amplifying electrical pulses from charged particle detectors and normally having differentiation networks with a short time constant so that base line stability and immunity from low frequency "-noise" is obtained. When an input pulse is detected, the time constant of the networks is increased for the duration of the pulse by increasing the resistance in the networks. The longer time constant provides accurate energy resolution by minimizing signal loss during a pulse. After the pulse amplitude has been sampled, the short time constant is restored and the baseline potential is rapidly obtained.

3,567,972
ARRANGEMENT FOR IGNITING SERIES CONNECTED POWER THYRISTORS BY MEANS OF AUXILIARY THYRISTOR CIRCUIT CONTROLLED BY LIGHT-SENSITIVE ELEMENTS

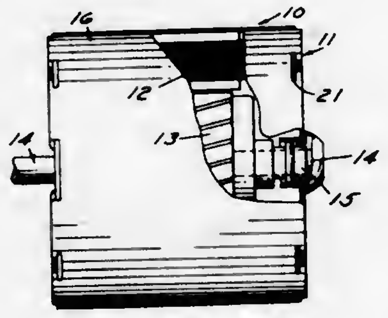
Werner Faust, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland
Filed Sept. 18, 1968, Ser. No. 760,483
Claims priority, application Switzerland, Sept. 20, 1967, 13157/67
Int. Cl. H01l *9/12, 15/00*
U.S. Cl. 307—311 **6 Claims**



An arrangement for igniting each of a plurality of series connected power thyristors of a high voltage operating circuit comprises a plurality of auxiliary thyristors arranged in series and connected between the anode side of the power thyristor and its control electrode. The auxiliary thyristors require relatively small operating current for their ignition and the necessary ignition current is supplied by light-sensitive control elements connected to the control electrodes of the auxiliary transistors. The light-sensitive control elements can be of any suitable type such as photodiodes, phototransistors and photoresistors.

3,567,973
ELECTRIC MOTORS

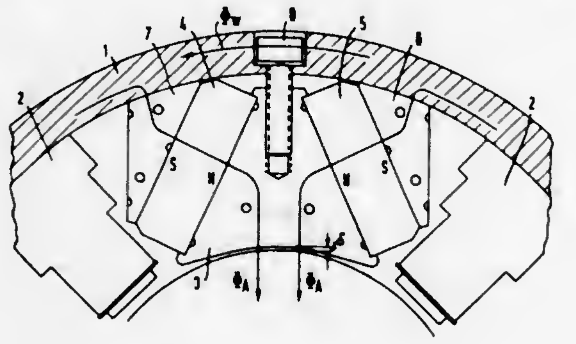
Alfred Mastrodonato, Sr.; Kurt Porter, Owosso, and Robert R. Rhoads, Corunna, Mich., assignors to Universal Electric Company, Owosso, Mich.
Filed June 26, 1968, Ser. No. 740,338
Int. Cl. H02k *5/04, 15/14*
U.S. Cl. 310—42 **24 Claims**



In one form the electric motor comprises an improved frame which rotatably supports the rotor shaft. This frame consists of a circular shell which encircles the stator and two end members which engage into the inside of the shell and contain a bearing for supporting an end of the shaft. The shell has a plurality of notches at each end for receiving mating projections on the end member, thus securing the end member against relative rotational movement. The shell also has a plurality of slots in each end which serve to define a portion of the shell which can be deformed radially inward after assembly of the end members to secure the end members against axial movement.

3,567,974
DYNAMOELECTRIC MACHINE WITH PERMANENT-MAGNET EXCITATION

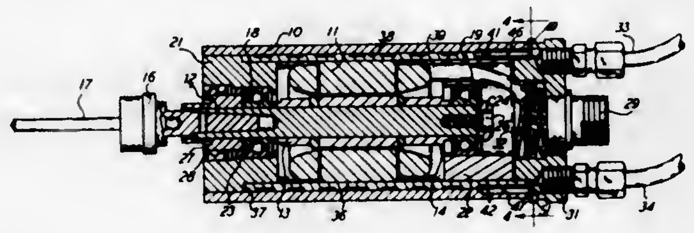
Horst Spingler, Bad Neustadt Saale, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Aug. 22, 1969, Ser. No. 852,298
Claims priority, application Germany, Aug. 28, 1968, 1,763,876
Int. Cl. H02k *37/00*
U.S. Cl. 310—46 **6 Claims**



An electric machine such as a motor or generator is provided with wedge-shaped pole cores which are secured to the rotor or stator structure in radially spaced relation thereto so that an airgap remains between each pole core and the structure to which the core is attached. The cores are angularly spaced from each other and taper toward the stator or rotor structure to which they are fastened. Abutment members are also fastened to the same structure in angularly spaced relation to the pole cores. Ceramic blocks of permanent magnet material are fastened between each pole core and the adjacent abutment member so that opposite faces of each permanent magnet block are in face-to-face engagement with one pole core and one abutment member. The magnets have a large cross section in comparison with their length measured between the north and south poles that are adjacent to the pole core and the abutment respectively. That is, the ceramic magnets have the shape of prisms whose cross section is an elongated rectangle whose length between north and south poles is parallel to the shorter side of the rectangle.

3,567,975
ELECTRIC HIGH-SPEED SPINDLE WITH COOLING MEANS

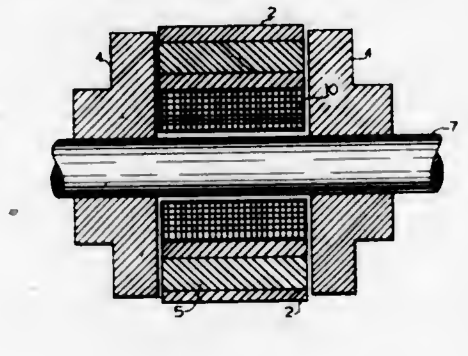
Marvin L. Biesack, 6408 Wonder Lane, Racine, Wis., and Donald W. Loomis, 4931 Taylor Ave., Racine, Wis. 53403
Filed Dec. 12, 1969, Ser. No. 884,544
Int. Cl. H02k *9/19*
U.S. Cl. 310—54 **4 Claims**



A tubular housing piece and a tubular member telescoped within the housing piece for defining separate liquid passageways. Connectors are attached to the tubular assembly for conducting liquid into and away from the assembly. An armature is rotatably supported in the assembly by means of a bearing, and a bearing support member is disposed adjacent the tubular member and its liquid passageways so that the bearing support and the bearing itself are cooled by liquid flowing through the passageways. The tubular assembly is of one uniform diameter throughout the extent of the liquid passageways, and the assembly has drilled holes in one end, for providing the liquid inlet port and the liquid outlet port in flow communication with the respective liquid passageways.

3,567,976
EDDY CURRENT BRAKES

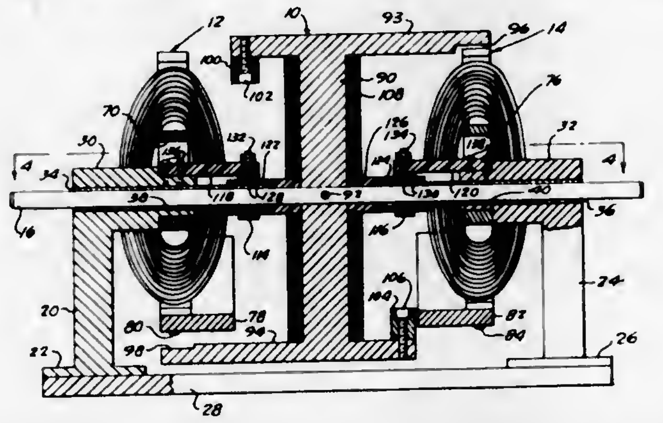
Max Alth, 6 Tamarack Road, Port Chester, N.Y.
Filed July 15, 1969, Ser. No. 841,938
Int. Cl. H02k *49/04*
U.S. Cl. 310—93 **5 Claims**



The brake is an AC generator with shorted turn output coils formed by iron bars fixed about a central hole in a massive plate of copper or aluminum. The field is furnished by a hollow-core coil mounted axially in said hole. The shaft to be braked passes through the center of the field coil. Iron bars, mounted as a pair, on either side of the plate and coil are keyed to said shaft; they rotate with the shaft and sweep the magnetic field over said iron poles and surrounding conductive metal. Braking is controlled by varying field strength. No heavy currents are switched, no coils rotate and a single metal plate serves as the shorted secondaries and radiates generated heat.

3,567,977
ASYMMETICAL VOLTAGE WAVE GENERATOR

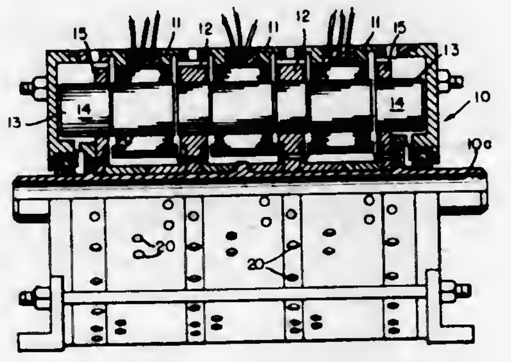
Kenneth H. McLean, 3915 W. Clement Road, Boise, Idaho
Filed Aug. 24, 1967, Ser. No. 662,987
Int. Cl. H02k *39/00*
U.S. Cl. 310—111 **4 Claims**



An electric motor or generator for producing AC by selective induction of magnetic flux through differential coupling of a flux path through a rotatable armature which moves adjacent stators which may be wound and connected such that the output taken from the stators comprises a series of pulses to provide an alternating current output.

3,567,978
AXIAL AIRGAP MOTORS WITH REDUCED IRON LOSSES

Louis W. Parker, c/o Parker Electronics Inc. 2040 N. Dixie Hwy., Fort Lauderdale, Fla. 33305
Filed Oct. 24, 1969, Ser. No. 869,057
Int. Cl. H02k *23/60*
U.S. Cl. 310—124 **8 Claims**

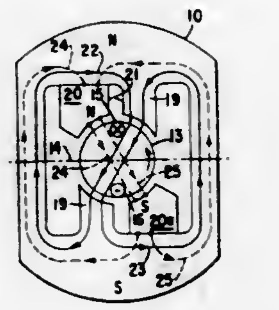


An axial airgap motor is provided comprising two end rotors, a plurality of stators spaced from one another between said end rotors, and at least one further rotor positioned between the stators. Each end rotor includes a relatively massive magnetic ring having a radial length which is the same as the radial length of the pole pieces in the adjacent stator; and said magnetic ring has an axial cross-sectional area equal to substantially one-half the total radial cross-sectional area of the laminated stacks composing one pole in said adjacent stator.

3,567,979
PERMANENT MAGNET MOTORS HAVING SPLIT POLE STRUCTURES

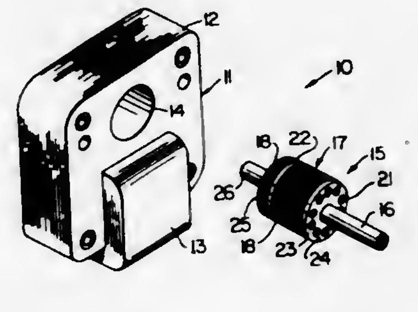
Wolfgang Jaffe, Morristown, and Dwight W. Aten, Washington, N.J., assignors to The Singer Company, New York, N.Y.
Filed Aug. 27, 1969, Ser. No. 853,260
Int. Cl. H02k *23/42*
U.S. Cl. 310—187 **4 Claims**

A permanent magnetic motor is disclosed in which each of the main poles is made up of two distinct parts. One part is a ceramic permanent magnet having very low permeability. The other part is made of soft steel of relatively high permeability. The armature reaction magnetomotive force (MMF) produces flux in the soft steel part related to the armature current and this flux is in a direction to add to the main flux supplied by the permanent magnet part and imparts a partial series motor characteristic to the motor without requiring a field winding. Performance of the motor is upgraded, especially when operating on rectified alternating current, due to an improved torque to current ratio for a given permanent magnet.



3,567,980
REVERSIBLE MOTOR WITH AXIALLY MOVEABLE ROTOR

Kenneth G. Kreuter, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Feb. 3, 1969, Ser. No. 796,072
Int. Cl. H02k *7/12*
U.S. Cl. 310—209 **8 Claims**

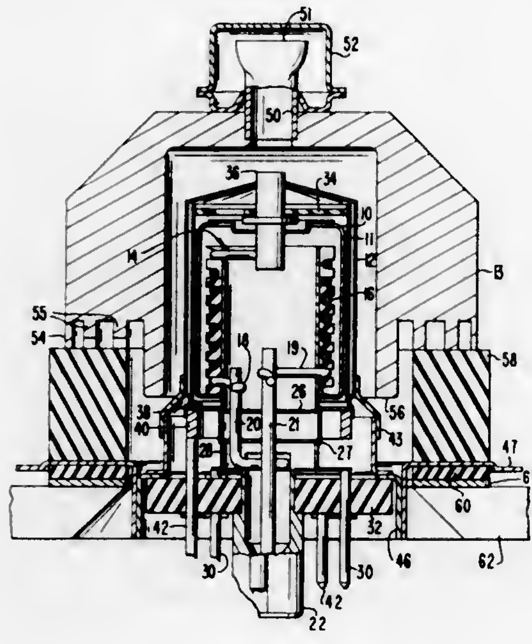


A reversible motor means having a stator provided with an opening means passing therethrough and receiving a rotor that is normally disposed in one position thereof that is in axially offset relation to the stator when the motor means is deenergized, the rotor means having laminations thereon so constructed and arranged that when the motor means is energized, the rotor is pulled into centrally aligned relation with the stator and will remain in such centrally aligned relation even if, thereafter, the motor is reversed so as to drive the rotor in the opposite direction without causing the rotor to return to the one position thereof.

3,567,981
EXTERNAL ANODE ELECTRODE TUBE HAVING IMPROVED CONDUCTIVE COOLING MEANS

William H. Sain, Belmont, and James P. Polese, Menlo Park, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed July 30, 1968, Ser. No. 748,731
Int. Cl. H01j *19/36, 19/34*
U.S. Cl. 313—30 **10 Claims**

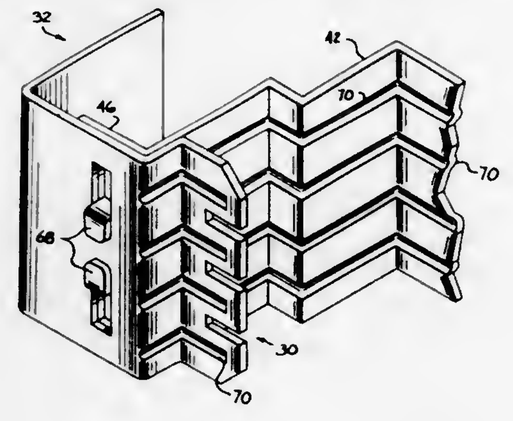
An external anode electron tube having improved conductive cooling means. A hermetically sealed tube envelope is disclosed having a relatively massive annular, generally cup-shaped metallic external anode having a plurality of spaced, annular projections, and a ceramic tubular envelop member hermetically sealed to the ends of the anode projections. An annular, metallic mounting flange is also disclosed having a plurality of spaced sections, each section having a surface coplanar with a surface of each other section. A disc-shaped ceramic header is further disclosed positioned in spaced rela-



tion within the annular flange. The header has a plurality of terminal pins projecting therethrough.

3,567,982
ELECTRON DISCHARGE DEVICE ANODE FIN HAVING HEAT DISTORTION PREVENTIVE MEANS INCORPORATED THEREIN

Cyril Droppa, and Charles C. Hendrickson, Emporium, Pa., assignors to Sylvania Electric Products Inc.
Filed Dec. 23, 1968, Ser. No. 786,185
Int. Cl. H01j *1/36, 19/36*
U.S. Cl. 313—39 **6 Claims**

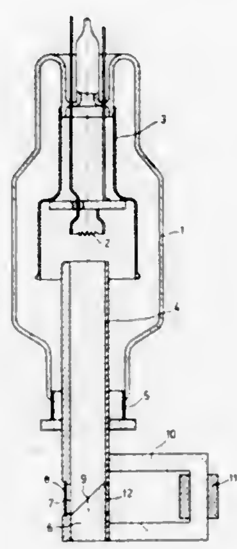


Heat distortion preventive means in the form of expansion openings are provided in the leading edge of anode fins for increased stability during operation and longer life expectancy.

3,567,983
X-RAY TUBE WITH MAGNETIC FOCUSING MEANS

Gerhard Heinrich Friedrich de Vries, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed May 29, 1968, Ser. No. 733,020
Claims priority, application Netherlands, June 17, 1967, 6,708,463
Int. Cl. H01j *35/14, 35/18*
U.S. Cl. 313—57 **4 Claims**

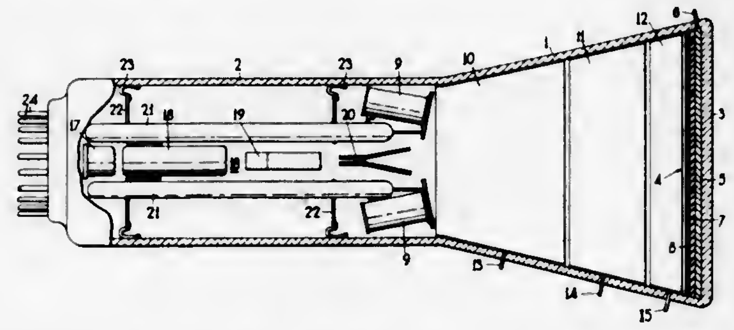
An X-ray tube having a beryllium window in a metal wall portion of the tube which is integral with the anode, the beam channel extending in the axial direction of the tube at the window being surrounded by a strong magnetic field the lines of force of which extend substantially parallel to the



axis of the tube, the region of substantially constant field strength on the side of the tube cross section closed by the window having a maximum width.

3,567,984
CATHODE-RAY STORAGE TUBE HAVING SEMICONTINUOUS PHOSPHOR LAYER ON CONTINUOUS ELECTRON BOMBARDMENT INDUCED CONDUCTIVITY LAYER

Lawrence Sidney Allard, Eastcote, Pinner, England, assignor to The M-O Valve Company Limited, London, England
Filed Apr. 22, 1968, Ser. No. 723,074
Claims priority, application Great Britain, Apr. 27, 1967, 19,456/67
Int. Cl. H01j *31/58, 31/62*
U.S. Cl. 313—68 **4 Claims**

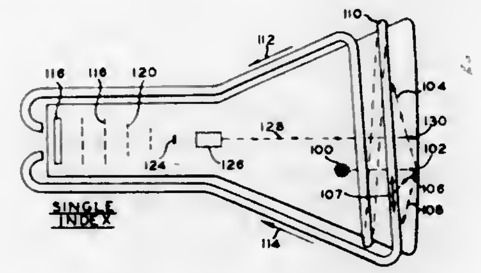


A cathode-ray storage tube wherein the storage screen comprises an electrically conducting control layer overlaid with a layer of insulating material, having electron bombardment induced conductivity properties, which in turn is overlaid by a semicontinuous layer of charge-storage material. A writing gun bombards the insulating layer with electrons to produce localized paths of low conductivity between the charge-storage layer and the control layer, which is at a potential above the first crossover value of the secondary electron characteristic of the charge-storage material. Thereafter, electrons from a gun flooding the screen maintain a charge-storage pattern on the charge-storage layer by secondary electron emission at regions of the charge-storage layer corresponding to the localized conductive paths.

3,567,985
X-RAY AND ULTRAVIOLET DETECTORS FOR BEAM-INDEX AND HEATERLESS CATHODE RAY TUBES

David M. Goodman, 3834 Debra Court, Seaford, N.Y. 11783
Continuation of application Ser. No. 212,612, July 26, 1962. This application June 2, 1966, Ser. No. 562,031
Int. Cl. H01j *29/32, 29/34, 29/50*
U.S. Cl. 313—70 **11 Claims**

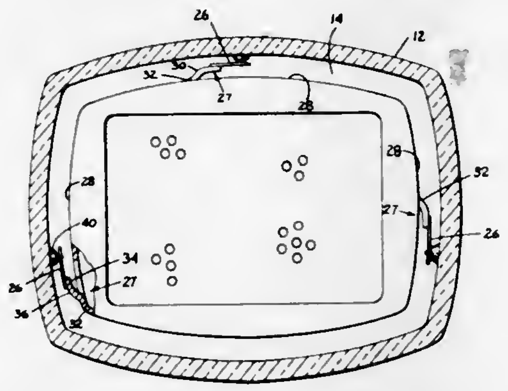
Beam-index and heaterless cathode ray tubes are depicted in combination with elongated and coiled light pipe-scintillators. Penetrating radiation which impinges upon the sidewalls of the elongated light pipe creates scintillations in the interior region thereof. These scintillations are in the optical frequency range and are accumulated in strength as they travel through the light pipe. They emerge at exit terminals of the light pipe in concentrated form. Target screens in the CRT



are described which provide the penetrating radiation. The concentrated optical scintillations are used for beam-indexing purposes; and are used to excite a nonthermionic cathode. Both the beam-index and heaterless cathode features are applied to cathode ray tubes with multicolor producing target screens.

3,567,986
CATHODE RAY TUBE SHADOW MASK SUPPORTING STRUCTURE HAVING STRAIGHT SPRINGS MOUNTED UPON STRUCK-OUT PORTIONS OF THE SHADOW MASK FRAME

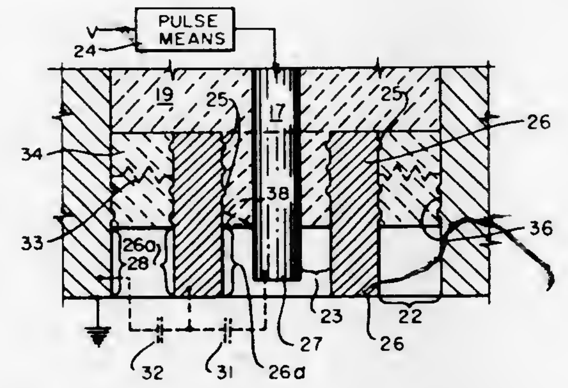
Robert J. Bowes, Jr., and George R. Kautz, Seneca Falls, N.Y., assignors to Sylvania Electric Products, Inc.
Filed Nov. 12, 1968, Ser. No. 774,954
Int. Cl. H01j *1/53, 29/40*
U.S. Cl. 313—85 **2 Claims**



A mounting arrangement for parallax barriers for use in color tubes wherein relatively flat leaf springs are utilized and are mounted upon a predetermined tension determining plane which is formed in sidewalls of the parallax barrier support frame.

3,567,987
SPARK PLUG CONSTRUCTION

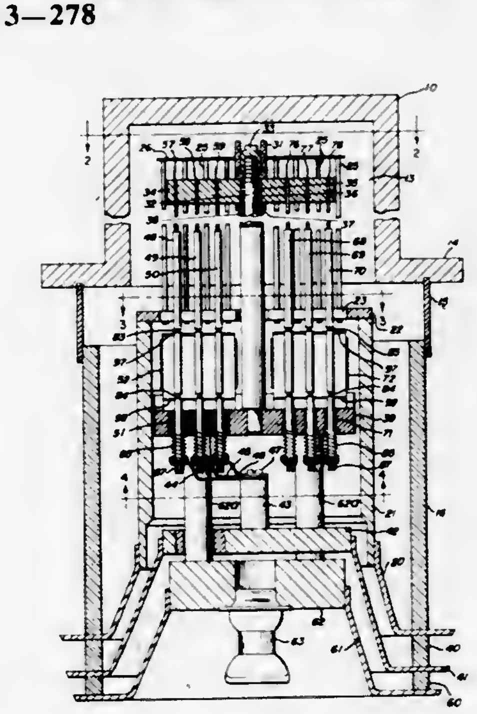
Gerald L. Schnurmacher, 319 Bonita Ave., Piedmont, Calif.
Filed June 6, 1968, Ser. No. 735,091
Int. Cl. H01t *13/02, 13/46*
U.S. Cl. 313—123 **4 Claims**



A spark plug construction of a type for use in a cylinder of an internal combustion engine includes a plurality of three concentric electrodes forming a pair of spark gaps. An annular resistance element encircles the intermediate electrode so as to discharge the capacitance defined between the intermediate and outer electrodes between successive firings of the gap therebetween.

3,567,988
FILAMENT SUPPORT STRUCTURE HAVING VIBRATION SUPPRESSING MEANS

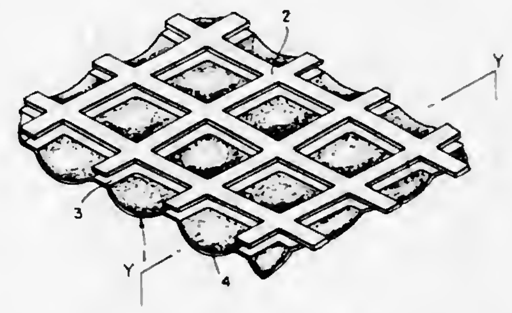
Jacob A. Randmer, Wilton, Conn., and George J. Agule, Sandgate, Vt., assignors to The Machlett Laboratories, Incorporated, Springdale, Conn.
Filed Sept. 1, 1967, Ser. No. 665,091
Int. Cl. H01j *1/94, 19/48*
U.S. Cl. 313—278 **4 Claims**



A cathode structure for electron discharge tubes comprising parallel filament wires extending longitudinally in an axial plane of the tube with all wires carrying input current arranged as a group on one side of the center of the structure and all wires carrying output current arranged as a second group on the other side thereof, filament support rods having peripheral grooves at equally spaced intervals along the length thereof attached at one end to the filament wires and at the other end to respective coil springs, and thin metallic frames surrounding each group of filament support rods in planes perpendicular thereto such that the ends of opposing cantilever arms attached to the frames engage the peripheral grooves of the support rods to restrain lateral movement thereof while permitting longitudinal movement to allow the coil springs to compensate for thermal elongation and contraction of the filament wires.

3,567,989
ELECTRON TUBE WITH MESH-TYPE CATHODE HAVING EMISSIVE PORTIONS BETWEEN CROSS STRIPS

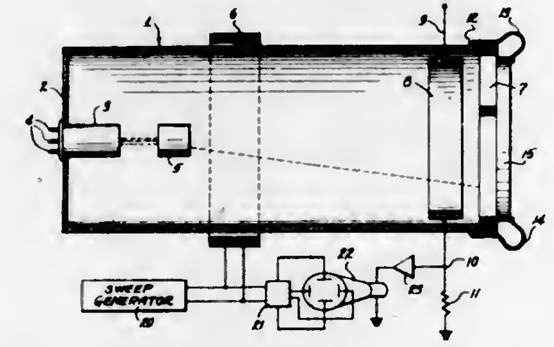
Michio Koshizuka, and Hideo Uno, Tokyo, Japan, assignors to Japan Radio Company Limited, Tokyo, Japan
Filed Oct. 25, 1968, Ser. No. 770,560
Int. Cl. H01j *1/16, 19/10*
U.S. Cl. 313—310 **6 Claims**



A cathode structure of substantially uniform thickness exhibiting reduced heating time in an electron tube having a mesh grid, the cathode comprising a mesh portion consisting of substantially flat cross-strips and a number of depressed portions formed between the cross-strips, the depressed portions being coated with an electronic emissive material.

3,567,990
ULTRASONIC IMAGING APPARATUS

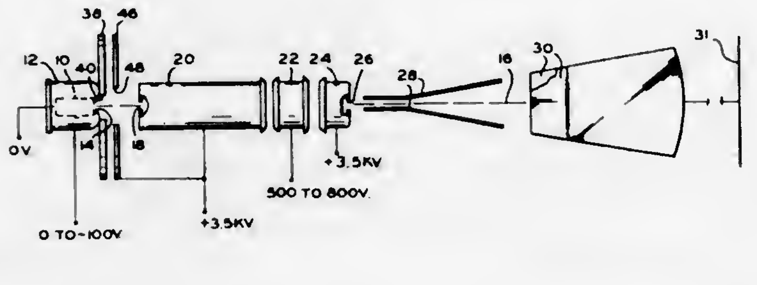
Roy R. Whymark, Rockville, Md., assignor to Tracor, Inc., Austin, Tex.
Continuation-in-part of application Ser. No. 679,075, Oct. 30, 1967, now abandoned. This application June 2, 1969, Ser. No. 834,200
Int. Cl. H01j *29/41*
U.S. Cl. 315—12 **11 Claims**



An imaging receiving and writing tube includes a cylindrical evacuated envelope having an electron gun in one end wall and a wire mosaic in the other. A deflection apparatus is provided to control the electron stream sweep. Clips are mounted near the end having the wire mosaic, the clips being designed to hold any one of several piezoelectric crystal plates having different thicknesses. A collector electrode contained within the envelope cooperates with the mosaic and transducer to provide image signals. The device can operate as a display or writing device with the transducer removed. In another embodiment the selected crystal plate is temporarily and removably adhered with a thin coating of silicone compound or the like.

3,567,991
CATHODE RAY TUBE WITH IMPROVED ELECTRON GUN STRUCTURE

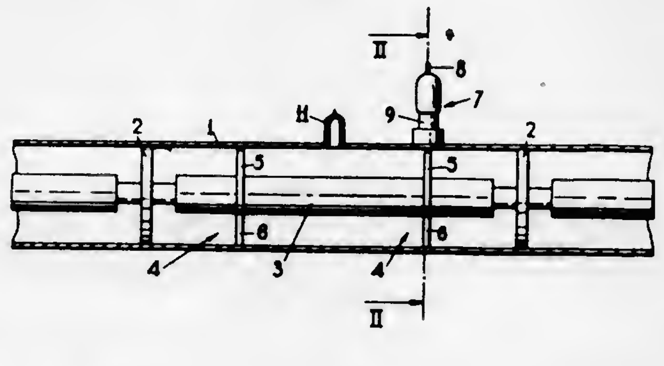
Conrad J. Odenthal, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Apr. 10, 1968, Ser. No. 720,035
Int. Cl. H01j *29/46*
U.S. Cl. 315—15 **13 Claims**



A cathode ray tube is provided with an electron gun structure including a cathode, a small apertured grid, and a small apertured anode on the remote side of the grid from the cathode. In addition, a further electrode is located between the aforementioned grid and the anode. A grid electrode, disposed adjacent and preferably mounted on the grid, is provided with an aperture coaxial with the grid aperture, but this aperture has a diameter effectively several times the diameter of the grid aperture. An anode electrode is also located between the grid and the aforementioned anode and is suitably connected to approximately the same voltage as the anode. The anode electrode is similarly provided with an aperture coaxial with the other apertures, but this aperture is also several times greater in diameter than the small aperture in the grid. The anode electrode acts to strengthen the electric field between such anode electrode and the grid whereby to provide a more concentrated electron beam. The region between the anode electrode and the anode provides a divergent lensing action for producing a small electron beam spot size at the screen end of the cathode ray tube.

3,567,992
GAS-FILLED ELECTRIC DISCHARGE DEVICES

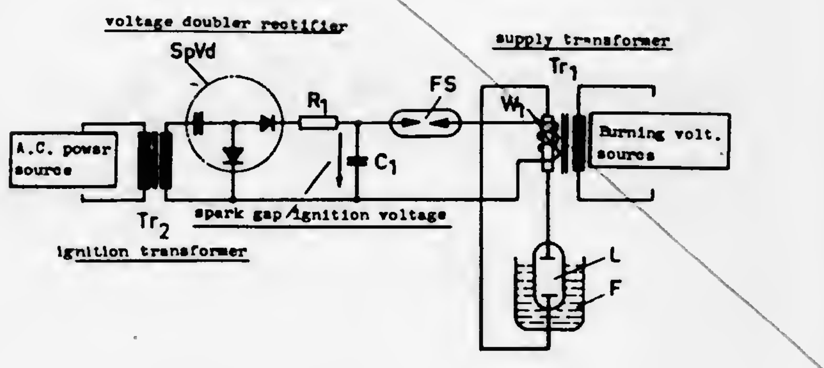
William Ives Moore, Watford, England, assignor to The M-O Valve Company Limited, London, England
Filed Aug. 27, 1969, Ser. No. 853,464
Int. Cl. H01j *7/46;* **H01p** *1/04*
U.S. Cl. 315—39 **7 Claims**



A gas-filled device for use in T-R and T-B cells which is of coaxial form and simple construction. The device essentially comprises a conductor extending coaxially through a tubular gas-filled envelope, and capacitive and inductive elements which extend radially from the conductor and together form a resonant circuit. The two elements are suitably formed integrally and extend in opposite directions from the conductor.

3,567,993
IGNITION DEVICE FOR A GAS-DISCHARGE LAMP

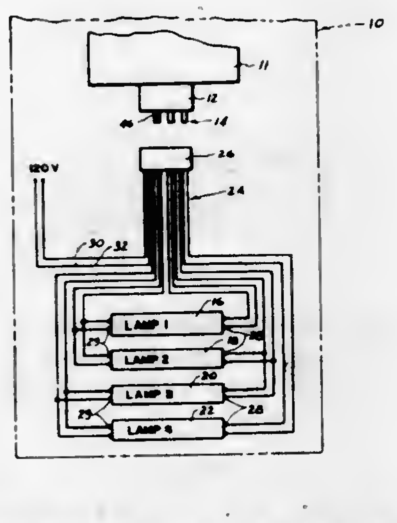
Walter Hans Sturm, Laerchenring, Germany, assignor to Original Hanau Quarzlampen G.m.b.H.
Filed Oct. 17, 1968, Ser. No. 768,293
Claims priority, application Germany, Oct. 21, 1967, 1,589,281
Int. Cl. H05b *41/16, 41/30*
U.S. Cl. 315—171 **11 Claims**



The ignition device is intended for a gas discharge lamp, i.e. arc lamp, which is immersed in a fluid medium of high dielectric constant. For ignition, the lamp supply voltage is augmented by a low-frequency ignition pulse passing through an ignition pulse coil added either to the secondary winding of the supply transformer or to a choke in the supply circuit. The high-voltage, low frequency ignition pulse is produced by a spark gap circuit, whereby the high-frequency components of the discharge voltage are filtered out by the inductance of the ignition pulse coil.

3,567,994
ILLUMINATIVE DISPLAY DEVICE

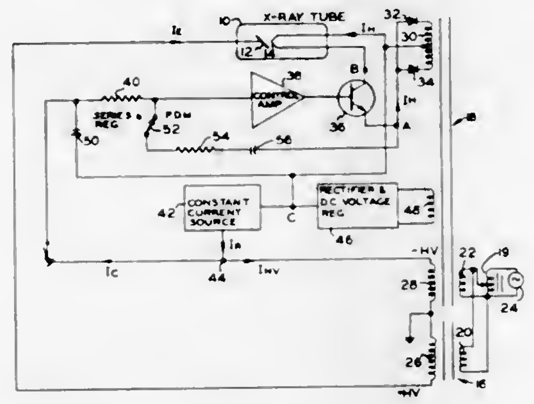
Harry Weiss, 205 West End Ave., New York, N.Y. 10013
Filed July 2, 1969, Ser. No. 838,451
Int. Cl. H05b *41/16*
U.S. Cl. 315—276 **12 Claims**



An illuminative display device for use in advertising comprises a ballast which includes a transformer, a first connector having terminals which are connected to the ballast transformer input and output windings, and a second connector having terminals connected to a group of lamps which are included in the device and are illuminated during the operation of the device. Two additional terminals on the second connector are connected to a voltage supply source. When the first and second connectors are joined, the source voltage is brought directly to the input terminals of the transformer, and the output terminals of the transformer are connected to the lamps. The structure enables ready service and repair of the various components in the device without the difficulties generally encountered because of the high voltages produced and because of the difficult location of the display device. A third connector, with which a ballast tester is associated, is adapted to be substituted for the second connector when testing of the ballast transformer is to be carried out.

3,567,995
CURRENT STABILIZER CIRCUIT FOR THERMIONIC ELECTRON EMISSION DEVICE

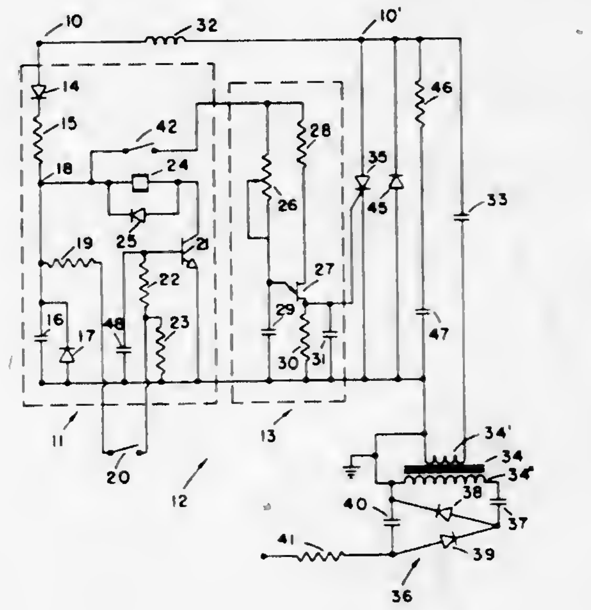
Peter O. Lauritzen, and Cormack E. Boucher, Seattle, Wash., assignors to Automation Industries, Inc., Los Angeles, Calif.
Filed Aug. 12, 1968, Ser. No. 751,927
Int. Cl. H05g *1/34*
U.S. Cl. 315—311 **2 Claims**



A current stabilizer circuit for a thermionic electron emission device is described in which the cathode heating winding of a power supply transformer is connected to the high-voltage winding through a heating current control circuit. The control circuit senses changes in the emission current of an X-ray tube or other electron emission device having a thermionic cathode, and produces a control signal which is applied to a variable impedance means connected in series with the cathode filament to vary the heating current in order to maintain such emission current substantially constant. The control circuit may operate by series regulation or by pulse duration modulation of the cathode heating current to change the average heating current and temperature of the cathode and thereby vary its electron emission in order to stabilize the emission current in spite of changes in the power supply voltage which tend to vary such emission current.

3,567,996
REGULATED HIGH VOLTAGE, DIRECT CURRENT POWER SUPPLY USEABLE WITH AN ELECTROSTATIC COATING DEVICE

George G. Gordon, and David G. Jessup, Indianapolis, Ind., assignors to Ransburg Electric-Coating Corp., Indianapolis, Ind.
Filed Jan. 2, 1969, Ser. No. 788,598
Int. Cl. H05b ; H02m *3/22;* **Ho2p** *13/24*
U.S. Cl. 317—3 **15 Claims**



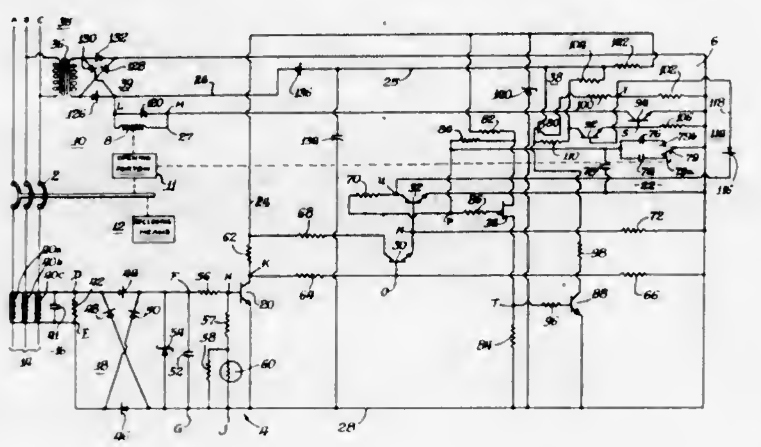
A high voltage, low current power supply including a trigger circuit which converts direct current to a plurality of pulses. A semiconductor switch is biased to conduction by the application of pulses thereto by the trigger circuit. A capacitor is charged by a source when the semiconductor switch is nonconducting and is discharged when the semiconductor switch is conducting. A transformer converts the energy discharged by the capacitor to a high voltage.

A method for converting a low voltage input signal of either direct current or alternating current to a high voltage output signal.

3,567,997
FAULT SENSING AND ACTUATING MEANS FOR REPEATING CIRCUIT INTERRUPTER

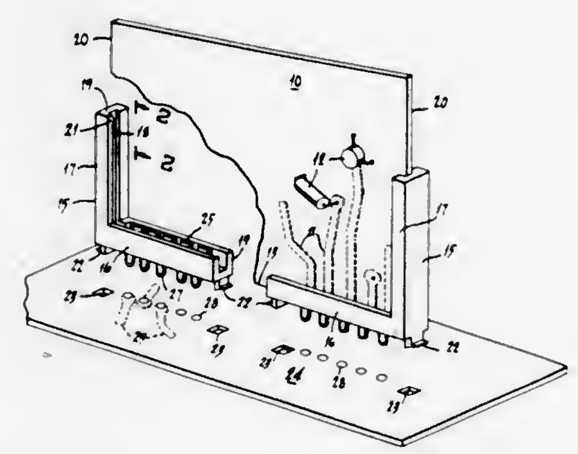
Richard J. Moran, Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.
Filed July 1, 1968, Ser. No. 741,781
Int. Cl. H02h *5/00, 3/08*
U.S. Cl. 317—22 **7 Claims**

A fault sensing and actuating system including a circuit for detecting a fault current condition, a circuit for providing a time delay in response to the detecting circuit and then supplying a triggering pulse and an actuating circuit initially energized by the triggering pulse and subsequently self-maintained in an energized condition. The actuating circuit causes an opening operation of a repeating circuit interrupter and is deenergized in response to the detecting circuit when the fault current condition is no longer detected.



3,567,998
CORNER EDGE CONNECTOR FOR PRINTED CIRCUIT BOARDS

John M. Ammerman, Indianapolis, Ind., assignor to Radio Corporation of America.
Filed May 13, 1968, Ser. No. 728,406
Int. Cl. H02b *1/02*
U.S. Cl. 317—101 **4 Claims**

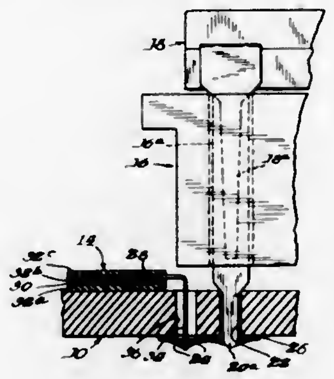


Disclosed is an L-shaped edge connector for the use with circuit modules such as printed circuit boards. The inner L-shaped surface of the connector is formed with a slotted channel adapted to receive the leading edge of the board in its base portion. The base of the connector is further fitted with spring contacts for securing and making electrical contact with the leading edge of the board. The slotted channel within the upright portion of the connector is adapted to receive an adjacent edge of the board and provide lateral support thereto.

3,567,999
INTEGRATED CIRCUIT PANEL

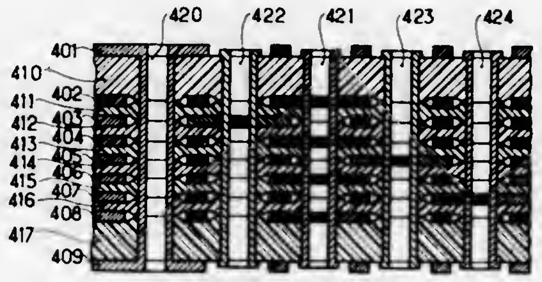
Richard L. Larson; George C. Wright, Barrington, and Robert J. Drenning, Chicago, Ill., assignors to Methode Electronics, Inc., Chicago, Ill.
Filed Sept. 30, 1968, Ser. No. 763,805
Int. Cl. H05k *1/04*
U.S. Cl. 317—101 **7 Claims**

A microelectronic panel comprising a printed circuit board with etched circuits and a multilayer, multiterminal laminar bus bar system mechanically attached to the board and electrically connected with the etched circuits, with said etched circuits connecting electrically with sockets, said bussing system being nondestructively removable from said board and having controlled impedance characteristics.



3,568,000
MULTILAYER PRINTED CIRCUIT

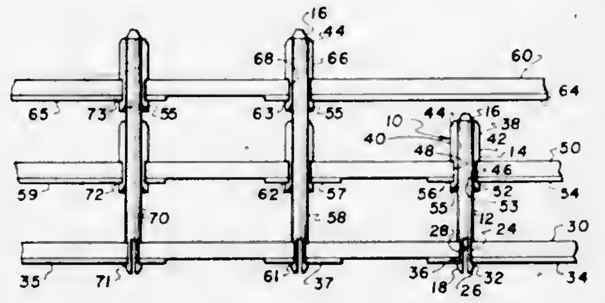
Francois Regis D'Aboville, Versailles; Jean-Francois Martre and Claude Cherdo, Saint-Michel-sur-Orge, France, assignors to Compagnie Generale D'Electricite, Paris, France
Filed Nov. 21, 1968, Ser. No. 777,560
Claims priority, application France, Nov. 22, 1967, 129,286
Int. Cl. H05k *1/04*
U.S. Cl. 317—101 **2 Claims**



Multilayer printed circuit for signals whose rise time is less than one nanosecond. The conductive layers are stacked in the following order starting at any of the outer faces: connecting layer, ground layer, supply layer, ground layer. Thus, connections may be made by means of fixed-impedance microstrip lines and supply by means of very low impedance strip lines (less than a fraction of 1 ohm).

3,568,001
SNAP-ON BOARD MATING CONTACT SYSTEM

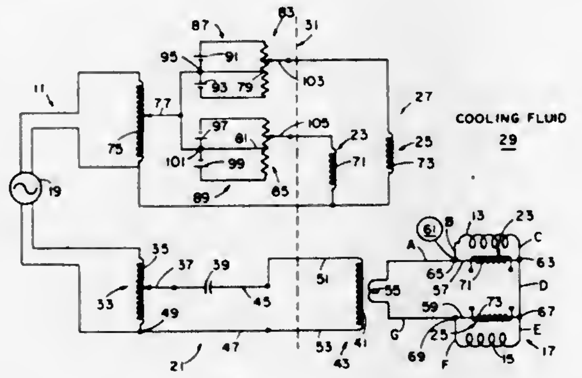
Sam Straus, 101-15 Avenue J, Brooklyn, N.Y.
Filed Apr. 8, 1969, Ser. No. 814,387
Int. Cl. H05k *1/04*
U.S. Cl. 317—101 **4 Claims**



A miniature snap-on board mating contact system operable for connecting two or more circuit boards in a parallel arrangement in one push-on action or for disconnecting them in one pulloff action and wherein a male contact of one circuit board connects a predetermined number of female contacts of other circuit boards to electrically interconnect points in a predetermined number of electronic circuits on a predetermined number of circuit boards, each contact assembly includes a male contact or pin of a predetermined length that extends to or through a desired predetermined number of female contacts or sockets for connecting any number of desired points in any number of desired electronic circuits of a number of desired circuit boards.

3,568,002
MULTIACTION FLUX PUMP

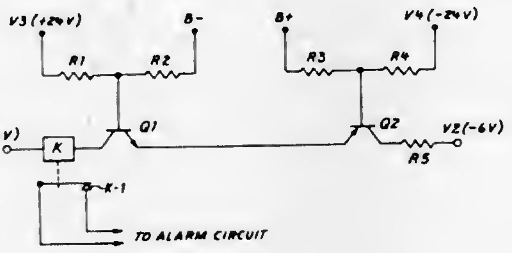
Kenneth E. Robins, Moriches, and Richard B. Britton, Setauket, N.Y., assignors to The United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 18, 1968, Ser. No. 776,658
Int. Cl. H01h *47/00*
U.S. Cl. 317—123 **3 Claims**



System for efficiently and quickly energizing superconducting magnet coils with direct current from an inexpensive, alternating current power supply by multiaction flux pumping, wherein continuously superconducting switching, and air core transformer coils are used to convert alternating current into a substantially continuously increasing direct current in the magnet coils while substantially preventing the dumping of large amounts of energy into the cryogenic cooling fluid for maintaining the magnet coils in their superconducting state whereby high magnetic fields are efficiently produced and/or maintained in the magnet coils.

3,568,003
VOLTAGE MONITORING CIRCUIT AND METHOD

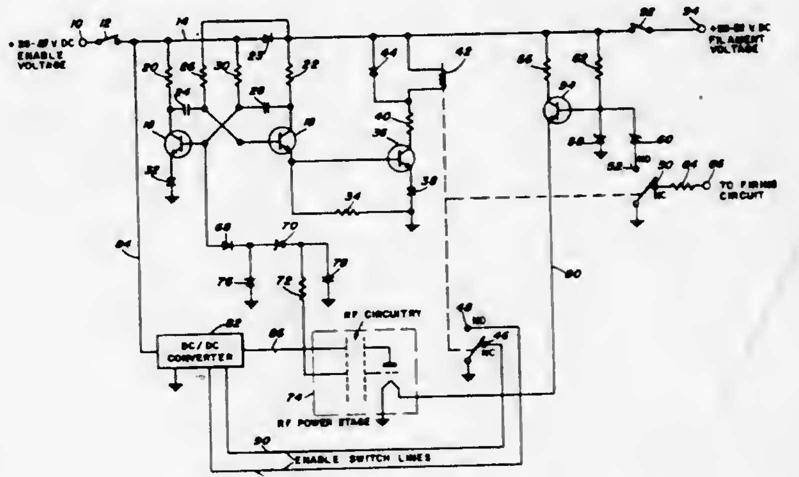
John Arthur Pavie, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Jan. 2, 1968, Ser. No. 695,147
Int. Cl. H03k *17/60;* **H01h** *47/32*
U.S. Cl. 317—135 **3 Claims**



A PNP and an NPN transistor have their emitters connected. Four potentials to be monitored are connected with appropriate resistances to apply to the two collectors and to the two bases potentials so arranged that conduction will take place through the transistors when all potentials are functioning and no conduction will take place if any one of the potentials fail. An indicator is connected to indicate whether the transistors are conducting or not and this indicator therefore monitors the four potentials. Three voltages instead of four may be monitored with the fourth potential then necessary for causing conduction in the transistors being synthesized from two of the other three or independently supplied.

3,568,004
DELAY ENABLE CIRCUIT

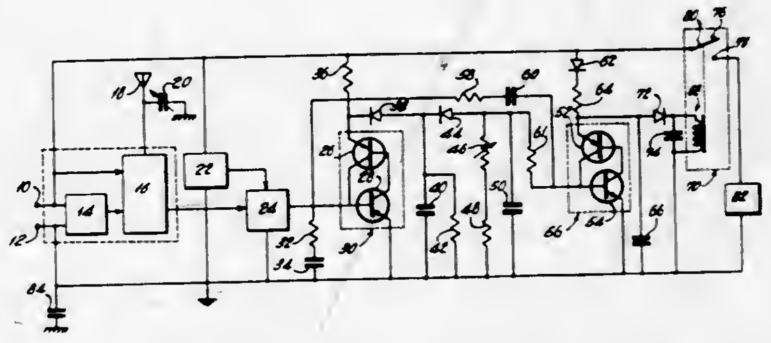
Stephen D. Parker, Richmond, Ind., assignor to The United States of America as represented by the Secretary of the Navy
Filed Oct. 22, 1969, Ser. No. 868,539
Int. Cl. H02h *7/20*
U.S. Cl. 317—141 **8 Claims**



A delay enable circuit forming a means for pulsing a high-voltage power supply for a vacuum tube circuit until the cathode is sufficiently heated to allow the tube to function properly. When this proper functioning occurs, the enable circuit senses this fact and holds the high voltage on. The delay enable circuit also provides a means for applying an increased heater voltage to the tube during the warmup period, and cutting this voltage back to normal when the tube functions properly. This increased filament voltage provides a shorter warmup time without otherwise affecting the tube operation.

3,568,005
CONTROL CIRCUIT

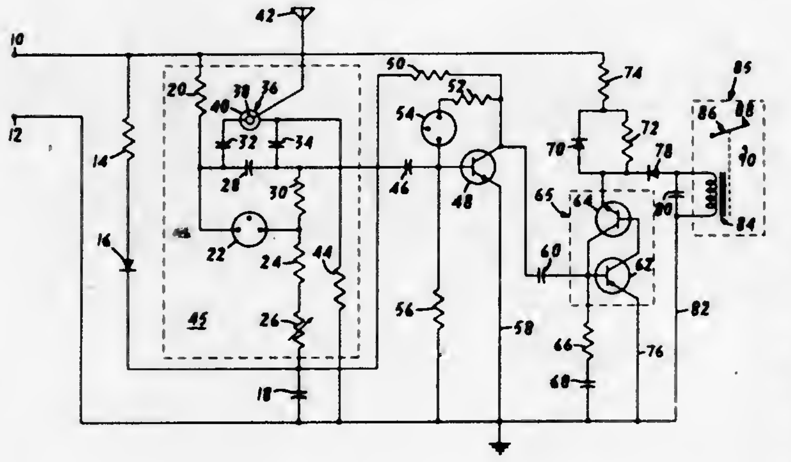
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation
Filed July 5, 1968, Ser. No. 742,912
Int. Cl. H01h *47/22, 47/32*
U.S. Cl. 317—142 **8 Claims**



A first solid state switch normally shunts charging current past a timing circuit which controls the state of a second solid-state switch which normally shunts the winding of a load-controlling relay. When the input signal to the gate electrode of the first switch is altered so as to permit a bias circuit to render the first switch nonconductive, circuitry interconnecting the gate electrodes of the first and second switches causes the second switch to become nonconductive substantially concurrently with the first switch. Charging current, no longer shunted past the timing circuit, develops a voltage across a timing capacitor connected to the gate electrode of the second switch. Thus, when the first switch again becomes conductive, the second switch will remain nonconductive for an additional predetermined length of time during the discharge of the capacitor, thus prolonging the energization of the load circuit.

3,568,006
CAPACITANCE RESPONSIVE CIRCUIT
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation

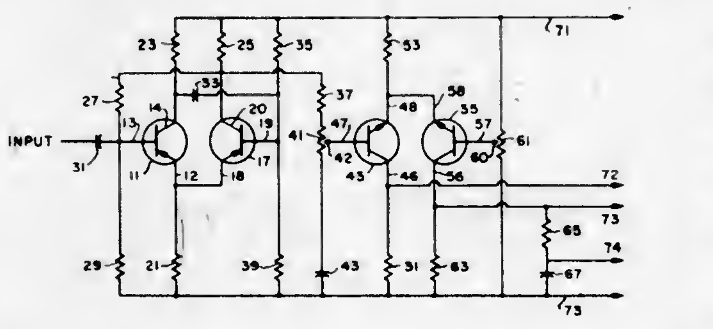
Filed Jan. 4, 1968, Ser. No. 695,708
Int. Cl. H01h *47/22;* **H03k** *3/37*
U.S. Cl. 317—146 9 Claims



The invention provides a capacitance-responsive circuit for controlling a relay. The circuit includes a relaxation oscillator having a neon tube, a transistor amplifier also having a neon tube, a semiconductor switch and a relay. The relaxation oscillator is operated by a combination of AC and DC power inputs whereby the neon tube of the oscillator conducts relatively early in each negative half-cycle and the magnitude of the initial output pulse of the oscillator, in each pulse train generated in each negative half-cycle, is increased. The oscillator output is fed as input to the transistor amplifier and the neon tube thereof regulates the bias voltage of the transistor, protects the transistor from excessive junction voltage and stabilizes the tube of the oscillator by illuminating it. The semiconductor switch controls a shunt path for the winding of the relay, and the shunt path includes a diode and a first resistor connected in parallel with each other and in series with a second resistor, whereby heat generated is less than with the second resistor alone.

3,568,007
FILTER AND SUBSTITUTE FOR RESONANT REED RELAY
Jesse H. Miner, Falls Church, Va. (8616 McHenry St., Vienna, Va. 22180)

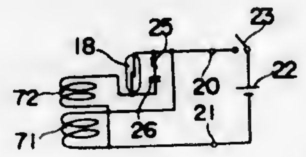
Filed Jan. 21, 1969, Ser. No. 797,720
Int. Cl. H01h *47/32*
U.S. Cl. 317—148.5 11 Claims



A monostable multivibrator is connected to a differential amplifier to perform the following functions: signal limiter, band-pass filter, low-pass filter, high-pass filter and frequency modulation detector.

3,568,008
ELECTROMAGNETIC SWITCHING DEVICE UTILIZING STRAY MAGNETIC FLUX
Shigeru Tanimura, Fushimi-ku, and Kenzo Kamei, Inuyama, Japan, assignors to Omron Tateisi Electronic Co., Ukyo-ku, Kyoto, Japan

Filed Apr. 25, 1969, Ser. No. 819,281
Claims priority, application Japan, Apr. 25, 1968, 43-28096
Int. Cl. H01h *47/04*
U.S. Cl. 317—154 10 Claims



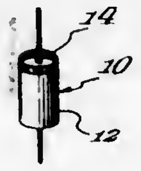
This invention relates to electromagnetic devices for driving electric switches or various mechanical means such as a ratchet or a valve.

The electromagnetic device of the present invention comprises at least one winding for generating magnetic flux, one stator core magnetically coupled with the said winding, and a movable armature which is attracted to the core when the magnetic flux is generated; and is characterized in that at least one magnetically responsive switching means for controlling the said magnetic flux upon receiving stray magnetic flux is provided in a position where the said switching means receives the stray magnetic flux developed by existence of a gap or gaps between the armature and the stator core.

The electromagnetic device of the present invention can be made considerably smaller in size as well as requiring a smaller driving current than conventional devices, and has higher reliability. A delayed set operation is easily obtainable in the electromagnetic device of this invention.

3,568,009
HERMETICALLY SEALED ELECTROLYTIC DEVICE
Bernard Rappaport, Los Angeles, Calif., assignor to Fansteel Inc.

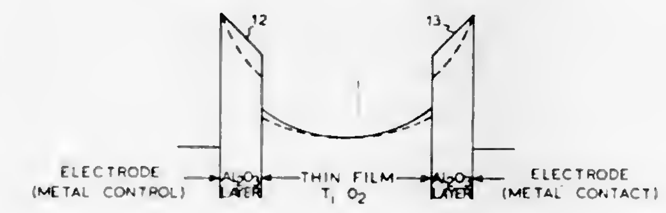
Filed July 26, 1968, Ser. No. 747,992
Int. Cl. H01g *9/10*
U.S. Cl. 317—230 4 Claims



A method is described for forming a hermetic seal on a wet electrolytic device having a metal container and a metal closure member, and containing a liquid electrolyte. The method comprises placing the closure member in sealing position with respect to the container to form a seam between them, and electric resistance welding the container and the closure member together at a series of positions along the seam. During the welding operation at each welding position, the closure member and the container are pressed together at the portion of the seam being welded and that portion is bathed in a fluid, preferably the electrolyte used in the device, to provide uniform electrical conditions to the weld area. Typically, the container and closure member are made of tantalum. Also disclosed is a hermetically sealed electrolytic device of the type described above which is reduced in internal pressure at room temperature to permit the liquid electrolyte to expand upon heating of the device with less pressure buildup.

3,568,010
THIN FILM CAPACITIVE BOLOMETER AND TEMPERATURE SENSOR
Joseph Maserjian, Sunland, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

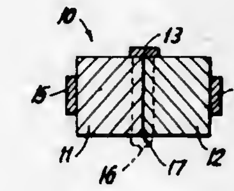
Filed Feb. 14, 1969, Ser. No. 799,353
Int. Cl. H01l *7/00*
U.S. Cl. 317—230 27 Claims



An improved capacitive element which exhibits a useful change of capacitance with temperature is provided by increasing the effective space-charge barrier by evaporating thinner layers of an insulating metal oxide over both sides of a film of material capable of displaying dielectric properties disposed between two metal electrodes, or by employing a thicker film of anodized metal oxide which contains less ionic space charge than the corresponding film of material used in the first technique. Thermal and mechanical characteristics of devices of this type are optimized by providing a substrate of a metal first evaporated on a glass slide to form a thin foil. Once the foil has been bonded over holes on a supporting frame, the glass slide is removed, leaving a smooth surface to form the devices on. That surface may be anodized, and once the devices are formed over holes, the unanodized thickness of the foil may be etched off through the holes in the frame leaving devices supported by an anodized film of the foil material.

3,568,011
SEMICONDUCTOR DEVICE INCLUDING A METAL LAYER OVERLYING THE JUNCTION AREA
Minetaka Iwasa, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

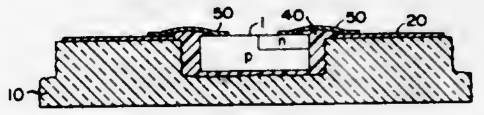
Filed May 28, 1968, Ser. No. 732,627
Int. Cl. H01l *9/00*
U.S. Cl. 317—234 4 Claims



A high speed high current switching device is described wherein a metal-to-semiconductor rectifier element is selectively placed within the sphere of influence of a spatially variable space charge region of a semiconductor junction formed between semiconductor materials of opposite conductivity. Several embodiments are described.

3,568,012
A MICROMINIATURE CIRCUIT DEVICE EMPLOYING A LOW THERMAL EXPANSION BINDER
Wentworth A. Ernst, Catonsville, and Charles W. Wyble, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

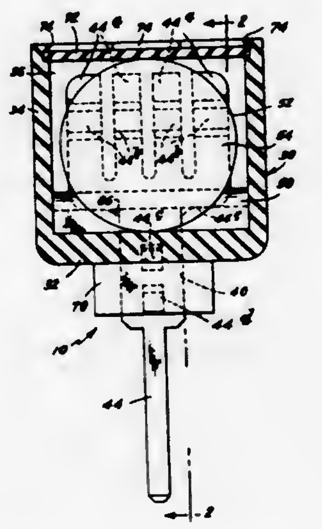
Continuation-in-part of application Ser. No. 706,398, Feb. 19, 1968, now abandoned. This application Nov. 5, 1968, Ser. No. 773,586
Int. Cl. H01l *1/10*
U.S. Cl. 317—234 5 Claims



A low thermal expansion insulating cement is formulated from a high temperature resinous varnish and a finely divided inert inorganic filler having a negative coefficient of thermal expansion. The composition is employed as an insulator and binder in microminiature circuit devices employing microminiature circuit elements.

3,568,013
SOLID-STATE SWITCH
Robert F. Blaha, Dedham, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,717
Int. Cl. H01l *5/00*
U.S. Cl. 317—234 7 Claims

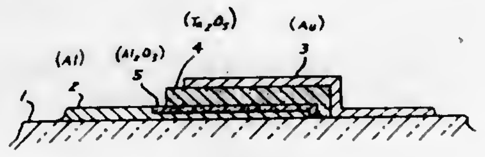


A low-cost degaussing switch having no moving parts comprising an open-ended, molded cup-shaped housing, an enclosing cover member, a pill of semiconductor material received in a seat formed in the housing, two combination spring contact-terminal members which are inserted through apertures in the housing and are biased against opposite faces of the pill. The contact-terminal members are shaped to enhance their electrical connection with the pill. An exemplary use of the switch in the degaussing circuit of a color television receiver is shown and described.

3,568,014
GRADED INSULATOR THIN FILM CAPACITOR AND METHOD OF MAKING
Fritz L. Schuermeyer, 325 W. Center College St., Yellow Springs, Ohio

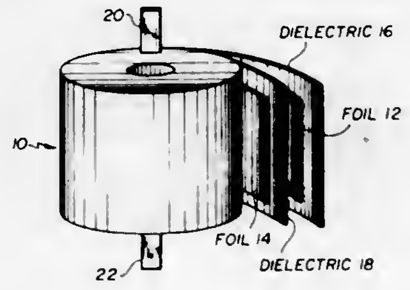
Filed June 9, 1969, Ser. No. 831,447
Int. Cl. H01g *3/75*
U.S. Cl. 317—258 2 Claims

A thin film capacitor suitable for microelectronic circuit applications using aluminum as one electrode and any suitable metal, such as gold, as the other electrode. The dielectric is a metallic oxide of high dielectric constant, such as Ta_2O_5, contacted directly by the gold electrode but having a thin film of Al_2O_3 interposed between it and the aluminum electrode. The relatively high barrier of the $Al\text{-}Al_2O_3$ interface



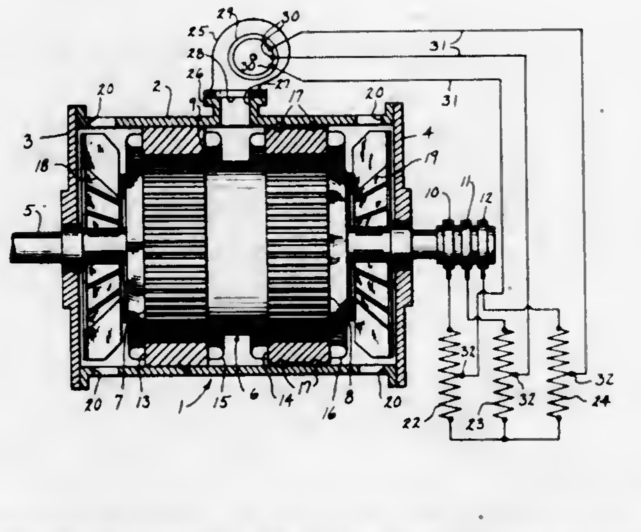
prevents the injection of electrons from the metal into the dielectric and greatly reduces the dissipation and rectifying tendency of the capacitor.

3,568,015
CAPACITOR WITH EPOXY SCAVENGER
Edward Mortin Lobo, New Bedford, Mass., assignor to Cornell-Dubilier Electric Corporation, Newark, N.J.
Filed Feb. 12, 1969, Ser. No. 798,699
Int. Cl. H01g *3/195*
U.S. Cl. 317—259 **8 Claims**



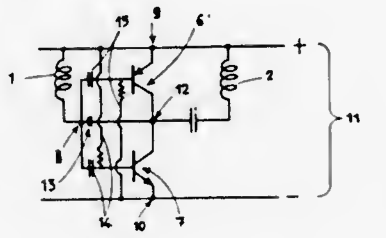
Electrical capacitors in which the dielectric liquid is halogenated aromatic compound containing as a scavenger a small amount of a condensation product of epichlorhydrin and a tetraphenylolalkane, which product has an epoxide equivalent of less than 400. A preferred condensation product is a resin obtained from 1, 1, 2, 2-tetraphenylolethane.

3,568,016
VARIABLE SPEED MOTOR VENTILATION SYSTEM
Donald E. Barber, South Milwaukee, Wis., assignor to Bucyrus-Erie Company, South Milwaukee, Wis.
Filed Oct. 14, 1968, Ser. No. 767,285
Int. Cl. H02p *5/46*
U.S. Cl. 318—78 **4 Claims**



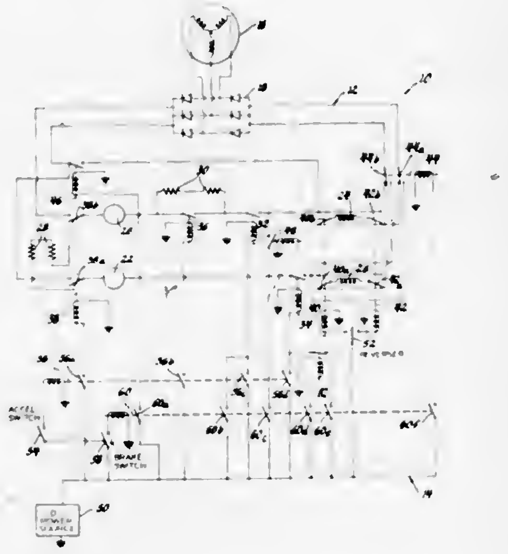
A ventilating system for an alternating current wound rotor induction motor having resistors in the secondary circuit of the rotor, in which a cooling fan driven by an auxiliary motor is provided for circulating air through the induction motor. The auxiliary fan motor is energized through connections with the resistors in the rotor secondary circuit, and the speed of the fan motor is dependent upon the frequency or voltage appearing at the connections with the resistors, whereby fan motor speed will increase whenever the wound rotor induction motor speed decreases to ensure an adequate flow of cooling air.

3,568,017
PUSH-PULL OSCILLATOR FOR SUSTAINING THE OSCILLATIONS OF A RESONATOR
Jean Schaad, Gorgier, Switzerland, assignor to Voumard Machines Co. S. A., La Chaux-De-Fonds, Neuchatel, Switzerland
Filed Aug. 4, 1969, Ser. No. 847,123
Int. Cl. H02k *33/10*
U.S. Cl. 318—128 **5 Claims**



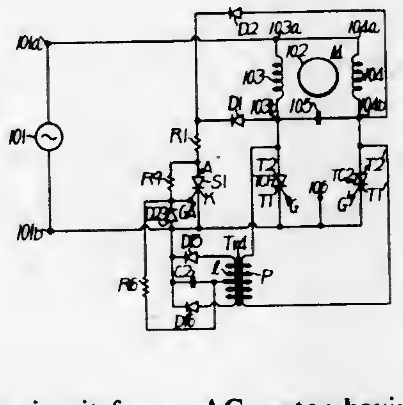
An electronic device for sustaining the oscillations of a resonator, especially for a timepiece, characterized by the fact that it comprises two complementary transistors the emitters of which are connected to the terminals of a source of current, the bases of which are both connected to one source of control pulses producing pulses alternatively of one sign and of the other, and the collectors of which are both connected to the element to be controlled, wherefore these transistors are operated alternatively by the pulses, one by the pulses of one sign and the other by the pulses of opposite sign, and so that the resonator thus receives a sustaining pulse at each half-oscillation of its oscillating member.

3,568,018
ELECTRIC DRIVE AND BRAKE ARRANGEMENT AND METHOD
Norman L. Macdonald, Chicago, Ill., assignor to General Motors Corporation, Detroit, Mich.
Filed June 6, 1969, Ser. No. 831,121
Int. Cl. H02p *5/22, 3/24*
U.S. Cl. 318—151 **8 Claims**



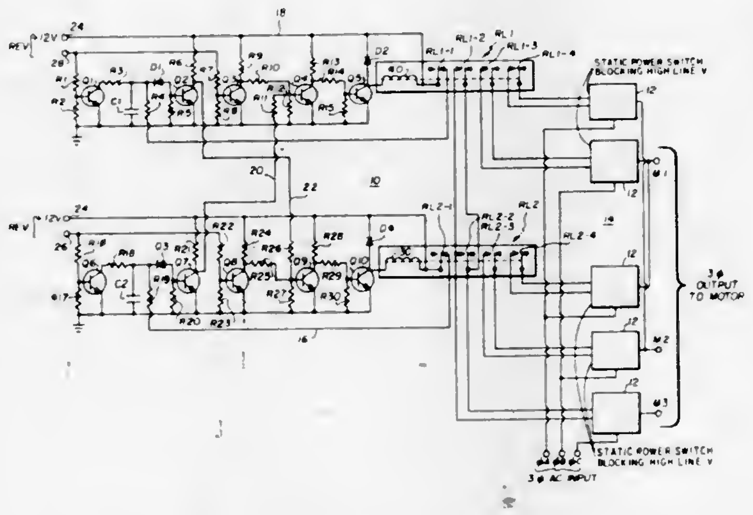
An electric drive and dynamic braking arrangement intended in a preferred embodiment for driving and braking a vehicle, such as a heavy off-road truck, and having a pair of traction motors arranged to be driven by DC current obtained by rectifying the output of an AC generator, so as to drive the vehicle. Braking is also provided by the traction motors by separately exciting their fields with the generator output and dissipating the current generated in the traction motor armatures in resistance grids connected in series with the armatures. Rapid changeover from the power mode to the brake mode is provided by an arrangement which momentarily short-circuits the generator at the beginning of the brake mode connection to quickly reduce the residual generator voltage to a value sufficiently low to avoid overexciting the traction motors so as to prevent consequent possible damage to them.

3,568,019
CIRCUIT FOR BRAKING AND DRIVING AN AC MOTOR IN THE FORWARD AND REVERSE DIRECTION UTILIZING SEMICONDUCTOR ELEMENTS
Yoichi Hirokawa, Kanagawa-ken, and Isao Masuzawa, Tokyo, Japan, assignors to Kabushikikaisha Tokyo Keiki Seizosho, Tokyo, Japan
Filed Dec. 24, 1968, Ser. No. 786,563
Claims priority, application Japan, Dec. 30, 1967, 42/85200, 42/85201, 42/80,202, 42/110991-V.M.
Int. Cl. H02p *1/40*
U.S. Cl. 318—203 **8 Claims**



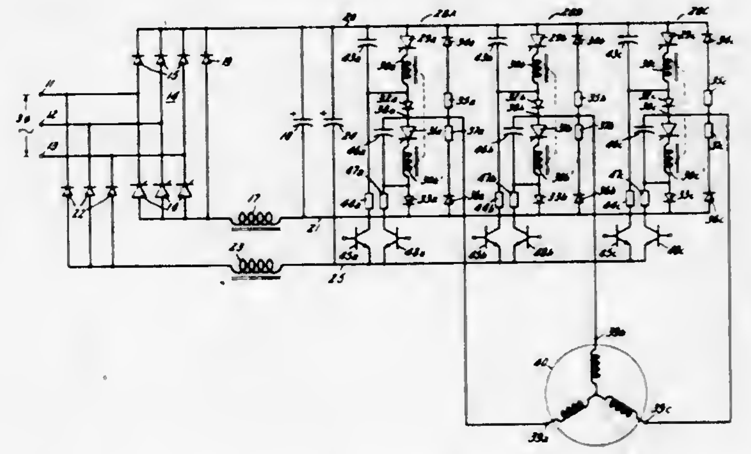
A controlling circuit for an AC motor having an AC motor, an AC electric power source for driving said AC motor, AC controlling elements connected between said AC power source and AC motor, a switching element connected between said AC motor and AC power source, a first means for detecting a condition of said AC controlling elements, and a second means for controlling said switching element in accordance with the result detected by said first means.

3,568,020
SOLID STATE SWITCH PROTECTED THREE PHASE MOTOR REVERSING STARTER
Edward L. Lisi, Freeport, N.Y., assignor to Forney Engineering Company, Dallax, Tex.
Filed Nov. 14, 1968, Ser. No. 775,782
Int. Cl. H02p *1/40*
U.S. Cl. 318—207 **4 Claims**


REV
+12V
24
18
RL1
STATIC POWER SWITCH BLOCKING HIGH LINE V
20
22
10
FWD
+12V
24
OUTPUT TO MOTOR
STATIC POWER SWITCH BLOCKING HIGH LINE V
3 φ AC INPUT

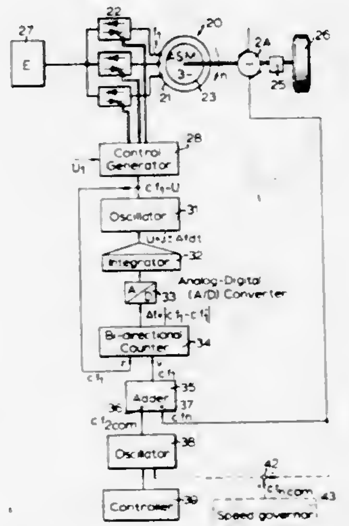
A reversing starter for an AC motor energized by a three phase current supply system in which two phases are reversed to reverse rotation of the motor by a solid state circuit responsive to forward and reverse commands. The starter is controlled by a novel protective solid state logic circuit which assures safe operation by preventing the passage of a selected command signal when the other command signal is present; as well as when such other command signal has been present within a fixed time period prior to the application of the selected command signal.

3,568,021
LOW COST VARIABLE INPUT VOLTAGE INVERTER WITH RELIABLE COMMUTATION
Fred G. Turnbull, Scotia, N.Y., assignor to General Electric Company
Filed May 15, 1969, Ser. No. 824,757
Int. Cl. H02m *5/44, 7/52*
U.S. Cl. 318—227 **11 Claims**



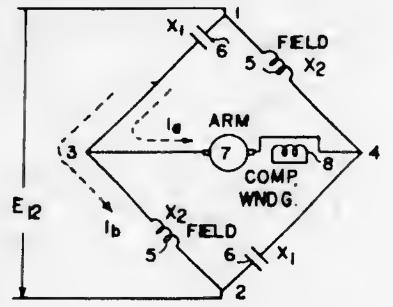
A low cost, solid-state variable input voltage inverter recharges each commutating capacitor through an impedance and a controllable semiconductor switch, preferably a resistor and a transistor in series with a commutating capacitor, to the value of a source of fixed or predetermined voltage to assure reliable commutation over the entire range of input voltage control. The inverter is constructed in single and multiphase versions and is especially suited for industrial applications such as a wide range variable speed AC motor drive.

3,568,022
CONTROL SYSTEM TO CONTROL THE SLIP FREQUENCY OF AN ASYNCHRONOUS DYNAMO ELECTRIC MACHINE
Helmut Domann, Stuttgart; Gerold Ritz; Erika Ritz, Successor, Tiengen/Hochrhein; Gerold Ritz, Successor, Tiengen, and Anna Ritz, Successor, Tiengen, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Dec. 6, 1968, Ser. No. 782,008
Claims priority, application Switzerland, Dec. 20, 1967, 18011/67
Int. Cl. H02p *7/42*
U.S. Cl. 318—231 **34 Claims**



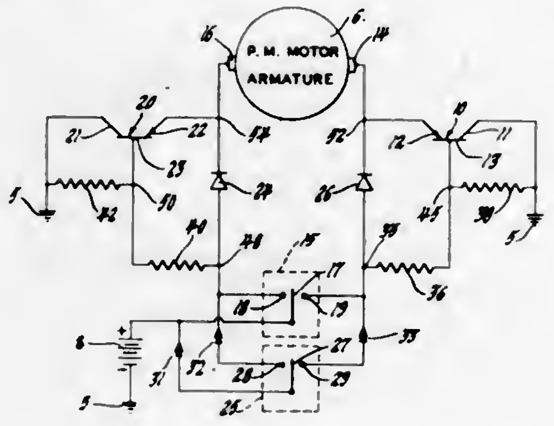
A bidirectional counter 34; 46, 47, 49, has input pulses, which have a pulse repetition rate (PRR) proportional to shaft speed connected to a forward count input and pulses from a pulse source having a PRR proportional to the frequency of a power bus of controllable frequency which supplies power to, or absorbs power from the asynchronous dyanmo electric machine connected to a reverse count input. One of the pulse repetition rates, applied to the bidirectional counter, is additionally a function of a desired slip frequency. The output of the counter then, over analogue-digital converter and integrating networks 33, 32 controls the frequency of operation of the power bus in accordance with its count state, thereby holding slip frequency and therewith torque at the desired value.

3,568,023
TUNED CIRCUIT MOTOR SYSTEM
Albert G. Conrad, 4591 Caminode Mieasol, Santa Barbara, Calif. 93105
Filed Oct. 6, 1969, Ser. No. 864,013
Int. Cl. H02p *7/36*
U.S. Cl. 318—244 **7 Claims**



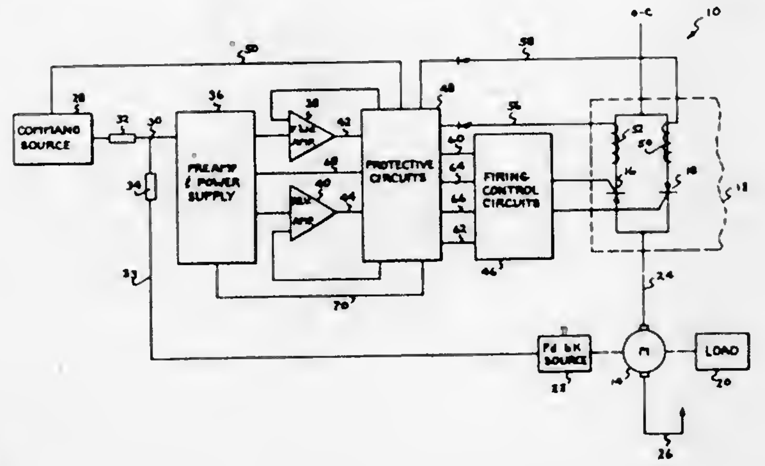
A single-phase alternating-current motor system is provided wherein the motor components form part of a control system that provides for predetermined standstill torque and for running torques of slightly less but of the same order of magnitude as the starting torque. The standstill torque is adjustable. No starting devices are necessary. The efficiency and the power factor are high. This is accomplished by use of a monocyclic network that supplies the armature circuit. The field windings are used in dual function, (a) they provide the field flux that results in torque production, (b) they serve as reactor components of the tuned, monocyclic network that controls the current in the armature circuit.

3,568,024
REVERSING CONTROL FOR PERMANENT MAGNET TYPE DIRECT CURRENT ELECTRIC MOTORS
Samuel B. Robbins, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 15, 1968, Ser. No. 744,810
Int. Cl. H02p *1/22*
U.S. Cl. 318—257 **3 Claims**



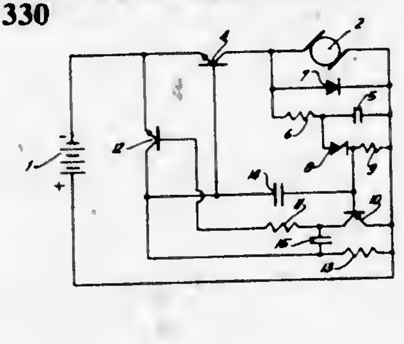
A control for selectively reversing the direction of rotation of the armature of a permanent magnet type direct current electric motors. The movable contact of a single pole, double throw switch is connected to one terminal of a direct current supply potential source and each stationary contact thereof is connected to a respective opposite side of the motor armature. The current carrying electrodes of respective transistors are connected across opposite sides of the motor armature and the other polarity terminal of the direct current supply potential source. With the movable contact of the switch closed to either stationary contact, the transistor connecting the opposite side of the armature with the other terminal of the direct-current supply potential source is biased conductive to complete an energizing circuit for the motor through the current carrying electrodes thereof.

3,568,025
PROTECTIVE CIRCUIT FOR CONTROLLED RECTIFIERS OF A MOTOR CONTROL SYSTEM
Henry J. Havlicek, Erie, Pa., assignor to General Electric Company
Filed Aug. 7, 1969, Ser. No. 848,193
Int. Cl. H02p *5/00*
U.S. Cl. 318—258 **6 Claims**



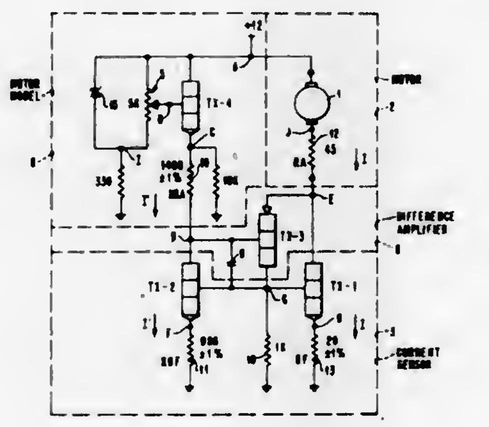
A motor control system which normally, repeatedly operates in the regenerative mode includes a protective circuit which reduces the failure of controlled rectifiers in a power amplifier of this system as the system enters into a coasting mode of operation. The protective circuit retards the occurrence of firing signals for these controlled rectifiers, rather than eliminate the firing signals, when the current flow through these controlled rectifiers must be rapidly terminated. The firing signals are positively prevented from being eliminated until the current flow is below a preselected low level. After the retarded occurrence of firing signals causes the current flow to be reduced to below this level, the protective circuit automatically eliminates the firing signals and prevents the further conduction through the controlled rectifiers until the drive system is intentionally restarted.

3,568,026
DC MOTOR SPEED CONTROL FOR OPERATION OVER A WIDE RANGE OF SUPPLY VOLTAGES
Otto Anna, Niederhoechstadt, Germany, assignor to Braun Aktiengesellschaft, Frankfurt(Main), Germany
Filed Apr. 29, 1968, Ser. No. 724,888
Claims priority, application Germany, Apr. 29, 1967, B92318
Int. Cl. H02p *5/08, 5/16*
U.S. Cl. 318—330 **8 Claims**



A control arrangement for adapting the operation of a DC motor, of the instrument type, to a voltage source which may have different supply levels over a substantially broad range. When control and adaptation circuitry is in electronic form, a switching transistor is connected in series with the motor and the power supply for operating the same. An RC network is connected across the motor terminals. A Zener diode is connected in series with a resistor, and the series circuit is, in turn, connected in parallel with the capacitor of the RC network. The base of a transistor amplifier is connected to the junction between the Zener diode and the resistor connected thereto, and the amplified voltage from the transistor amplifier is applied to the switching transistor. As a result, the switching transistor is turned on or off as a function of the voltage applied to the motor. In a mechanical design embodiment, a mechanical switching arrangement is connected in series and between the motor and the voltage supply. A speed governor is mechanically coupled to the motor and actuates the switch so that the motor will be intermittently connected to the voltage supply depending upon the speed of the motor. The arrangement is such that the power supplied to the motor is maintained at the rated design value of the motor.

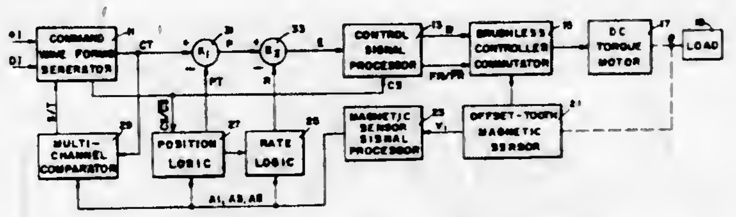
3,568,027
MOTOR CONTROL CIRCUIT WITH SYMMETRICAL TOPOLOGY
James L. Bacon, and George W. Cleave, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 18, 1969, Ser. No. 877,723
Int. Cl. H02p *5/16*
U.S. Cl. 318—331 **16 Claims**



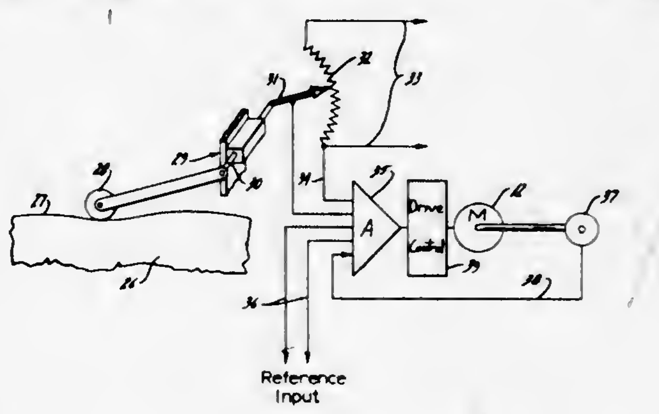
The invention concerns a motor control circuit especially useful with small direct-current-type motors and featuring a symmetrical circuit topology that achieves motor regulation and temperature compensation in a simplified manner. The circuit includes an upper portion comprising a motor model section for establishing a reference voltage to determine the speed of the motor, a parallel circuit section including the motor itself, a lower section intended for detection of current changes in the motor section, and a difference amplifier interconnected with the motor model and motor sections for maintaining an essentially zero potential difference between these sections. The symmetrical layout achieves a highly accurate measure of control over motor speed once a nominal speed has been established. Due to the symmetrical configuration of the circuit, effects of temperature and humidity are essentially eliminated. Some provision is made for alternative ways of controlling the desired motor speed including a variable control for changing motor speed in a regular fashion throughout a desired range of speeds.

3,568,028
SYNCHRONOUS/DC DIRECT-DRIVE SYSTEM
Leo J. Veillette, Lanham, Md.
Filed Mar. 19, 1969, Ser. No. 808,462
Int. Cl. G05b *19/24*
U.S. Cl. 318—571 **14 Claims**

A multiple-loop hybrid control system for controlling a load, which is directly connected to an actuator includes an offset-tooth magnetic sensor which senses output shaft movement and generates position and rate information needed for system control. A command waveforms generator provides command and comparison signals that are compared with the processed magnetic sensor information in suitable electronic comparing loops. The output signals from the electronic comparing loops are utilized to control the movement of the actuator and load.


COMMAND WAVE FORM GENERATOR
CT
CONTROL SIGNAL PROCESSOR
BRUSHLESS CONTROLLER COMMUTATOR
DC TORQUE MOTOR
LOAD
FR/PR
CS
PT
MULTI-CHANNEL COMPARATOR
POSITION LOGIC
RATE LOGIC
MAGNETIC SENSOR SIGNAL PROCESSOR
OFFSET-TOOTH MAGNETIC SENSOR
A1, A2, A3

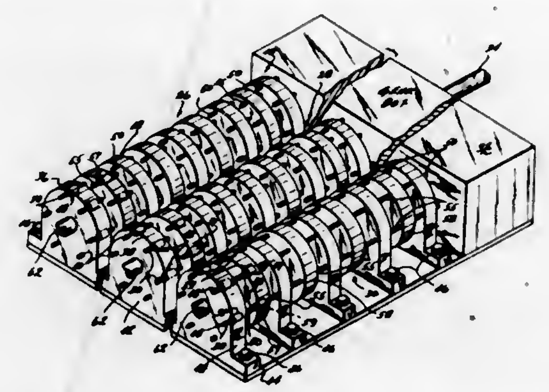
3,568,029
CONSTANT VELOCITY DRIVE CONTROL FOR MACHINE TOOLS AND THE LIKE
John G. Bollinger, Madison, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.
Filed Jan. 24, 1969, Ser. No. 793,859
Int. Cl. G05b *19/36*
U.S. Cl. 318—578 **7 Claims**



This disclosure includes a pair of drive motors energized to move a weld head along two related perpendicular axes in a horizontal plane. The one motor is a variable speed motor. A closed servoloop includes a reference input to establish a constant velocity drive along the related axis for the variable speed motor. A separate cam and follower positions a potentiometer to generate a signal proportional to the velocity correction at each point on the path for lateral movement with respect to the one axis. The signal is combined with the reference input in the servo to establish a modified drive signal. This maintains the resultant horizontal velocity vector constant.

3,568,030
ELECTROMAGNETIC MOTOR UTILIZING ATTRACTION AND REPULSION FORCES
Charles E. Faxon, Veterans Administration Branch, Los Angeles, Calif.
Continuation-in-part of application Ser. No. 661,449, Aug. 17, 1967. This application May 17, 1968, Ser. No. 730,001
Int. Cl. H02k *37/00*
U.S. Cl. 318—696 **4 Claims**

An electromagnetic motor is disclosed incorporating a plurality of rotatably mounted shafts each of which carries a plurality of individual rotors and is supported by a plurality of individual stators. The rotors and stators each incorporate electromagnets which provide the drive torque. At least one switch structure is provided on each of the shafts for synchronously controlling the currents in the electromagnets of the stators on the individual shaft so as to establish repeating cycles of attraction and repulsion in association with the magnets of the associated rotors. The aligned rotor elements on each shaft are offset from those on the other shafts so as to establish a continuity of drive torque, the shafts being mechanically coupled together through a gearbox which is in turn coupled to a drive shaft. By providing an offset relationship between the magnetic elements of the different shafts, a continuity of drive torque is established; however, the aligned electromagnets on each shaft enable double-ended operation for each internal electromagnet (excepting those of the ends).



3,568,031

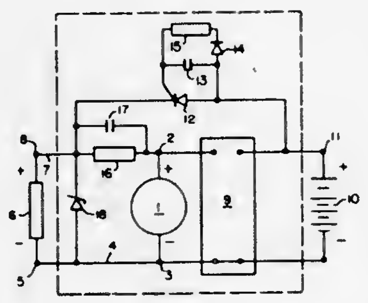
VEHICLE POWER SUPPLY FOR BATTERY CHARGING AND LOAD SUPPLY

Klaus Eberts, Grunwaldweg 4, 647 Budingen/Hessen, Germany

Filed Oct. 17, 1969, Ser. No. 867,255

Int. Cl. H02j *7/14*

U.S. Cl. 320—5 **8 Claims**



A circuit is disclosed in which a current responsive bistable regulator automatically interrupts the charging of a battery when the latter reaches a predetermined voltage. The dynamo source, however, continues to supply the miscellaneous loads of the vehicle. When the dynamo is cut off the loads are fed by the battery through a thyristor which is shut off when the dynamo is reenergized.

3,568,032

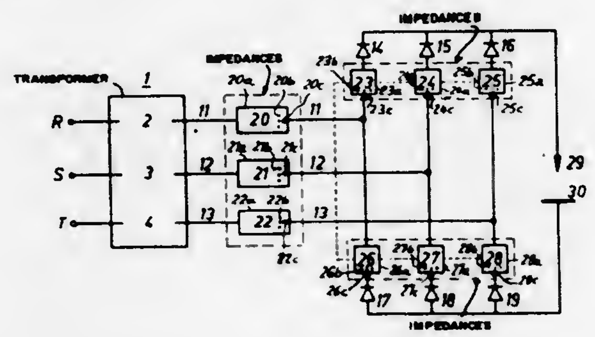
METHOD AND APPARATUS FOR ARC-WELDING

Karl Mages, and Hans Ulli, Kloten, Switzerland, assignors to Elektrodenfabrik Oerlikon Buehrle AG., Zurich, Switzerland

Continuation-in-part of application Ser. No. 580,737, Sept. 20, 1966, now abandoned. This application Mar. 27, 1968, Ser. No. 716,444

Int. Cl. H02m *7/06*

U.S. Cl. 321—5 **30 Claims**



A method and apparatus for arc-welding wherein the welding current delivered to the welding electrode is periodically caused to assume a plurality of essentially different amplitude values, the different amplitude values ensuring control of the formation, release and transport of drops of welding material.

3,568,033

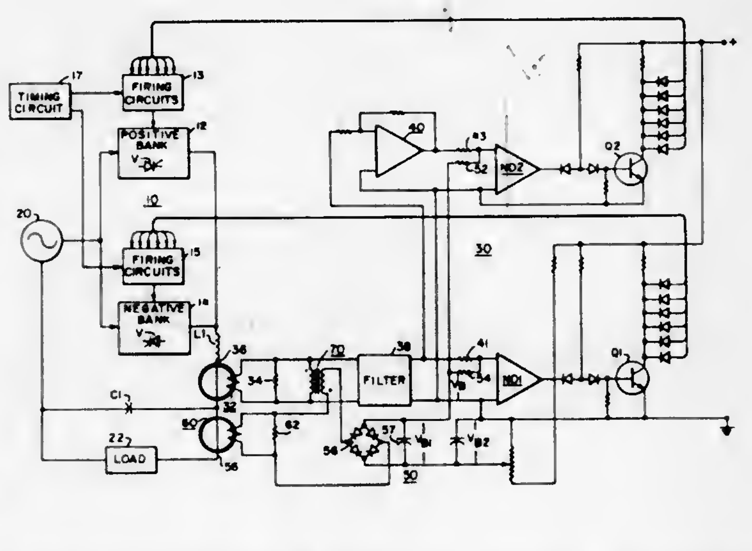
APPARATUS AND METHOD FOR CYCLOCONVERTER BANK SELECTION

Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 6, 1969, Ser. No. 863,828

Int. Cl. H02m *1/08, 5/14*

U.S. Cl. 321—7 **9 Claims**



Invention comprises apparatus and method for controlling the transfer of conduction between positive and negative banks of a cycloconverter circuit relative to the zero crossover point of the fundamental component of the AC output current waveform of the cycloconverter to insure a continuous cycloconverter current.

3,568,034

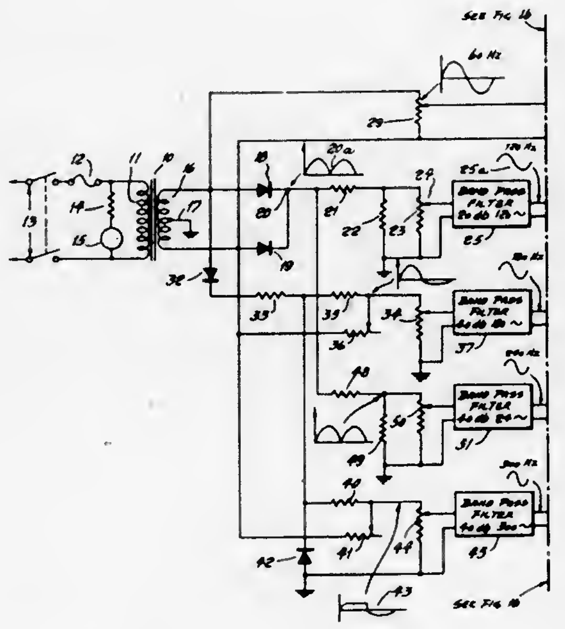
POWER LINE HARMONIC COMB FILTER

Saul Shenfeld, New London, Conn., assignor to the United States of America as represented by the Secretary of the Navy

Filed Oct. 22, 1969, Ser. No. 868,475

Int. Cl. H02m *1/12, 5/00*

U.S. Cl. 321—9 **6 Claims**



A low frequency comb filter having a 60 cycle stepdown transformer source input which is applied across a full-wave and a half-wave rectifier employing limiting diodes. The rectified outputs are then applied to a plurality of channels each having therein a constant impedance level control circuit, a band-pass filter, and a variable phase generator. The resultant channel outputs thereof are connected to a common line to provide an input for a component in which the interference is to be canceled via a decoupling element. Amplitude and phase are adjusted to provide positive cancellation.

3,568,035

DEVICE FOR THE PRODUCTION OF A HIGH DIRECT VOLTAGE DIFFERENCE

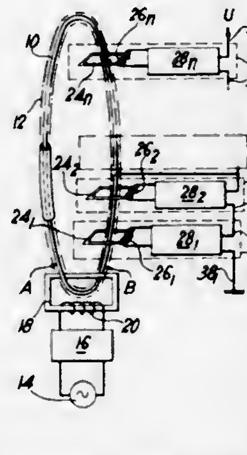
Alexandre Pierson, Biviers, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed Mar. 18, 1969, Ser. No. 808,222

Claims priority, application France, Mar. 20, 1968, 144,633

Int. Cl. H02m *7/00*

U.S. Cl. 321—15 **12 Claims**



A transfer coil consisting of a loop provided with a sufficient electrical insulation is fed by an AC source and is inductively coupled with a plurality of cells. Each cell consists of a winding coupled with the loop and a rectifier circuit fed by the winding. The outputs of all rectifiers are in series aiding relation.

In a first embodiment the loop is closed and inductively coupled to the source, making it possible to connect it to half the high voltage. In another embodiment, the loop ends are connected to a winding inductively coupled with the source and the loop is at the source DC potential.

3,568,036

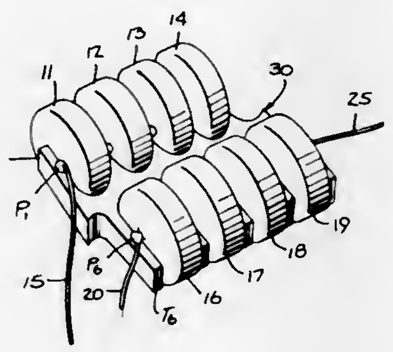
VOLTAGE-MULTIPLIER ASSEMBLY

Harold B. Rosenberg, New City, N.Y., assignor to Electronic Devices, Inc., Yonkers, N.Y.

Filed Dec. 15, 1969, Ser. No. 885,178

Int. Cl. H02m *7/10;* **H02b** *1/04*

U.S. Cl. 321—15 **7 Claims**



A voltage-multiplier assembly in which a network of solid-state diodes and capacitors are wired together and held securely at separated positions by an insulating matrix having upper and lower rows of spaced tines which define bays for accommodating the capacitors, the tines in the upper row being displaced with respect to the tines in the lower row whereby the capacitors in the bays are in staggered relation. The diodes connected to the capacitors in the bays are protectively embedded in the tines.

3,568,037

ELECTRICAL SUPPLY SYSTEMS INCORPORATING A PERMANENT MAGNET ALTERNATOR WITH VOLTAGE REGULATION

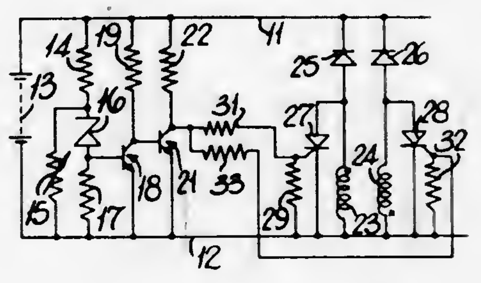
Malcolm Williams, Solihull, and Duncan Barry Hodgson, Whitnash, Leamington Spa, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Mar. 27, 1969, Ser. No. 811,096

Claims priority, application Great Britain, Apr. 1, 1968, 15,506/68

Int. Cl. H02m *1/08*

U.S. Cl. 321—18 **5 Claims**



In a battery-charging system a permanent magnet alternator has a winding connected at one end to one supply line and at its other end connected to the other supply line through a diode. In order to control the output from this winding, a gate controlled semiconductor switch, which can by way of example be a thyristor or a new device called a triac, is connected across the winding, and is provided with base current only when the voltage between the lines reaches a predetermined value.

3,568,038

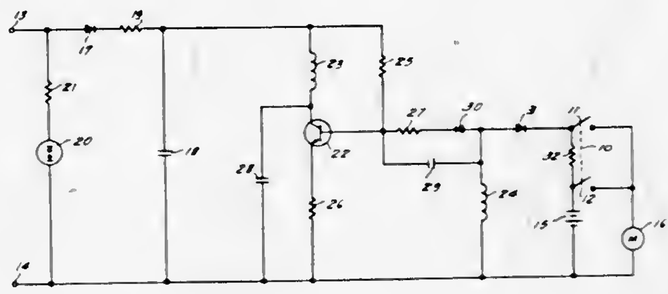
TRANSISTOR INVERTER CIRCUIT

Ray H. Enders, Columbia, Pa.; Henri H. Hoge, Baltimore, Md., and Robert E. Lewis, Peach Bottom, Pa., assignors to Schick Electric Inc., Lancaster, Pa.

Filed Mar. 28, 1969, Ser. No. 811,520

Int. Cl. H02m *7/12*

U.S. Cl. 321—47 **9 Claims**



A transistor circuit capable of receiving a high voltage, low frequency supply and changing it to a low voltage high frequency supply.

3,568,039

ELECTROCHEMICAL-VARIABLE SPEED CONSTANT FREQUENCY POWER SYSTEM

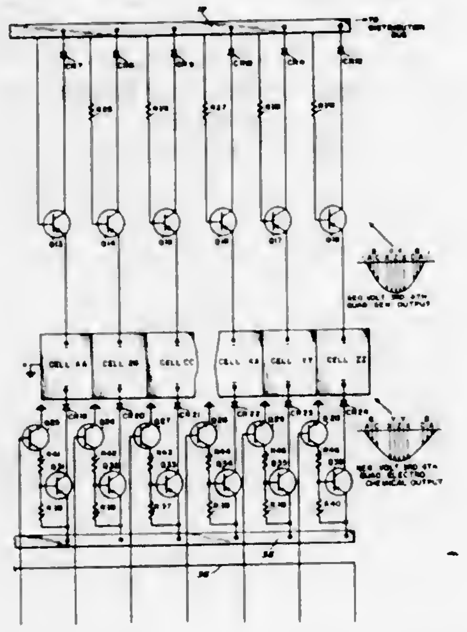
Milton A. Knight, Box 113, RR 1, Centreville, Va.

Filed July 16, 1969, Ser. No. 842,317

Int. Cl. H02m *5/00*

U.S. Cl. 321—61 **6 Claims**

A power system which will produce an alternating current output at controlled frequency from a variable frequency power input source. Multiple solid state control devices divide the variable input into incremental voltage controlled pulses which are connected to bipolar electrochemical cells.



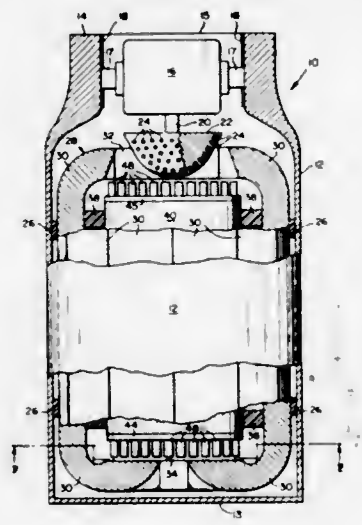
Then a reference voltage and frequency circuit discharges the electrochemical cells in an order of voltage synchronized with the reference wave form to produce an accurately controlled frequency output.

3,568,040
MAGNETOMOTIVE ELECTRIC CURRENT GENERATOR UTILIZING VIBRATING MAGNETIZABLE METAL STRIPS

Van P. Combs, Penfield, N.Y., assignor to Mega Power Corporation, Rochester, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,383
Int. Cl. H02k *35/00*

U.S. Cl. 322—3 **9 Claims**



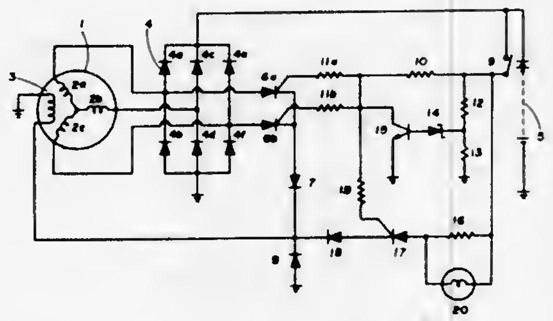
The generator comprises a stationary core housed in a hollow, generally cylindrical, permanent magnet. A plurality of elongate, axially extending, angularly spaced, magnetizable metal shims are secured in radially spaced, concentric circular rows in the core, and project slightly axially beyond opposite ends, respectively, of the core to confront opposite poles, respectively, of the permanent magnet. A helical wire coil of conductive material is wound around each row of shims; and successive windings of the coil are separated from one another by thin sheets of conductive foil and dielectric material. A direct current motor is mounted at one end of the core. Its armature carries a head containing a plurality of like-oriented permanent magnets. When the head rotates, its magnets distort the lines of flux extending between the adjacent ends of the shims and the surrounding magnet, causing the shims to vibrate and induce a voltage in the coil. The coil and alternating layers of metal foil and dielectric material define condensers that are charged by the voltage induced in the coil. This charge, and the induced voltages, produce the power output of the generator.

3,568,041
ALTERNATOR CONTROL DEVICE HAVING SIMPLIFIED CHARGE-DISCHARGE INDICATOR

Kenjiro Arakane, Himeji-shi, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha

Filed Oct. 29, 1968, Ser. No. 771,489
Claims priority, application Japan, Nov. 2, 1967, 42/70,587
Int. Cl. H02p *9/30*

U.S. Cl. 322—28 **9 Claims**



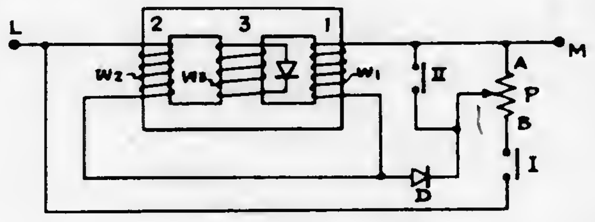
In an alternator driven by a prime mover of a vehicle to charge a storage battery, a gate controlled rectifier is provided to excite the field winding of the alternator and means responsive to the output voltage of the alternator is provide to effect ON-OFF control of the gate controlled rectifier. To provide initial separate excitation current from the battery, a second excitation circuit including a second gate controlled rectifier is provided which is rendered inoperative as the output voltage of the alternator builds up. A lamp is directly coupled to the second excitation circuit to indicate when separate excitation current is being supplied and that the battery is not being charged.

3,568,042
VOLTAGE REGULATOR FOR APPARATUS OPERATED BY ALTERNATING CURRENT, PARTICULARLY A STEPLESS SPEED CONTROLLER FOR ELECTRIC MOTORS

Alberto Della Casa, Salita Quarcino, 10, Como, Italy

Filed June 3, 1969, Ser. No. 829,893
Claims priority, application Italy, June 7, 1968, Nov. 16, 1968, 17499A/68;23827A/68
Int. Cl. G05f *1/20*

U.S. Cl. 323—7 **8 Claims**



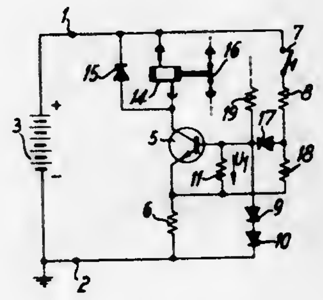
Three electrical windings are connected by a paramagnetic frame in a manner such that there is a first magnetic flux path interconnecting the intermediate winding and one end winding, and a second magnetic flux path interconnecting the intermediate winding and the other end winding. The intermediate winding has a diode in series therewith so that current will only flow in one direction through the intermediate winding. The two end windings are connected in series between the power supply connection and the motor connection with the arrangement being such that the magnetic flux in the two paths balances out where the paths pass through the intermediate winding. One end winding is shunted by a diode connected in series with variable resistance means.

3,568,043
DIODE CONSTANT VOLTAGE SOURCE LIMITS CURRENT THROUGH A SERIES TRANSISTOR CIRCUIT

Friedrich Rabus, Stuttgart-Bad, Cannstatt, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Apr. 10, 1969, Ser. No. 814,907
Claims priority, application Germany, Apr. 19, 1968, P 17 63 195.7
Int. Cl. G05f *1/58*

U.S. Cl. 323—9 **9 Claims**



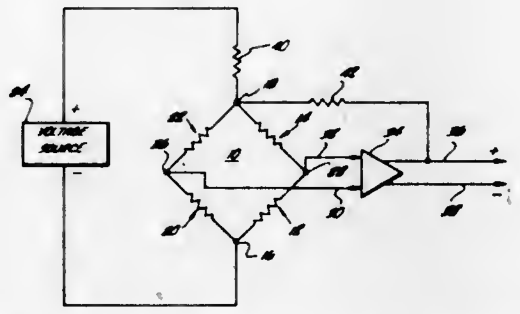
To provide a self-protecting feature in case of malconnection or malfunction of the load, a transistor controlling an electromagnetic operating circuit has connected a sensing resistance in series with its emitter-collector path, a constant voltage source formed of diodes from the current source (battery) to the emitter, and a comparison resistance connected across the emitter-base terminals of the transistor, the relative values of the sensing resistance, the comparison resistance and the voltage of the constant voltage source being so selected relative to each other that under ordinary operating conditions the emitter-base potential is sufficient to provide full conduction of the transistor, whereas, upon decrease of total resistance of the emitter-collector circuit, the transistor is controlled to assume a high resistance value and limit the flow of current therethrough to a safe value.

3,568,044
LINEARIZING CIRCUIT FOR HIGH OUTPUT TRANSDUCERS

Shmuel Elazar, Camarillo, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Sept. 12, 1968, Ser. No. 759,376
Int. Cl. G01r *17/10*

U.S. Cl. 323—75 **6 Claims**



A transducer system which employs in combination an impedance bridge circuit with a differential amplifier and includes a feedback circuit to equalize nonlinearity in the components of the impedance bridge.

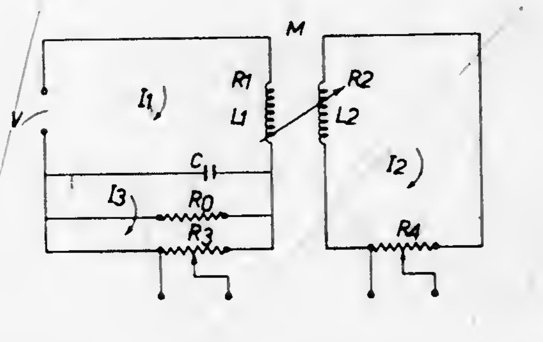
3,568,045
ALTERNATING CURRENT DEVICES FOR OBTAINING A 90° PHASE SHIFT

Robert Yorke, Southampton, England, assignor to J. J. Lloyd Instruments Ltd., Southampton, England

Filed Jan. 17, 1969, Ser. No. 792,016
Claims priority, application Great Britain, Jan. 22, 1968, 3,255
Int. Cl. G05f *3/00*

U.S. Cl. 323—108 **5 Claims**

An alternating current device for establishing adjustable currents having a 90° phase shift by which the in phase and quadrature components of an applied AC voltage may be measured. The device includes a variable mutual inductor having an in phase resistor in series with the primary winding of the variable mutual inductor and a quadrature resistor in series with the secondary thereof. The in phase and quadrature components of the applied voltage are measured across



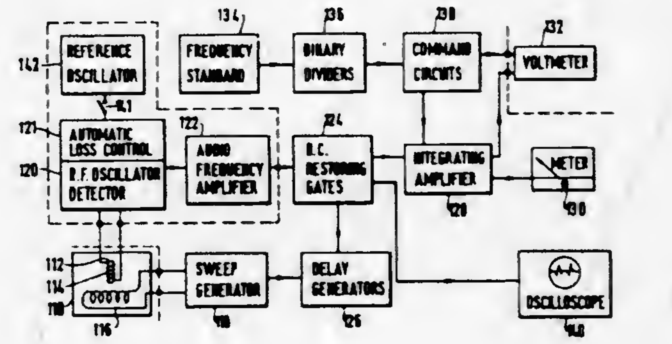
these resistors. Precise calibration to compensate for phase error and errors due to fluctuations in frequency are obviated by providing a capacitor in parallel with the in phase resistor. In addition, a shunt resistor may be connected across the in phase resistor to reduce the value of mutual inductance required to induce a given current in the quadrature resistor.

3,568,046
APPARATUS FOR EXAMINATION AND MEASUREMENT BY MEANS OF NUCLEAR MAGNETIC RESONANCE PHENOMENA

Edward Watson, Hayling Island, England, assignor to Newport Instruments Limited, Newport Pagnell, Buckinghamshire, England

Continuation-in-part of application Ser. No. 485,034, Sept. 3, 1965. This application Mar. 10, 1969, Ser. No. 805,492
Int. Cl. G01n *27/78*

U.S. Cl. 324—0.5 **1 Claim**



A signal including a plurality of successive and amplified nuclear magnetic resonance pulses obtained from a sample is gated to a display instrument only during separated short intervals of time which each embrace the period of occurrence of one of said pulses. Integration of a succession of detected pulses is effected under the control of a timing circuit.

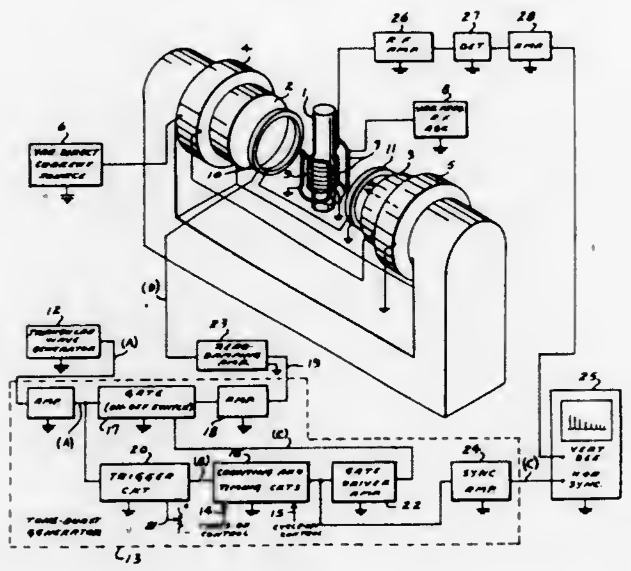
3,568,047
APPARATUS AND METHOD FOR MEASURING NUCLEAR SPIN-LATTICE RELAXATION TIME (T_1) BY TONE-BURST MODULATION

David C. Look, and Donald R. Locker, Dayton, Ohio

Filed Mar. 17, 1969, Ser. No. 807,836
Int. Cl. G01n *27/78*

U.S. Cl. 324—0.5 **5 Claims**

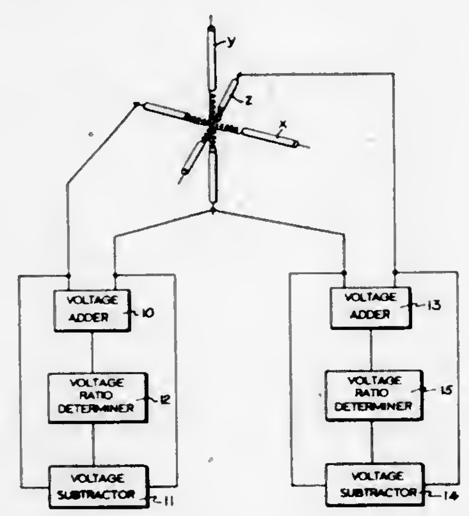
The static field of an NMR spectrometer is modulated by a series of repeated tone bursts of an audio wave of triangular or sinusoidal form with the bursts separated by periods of at least four times the spin-lattice relaxation time T_1. The static field has a value such that the superimposed modulation causes field strength excursions equal distances above and below the magnetic resonance value. The spectrometer output signals produced by the passages through the resonance value are displayed by an oscilloscope having its horizontal sweep synchronized with the start of each tone burst. The value of T_1 is calculated from measurements made on the recorded oscilloscope display.



3,568,048
THREE COIL SYSTEM FOR GEOPHYSICAL PROSPECTING UTILIZING MAGNETIC TIME TRANSIENTS

William A. Robinson, Don Mills, Ontario, Canada, assignor to McPhar Geophysics Limited, Don Mills, Ontario, Canada
Filed Dec. 9, 1968, Ser. No. 782,262
Int. Cl. G01v *3/00*

U.S. Cl. 324—8 **8 Claims**

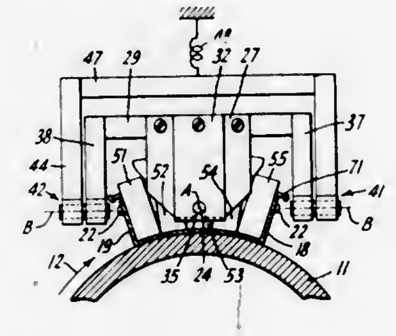


A method and apparatus for detecting geophysical anomalies by measuring the naturally occurring audio frequency transient magnetic fields (AFMAG fields) in two planes comprising utilizing three orthogonal coils and processing their output voltages in appropriate proportions to give the effect of an equivalent coil system comprising two pairs of coils with each coil of each pair having its axis inclined at 45° to the horizontal and at 90° to the axis of the other coil of such pair, one pair of such equivalent coils lying in one vertical plane and the other pair of such equivalent coils lying in another vertical plane.

3,568,049
ADJUSTABLE SEARCH SHOE FOR USE IN NONDESTRUCTIVE TESTING OF TUBULAR MEMBERS

Robert D. Barton, Houston, Tex., assignor to AMF Incorporated, New York, N.Y.
Filed Dec. 30, 1968, Ser. No. 787,804
Int. Cl. G01r *33/00*

U.S. Cl. 324—34 **12 Claims**

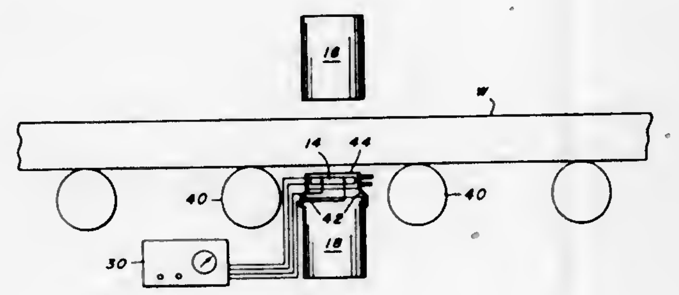


A search shoe for use in nondestructive testing of metallic tubular objects. The curvature of the objecting engaging surface of the shoe may be adjusted to closely conform to the wall of any tubular object whose diameter is within a given range.

3,568,050
METHOD FOR MONITORING FERROMAGNETIC MATERIAL TEMPERATURE ABOVE THE CURIE POINT

Douglas L. Dill, Parks Township, Armstrong County, Pa., assignor to United States Steel Corporation
Filed May 29, 1969, Ser. No. 829,040
Int. Cl. G01r *33/00*

U.S. Cl. 324—34 **2 Claims**



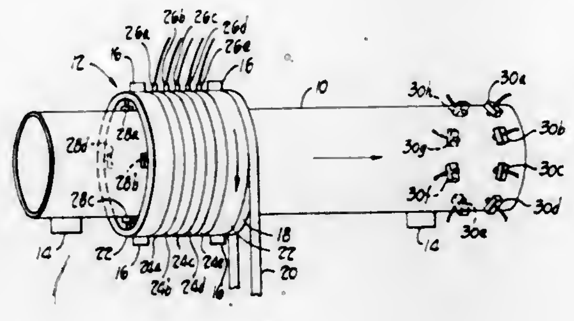
A method and apparatus for automatically measuring and/or recording the temperature of a paramagnetically susceptible material, such as steel during hot rolling, whereby the material is passed through a magnetic field and the magnetic field strength is changed in proportion to the material's paramagnetic susceptibility. A semiconducting probe measures the change in field strength, and through proper instrumentation the change in field strength is recorded as degrees of temperature.

3,568,051
AN EDDY CURRENT DEFECT DETECTOR UTILIZING PLURAL ROTATING SEARCH COILS IN COMBINATION WITH LOGIC CIRCUITRY AND MARKERS

Joseph Vild, Lyndhurst, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio
Filed Jan. 6, 1969, Ser. No. 789,159
Int. Cl. G01r *33/12*

U.S. Cl. 324—37 **43 Claims**

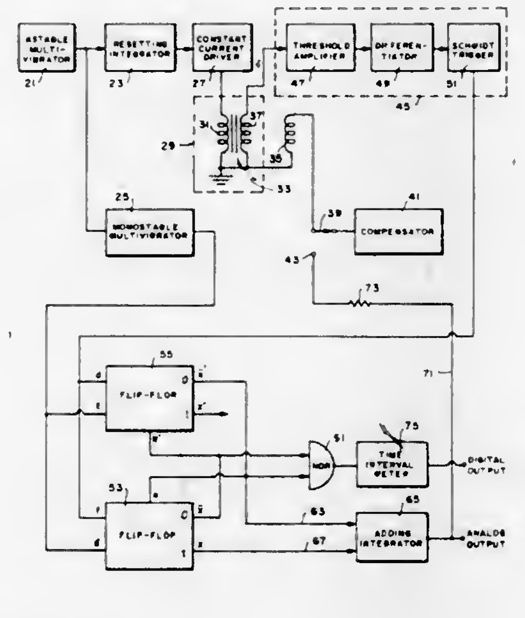
In eddy current defect detecting and marking apparatus, a plurality of search coils are mounted for rotation about an axis coincident with the axis of an elongated article being inspected. A plurality of magnets are mounted for rotation with the search coils and positioned to actuate fixed-position switches. Signals from the search coils and from the switches are utilized in logic circuitry to cause actuation of appropriate ones of a plurality of marking devices depending on where circumferentially and longitudinally of the cylindrical article a detected defect or defects lies for physically marking on the article the defect location.



3,568,052
TIME INTERVAL MAGNETOMETER

William W. Anderson, 205B Boxwood Road, Annapolis, Md.
Continuation of application Ser. No. 414,926, Nov. 30, 1964, now abandoned. This application June 6, 1969, Ser. No. 830,971
Int. Cl. G01r *33/02*

U.S. Cl. 324—43 **9 Claims**



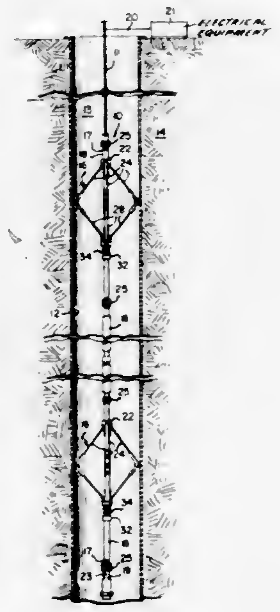
A magnetometer system having a probe core of ferromagnetic material with a primary and secondary winding, the primary winding being driven by a linear ramp current from a constant current driver which current rises during one-half cycle of the cycle of an astable multivibrator to drive the core through its minimum flux density to saturation. The output pulse appearing in the secondary winding of the probe as the saturation of the probe passes through 180° is shifted in time by the presence of an external magnetic field as the driver current rises with time. This time interval shift is measured and corresponds directly to the magnitude of the external magnetic field.

3,568,053
APPARATUS FOR ESTABLISHING ELECTRICAL CONTACT WITH THE CASING IN A WELLBORE

James M. Kilpatrick, Claremore, and Robert E. Walker, Tulsa, Okla., assignors to Sinclair Oil Corporation, New York, N.Y.
Filed Oct. 15, 1968, Ser. No. 767,663
Int. Cl. G01n *27/02*

U.S. Cl. 324—62 **5 Claims**

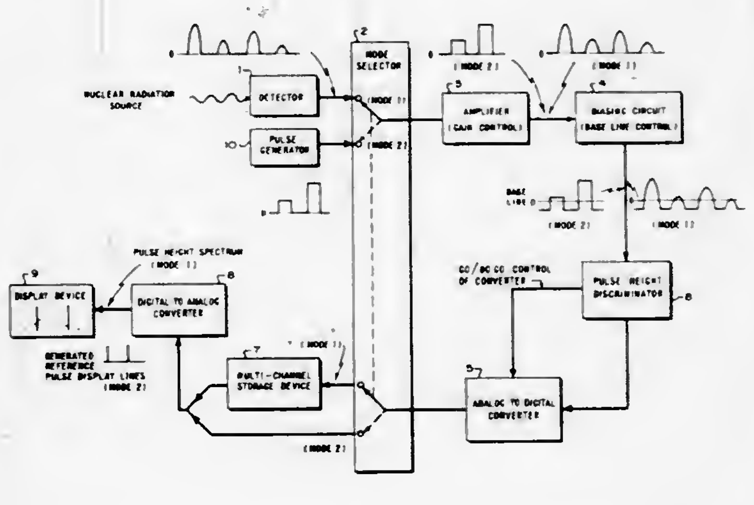
An apparatus for establishing electrical contact with the casing within a well bore. A plurality of flexible support members each have their first end attached to a central shaft and their second end attached to a collar slidably engaging the shaft. An electrical contact wheel is mounted on each support member. A fixed shaft collar restrains a spring which biases the slidable collar, causing the support members to flex, thereby urging the contact wheels outwardly to contact the well casing.



3,568,054
PULSE HEIGHT SPECTRUM ANALYSIS METHOD AND MEANS

Wallace A. Ross, Los Altos, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Feb. 9, 1968, Ser. No. 704,453
Int. Cl. G01j *39/18;* **G01t** *1/20;* **G01n** *23/10*

U.S. Cl. 324—77 **3 Claims**


NUCLEAR RADIATION SOURCE
DETECTOR
PULSE GENERATOR
MODE SELECTOR
AMPLIFIER (GAIN CONTROL)
BIASING CIRCUIT (BASE LINE CONTROL)
PULSE HEIGHT DISCRIMINATOR
ANALOG TO DIGITAL CONVERTER
MULTI-CHANNEL STORAGE DEVICE
DIGITAL TO ANALOG CONVERTER
DISPLAY DEVICE
PULSE HEIGHT SPECTRUM
GENERATED REFERENCE PULSE DISPLAY LINES
(MODE 1)
(MODE 2)

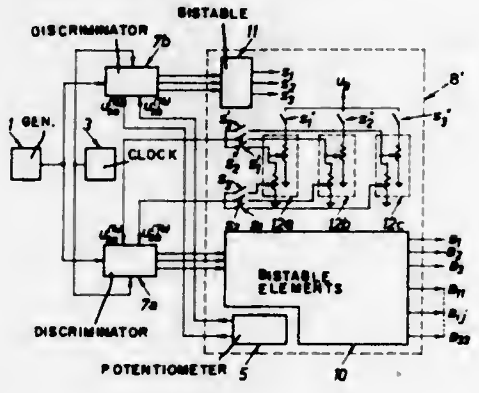
The total number of occurrences of pulse heights are stored in a multichannel storage device and are displayed in the form of a spectrum. At least one generated reference pulse is provided for identifying a portion of the spectrum to be analyzed. The pulse heights and the generated reference pulse are processed by the same equipment so that to analyze a selected portion of the spectrum the required settings of the base line or gain control or any other parameters which are sensitive to pulse height are found by using the generated reference pulse display lines as a guide.

3,568,055
ELECTRONIC DEVICE FOR MEASURING STATISTICAL PARAMETERS OF STOCHASTICAL PROCESSES

Wolfgang Wehrmann, Vienna, Austria, assignor to Norma Fabrik elektrischer Messgerate Gesellschaft m.b.H., Vienna, Austria

Filed Oct. 2, 1967, Ser. No. 672,093
Claims priority, application Austria, Oct. 6, 1966, 9356/66
Int. Cl. G01r *23/16*

U.S. Cl. 324—77 **14 Claims**



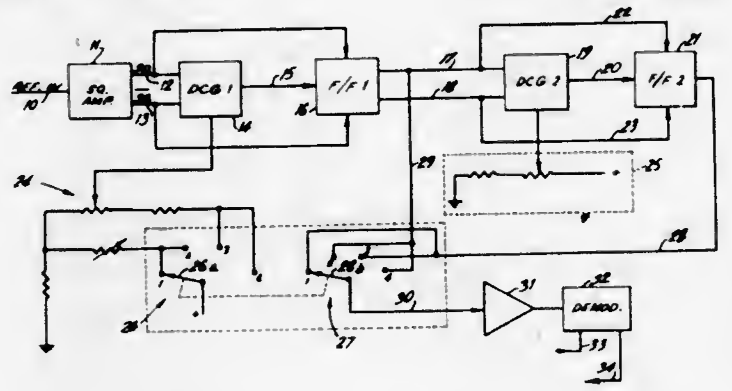
An electronic device for measuring statistical parameters of a stochastical process represented by an electrical signal which is sampled by a clock frequency, the sampled values being divided into at least two classes of sizes by comparison with at least one controllable threshold voltage, and statistical parameters of the stochastical process measured, comprising at least one controllable sampled amplitude discriminator the input of which is connected to the electronic source of said signal and an automatic device having at least one set of bistable elements and at least one set of electronic means for controlling the sampled amplitude discriminator.

3,568,056
PHASE MEASUREMENT INSTRUMENT

Eugene R. Keeler, Suffern, N.Y., assignor to Timex Corporation, Waterbury, Conn.

Filed Oct. 15, 1968, Ser. No. 767,654
Int. Cl. G01r *25/00*

U.S. Cl. 324—83 **4 Claims**



An instrument to measure the phase components of a signal is accurate for signals within a frequency range without adjustment. The instrument includes a squaring network and an adjustable duty cycle generator network.

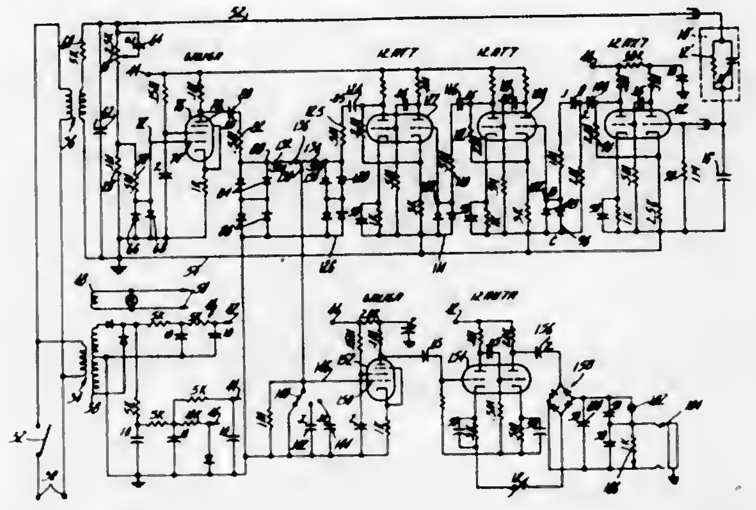
3,568,057
PHASE MEASUREMENT APPARATUS INCORPORATING SQUARE WAVE VOLTAGE DIFFERENCE COMPENSATION

Edmund Povey, Medford, Mass., assignor to Doble Engineering Company, Belmont, Mass.

Original application May 4, 1965, Ser. No. 453,145, now Patent No. 3,452,274, dated June 24, 1969. Divided and this application Oct. 24, 1968, Ser. No. 770,321
Int. Cl. G01r *25/00*

U.S. Cl. 324—83 **6 Claims**

Apparatus for measuring the dielectric quality of electrical insulating oil includes a test cell for receiving the oil. The test cell includes two electrodes of a capacitor and a high value no loss capacitor is connected in series with the test cell, so that a sinusoidal voltage in quadrature with the current through the test cell is produced. A second sinusoidal voltage is provided across a zero phase angle standard resistor. Both sinusoidal voltages are converted to symmetrical square waves and a difference signal is produced by comparing the two square waves. The difference signal is integrated and applied to a meter to provide a direct indication of the loss characteristics of the oil being tested.

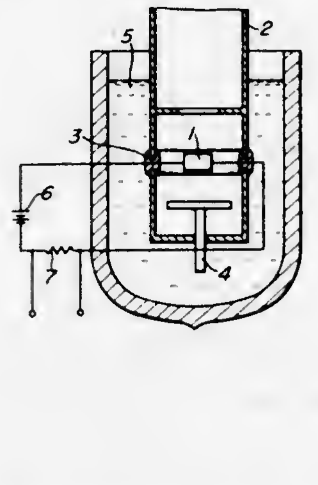


3,568,058
DEVICE FOR DETECTING SMALL MICROWAVE SIGNALS AND THE LIKE

Kiichi Komatsubara, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation of application Ser. No. 596,634, Nov. 23, 1966. This application Dec. 30, 1969, Ser. No. 888,132
Int. Cl. G01r *21/06, 21/12*

U.S. Cl. 324—95 **2 Claims**



A device for detecting small signals of a microwave, millimeter wave and the like level, wherein a detector element is composed of a III—V group semiconductor compound selected from the group consisting of N-type InSb and InAs, and is conditioned so as to be in the state of the quantum limit. The device is responsive to signals having a high speed and/or a broad range of power.

3,568,059
ELECTRONIC TACHOMETER

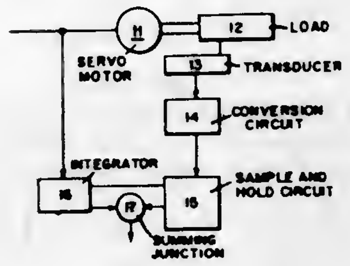
Frank J. Sordello, San Jose, Calif., assignor to Information Storage Systems, Inc., Cupertino, Calif.

Filed Jan. 21, 1969, Ser. No. 792,386
Int. Cl. G01p *3/46*

U.S. Cl. 324—177 **9 Claims**

An electronic tachometer for providing a continuous indication of velocity of a motor-driven load including: a sensor

operatively connected to the load for generating a periodic position signal; means for converting the position signal to an accurate indication of load velocity; a sample and hold circuit for periodically sampling the velocity measurement and retaining the level of the sample; an integrator for integrating the drive current applied to the motor; and a junction for recalibrating the integrated drive current with each retained sample to form a continuous velocity signal.

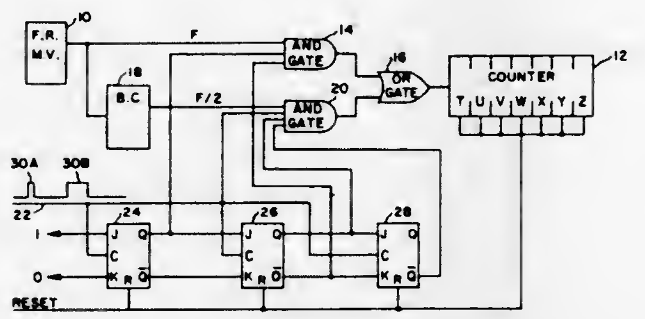


3,568,060
PULSE CENTER FINDER EMPLOYING DUAL COUNTER RATE WITH SYNCHRONOUS OPERATION

Joseph A. Howells, Cinnaminson, N.J., assignor to Science Accessories Corporation, Southport, Conn.

Filed Oct. 18, 1967, Ser. No. 676,268
Int. Cl. G04f *9/00*

U.S. Cl. 324—186 **6 Claims**



A device for digitally indicating the center of a pulse employing a pulse counter and a pulse generator having a fixed generating rate. Upon receipt of an initial pulse a first flip-flop opens a first gating circuit and passes pulses to the counter. A second flip-flop receives the leading edge of a subsequent pulse to turn off the first gate and opens a second gate. The second gate in turn allows pulses at one-half the fixed generating rate to accumulate in the counter. The trailing edge of the second pulse changes the state of the second flip-flop and turns off the second gate. The accumulated count is now representative of the measure from the initial timing pulse to the center of the second pulse. A further flip-flop, upon receipt of a further pulse, changes state and insures that the gating circuits do not open to permit further counting. The two level counting is accomplished by a pulse frequency dividing stage connected to the pulse source, or, alternatively, by using the output of the first counter stage.

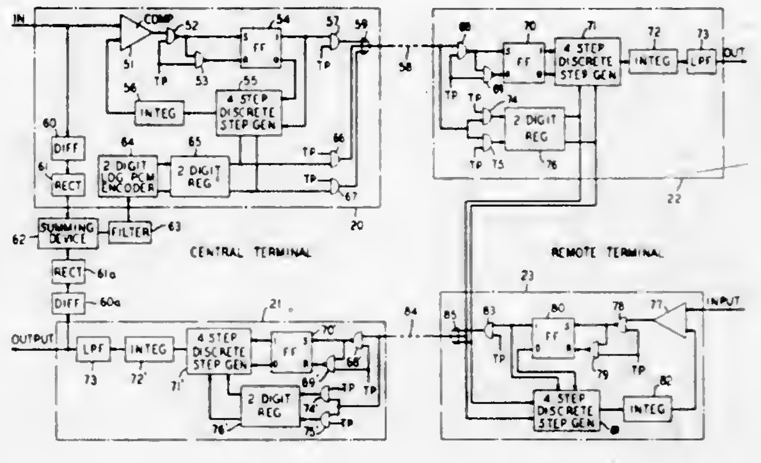
3,568,061
BILATERAL DIGITAL TRANSMISSION SYSTEM WITH COMPANDING HAVING SAME STEP SIZE IN EACH DIRECTION

Stephen J. Brolin, Bronx, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill,Berkeley Heights, N.J.

Filed Apr. 29, 1968, Ser. No. 724,859
Int. Cl. H04b *1/00*

U.S. Cl. 325—38 **11 Claims**

A digital transmission system is disclosed utilizing forward and backward acting companding for transmission from and to a central terminal to and from a plurality of remote terminals, respectively. A variable size step pulse source is used at each modulator to effectively achieve compression and another is used at each demodulator to effectively achieve complementary expansion. Apparatus is located at the central terminal which senses parameters of the message signals transmitted from and received by the central terminal, sums the sensed parameters and utilizes the sum to determine the amplitudes of the variable size step pulses produced for each modulator and demodulator.

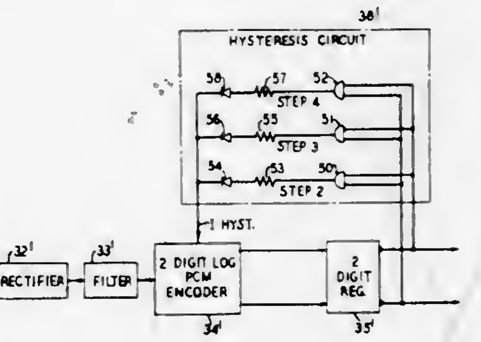


3,568,062
DISCRETE COMPANDOR UTILIZING HYSTERESIS

Stephen J. Brolin, Bronx, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 29, 1968, Ser. No. 724,853
Int. Cl. H04b *1/00, 7/00*

U.S. Cl. 325—38 **4 Claims**



In a delta modulation transmission system employing discrete companding utilizing a discretely variable step size, a hysteresis circuit is added to minimize step size transitions by altering the traversed predetermined level in the pulse code modulation encoder which determines the discrete step size used for the delta modulator.

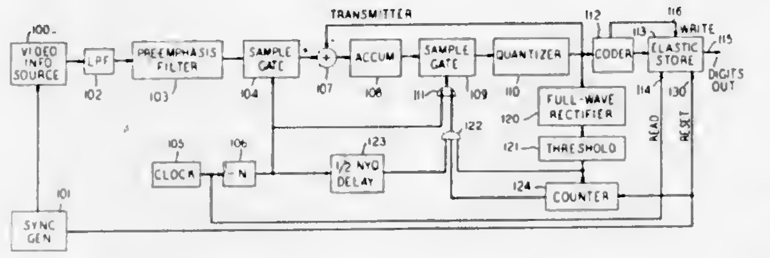
3,568,063
SLIDING SCALE PREDICTIVE CODING SYSTEM

Earl F. Brown, Piscataway, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 2, 1969, Ser. No. 812,714
Int. Cl. H04b *1/00, 7/00*

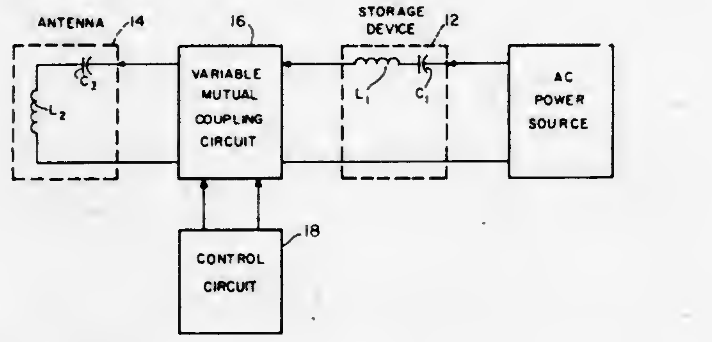
U.S. Cl. 325—38 **10 Claims**

A sliding scale coding system is disclosed which effectively extends the range of the quantizing circuit in a predictive coder by automatically inserting extra samples when changes in the input signal exceed a predetermined level. The extra samples are quantized and transmitted in succession with the regular samples. At the receiver the extra samples are detected and reconstructed in proper order with the regular samples. Filter circuits then add the extra samples to the regular samples in order to reconstruct the original input signal.



3,568,064
PULSE GENERATION SYSTEM

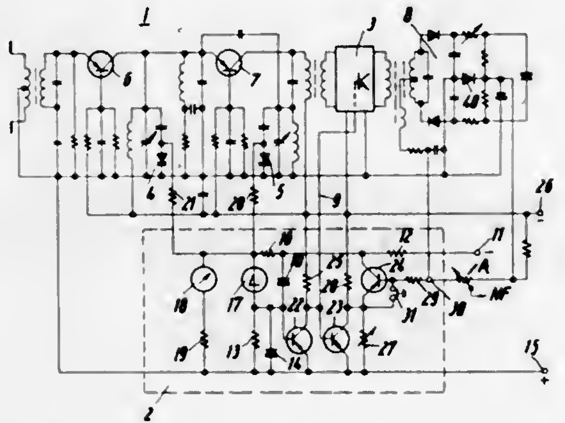
Paul R. Johannessen, Lexington, Mass., assignor to Sylvania Electric Products, Inc.
Filed Oct. 24, 1968, Ser. No. 770,292
Int. Cl. H04b *1/02*
U.S. Cl. 325—173 **8 Claims**



A pulse generation system employing a storage device excited by energy from an alternating current power source. The energy stored in the storage device is coupled through a variable mutual coupling network to a load. By varying the mutual coupling with time, the shape of the transferred energy is controlled.

3,568,065
SIGNAL SEEKING SCANNING COMMUNICATION RECEIVER WITH LOWER GAIN DURING SCANNING

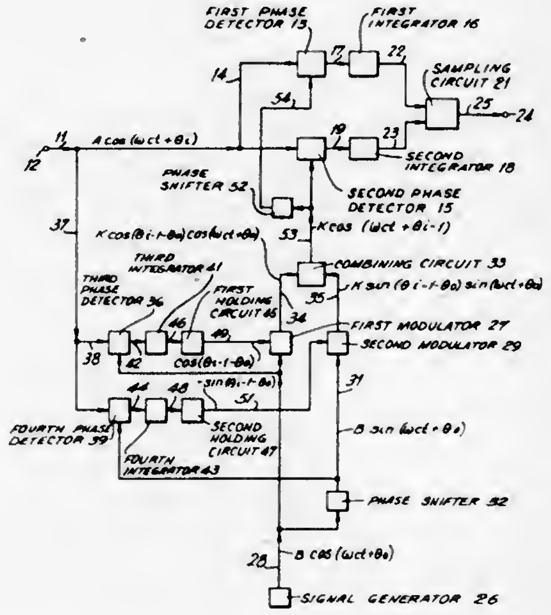
Hubertus Pagany, and Hans Rasehorn, Hildesheim, Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Germany
Filed July 15, 1968, Ser. No. 744,839
Claims priority, application Germany, Aug. 31, 1967, B94243
Int. Cl. H04b *1/32*
U.S. Cl. 325—422 **6 Claims**



The threshold for signals to be selected during scanning is set such that signals will be selected which are just above the noise level of the receiver; during scanning, a gain control circuit regulates the overall gain of the receiver below its normal sensitivity, so that only stronger signals will be selected which, however, after having been selected will be amplified with a higher gain than during the scanning for selection.

3,568,066
FREQUENCY MULTIPLE DIFFERENTIAL PHASE MODULATION SIGNAL RECEIVER

Noriaki Fujimura, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed July 5, 1968, Ser. No. 742,897
Claims priority, application Japan, July 7, 1967, 42-43 775
Int. Cl. H04l *27/14*
U.S. Cl. 325—320 **6 Claims**

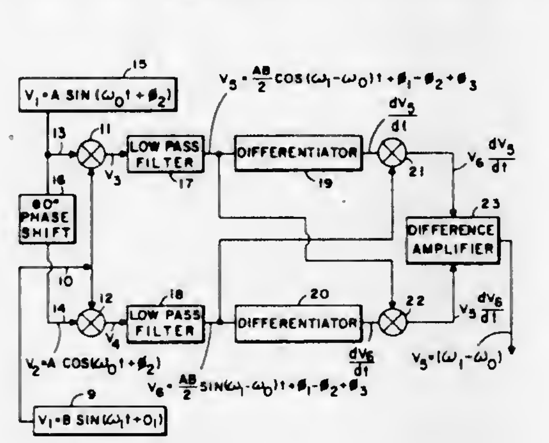


First and second phase detectors detect the phase of the input signal and utilize a first demodulating reference signal and a second reference signal having a phase difference of 90° from the first reference signal. A first integrator is connected to the first phase detector and a second integrator is connected to the second phase detector. A sampling circuit connected to the first and second integrators samples the outputs thereof and shapes the waveforms of the output. A signal generator generates a single reference signal. Third and fourth phase detectors detect the phase of the input signal utilizing the single reference signal and a fourth reference signal having a phase difference of 90° from the single reference signal. A third integrator is connected to the third phase detector and a fourth integrator is connected to the fourth phase detector. A first holding circuit is connected to the third integrator and a second holding circuit is connected to the fourth integrator. Each holding circuit holds a signal for a determined period. A first modulator connected to the first holding circuit modulates the output signals thereof with the single reference signal. A second modulation connected to the second holding circuit modulates the output signals thereof with the fourth reference signal. A combining circuit connected between the first and second modulators and each of the first and second phase detectors combines the output signals of the modulators.

3,568,067
FREQUENCY DISCRIMINATOR WITH OUTPUT INDICATIVE OF DIFFERENCE BETWEEN INPUT AND LOCAL REFERENCE SIGNALS

Jerry G. Williford, Tustin, Calif., assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed June 13, 1969, Ser. No. 833,031
Int. Cl. H04l *27/14;* **H03d** *3/02*
U.S. Cl. 325—320 **5 Claims**

A first means extracts the difference frequency components of the input signal (f_{in}) and a first reference signal (F_r). A second means extracts the difference frequency components of said input signal and a second reference signal in phase quadrature with the first reference signal. The two difference frequency signals are separately differentiated. Then the output from each of the two differentiators is multiplied by the input to the other differentiator to provide two output signals. A difference amplifier takes the difference between these two output signals to provide a signal in accordance with the expression

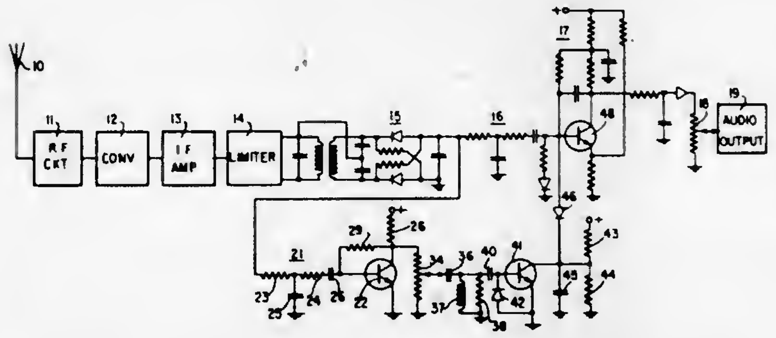


$$\frac{d\theta}{dt} = (W_{in} - W_r)$$

where $d\theta/dt$ is the rate of change of phase between the input signal and the reference signal.

3,568,068
SQUELCH CIRCUIT FOR FREQUENCY MODULATION RECEIVER

Daniel D. Russell, Jr., Harwood Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Oct. 13, 1967, Ser. No. 675,104
Int. Cl. H04b *1/10*
U.S. Cl. 325—348 **5 Claims**

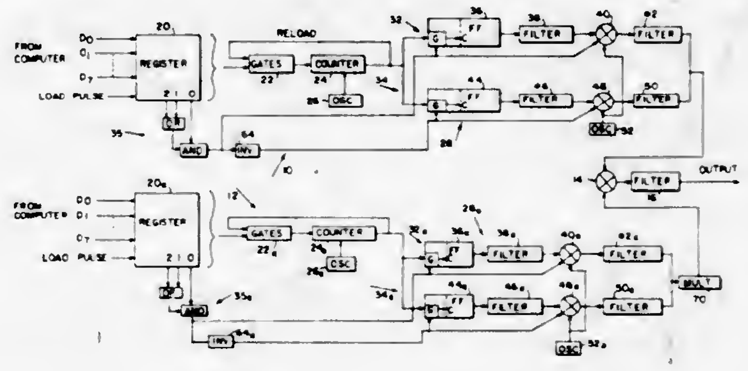


Squelch circuit for frequency modulated receiver having a wide band discriminator which reproduces the modulating signal and noise extending at frequencies substantially higher than the modulating signal, with the noise increasing in amplitude in the absence of the modulating signal. The full frequency range of the discriminator output is applied through a limiter and a level control potentiometer to a frequency selective circuit which selects noise extending above the modulating frequency. The selected noise is detected and amplified in a full wave semiconductor circuit and applied to bias off the first audio stage of the receiver when the noise exceeds a predetermined voltage.

3,568,069
DIGITALLY CONTROLLED FREQUENCY SYNTHESIZER

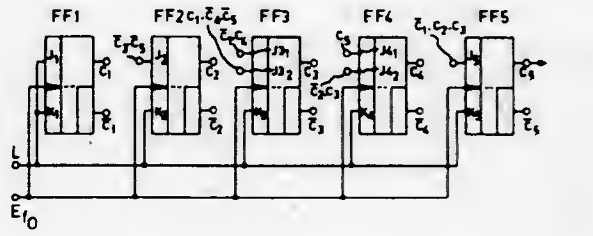
William D. Gabor, Amherst, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.
Filed Dec. 16, 1968, Ser. No. 784,081
Int. Cl. H03b *1/04;* **H03k** *7/08*
U.S. Cl. 328—14 **15 Claims**

A digitally controlled variable frequency synthesizer has a register which stores a number corresponding to the desired output frequency. This number is loaded into a counter which counts pulses from a stable, fixed-frequency oscillator. The counter then counts backward from that number to zero and then emits an output pulse. That causes the stored number to be loaded into the counter again. The frequency of these output pulses thus depends upon the number stored in the register. By properly selecting the number, this frequency can be varied widely and yet it has the stability of the fixed crystal oscillator.



3,568,070
DECADE-TYPE FREQUENCY DIVIDER

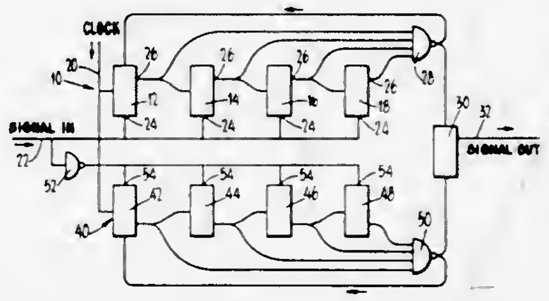
Gerhard Kaps, and Heinz-Peter Kunert, Hamburg, Germany, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 5, 1968, Ser. No. 719,035
Claims priority, application Germany, June 23, 1967, P42436
Int. Cl. H03k *21/16*
U.S. Cl. 328—42 **3 Claims**



A frequency divider operating in cascaded decades with selection switches adjustable for selecting from each decade the desired control signal and a gating network for combining the outputs of the respective decade switches for producing a time uniform divided pulse sequence.

3,568,071
DIGITAL FILTER

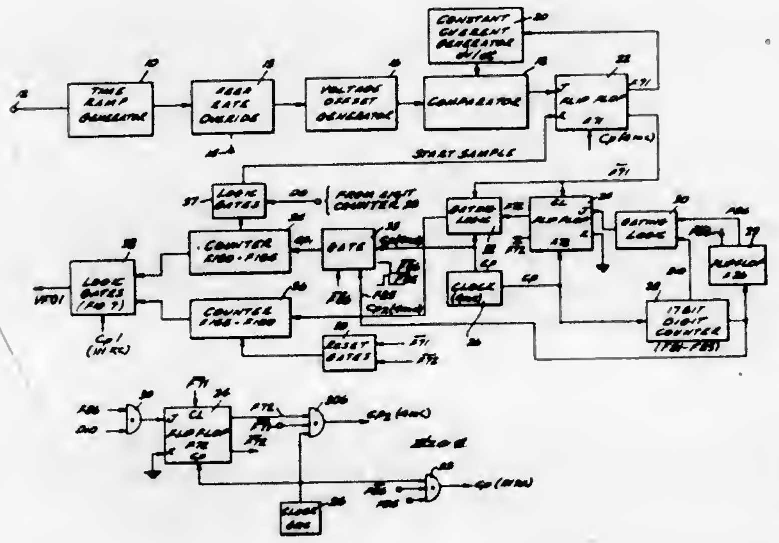
Beat A. Kocher, Alameda, Calif., assignor to The Singer Company
Filed Oct. 21, 1968, Ser. No. 769,096
Int. Cl. H03k *21/32*
U.S. Cl. 328—48 **1 Claim**



In a system for accepting each change of signal level as part of a message pulse only if it persists for a prescribed time, that time is measured with a high-speed counter to give high precision and to reduce the jitter that is imposed on the recovered message. A separate counter for each input signal level runs in response to that level and is reset in response to the other level. On reaching a prescribed count it passes a signal to an output flip-flop.

3,568,072
MACHINE TOOL CONTROL SYSTEM

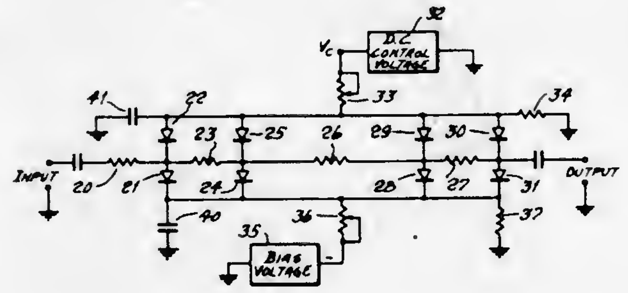
Harvey J. Rosener, Torrance, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed June 24, 1968, Ser. No. 739,421
Int. Cl. H03k *17/02*
U.S. Cl. 328—71 **7 Claims**



A machine tool control system for producing a pulse train for controlling a servo in an axis of a machine tool, in which an adjustable voltage-to-time period converter is used to control a time period-to-pulse converter for producing the pulse train. Two counters are employed for controlling enabling of an output gate. One counter is driven by pulses at the system clock rate, about 4 megacycles, and the other counter is driven by pulses at a frequency of about one thirty-fourth of the clock rate. Logic circuits controlled by the voltage-to-time period converter control the gating of the different frequency pulses to the respective counters. The lower frequency pulses only are gated by the output gate.

3,568,073
LOGARITHMIC ATTENUATOR

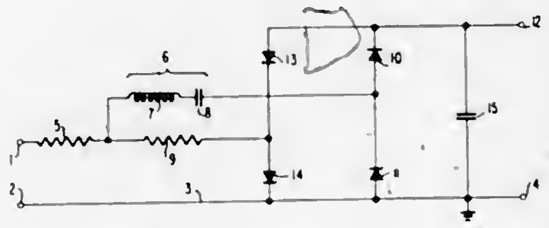
William G. McGuffin, Willingboro, N.J., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 9, 1968, Ser. No. 758,458
Int. Cl. G06g *7/24*
U.S. Cl. 328—145 **3 Claims**



The logarithmic attenuator disclosed consists of a cascade of L-sections, each section comprising a series resistor and a shunt impedance formed by a parallel pair of forwardly biased diodes. These diodes are in series with a control voltage and consequently share a common control current. One of the diodes serves to isolate the input signal form the low impedance control voltage source, thereby allowing this voltage to be applied directly to the diodes so as to preserve their logarithmic characteristic.

3,568,074
FREQUENCY-SENSITIVE CIRCUIT

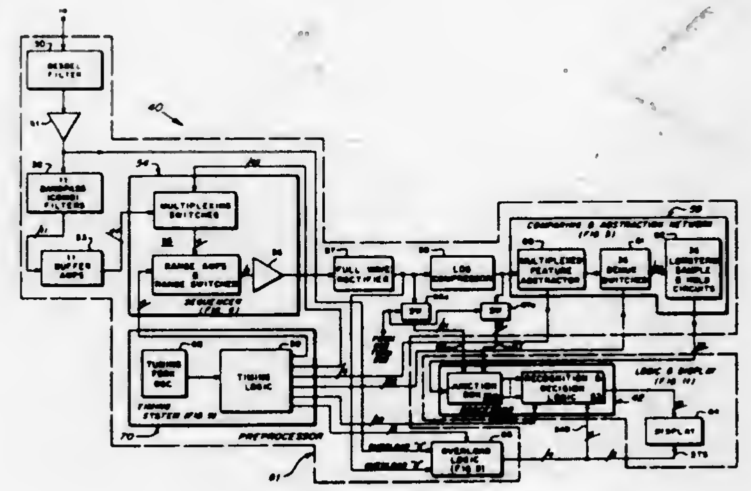
James W. Carroll, Waynesboro, Va., assignor to General Electric Company
Filed Aug. 1, 1968, Ser. No. 749,511
Int. Cl. H03b *3/04*; **H03k** *5/20*
U.S. Cl. 328—140 **6 Claims**



An AC input signal is divided between two branch circuits, one comprising an LC series resonance circuit in series connection with a first unidirectional current device, and the other comprising a resistor in series connection with a second unidirectional current device poled opposite to the first unidirectional current device. The two branch circuits are connected in parallel to a common output terminal. A nonpolarized capacitor is connected between the output terminal and an electrical reference or ground to bypass to ground the AC voltage component that otherwise would exist at the output terminal, and to provide a smooth DC signal having one polarity when the frequency of the AC input signal is within a predetermined frequency range and an opposite polarity when the frequency is outside the predetermined frequency range.

3,568,075
FEATURE ABSTRACTOR

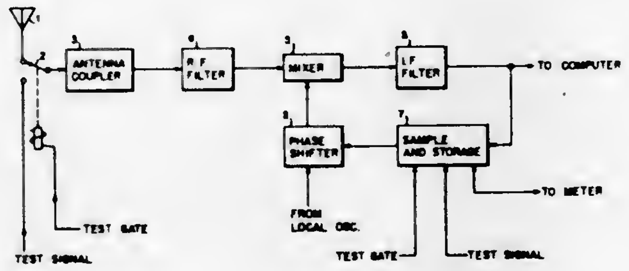
George J. Dusheck, Jr., Cinnaminson, N.J.; Thomas P. Kelley, Cornwells Heights, Pa., and Phillips B. Scott, Haddonfield, N.J., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 3, 1969, Ser. No. 788,809
Int. Cl. G01r *23/00*
U.S. Cl. 328—146 **8 Claims**



A feature abstractor producing an output signal indicative of the amplitude slope of sequentially sampled amplitude-time-frequency domain signals. This is obtained by taking the differences between successive pulses and applying such differences to the inputs of neuron gates. The neuron gates detect when two successive pulses are of the same polarity and provide an output indicative of the lesser of the two successive pulses.

3,568,076
RECEIVER PHASE SHIFT STABILIZER

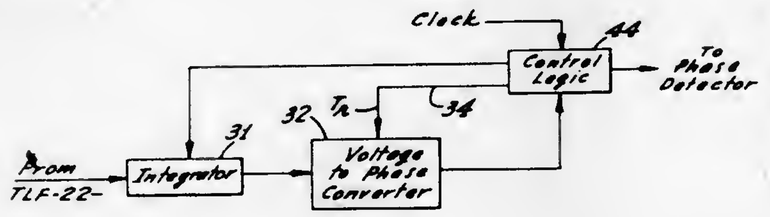
Alexander F. Thornhill, Accokeek, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 2, 1969, Ser. No. 789,097
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **5 Claims**



The invention consists of a radio receiver phase shift stabilization system which operates by intermittently directing a test signal through the receiver, measuring the phase shift of the signal, storing this information and thereafter compensating for any subsequent change in phase shift.

3,568,077
PSEUDO VOLTAGE CONTROLLED OSCILLATOR

Yoshiaki Fujimoto, Gardena, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
Filed Sept. 3, 1968, Ser. No. 756,923
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **6 Claims**

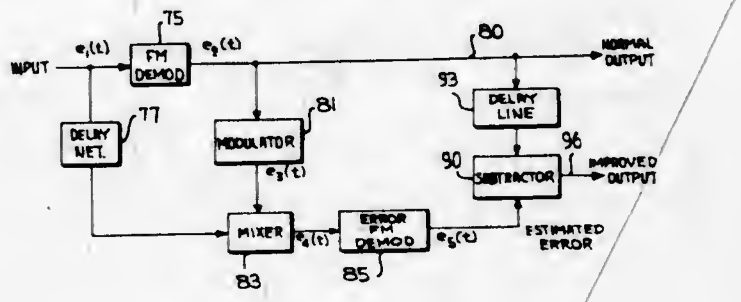


For use in a VLF navigation system, such as the Omega Navigation system, a phase tracking loop in a receiver receives incoming signals from transmitting stations. The tracking loop contains four electronically controlled pseudo voltage-controlled oscillators, to eliminate the need for all but one master crystal oscillator, whose outputs provide necessary signals within the receiver. The pseudo oscillator comprises an integrator and a voltage-to-phase converter using an external clock pulse input and suitable control logic. The voltage-to-phase converter comprises a one-shot multivibrator in which the delay time is proportional to the input signal level. Thus, the periods between return times of the one-shot multivibrator to its original state provide a frequency which is controlled by input voltage level. When the phase-shift range exceeds ± 90°, the trigger pulse to the one-shot multivibrator is advanced or delayed, and the integrator is reset to zero.

3,568,078
FM DEMODULATORS WITH SIGNAL ERROR REMOVAL

Guy Majella Pelchat, Indialantic, Fla., assignor to Radiation Incorporation, Melbourne, Fla.
Filed Dec. 23, 1968, Ser. No. 785,934
Int. Cl. H03d *3/00*
U.S. Cl. 329—110 **6 Claims**

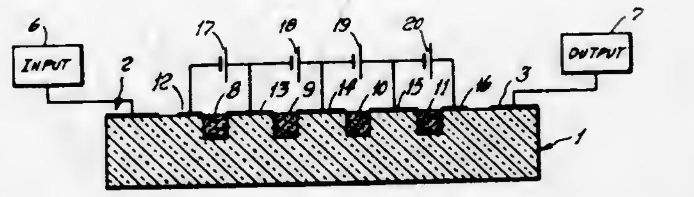
An FM demodulator system for improved reception of FM signals at low input signal-to-noise ratios by estimation of the error in the demodulated signal and subtraction of



this estimated error from the demodulator output to provide a stronger output.

3,568,079
ACOUSTIC SIGNAL AMPLIFIER

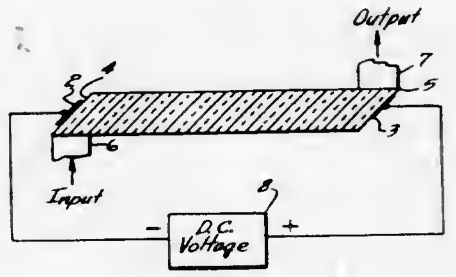
Max N. Yoder, Washington, D.C., assignor to the United States of America, as represented by the Secretary of the Navy.
Filed Apr. 24, 1969, Ser. No. 819,059
Int. Cl. H03f *3/04*
U.S. Cl. 330—5.5 **4 Claims**



There is disclosed a microwave ultrasonic amplifier employing a piezoelectric semiconductor element fabricated with alternate amplifying and insulating sections. The insulating sections are included to periodically attenuate undesired, higher frequency, out of band phonon signals which would otherwise build up and saturate the amplifier. The coherent signals, because of their lower frequency, are not appreciably attenuated in these sections and, consequently, their amplitude is progressively increased in each amplifying section.

3,568,080
SELF-TRANSDUCING ULTRASONIC AMPLIFIER

Ronald R. Troutman, Rustic Drive, Essex Junction, Vt. 05452
Filed July 23, 1969, Ser. No. 844,130
Int. Cl. H03f *3/04*
U.S. Cl. 330—5.5 **5 Claims**

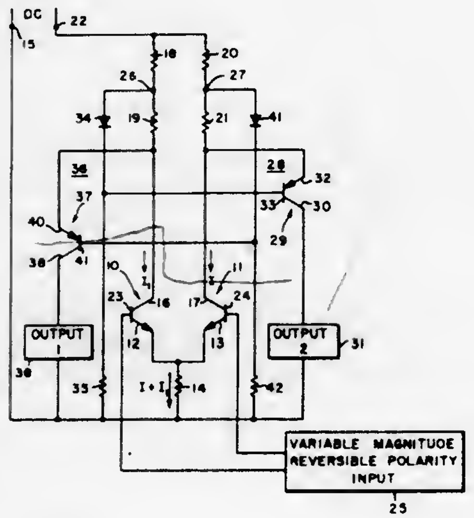


There is disclosed an ultrasonic amplifier for use with microwave signals which does not require transducer elements. A piezoelectric semiconductor element containing current carriers cooperates with a pair of waveguide sections. The microwave signal at the end of one of these sections generates an acoustic signal in the piezoelectric semiconductor element which is amplified by drifting current carriers as it travels down the element. The acoustic signal thereafter excites an electromagnetic signal at the start of the other waveguide section.

3,568,081

DIFFERENTIAL AMPLIFIER WITH PREDETERMINED DEADBAND

Balthasar H. Pinckaers, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Sept. 9, 1968, Ser. No. 758,276
Int. Cl. H03f *3/68*
U.S. Cl. 330—30 **6 Claims**

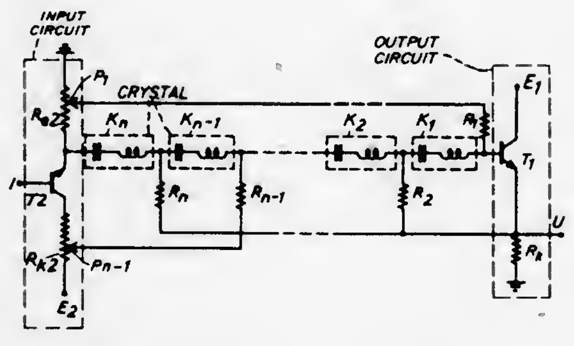


A differential amplifier, having a first and a second transistor, each transistor having two series-connected resistors connected to the collector, and having two output transistors; one of the output transistors having its base connected through a temperature compensating diode to the junction of the two resistors which are connected to the collector of the first differential amplifier transistor, and having its emitter connected to the collector of the second differential amplifier transistor; and the other of the output transistors having its base connected through a temperature compensating diode to the junction of the two resistors which are connected to the collector of the second differential amplifier transistor, and having its emitter connected to the collector of the first differential amplifier transistor.

3,568,082

ACTIVE CRYSTAL FILTER WITH A TRANSFER FUNCTION OF A WANTED DEGREE

Tore Torstensson Fjallbrant, Fjaras, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Sept. 3, 1968, Ser. No. 757,057
Claims priority, application Sweden, Sept. 11, 1967, 12,526/67
Int. Cl. H03f *3/04*
U.S. Cl. 330—31 **7 Claims**

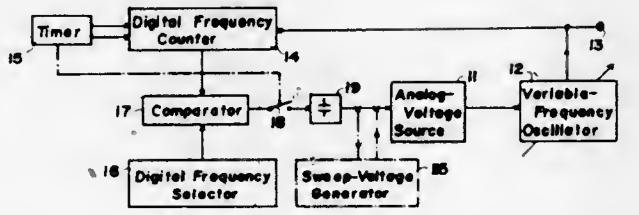


An active band pass filter includes a plurality of serially connected crystals which connect the input of the filter to an emitter-follower amplifier. A first plurality of resistors connected at alternate junctions of the crystals to the output of the amplifier and a second plurality of resistors connect the remaining junctions of the crystals to a signal level means which has a level different from the output of the amplifier.

3,568,083

VARIABLE FREQUENCY GENERATOR WITH TIMER-CONTROLLED AUTOMATIC FREQUENCY CONTROL LOOP

Peter Harzer, Eningen Unter Achalm, Germany, assignor to Wandel U. Goltermann Elektronische Prazisionsmessgerate, Reutlingen, Germany
Filed Oct. 23, 1968, Ser. No. 770,001
Claims priority, application Germany, Oct. 24, 1967, P 15 91 819.1
Int. Cl. H03b *3/04*
U.S. Cl. 331—4 **7 Claims**

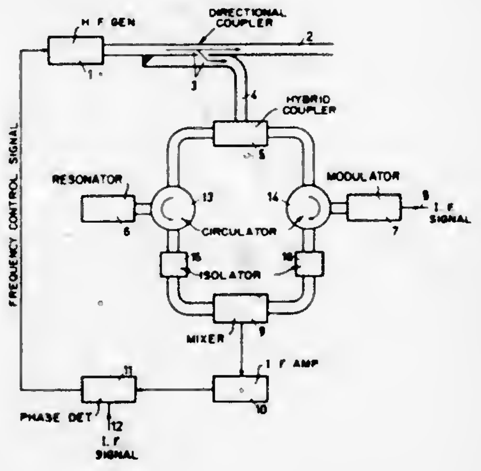

Timer
Digital Frequency Counter
15
14
13
12
11
19
17
Comparator
18
Analog-Voltage Source
Variable-Frequency Oscillator
16
Digital Frequency Selector
Sweep-Voltage Generator

Decadic frequency generator wherein the output of an adjustable oscillator is evaluated in a digital frequency counter whose count, together with a signal from a manually settable digital frequency selector, is applied to a comparison circuit; in response to any disparity between the count and the selector signal, an analogue voltage is applied to a control circuit of the oscillator to effect a corrective adjustment.

3,568,084

CIRCUIT FOR CONTROLLING THE FREQUENCY OF A HIGH FREQUENCY GENERATOR

Maximiliaan Hubert Bodmer, Hengelo, Netherlands, assignor to N. V. Hollandse Signaalapparaten, Hengelo, Netherlands
Filed Dec. 26, 1968, Ser. No. 787,047
Claims priority, application Netherlands, Jan. 4, 1968, 6800097
Int. Cl. H03b *3/04*
U.S. Cl. 331—9 **10 Claims**



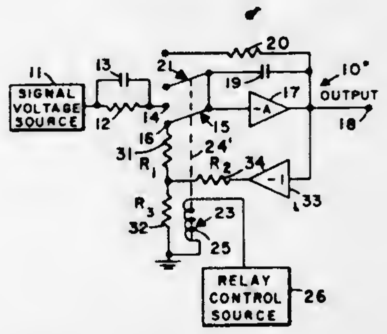
The output of an oscillator is applied to two transmission paths having equal electrical and physical lengths. The first path contains a resonator of a selected frequency; the second path an I. F. modulator. The outputs of the two paths are mixed and then phase detected producing a signal which controls the frequency of the oscillator, setting it to the selected frequency.

3,568,085

FREQUENCY SHORT INTERVAL SAMPLE AND LONG PERIOD FREQUENCY HOLD CIRCUIT

Vladimir J. Pimenoff, Scarborough, Ontario, Canada, assignor to Collins Radio Company of Canada Ltd., Cedar Rapids, Iowa
Filed Oct. 7, 1968, Ser. No. 765,335
Int. Cl. H03b *3/04;* **H03f** *1/34, 3/68*
U.S. Cl. 331—14 **11 Claims**

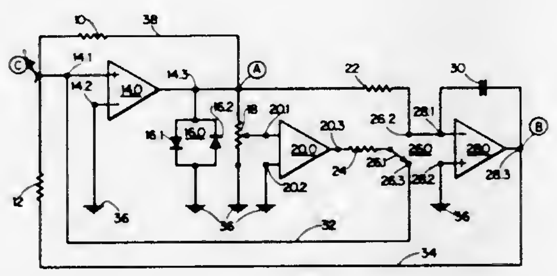
A frequency determined voltage short interval sample and long period frequency hold circuit with a dual feedback amplifier circuit alternatively switchable between a first feedback path with simultaneous connection for sampling an input signal voltage and a second feedback path for relatively long hold intervals; and with the first feedback path providing normal gain during the relatively short sample intervals and with the second feedback path including an amplifier and providing substantially zero gain around the amplifier loop.



3,568,086

OSCILLATOR SYSTEM

Kenneth E. Perry, Wayland, Mass., assignor to EG & G International, Inc., Bedford, Mass.
Filed May 29, 1969, Ser. No. 828,930
Int. Cl. G01n *27/18*
U.S. Cl. 331—65 **6 Claims**

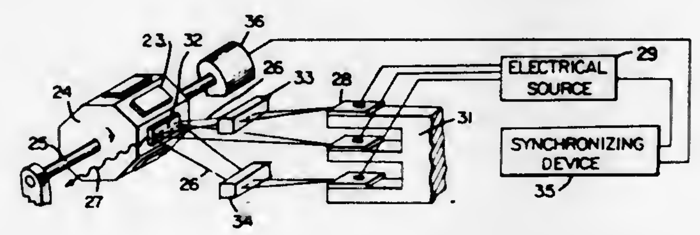


An oscillator system embodying a zero-crossing detector and a ramp generator, the combination connected to provide either a frequency or a period measurement that varies substantially proportionally with the setting of a sensor or other attenuating device.

3,568,087

OPTICALLY PUMPED SEMICONDUCTOR LASER

Robert J. Phelan, Jr., Concord, Mass., and Robert H. Rediker, Newton, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Filed July 16, 1965, Ser. No. 472,536
Int. Cl. H01s *3/18*
U.S. Cl. 331—94.5 **1 Claim**

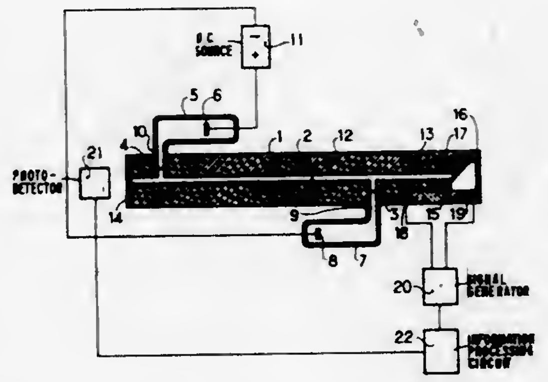


A semiconductor laser is provided including a body of semiconductor material enclosed within an optical cavity the reflectors of which may be formed by the ends of the body and an intense beam of electromagnetic energy is directed to at least a portion of the body of semiconductor material between the reflectors, the intensity being sufficient to produce an inverted population of energy states within the material accompanied by direct transitions of energy states from an elevated state to a lower state producing radiation which is amplified within the optical cavity by the process of stimulation producing a beam of coherent radiation which is launched from the body.

3,568,088

LASER WITH IMPROVED POWER AND FREQUENCY STABILITY

Benjamin Dessus, Paris, France, assignor to Compagnie Generale D'Electricite, Paris, France
Filed Mar. 18, 1968, Ser. No. 713,676
Claims priority, application France, Mar. 31, 1967, 101126
Int. Cl. H01s *3/10*
U.S. Cl. 331—94.5 **4 Claims**

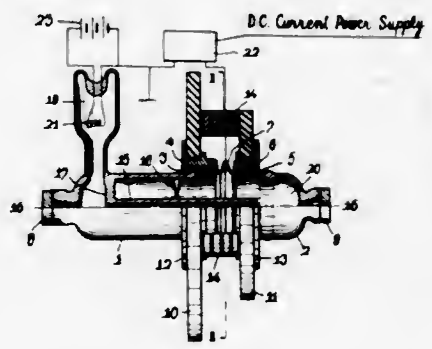


In a laser consisting of a quartz laser tube closed at the anode end by a mirror normal to the tube axis and at the cathode end by a glass plate having parallel faces and defining with the axis of the tube an angle equal to the Brewster angle, a second mirror disposed normal to the axis of the tube at the cathode end and fixed thereto by a sleeve fitted to the quartz tube.

3,568,089

INTERNAL MIRROR GAS LASER DISTANCING APPARATUS, LOW VOLTAGE STABLE DISCHARGE DEVICE, AND FREQUENCY MODULATION MEANS

Keiichi Tanaka, Tokyo, Japan, assignor to Agency of Industrial Science & Technology, Chiyoda-ku,Tokoyo, Japan
Filed July 8, 1968, Ser. No. 743,154
Claims priority, application Japan, July 11, 1967, 42/44155
Int. Cl. G01b *9/02*
U.S. Cl. 331—94.5 **4 Claims**

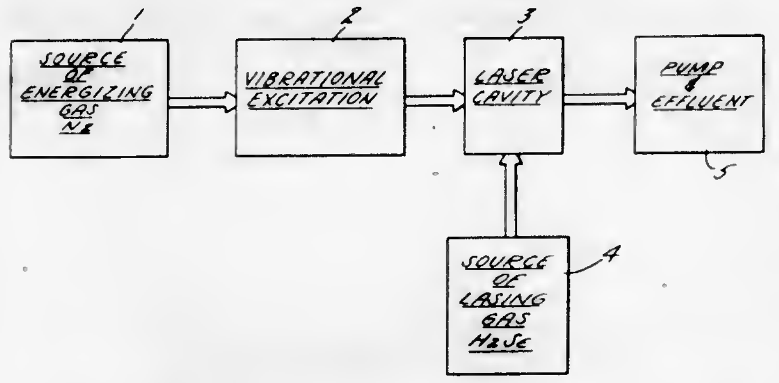


An apparatus for use in a gas laser having internal mirrors comprising an electric discharge tube, a cathode chamber operatively connected with one end of the electric discharge tube, an anode chamber operatively connected to the other end of the discharge tube, and two reflecting mirrors one mounted on the wall of the cathode chamber and the other on the wall of the anode chamber and aligned opposite one another in the direction of the axis of the electric discharge tube. An anode means forms the wall of the anode chamber and surrounds the other end of the electric discharge tube and varies the length of the anode chamber in the axial direction. Means are provided for varying the length of the anode means.

3,568,090
NITROGEN-HYDROGEN SELENIDE LASER (U)

Barry R. Bronfin, Weathersfield, Conn., and Daniel J. Seery, Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 23, 1968, Ser. No. 786,490
Int. Cl. H01s *3/22*
U.S. Cl. 331—94.5 **3 Claims**

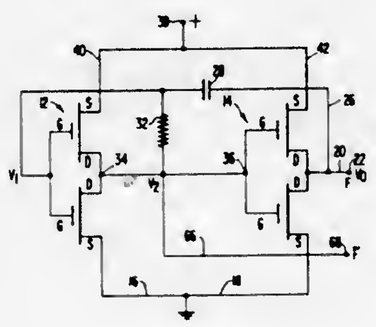


A gas laser utilizes vibrationally excited nitrogen as an energizing gas and, through resonant collisions with a lasing gas, transfers the energy to the lasing gas, preferentially to an upper laser energy level. The lasing gas is, hydrogen selenide, which is preferably introduced directly into the laser cavity free of prior excitation so as to avoid molecular dissociation. Laser energy at 7.86 and 49.6 microns is produced.

3,568,091
ASTABLE MULTIVIBRATOR USING TWO COMPLEMENTARY TRANSISTOR PAIRS

Charles H. Rahe, II, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Feb. 26, 1969, Ser. No. 802,571
Int. Cl. H03b *5/36;* **H03k** *3/282*
U.S. Cl. 331—113 **18 Claims**



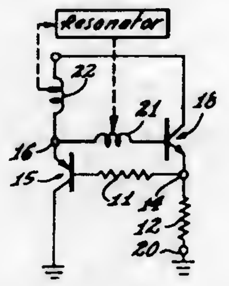
Disclosed is a multivibrator for use as a time standard in a wristwatch or other small timepiece. The multivibrator comprises a pair of inverters each including complementary insulated gate field effect transistors. When one transistor in an inverter switches on the other switches off, thus minimizing power drain. A simplified single timing circuit controls the multivibrator half periods and the multivibrator may be synchronized with the natural frequency or some subharmonic of a quartz crystal.

3,568,092
OSCILLATOR DRIVER

Ronald P. Kluss, Santa Barbara, Calif., assignor to Spectrum Technology, Inc., Goleta, Calif.

Continuation-in-part of application Ser. No. 694,726, Jan. 2, 1968. This application Mar. 17, 1970, Ser. No. 20,306
Int. Cl. H03b *5/36*
U.S. Cl. 331—116 **7 Claims**

A circuit for use as regenerative drive circuit for a mechanical resonator, using two complementary transistors, the base of each connected to the emitter of the respective other one

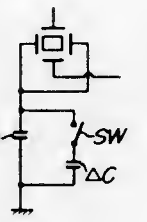


for forming a loop which includes a sensing coil. The collector-emitter path of one of the transistors includes a drive coil.

3,568,093
TEMPERATURE COMPENSATED OSCILLATOR USING TEMPERATURE CONTROLLED CONTINUAL SWITCHING OF FREQUENCY DETERMINING IMPEDANCE

Fujio Ishida, Kokubunji-shi, and Yoshiaki Kato, Higashimurayama-shi, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1968, Ser. No. 786,153
Claims priority, application Japan, Jan. 31, 1968, 43/5921
Int. Cl. H03b *3/04, 5/36*
U.S. Cl. 331—116 **6 Claims**

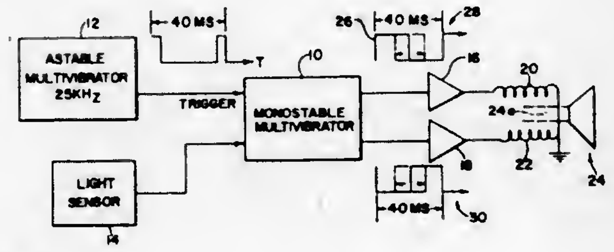


Method of and device for compensating the temperature variation in the oscillation frequency of an oscillator wherein an impedance element, for example, a capacitor coupled to the oscillator is switched between two levels of its value, whereby the temperature variation is compensated for on an average.

3,568,094
PULSE WIDTH MODULATOR

Lenard M. Metzger, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 23, 1968, Ser. No. 754,933
Int. Cl. H03k *7/08*
U.S. Cl. 332—9 **7 Claims**

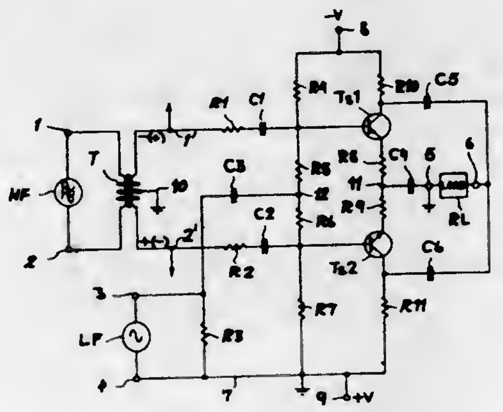


A pulse width modulation sound reproduction system includes a monostable multivibrator which is switched at the beginning of each cycle of a super-audio input provided by an astable or free-running multivibrator. An audio frequency input determines the time during which the monostable multivibrator remains in its unstable state; the output of the monostable multivibrator is fed to a loudspeaker. In one embodiment, logic circuitry connected between the outputs of the astable and monostable multivibrators disconnects the load when the input is below a predetermined level so as to increase the efficiency of the system.

3,568,095
SELF-BALANCING MODULATOR FOR SUPPRESSION OF CARRIER WAVE

Giovanni Cordalis, Milan, Italy, assignor to Societa' Italiana Telecommunicazioni Siemens S. p. A., Milan, Italy

Filed Oct. 16, 1968, Ser. No. 768,055
Claims priority, application Italy, Oct. 19, 1967, 21756-A/67
Int. Cl. H03c *3/26, 1/52*
U.S. Cl. 332—24 **7 Claims**

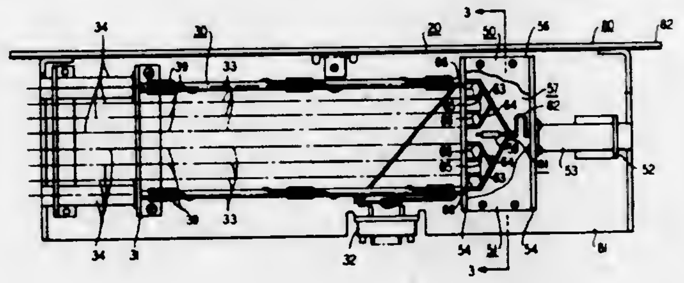


Two transistors of opposite conductivity types are connected back-to-back, with their emitters confronting each other, across a source of DC driving voltage for push-pull energization by a carrier wave and parallel energization by an applied low frequency modulating signal. A condenser connected to the junction of the two emitter leads differentially biases the transistors to compensate for unsymmetrical conductivity.

3,568,096
APPARATUS FOR AUTOMATICALLY SWITCHING HIGH FREQUENCY SIGNALS

Ronald W. Kordos, North Andover, Mass., and Thomas A. McCurdy, Columbus, Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 11, 1969, Ser. No. 848,951
Int. Cl. H01p *5/12, 3/08;* **H03h** *7/38*
U.S. Cl. 333—7 **14 Claims**



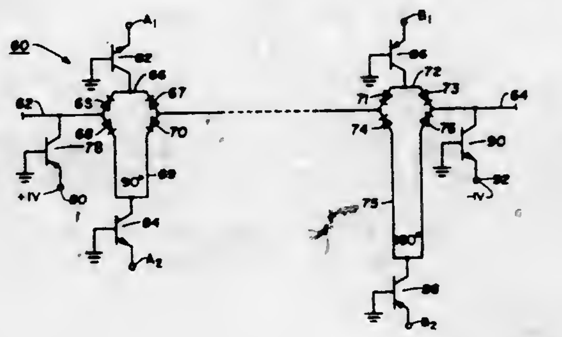
A device for establishing a high frequency signal conducting path between two groups of transmission lines is disclosed which contains cable switches and a strip line assembly. Both the cable switches and the strip line assembly are joined to each other at one end and at the opposite end one is joined to one transmission line group while the other is joined to the second transmission line group.

3,568,097
SWITCHED LINE LENGTH PHASE SHIFT NETWORK FOR STRIP TRANSMISSION LINE

Tom M. Hyltin, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of application Ser. No. 805,900, Mar. 10, 1969, which is a continuation of application Ser. No. 606,425, Dec. 30, 1966. This application Nov. 18, 1969, Ser. No. 871,677
Int. Cl. H01p *1/10, 1/18*
U.S. Cl. 333—7 **4 Claims**

A diode switched line length phase shift network utilizing alternately directed diodes to reduce the number of DC biasing paths required to selectively switch the line length in various combinations into the circuit and the utilization of the

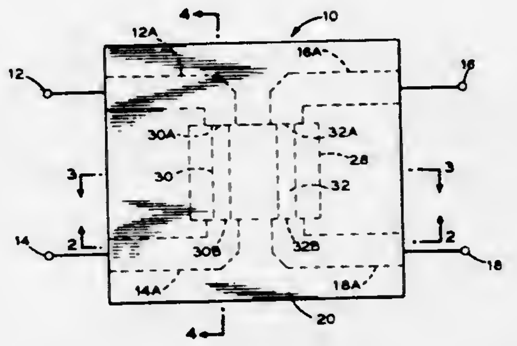


low capacitance and high dynamic collector resistance of a transistor to apply a DC bias to the switching diodes of the phase shift circuit.

3,568,098
MICROWAVE STRIPLINE DEVICES

Carl W. Gerst, Skaneatles, N.Y., assignor to Anaren Microwave, Incorporated, Syracuse, N.Y.

Filed June 23, 1969, Ser. No. 835,693
Int. Cl. H01p *5/14*
U.S. Cl. 333—10 **3 Claims**

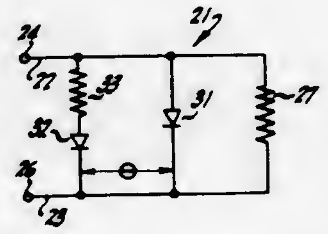


There is disclosed microwave stripline devices wherein a pair of parallel striplike signal conductors electromagnetically coupled and in one plane and a planar field modifying element in another plane are disposed between a pair of spaced ground plane elements. In one variation, signal terminals are connected to each end of each signal conductor to provide a backward wave coupler. In another variation signal terminals are connected to one end of each signal conductor, respectively, and the other ends of each signal conductor are interconnected to provide a phase shifter.

3,568,099
MATCHED MICROWAVE LIMITER

Gene Chao, Menlo Park, Calif., assignor to Textron, Inc., Belmont, Calif.

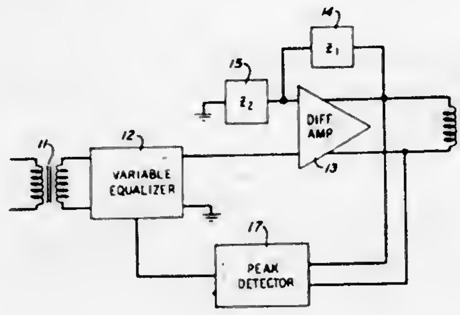
Filed Apr. 21, 1969, Ser. No. 817,646
Int. Cl. H04b *3/04;* **H03h** *7/38;* **H01n** *1/22*
U.S. Cl. 333—17 **6 Claims**



An improved limiter for microwave circuits to remove voltage applied to a load when the voltage amplitude exceeds a predetermined value without reflections in the circuit. A pair of voltage sensitive switches are connected across a circuit with one switch in series with an insert impedance substantially equal to line impedance. The switches are separated by an impedance inverter to effectively apply a very large impedance across the insert impedance to prevent R-F reflection in the limiting mode.

3,568,100
AUTOMATIC EQUALIZER FOR DIGITAL TRANSMISSION SYSTEMS

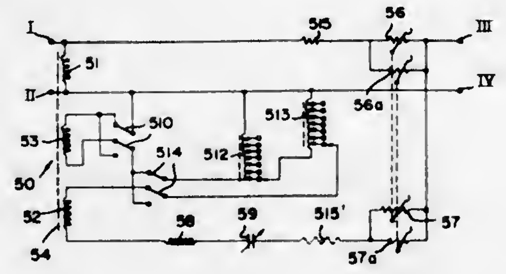
Richard A. Tarbos, North Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Dec. 26, 1967, Ser. No. 693,452
Int. Cl. H04b *3/04*
U.S. Cl. 333—18 **7 Claims**



An automatic equalizer for digital transmission systems includes a variable equalizing network having a transfer characteristic with substantially flat loss, a fixed pole, and a variable zero, an amplifier connected to receive the output from the equalizing network and having substantially flat gain and a fixed zero substantially coincident in frequency with and canceling the fixed pole of the equalizing network, and a peak detector connected to receive the output from the amplifier and control both the flat loss and the frequency of the variable zero of the equalizing network.

3,568,101
EQUALIZING NETWORK

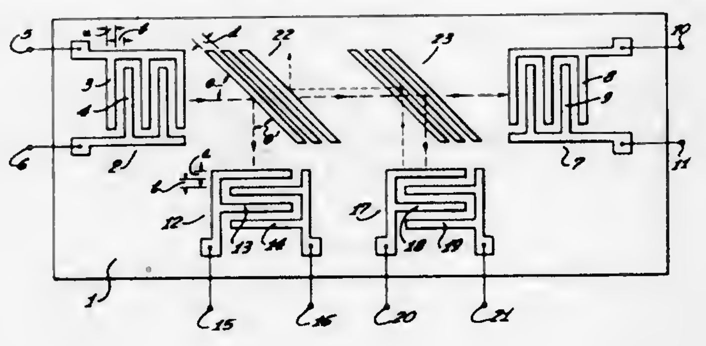
Karl Heinz Feistel, Eningen, Germany, assignor to Wandel u. Goltermann Rundfunk-und Messgeratewerk, Fernmelde-Anlagen, Postfach, Reutlingen, Germany
Filed Apr. 28, 1969, Ser. No. 819,894
Claims priority, application Germany, Apr. 27, 1968, P 17 62 201.4
Int. Cl. H03h *5/08, 7/10, 9/00*
U.S. Cl. 333—28 **10 Claims**



An equalizing network for correcting delay and amplitude distortions has four bridge arms, including a first arm and a second arm constituted by different winding sections of an auto transformer. The first arm, connected across a source of input signal and a third arm in series therewith lie on one side of an output diagonal while the second arm lies on the other side of that diagonal in series with a fourth arm. The second arm is subdivided into two subsections respectively provided with $n\eta$ and $un(1+\eta)$ turns where n is the number of turns of the first section and u is a turn ratio related to a desired degree of attenuation to be introduced. The third and fourth arms include respective resistors R_1 and R_2 with magnitudes in the $R_2/R_1=\eta$ ganged for concurrent adjustment to vary the phase shift, a tunable resonant circuit being included in one of these latter arms in the form of either a series-resonant circuit in line with R_2 or a parallel-resonant circuit in shunt with R_1.

3,568,102
SPLIT SURFACE WAVE ACOUSTIC DELAY LINE

Chin Chong Tseng, San Carlos, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif.
Filed July 6, 1967, Ser. No. 651,530
Int. Cl. H03h *7/30*
U.S. Cl. 333—30 **17 Claims**

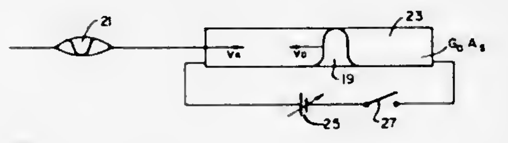


An acoustic delay line having an input and a plurality of output transducers is provided which includes at least one reflective grating, a plurality of adjacent spaced conductive strips, coupled to the surface of a piezoelectric layer for splitting an acoustic surface wave traveling across the surface of the piezoelectric layer into two components, one of which continues to travel in the original direction and the other of which travels skew to that direction. Each of the original and reflected portions are detected by the output transducers.

Significantly, the reflective grating affords the basis for multiple output delay lines of various apparent applications, of structural simplicity and of minimal interference between input and output transducers.

3,568,103
A SOLID STATE ACOUSTIC VARIABLE TIME DELAY LINE

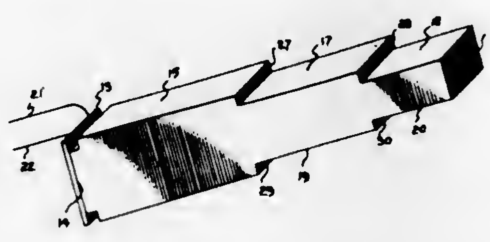
Thomas M. Fitzgerald, Framingham, Mass., assignor to the United States of America as represented by the administrator of the National Aeronautics and Space Administration
Filed Sept. 6, 1968, Ser. No. 757,857
Int. Cl. H03h *9/16, 9/30*
U.S. Cl. 333—30 **5 Claims**



This disclosure describes a solid-state variable time delay line. A DC voltage applied to the longitudinal axis of piezoelectric material creates a high field domain that propagates along said axis from one end of the material to the other end. An RF pulse is applied to the end of the material toward which the high field domain is traveling. The RF pulse generates an acoustic wave that travels toward the high field domain. When the acoustic wave reaches the high field domain, it is reflected by the moving high field domain back toward the end of the material to which the RF pulse is applied. The total time delay is the time it takes for the acoustic wave to reach the high field domain and be reflected back to the RF input end of the material. Hence, by varying the time relationship between the creation of the moving high field domain by the DC voltage and the application of the RF pulse, a variable time delay is provided.

3,568,104
SONIC DELAY LINE DEVICE

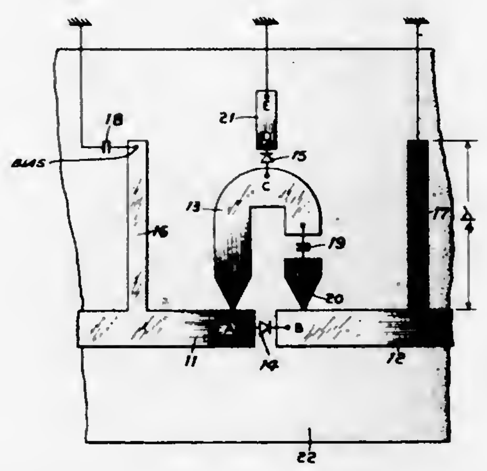
Francis M. Bailey, Roanoke, Va., assignor to General Electric Company
Filed Dec. 20, 1968, Ser. No. 785,520
Int. Cl. H03h *9/30;* **H03k** *13/00*
U.S. Cl. 333—30 **5 Claims**



A multifaced rod of acoustical transmitting material, for use with an object identifying apparatus, has attached to one of its ends a piezoelectric element. Preselected faces of the rod are at spaced intervals, slotted, or notched, perpendicular to the axis of the rod and to the face in which they are cut. An acoustical wave produced by the piezoelectric element in response to an electrical signal is reflected by each of the notches in turn. The resulting echoes are received by the piezoelectric element which in response thereto produces a coded representation of the identity of the object to be identified.

3,568,105
MICROSTRIP PHASE SHIFTER HAVING SWITCHABLE PATH LENGTHS

Robert A. Felsenheld, Livingston, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Mar. 3, 1969, Ser. No. 803,793
Int. Cl. H01p *1/10, 1/18*
U.S. Cl. 333—31 **8 Claims**

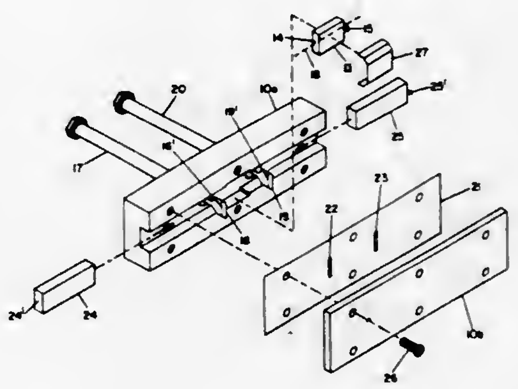


A microstrip phase shifter is inserted in a waveguide aperture, the phase shifting network consists of lightweight transmission line sections which can be switched by microwave diodes to provide the required phase shift. The diodes are switched in pairs, forward or back biased, so that the wave will traverse through a given path to complete the phase shifting according to the switched pair of the diodes.

3,568,106
MAGNETOSTATIC DELAY LINE

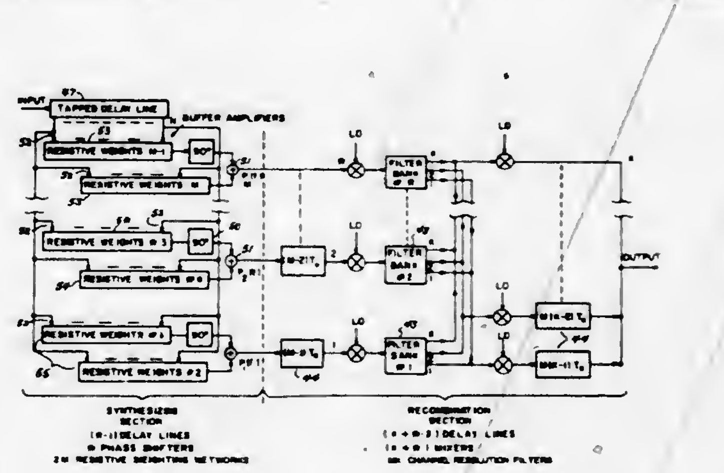
Richard La Rosa, South Hempstead, and Carmine F. Vasile, Greenlawn, N.Y., assignors to Hazeltine Corporation
Filed Sept. 17, 1969, Ser. No. 858,587
Int. Cl. H03h *7/30* **H01o** *9/00*
U.S. Cl. 333—31 **13 Claims**

A wide band magnetostatic delay line having a sample of single crystal yttrium iron garnet (YIG) positioned in an axial bias field. The YIG sample is enclosed in a cutoff waveguide and separated from the walls of the guide by several guide wavelengths, measured in the YIG sample. The input and output probes are backed up by polycrystal YIG pieces which cause the bias field to be substantially uniform in the single crystal YIG. The uniform bias field causes a magnetostatic wave to propagate with a substantially constant wavelength. The polycrystal YIG backup pieces also serve to provide substantially uniform permeability to the electromagnetic fields associated with the input and output probes in order to provide efficient coupling over a wide bandwidth. Longer delays are made possible by cascading several single crystal YIG pieces along their longitudinal axis.



3,568,107
METHOD AND APPARATUS FOR EFFECTING TAPPED DELAY LINE SYNTHESIS OF LARGE TIME BANDWIDTH FILTERS

Ronald D. Haggarty, Wayland, Mass.
Filed Sept. 9, 1969, Ser. No. 856,413
Int. Cl. H03h *7/10, 7/38*
U.S. Cl. 333—70 **7 Claims**

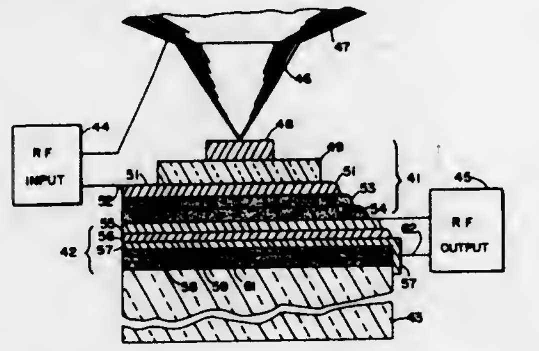


The present invention comprehends a method and apparatus for the design of large time bandwidth product linear filters by tapped delay line filter synthesis techniques. A periodic transfer function is selected which has a linear time delay characteristic and an amplitude versus frequency characteristic which, in combination wi[illegible] transfer functions in proper phase relationship pro[illegible] a filter with a constant resultant amplitude versus frequency characteristic and a linear time delay characteristic. A plurality of sequences of pulses are generated by a tapped delay line. The number of pulses in each sequence is equal to the number of Fourier harmonics of the selected periodic transfer function. They are weighted with appropriate Fourier coefficients and are combined to form a plurality of synthesized periodic transfer functions that conform to the selected transfer function. The synthesized periodic transfer functions are divided into constituent components defined by various frequency bands (or periods). The constituent components are relatively delayed and recombined to effect the composite filter having an extremely large time bandwidth product.

3,568,108
THIN FILM PIEZOELECTRIC FILTER

Armand R. Poirier, Nashua, N.H., and Terry F. Newkirk, Lynnfield, Mass., assignors to Sanders Associates, Inc., Nashua, N.H.
Original application July 24, 1967, Ser. No. 655,461, now Patent No. 3,422,371. Divided and this application May 31, 1968, Ser. No. 751,635
Int. Cl. H03h *9/26*

U.S. Cl. 333—72 **5 Claims**

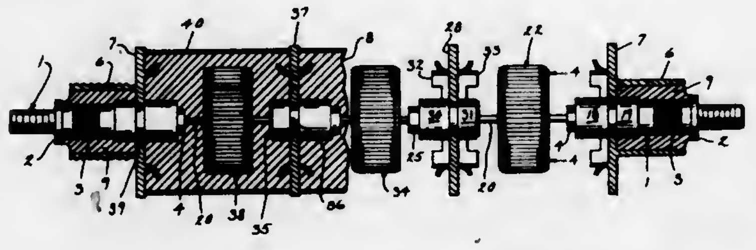


A thin film piezoelectric filter comprises a plurality of coaxially disposed resonators; each having a different but overlapping frequency-amplitude characteristic. The individual resonators are separated from one another by a selectively transmissive structure such that high-frequency acoustic waves produced in a first resonator are coupled in part to an adjacent resonator.

3,568,109
VARIABLE OR LOW PASS FILTER

Richard F. Neuens, Silver Spring, Md., assignor to Allen-Bradley Company, Milwaukee, Wis.
Filed May 2, 1968, Ser. No. 725,979
Int. Cl. H03h *5/06*

U.S. Cl. 333—79 **8 Claims**



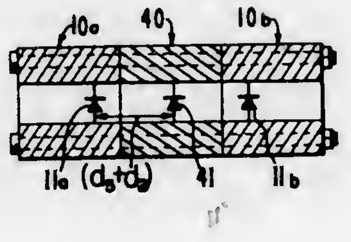
A low pass filter for insertion between two circuits, such as a power supply and a load circuit, that blocks the passage from one circuit to the other of radio frequencies above a given pass band, and which continues to function as a satisfactory filter under the condition of reactive components in the power supply and load circuits being close to resonant values with reactive elements in the filter. The filter comprises a π network having a series line extending between the network input and output ends that includes an inductive circuit element, and shunt lines branching from the series line that include capacitive elements with resistance to establish resistance-capacitance elements that introduce circuit losses which reduce the Q of the shunt lines to inhibit resonances that might otherwise impair the filtering function of the device.

3,568,110
MODULAR POWER COMBINING TECHNIQUES USING SOLID STATE DEVICES FOR DC-TO-RF ENERGY CONVERSION

Ferdo Ivanek, Palo Alto, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.
Filed June 16, 1969, Ser. No. 833,264
Int. Cl. H01p *7/06;* **H03f** *3/00*

U.S. Cl. 333—83 **11 Claims**

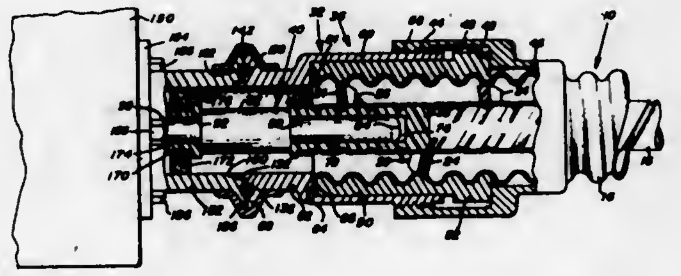
Microwave power sources capable of operating over different frequency ranges and each containing a plurality of active solid state devices for direct conversion of DC energy to RF energy, are constructed by tandemly-connecting power source modules selected from a limited number of module types. Each module, which is merely bolted to adjacent modules, possesses a microwave cavity containing a single symmetrically or asymmetrically mounted active solid state device.



3,568,111
CONNECTOR FOR FLEXIBLE TRANSMISSION LINE

Philip H. Dyer, Stow, and Bernard Waters, Natick, Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Oct. 1, 1968, Ser. No. 764,154
Int. Cl. H01p *3/06*

U.S. Cl. 333—97 **7 Claims**



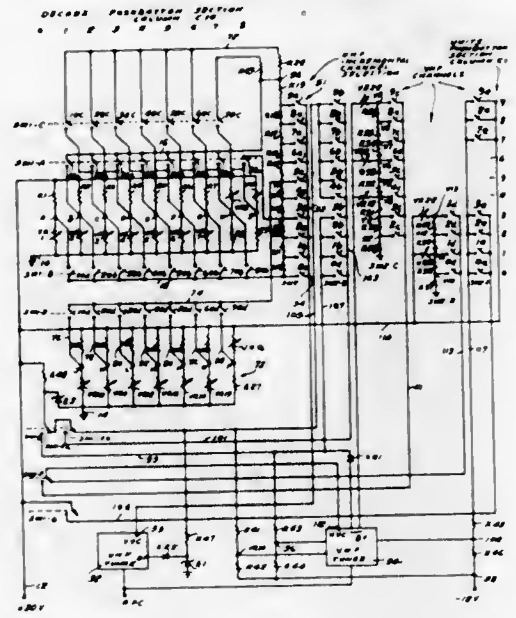
An electrical connector for flexible transmission lines of the coaxial type including an elongated probe of conductive metal having an end portion protruding insulatingly into the open end of a tubular center conductor of the coaxial line for a distance equal to an effective quarter wavelength of the energy to be transmitted by the line whereby an open circuit occurs at the engaged end of the probe and a low impedance junction is established between the circular end of the center conductor and the adjacent portion of the probe; and a coaxial, cylindrical shell of conductive metal having an internal shoulder clamped in direct metallic contact with a flanged end of the outer coaxial conductor.

3,568,112
DIGITAL PUSHBUTTON TUNING FOR SIGNAL-CONTROLLED RECEIVER

Ernest A. Thomas, West Springfield, Mass., assignor to General Instrument Corporation, Newark, N.J.
Filed Feb. 12, 1969, Ser. No. 798,648
Int. Cl. H03j *5/00, 5/14*

U.S. Cl. 334—1 **27 Claims**

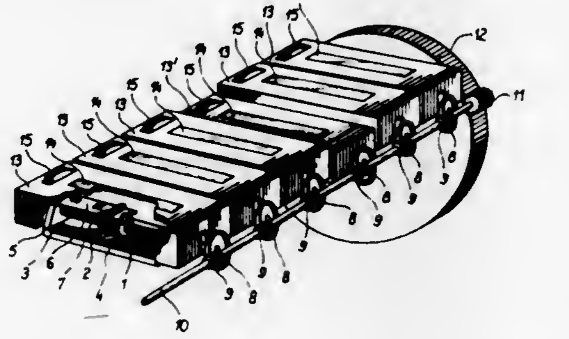
A tuner for a signal-controlled communication receiver is disclosed, in which a plurality of tuning signal levels are established at a series of terminals. Frequency selecting means comprising pushbutton controlled switch means is provided to selectively operatively connect one of said signal levels to the tuning varactor, thereby to tune the receiver to a desired frequency. The difference between the signal levels at each adjacent pair of terminals is such as to cause the varactor to tune in substantially equal frequency segments along the entire tuning range when signals corresponding to each of the tuning signal levels are applied thereto. The pushbutton control may comprise two sets of pushbuttons, one being effective to select the "tens" and the other to select the "ones" of the desired channel number.



3,568,113
VISUAL INDICATION MEANS FOR A PUSHBUTTON TUNER

Rudolf Hopt, and Rudolf Mayer, Rottweil, Germany, assignors to R & E Hopt KG, Rottweil, Germany
Filed Feb. 20, 1969, Ser. No. 801,106
Claims priority, application Germany, Feb. 22, 1968, P 16 16 268.8
Int. Cl. H03j *1/04, 5/32*

U.S. Cl. 334—7 **5 Claims**



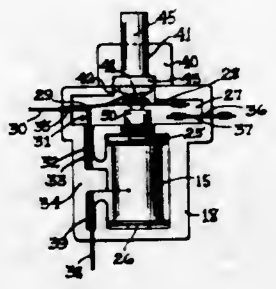
A tuning device of radio frequency communication equipment employs a plurality of tuning spindles with which are associated scales and tuning element pointers. A depressable key, through which each scale and pointer is visible, is arranged with each spindle to actuate a switch element for tuning the desired frequency channel.

3,568,114
MAGNETICALLY MAINTAINED ELECTRIC SWITCH

Walter L. Cherry, and Raymond G. Castle, Highland Park, Ill., assignors to Cherry Electrical Products Corporation, Highland Park, Ill.
Filed Oct. 15, 1969, Ser. No. 866,624
Int. Cl. H01h *45/02*

U.S. Cl. 335—202 **8 Claims**

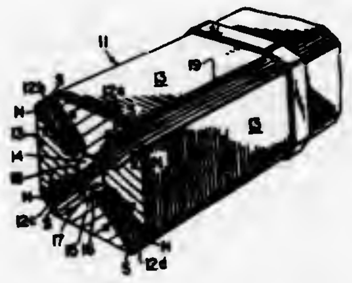
A switch initially actuated by a manually operated actuator that in turn moves a resilient switch finger into contact with a fixed terminal so as to establish a circuit therethrough. The actuator simultaneously depresses an armature into the core of an electromagnetic solenoid which by the closing of the switch finger becomes energized to be self-holding with the actuator being restored to its initial position by a spring carried by the switch finger notwithstanding that the switch finger through the energization of the solenoid remains in its closed contact position.



3,568,115
MAGNETIC MATERIAL MULTIPOLE ASSEMBLY

William Affleck Wolfe, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Sept. 18, 1968, Ser. No. 760,565
Claims priority, application Canada, Nov. 10, 1967, 4,760
Int. Cl. H01t *7/00*

U.S. Cl. 335—210 **4 Claims**

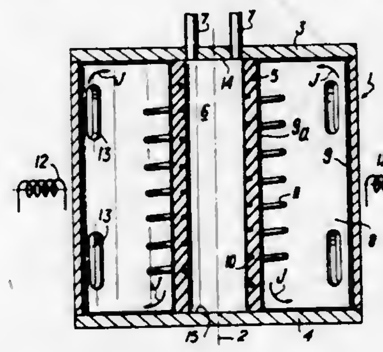


A multipole magnet, for example a quadrupole magnet for an ionic beam, comprises an equal number of ferrous poles of, say, barium or strontium ferrite, and magnetic material members arranged side by side to define a central aperture. The ferrous poles and magnetic material are arranged alternately around the central aperture so that their polarities cooperate to produce a multipole magnet field.

3,568,116
PROCESS AND APPARATUS FOR TRANSFERRING ENERGY TO AN ELECTRICALLY CONDUCTIVE MEDIUM

Jean Sole, Clamart, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Sept. 6, 1967, Ser. No. 665,772
Claims priority, application France, Sept. 7, 1966, PV75599
Int. Cl. H01f *1/08, 7/22;* **H01s** *3/09*

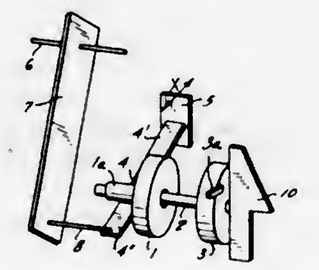
U.S. Cl. 335—216 **32 Claims**



A process and apparatus for transferring energy to an electrically conductive medium. The conductive medium is disposed in an inner chamber which is surrounded by an annular chamber having walls internally covered with a layer adapted to have superconductive properties. According to the present disclosure the layer is brought to a state of super-conductivity producing a current density in the superconducting layer, said trapped current across the superconducting layers producing a magnetic field in the annular chamber which corresponds to a given energy and transferring this energy into the electrically conductive medium in the inner chamber by causing the transition of said layers from the superconductive state to the normal state.

3,568,117
MAGNETIC MOTION TRANSMITTING ARRANGEMENT

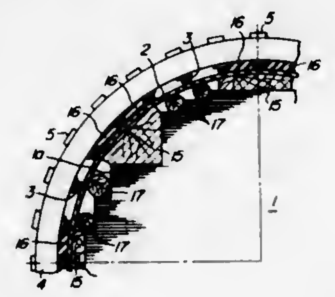
Kurt Rossler, Frankfurt, am Main, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Nov. 5, 1968, Ser. No. 773,546
Claims priority, application Germany, Nov. 7, 1967, P 16 50 643.7
Int. Cl. H01f *7/02*
U.S. Cl. 335—306 **14 Claims**



A motion transmitting arrangement wherein a first diametrically magnetized disc-shaped permanent magnet is movable axially toward a second disc-shaped permanent magnet, either in response to rotation of the second magnet from a first angular position in which the second magnet repels the first magnet to a second angular position in which the first magnet is attracted by the second magnet, or in response to introduction between the two magnets of a ferromagnetic member which is thereby magnetized and attracts the first magnet toward the second magnet. The arrangement can be used to release the carriage in a toaster in response to rotation of the second magnet or in response to displacement of the ferromagnetic member by a thermostat in the toasting chamber.

3,568,118
TRANSFORMER

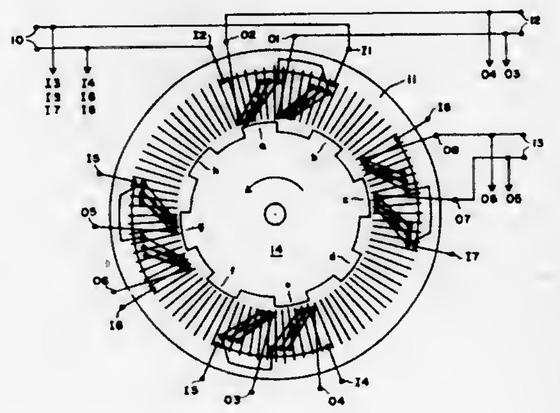
Takashi Kuriyama; Kiyoto Hiraishi; Tadashi Kiuchi; Sho Kusumoto, and Shigeru Shida, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 14, 1969, Ser. No. 799,257
Claims priority, application Japan, Feb. 16, 1968, 43-9422
Int. Cl. H01f *27/08, 27/30*
U.S. Cl. 336—60 **5 Claims**



A transformer wherein one of the windings provided on the legs of a transformer core to which is imparted a centripetal compression force resulting from the winding-axial component of a leakage flux is effectively supported by said core legs substantially at Octo- to dodeca-sectional points in the circumferential direction of said winding, thereby increasing the buckling strength of said winding as the latter is buckled by a compression force which is generated therein due to short circuit trouble occurring in a system with which said transformer is connected.

3,568,119
DYNAMIC TRANSFORMER

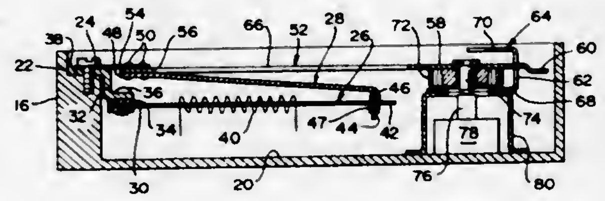
Myron C. Ruderman, Plainview, N.Y., assignor to Aeroflex Laboratories Incorporated
Filed Aug. 26, 1969, Ser. No. 853,080
Int. Cl. H01f *21/06*
U.S. Cl. 336—135 **4 Claims**



A dynamic transformer comprises input terminals for supplying an alternating-current control signal and an alternating current slotted-ring stator having two nondistributed exciting windings each of which comprises two equal diametrically opposed sections. Each winding section embraces a predetermined sector of the stator ring and the winding sections are equally spaced about the stator 360°/2n ± ½ of the sector. The windings are excited in phase from input terminals. The transformer also comprises two distributed output windings on the stator ring, each winding comprising two equal diametrically opposed sections and each winding section embracing the same sector of the stator as one of the exciting winding sections and each output winding section being divided into two equal adjacent portions connected in series opposition. The transformer has a rotor of low-loss magnetic material having eight salient poles, each of the poles having a width approximately one-half of the aforesaid stator sector width. The transformer is effective to develop in the output windings two-phase signals of an amplitude dependent upon the amplitude of the input control signal.

3,568,120
HEATMOTOR OPERATOR

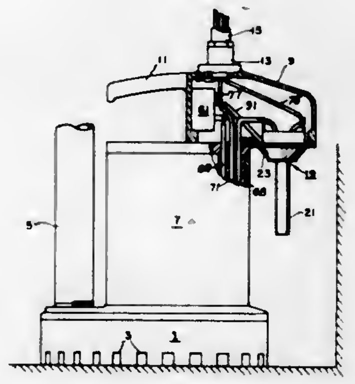
Lauren D. Haskins, Long Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Sept. 15, 1969, Ser. No. 857,839
Int. Cl. H01h *71/16*
U.S. Cl. 337—100 **14 Claims**



A heatmotor operator including a bimetal assembly having a bimetal motor arm and a bimetal compensating arm superposed above the motor arm, a lever having an operating end and a pivot end secured to one end of the compensating arm, the other end of the compensating arm being coupled with a movable end of the motor arm such that ambient temperature compensation is provided by the deflection of the motor arm and the compensating arm in the same direction, and actuating means for the bimetal assembly to control the position of the operating end of the lever.

3,568,121
THERMAL SWITCH ASSEMBLY AND SYSTEM

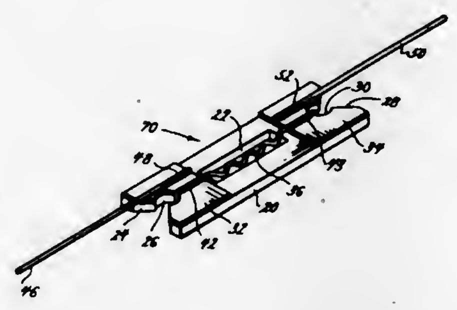
Floyd M. Nash, Little Rock, Ark., assignor to Jacuzzi Bros. Incorporated
Filed May 26, 1969, Ser. No. 827,576
Int. Cl. H01h *61/013*
U.S. Cl. 337—104 **5 Claims**



A normally closed thermal switch adapted to open at temperatures above its closing temperature, is exposed to a temperature above closing temperature sufficient to maintain the switch open in an atmospheric environment, but insufficient to maintain said switch open in a liquid environment, wherein the switch is caused to close. Closing of the switch introduces additional heat which is sufficient to open the switch while in such liquid environment, but capable of effecting a fast opening of the switch upon subsequent removal of the liquid environment and exposing the switch to the initial atmospheric environment. The switch assembly, when employed in a sump pump system, will reduce the continued running of the pump following completion of a pumping operation, to protect the motor against heat up damage, and economize on power consumption.

3,568,122
PROTECTOR FOR ELECTRIC CIRCUITS

Angelo Urani, St. Louis, Mo., assignor to McGraw - Edison Company, Elgin, Ill.
Filed Oct. 8, 1969, Ser. No. 864,672
Int. Cl. H01h *85/54*
U.S. Cl. 337—166 **15 Claims**

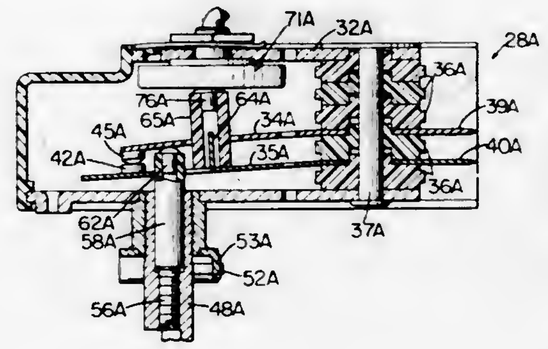


The fragile fusible element of a low amperage electric fuse is protected by being mounted adjacent a longitudinally extending central opening within a support and by being made so it is undulatory in configuration.

3,568,123
ELECTRICAL THERMOSTAT AND PARTS THEREFOR OR THE LIKE

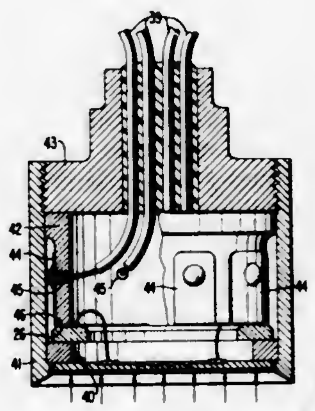
Denis G. Wolfe, Greenburg; Francis S. Genbauffe, Irwin, and Gerald H. Eicher, Alverton, Pa., assignors to Robertshaw Controls Company, Richmond, Va.
Original application Oct. 3, 1967, Ser. No. 672603, now Patent No. 3,469,779. Divided and this application Apr. 14, 1969, Ser. No. 840,569
Int. Cl. H01h *37/24, 37/40*
U.S. Cl. 337—318 **12 Claims**

An electrical thermostat for a fuel control system of a domestic oven including a housing carrying a pair of switch blades and a condition responsive means having a part movable relative to the housing. A post is disposed between and in engagement with the movable part of the condition responsive means and one of the switch blades. The post engages the movable part and one of the switch blades in a manner to cause abrupt opening of the switch blade contacts by a sidewise skipping of the port relative to the movable part.



3,568,124
PIEZORESISTIVE FORCE- AND PRESSURE-MEASURING ELEMENT

Hans Conrad Sonderegger, Winterthur, Switzerland, assignor to Kistler Instrument AG, Winterthur, Switzerland
Filed May 31, 1968, Ser. No. 734,646
Claims priority, application Switzerland, June 1, 1967, 7784/67
Int. Cl. G01l *1/22*
U.S. Cl. 338—4 **16 Claims**

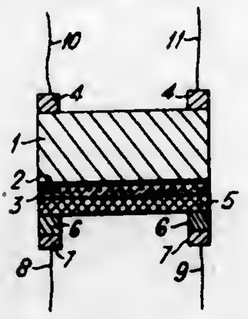


A piezoresistive element for pressure- and force-measurements in which a silicon disc or the like, provided with resistive paths diffused in the same is supported on a metallic support ring, and in which an insulator ring is mounted on the support ring; the insulator ring is provided with contact lands or the like from an intermediate stage and thin wire connections between the same and the contact lands in the resistive paths.

3,568,125
THERMISTOR

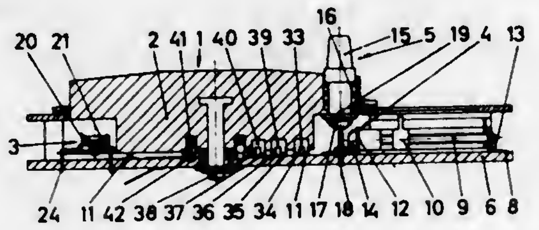
Claude Marie Villemant, Paris, and Michel Gaultier, Gif/Yvette, France, assignors to International Standard Electric Corporation
Filed Oct. 14, 1968, Ser. No. 767,930
Claims priority, application France, Oct. 20, 1967, 125,231
Int. Cl. H01c *7/04*
U.S. Cl. 338—22 **10 Claims**

A thermistor is formed of a semiconductor body having a layer of glass on one surface, a metallic resistance layer on the glass and ohmic contacts on the metallic layer and on another surface.



3,568,126
TUNING ARRANGEMENT FOR STORABLE STATION SELECTION IN TELEVISION RECEIVERS

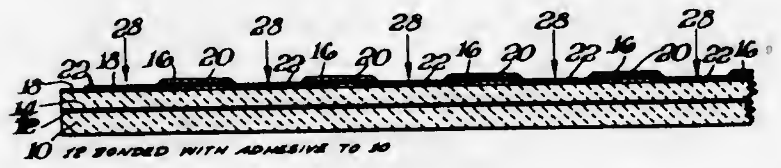
Ulrich Armonier, Simmelsdorf; Norbert Aberger, and Helmut Rolf, Nurnberg, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Dec. 10, 1968, Ser. No. 782,576
Claims priority, application Germany, Dec. 27, 1967, P 15 91 599.8
Int. Cl. H01c *1/12, 9/02*
U.S. Cl. 338—129 **6 Claims**



A tuning arrangement for television receivers including a rotatable knob for coarse tuning of various stations to be received and having predetermined fixed positions into which said knob may be set, a single tuning button having beveled gear means at one end thereof mounted on said knob, a plurality of stationary potentiometers mounted concentrically with said knob, one being opposite each of said fixed positions, and each having gear means associated therewith for engagement with, and adjustment by, said button, said button further having spring return means enabling movement of said button into and out of engagement with the potentiometers.

3,568,127
ELECTRICAL RESISTORS

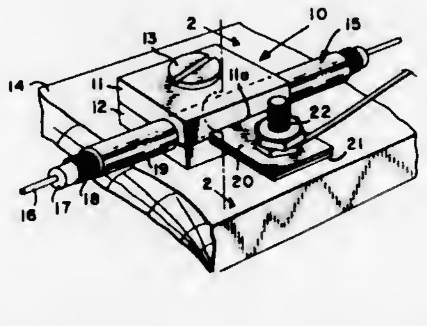
Bruno R. Aimi, Burlington, Vt., assignor to Sprague Electric Company, North Adams, Mass.
Filed Oct. 28, 1968, Ser. No. 771,102
Int. Cl. H01c *1/02*
U.S. Cl. 338—262 **14 Claims**



In forming a plurality of resistor components a resistive metal film is deposited on an inert, electrically nonconductive base. Parallel electrode strips are deposited on the resistive film and parallel overglaze strips are deposited on the resistive film between and slightly overlapping the electrode strips. This structure is separated into a plurality of resistor components by making a series of parallel cuts down through all the layers along lines at right angles to a line following the longitudinal axis of said glaze strips; annealing the structure to refuse the overglaze; and performing a second series of parallel cuts at right angles to said first cuts and following lines midway of said electrodes strips.

3,568,128
GROUND CLAMP

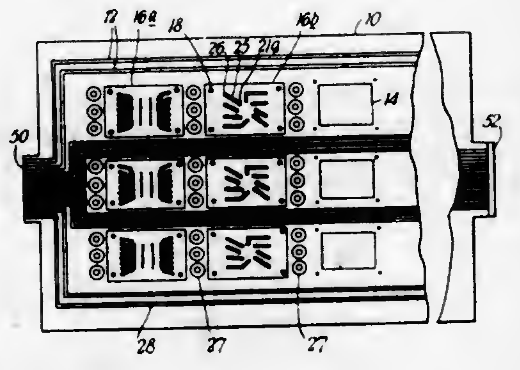
George W. Taylor, P.O. Box 573, Cupertino, Calif.
Filed Dec. 9, 1968, Ser. No. 782,395
Int. Cl. H01r *9/10*
U.S. Cl. 339—14 **1 Claim**



A ground clamp for making a ground connection to the sheath of a coaxial cable. The ground clamp is provided with relatively wide metal clamping members having arcuate portions for clamping the metal sheath therebetween after the outer insulation is stripped from the cable and the sheath is exposed. These portions of the ground clamp cable are enclosed in a plastic housing which is made of two identical sections that are adapted to be held together by the anchoring screw. The housing sections are provided with inwardly extending ridges that engage the outer plastic coating of the cable to form seals therewith and prevent moisture from entering the housing.

3,568,129
DEVICE FOR FACILITATING THE TESTING OF EXPERIMENTAL CIRCUITS

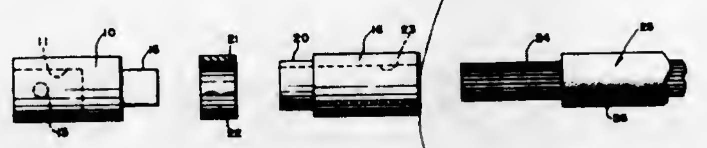
Percy Ernie Gold, 53 Nascat Wood Road, Watford, Hertfordshire, and Harold E. J. Kemp, 38 School Road, Ashford, Middlesex, England
Filed Dec. 5, 1968, Ser. No. 781,418
Claims priority, application Great Britain, Dec. 5, 1967, 55,334
Int. Cl. H05k *1/04, 3/36*
U.S. Cl. 339—17 **9 Claims**



The invention resides in a circuit board for receiving a plurality of integrated circuits in order that the integrated circuits can be patched up in various arrangements as desired, some at least of the integrated circuit receiving stations are removable from the board so that they can be interchanged with stations for receiving different types of integrated circuit.

3,568,130
ELECTRICAL CONNECTOR FOR ALUMINUM CABLE

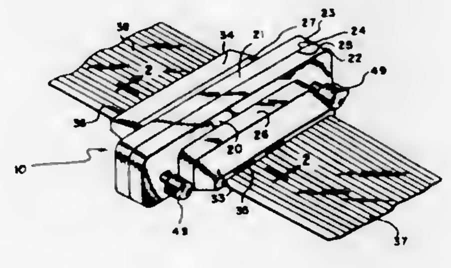
Albert J. Hurst, Milford, Ohio, assignor to KDI Sealtron Corporation
Filed Apr. 7, 1969, Ser. No. 813,863
Int. Cl. H01r *13/20, 11/08*
U.S. Cl. 339—30 **8 Claims**



An electrical connector of one material such as a copper alloy may be secured to a cable of a different material such as aluminum in an assembly which will resist loosening under heat, by securing the conductive strands of the cable within the internal bore of a tube of material akin to the material of the cable strands, and also disposing a portion of the connector within such internal bore, while a reinforcing ring is exteriorly disposed about said sleeve in the vicinity where the connector portion is located.

3,568,131
ELECTRICAL CONNECTOR

Bobby W. Kennedy, 1112 4th Ave. NW., Arab, Ala. 35016
Filed Nov. 26, 1969, Ser. No. 880,247
Int. Cl. H01r *13/50, 33/04;* **H05k** *7/00*
U.S. Cl. 339—45 **8 Claims**

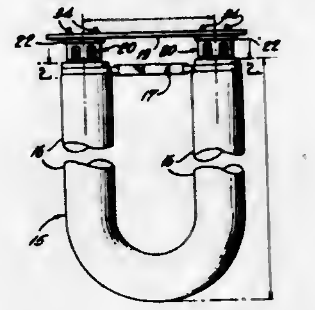


A rectangular-shaped connector for flat conductor cables includes a pair of elongated rectangular insulating blocks having pin and socket contacts disposed in opposing spaced apertures. The blocks are encased by mating, flat-faced housings through which the cable conductors extend, the exposed ends of insulated conductors being joined to the contacts. Housing ends are enclosed by potting boots sealed to the conductor insulation. Hermetic sealing and avoidance of arcing are realized by filling void spaced with a potting material, in particular, "CNR" resin for service under extreme conditions, and by providing a seal of such material between the housings.

3,568,132
SELF-ADJUSTING LAMPHOLDER FOR U-SHAPED FLUORESCENT LAMP

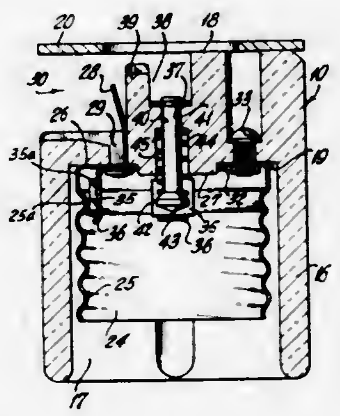
George E. Johnson, Bronxville, N.Y., assignor to Leviton Manufacturing Co., Inc., Brooklyn, N.Y.
Filed Nov. 13, 1968, Ser. No. 775,413
Int. Cl. H01r *33/08*
U.S. Cl. 339—50 **7 Claims**

The present invention relates to a self-adjusting lampholder which is adapted for use with a U-shaped fluorescent lamp having spaced legs and a bipin base at the end of each leg. Such a lampholder comprises a socket body adapted to receive a pair of lamp pins therein and a mounting member which permits both angular and lateral movement of the lamp engaging portions of the lampholder relative to a fixture panel or other support. The mounting member also includes means for engaging with and detachably securing the lampholder to a fixed panel or the like. A pair of such lampholders are employed to receive and make electrical connections with pairs of lamp pins extending from bases at the spaced ends of the two legs of the lamp.



3,568,133
LAMP-POSITIONING MOGUL SOCKET

George E. Johnson, Bronxville, N.Y., assignor to Leviton Manufacturing Co., Inc, Brooklyn, N.Y.
Filed Sept. 9, 1968, Ser. No. 758,198
Int. Cl. H01r *13/62*
U.S. Cl. 339—64 **12 Claims**



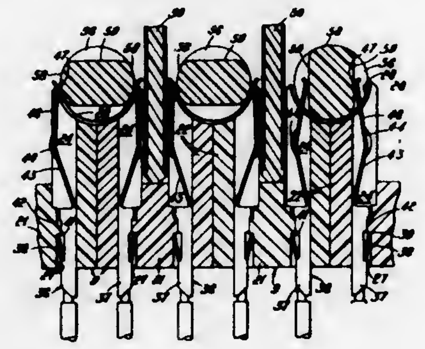
An electric lamp socket for an electric lamp having a screw type mogul base. Said socket having internal threads engaging with threads on the lamp base and having a spring-biased center contact with a pointed end of a hard material positioned to engage and make electrical contact with the center contact carried by the lamp base. Said socket including a plurality of lamp positioning members projecting upwardly from the bottom of the interior of the socket at points spaced outwardly relative to the center contact thereof. Said lamp positioning members being spaced angularly relative to each other and engaging with the base of the lamp at spaced points adjacent the outer circumference thereof when the center contact of the lamp is brought into engagement with the center contact of the socket.

The lamp positioning members being in the form of upwardly extending spring fingers formed from a resilient material, such as spring steel and being capable of being cammed outwardly by engagement with the lamp base.

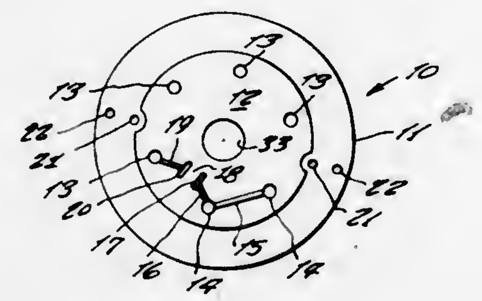
3,568,134
PACKAGING AND ACTUATING SYSTEM FOR PRINTED CIRCUIT BOARDS AND ELECTRICAL CONNECTOR ASSEMBLIES

John W. Anhalt, La Crescenta, and John V. Lane, Granada Hills, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Original application Aug. 3, 1967, Ser. No. 658,258. Divided and this application Mar. 3, 1969, Ser. No. 816,865
Int. Cl. H01r *13/54*
U.S. Cl. 339—75 **2 Claims**

Printed circuit boards and electrical connectors provide convenient means of assembling circuits in electronic equipment. A packaging system is provided in which printed circuit boards or plug-type electrical connectors may be inserted into a system with zero insertion force. After the printed circuit boards or electrical connectors are supported in a rack, cam-actuated electrical contacts supported on the rack are actuated to make electrical contact with associated contact terminals on the printed circuit board or electrical connector plug. The packaging system includes cam support bars forming journals for cam shafts which actuate the electrical contacts, and contact carrier members releasably support electrical contacts in operative relation to the cam shafts. A rack and pinion mechanism interconnects individual cam shafts to effect simultaneous displacement of the electrical contacts to engage the associated printed circuit boards or electrical plug connectors.

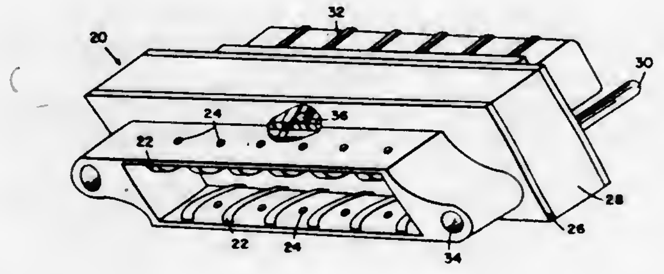


3,568,135
CEILING BOX JUNCTION PLATE
Hardie Rogers, Rte. 3, Mandeville Hwy., Covington, La.
Filed Dec. 16, 1968, Ser. No. 783,973
Int. Cl. H01r *13/60*
U.S. Cl. 339—123 **1 Claim**



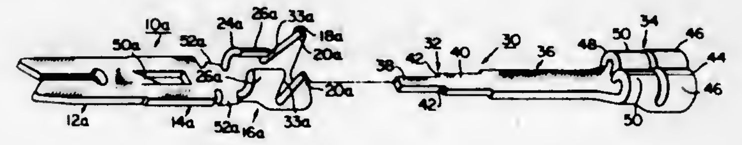
A ceiling box junction plate for making up the wiring in ceiling or light junction boxes, the device comprising an assembly including a plurality of connector openings, a pair of the connector openings being enjoined by a connection for extra wire capacity for ground wires, a connection to a standard female outlet receptacle, and a connection for hot lines from a wall switch to actuate a light.

3,568,136
ELECTRICAL CONNECTOR
Irving G. Wells, 311 Belvidere Road S.E., Huntsville, Ala.
Filed Jan. 27, 1969, Ser. No. 793,938
Int. Cl. H01r *13/50*
U.S. Cl. 339—156 **1 Claim**



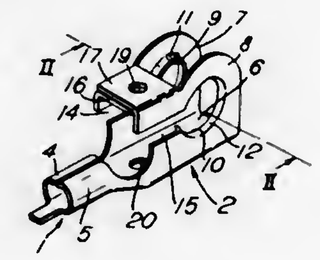
An electrical connector having holes predeterminately located therein whereby a test probe may be inserted to make contact with a particular contact of the connector.

3,568,137
ADAPTER FOR CONTACT WITH CRIMP TAIL
Maurice E. Youngblut, 301 W. Wellens Ave., Philadelphia, Pa.; James R. Hardman, Apt. 4C. Helen J. Apartments 1535 Township Line Road, Willow Grove, Pa.; Alexander Wontorsky, 5226 N. Sydenham St., Philadelphia, Pa., and William Lightkep, 1276 Dahlia Road, Warminster, Pa.
Filed Feb. 24, 1969, Ser. No. 801,672
Int. Cl. H01r *15/12*
U.S. Cl. 339—223 **6 Claims**



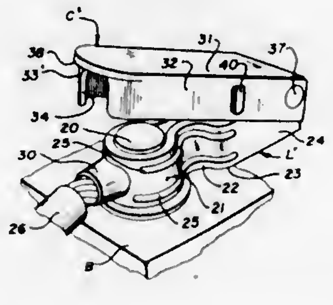
An adapter for use with an electrical contact has a forward portion adapted to be crimped to a crimp tail section of the contact. The rearward portion of the adapter is comprised of grasping means in the form of crimp tabs which are adapted to be crimped about the conductor of a lead of larger size than said crimp tail section can accommodate to mechanically and electrically connect the conductor to the adapter and hence said contact.

3,568,138
POST TERMINAL CONNECTOR
Roel Bakker, Langen, Germany, assignor to AMP Incorporated, Harrisburg, Pa.
Filed Jan. 2, 1969, Ser. No. 789,093
Claims priority, application Germany, Jan. 5, 1968, 1,640,002
Int. Cl. H01r *11/26*
U.S. Cl. 339—230 **8 Claims**



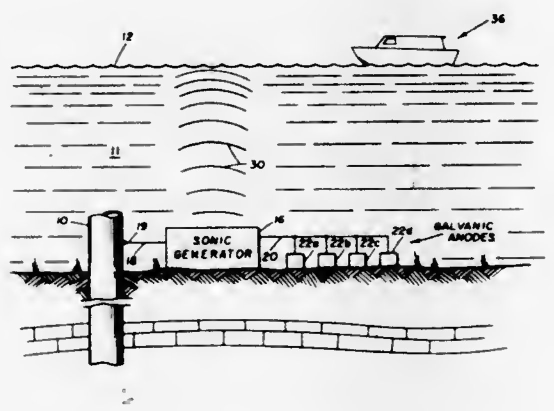
A battery terminal is made by stamping from sheet metal and bending to form two aligned holes which fit over a battery terminal post. Each hole is open on one side and has a lug bent from it through which a clamping screw can pass into the base of the terminal. A conductor can be crimped onto an integral ferrule.

3,568,139
BATTERY CABLE CONNECTOR
Jacob J. Delzer, 3212 Fruitvale Blvd., Yakima, Wash. 98902
Filed Nov. 12, 1968, Ser. No. 774,686
Int. Cl. H01r *7/06*
U.S. Cl. 339—239 **10 Claims**



A connector for the terminal post of a storage battery, in which a U-shaped clamp having a generally circular center is adapted to embrace the post and to be secured in position by squeezing the center of the clamp upon the post. A channel-shaped cover is secured to the clamp by a pivot connecting the cover at the free ends of the clamp legs in a manner which permits the cover to be swung over and onto the clamp. This cover includes inward wedging abutments which squeeze the ends of the clamp together when the cover is swung into position upon the clamp, to lock the center of the clamp upon a battery post, but to thereafter release the clamp from the battery post when the cover is lifted away from the clamp.

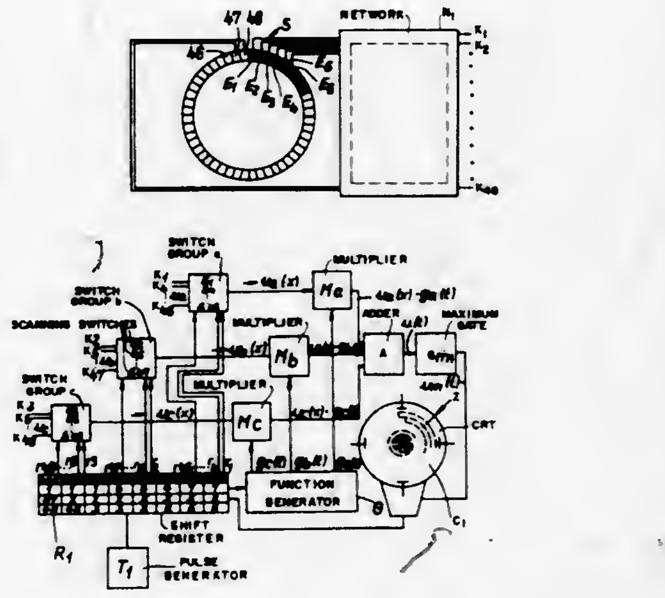
3,568,140
UNDERWATER ELECTRICAL POWER SOURCE AND SONIC BEACON
Wallace B. Allen, and Floyd E. Blount, Dallas, Tex., assignors to Mobil Oil Corporation
Filed June 20, 1969, Ser. No. 835,022
Int. Cl. H04b *11/00;* **H01m** *17/100*
U.S. Cl. 340—4 **20 Claims**



The specification discloses an underwater sonic beacon for marking the location of metallic structures such as underwater wellheads. The sonic beacon is powered by a galvanic cell formed by the water as the electrolyte, the metallic structure as one electrode, and a galvanic anode spaced from the metallic structure as the other electrode. An electronic oscillator circuit and electroacoustic transducer are connected as the load on the galvanic cell. The sonic beacon is provided extended lifetime by sequentially activated anodes which produce continuous electrical power.

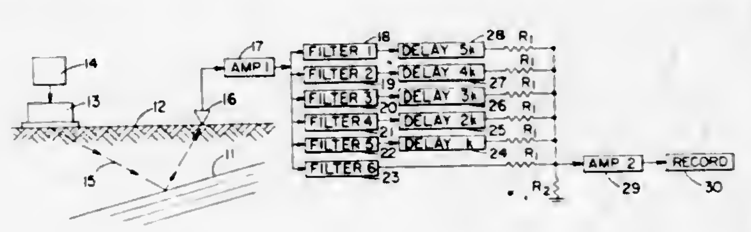
3,568,141
ACOUSTIC METHOD AND APPARATUS
Werner Schwarz, Bremen-Oberneuland; Reinhard Wilhelm Leisterer; Herwig Meyerhoff, Bremen, and Gunter Berkelmann, Achim, Germany, assignors to Fried, Krupp, Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Aug. 5, 1968, Ser. No. 784,962
Claims priority, application Germany, Aug. 3, 1967, 1,566,847
Int. Cl. G01s *3/00, 9/66*
U.S. Cl. 340—6 **7 Claims**

Method and apparatus for scanning a plurality of channels to determine the azimuth of propagation of, and/or the Doppler shift in, acoustic waves which impinge on a receiver, where each channel carries a signal which is a different function of the azimuth or frequency, respectively, but where three or more of the signals are nonzero for the same value of azimuth or frequency. The method includes the steps of scanning the channels to obtain the nonzero signals in successive order, without interpolating to determine the azimuth



or frequency, and then interpolating the azimuth or frequency from the nonzero signals.

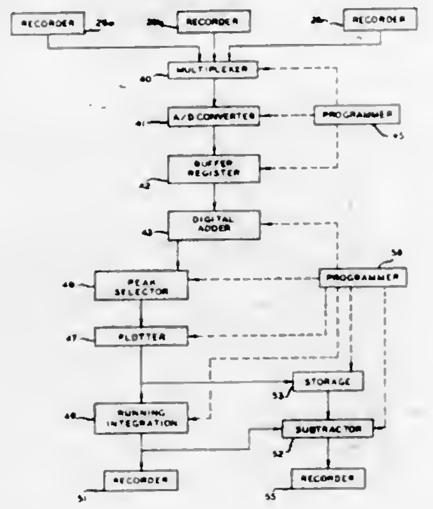
3,568,142
MULTIPLE FREQUENCY SURVEYING SYSTEM
Ralph A. Landrum, Jr., and John L. Shanks, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.
Filed Jan. 16, 1967, Ser. No. 609,527
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **7 Claims**



A seismic surveying method utilizes a vibratory source emitting a succession of differing frequency sine waves. Received waves after suitable amplification are passed through a group of narrow filters which separate the various frequency components. After suitable time delays, these components are recombined to present a record similar to that obtained from an explosive single source.

3,568,143
DETERMINATION OF TIME DISPLACEMENT BETWEEN COMMON INFORMATION IN SEISMIC SIGNALS
Paul J. Naquin, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company
Continuation of application Ser. No. 237,830, Nov. 15, 1962, now abandoned. This application Oct. 17, 1969, Ser. No. 871,518
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **7 Claims**

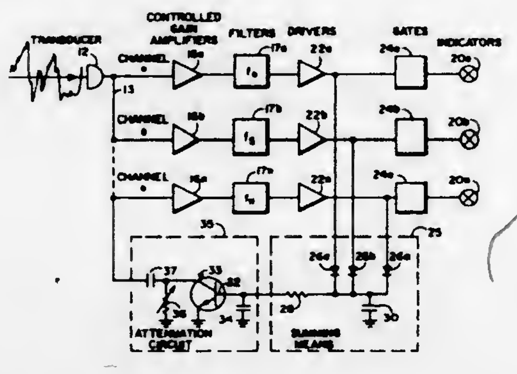
Automatic data processing apparatus is utilized to facilitate interpretation of seismic field data obtained from a field setup having a plurality of seismometer stations and a plurality of shot points. Vibrations are imparted to the earth at a first shot point and the reflected seismic signals are measured at a plurality of seismometer stations. The signals from adjacent pairs of seismometer stations are cross correlated to form a cross correlation signal. The procedure is repeated with the same pairs of seismometer stations for other shot point locations. The cross correlation signals for a given pair of seismometer stations are summed to form a composite cross correlation signal. The time difference value for each pair of seismometer stations is then plotted against the location of the pair to form a time difference curve, which can then be subjected to running integration to obtain a dip curve



indicative of the dip of the subsurface formations. The subtraction of the dip curve from the time difference curve produces a time correction curve, which is indicative of the time corrections to be applied to the original data.

3,568,144
SOUND VIEWER APPARATUS

Maria L. M. Streb, Rochester, N.Y., assignor to Dewar Products Corp., Rochester, N.Y.
Filed Mar. 14, 1968, Ser. No. 713,027
Int. Cl. G08g *1/09*
U.S. Cl. 340—34 **8 Claims**

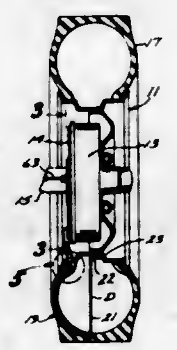


A sound viewer apparatus is described, including means for receiving an audio signal and converting it into an electrical signal, at least one amplifier for adjusting the intensity level of the electrical signal; a plurality of filters, each having a bandpass corresponding to the major frequency components of the audio signal produced by a particular device (viz a car engine, train whistle, horn or emergency vehicle siren); indicator means, such as lamps, connected to the output of the filters; and automatic gain control means responsive to the output of each filter for adjusting the electrical signal input to the amplifier for maintaining the input to the indicators at a level whereby the indicator means (lamps) can clearly show, by relative brightness, which type of device produced the audio sound and its relative intensity.

3,568,145
TIRE-WARNING APPARATUS

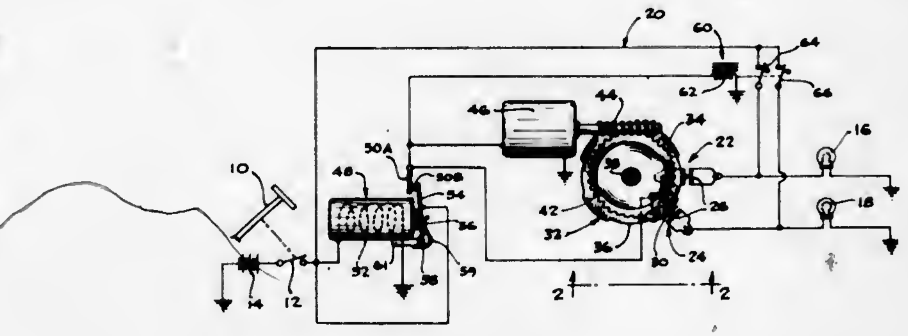
Joseph K. Dikoff, 15004 Oxnard St., Van Nuys, Calif., and J. Homer Harold Overholser, 4961 Palomar Drive, Tarzana, Calif. 91356
Filed Jan. 19, 1968, Ser. No. 699,164
Int. Cl. B60c *23/00*
U.S. Cl. 340—58 **5 Claims**

A tire-warning apparatus including a sensor disposed in a tire and connected in electrical circuit with a power source and an indicator. The sensor includes an elongated conductor having one end in connection with the power source and the opposite end, in one embodiment, adapted for contact with the tire rim when the tire becomes partially deflated to complete the electrical circuit through the indicator and indicate the condition of the tire. In another embodiment the opposite end of the conductor is an electrical contact with the rim and its intermediate portion is disposed a predetermined distance beneath the peripheral surface of the tire whereby it will be worn through to break the electrical circuit when the tire becomes worn.



3,568,146
REAR-ALERTING SIGNAL FOR AUTOMOTIVE VEHICLES

August J. Knez, 12600 S. Roma Road, Palos Park, Ill. 60464
Continuation-in-part of application Ser. No. 355,855, Mar. 30, 1964, now Patent No. 3,305,829. This application Feb. 20, 1967, Ser. No. 617,409
Int. Cl. B60q *1/46*
U.S. Cl. 340—72 **7 Claims**



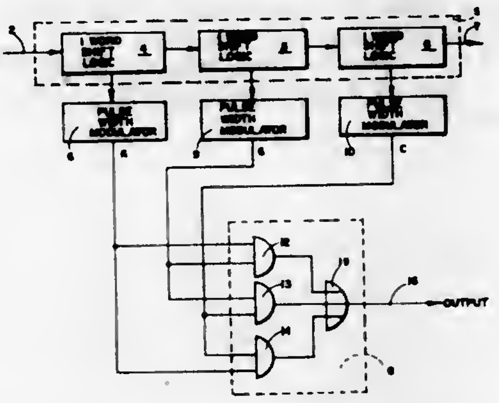
A rear-alerting signal for an automotive vehicle is described in which actuation of a speed control such as the brake of the vehicle causes immediate flashing of two lamps at the rear of the vehicle. The two lamps are connected in separate electrical circuits with separate switches and a source of power, and both of the switches are controlled by a cam to alternately close the switches. The cam is driven by an electrical motor connected in a series circuit controlled by a switch mechanically coupled to the speed control of the vehicle, and this series circuit includes a normally closed delay switch for deactuating the cam after the lapse of a period of time. Actuation of the time delay switch causes continuous illumination of both lamps until the speed control is deactuated.

3,568,147
TRANSIENT FILTER SYSTEM

Paul R. Gilson, Santa Ana, Calif., assignor to North American Rockwell Corporation
Filed Mar. 4, 1969, Ser. No. 804,187
Int. Cl. G08c *25/00*
U.S. Cl. 340—146.1 **4 Claims**

Data samples transmitted from one location to another are separated in time and serially compared to determine transmission errors. Several sequential data samples are compared and the intermediate value of the monotonic order is selected

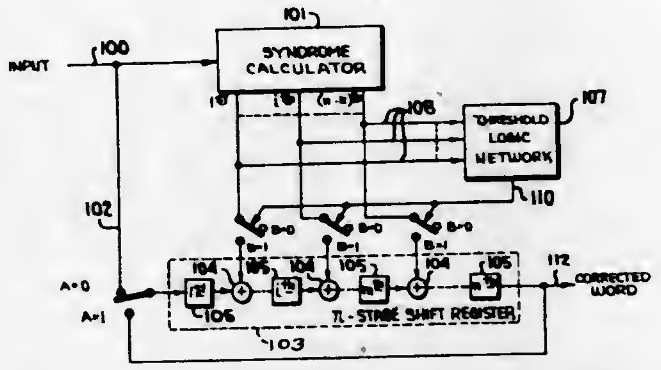
as representing the true value. Transient errors which would cause a data sample to be in error are then automatically



eliminated and the data sample having the value nearest the data sample caused to be in error is inserted in its place.

3,568,148
DECODER FOR ERROR CORRECTING CODES

George C. Clark, Jr., Indialantic, Fla., assignor to Radiation Incorporated, Melbourne, Fla.
Filed Apr. 2, 1969, Ser. No. 812,743
Int. Cl. G06f *11/12*; **G08c** *25/00*
U.S. Cl. 340—146.1 **10 Claims**

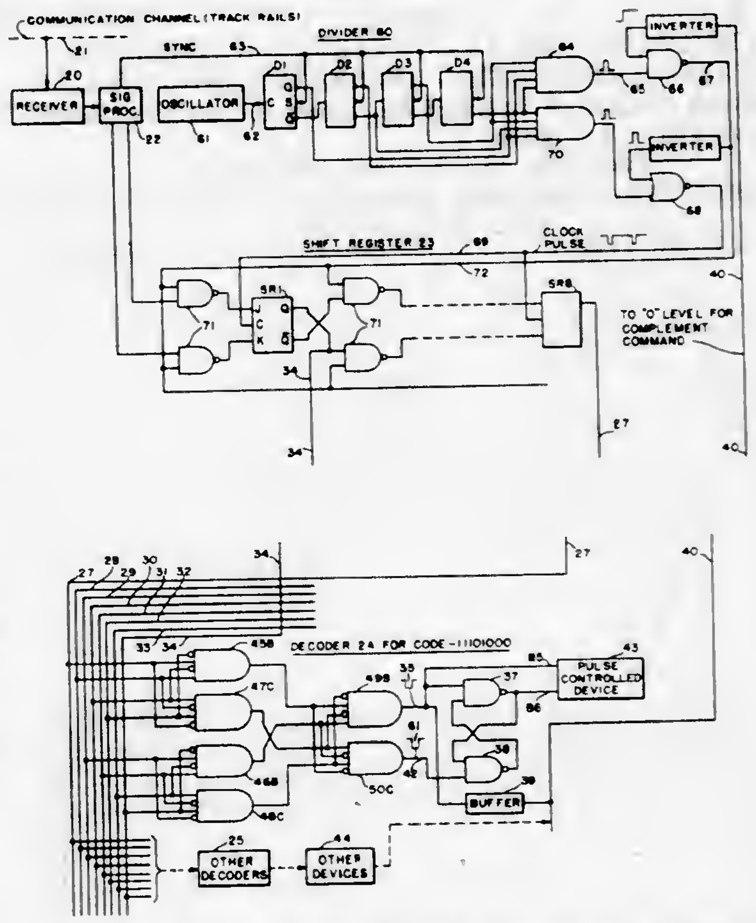


A decoder for error correcting binary cyclic group codes consisting of code words to be transmitted in blocks of *n* bits including *k* information bits and *n–k* check bits, includes a syndrome calculator for computing the matrix product of each received word, which may have a maximum of *t* correctable transmission errors, with a modified form of the original parity check matrix defined by the check digits in the original code. The parity check matrix used in the computation is effectively modified by the syndrome calculator by development within the calculator of a syndrome or pattern of parity check failures corresponding to that which would be produced by multiplication of the received word with the desired modified parity check matrix. This operation spreads out the columns of the identity matrix into which the original parity check matrix is partitionable, from their original locations in consecutive columns in the original parity check matrix to spaced columns in the modified matrix, to permit examination of a larger set of error patterns than can ordinarily be contained in the syndrome. Decoding may then proceed in a conventional manner.

3,568,149
DIGITAL CODE RECEIVING SYSTEM

Henry C. Sibley, Adams Basin, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
Filed Oct. 15, 1968, Ser. No. 767,766
Int. Cl. H03k *13/34;* **HO41** *1/10;* **H04q** *3/02*
U.S. Cl. 340—146.1 **9 Claims**

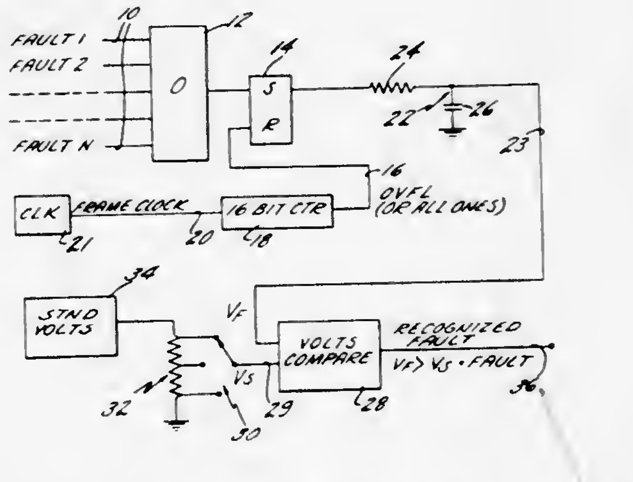
A digital code receiving system is provided wherein received bits of a digital code are applied as serial inputs to a shift register, and parallel readout of the shift register is applied to a plurality of decoders, each decoder being adapted to recognize only a single code distinctive of that decoder. For code checking purposes, only codes having the same numbers of mark and space characters are used. Each decoder has first and second outputs delivered successively, the first output checks the proper elements of the code. This output then complements the shift register at an intermediate point in the bit period, and the same decoder delivers a



second output if the register is fully complemented. A control device is rendered operable in response to the alternate first and second outputs of its associated decoder.

3,568,150
NOISE DISCRIMINATING FAULT APPARATUS

John E. Games, Granby, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Apr. 16, 1969, Ser. No. 816,676
Int. Cl. G08b *23/00*
U.S. Cl. 340—146.1 **8 Claims**

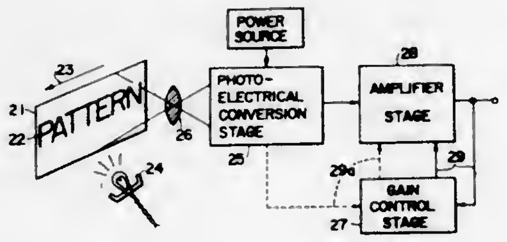


Errors sensed in a data handling system are OR'ed into a latch in a data handling system which handles some number of data words (say 200) serially, a scan of all of the words comprising a frame, errors and faults which may occur at any time, in any word, in any frame, may set a fault latch. However, once set, the fault latch is reset only at the end of every 16 frames. The output of the fault latch is signal-averaged, or integrated, in an RC integrating network having a time constant of between ten and twenty times the period of the sixteen frames of words comprising a fault period. By comparing the average output voltage over a long period of time with a standard voltage, indicative of the average voltage equivalent of an error-indicating duty cycle of the fault latch (in contrast with spurious setting as a result of noise signals), an indication of noise-discriminating fault is achieved.

3,568,151
PHOTOELECTRICAL CONVERSION SYSTEM FOR PATTERN-RECOGNIZING APPARATUS AND THE LIKE

Hideyasu Majima, Kokubunji-shi, Japan, assignor to Hitachi, Ltd., Tokyo-To, Japan

Filed Mar. 23, 1967, Ser. No. 625,349
Claims priority, application Japan, Mar. 23, 1966, 41/17,417
Int. Cl. G06k *9/00*
U.S. Cl. 340—146.3 **6 Claims**

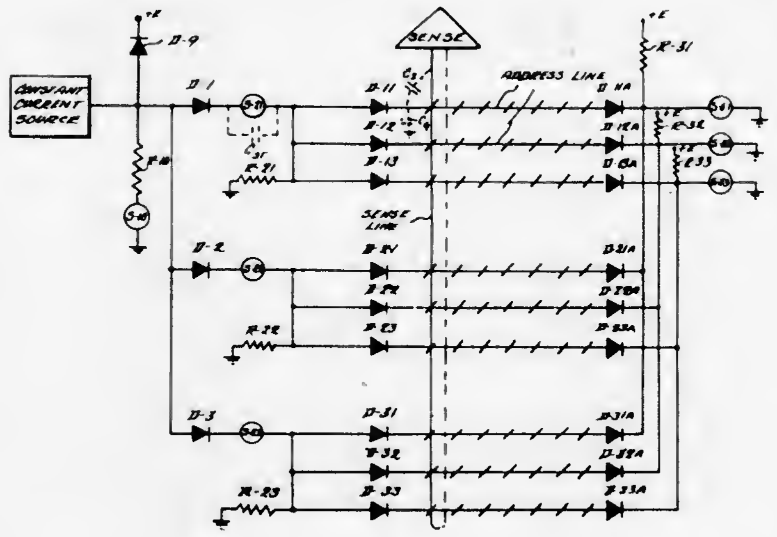


A photoelectrical conversion system for a pattern-recognizing apparatus including pattern signal amplifiers controlled by a control signal representing accurate levels of illumination of blank, noncharacter containing portions of a pattern.

3,568,152
METHOD AND APPARATUS FOR PRECONDITIONING A MEMORY SYSTEM

Gale A. Jallen, Roseville, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Nov. 8, 1967, Ser. No. 681,508
Int. Cl. G11c *7/00, 11/06*
U.S. Cl. 340—174 **5 Claims**

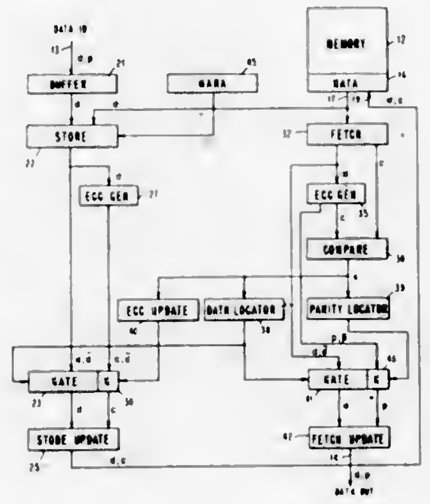


Arrangement for preconditioning a memory system having selectable address lines to reduce adverse effects arising during addressing caused by the effective shunt capacitance of the memory. The effective shunt impedance of the memory system is increased by a switching arrangement which permits the stray capacitances of the system to be charged prior to completion of a current path through a selected address line. When such a current path is subsequently completed, the switching arrangement bypasses enough current from this path to prevent the memory from being actuated. However, during this period the effective shunt capacitance associated with the selected path discharges. Thus, when the bypass is subsequently interrupted, full current passes through the selected address line without encountering adverse effects caused by shunt capacitance.

3,568,153
MEMORY WITH ERROR CORRECTION

Gerald W. Kurtz, Saugerties, and August K. Pattin, Jr., Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 16, 1968, Ser. No. 759,972
Int. Cl. G11c *29/00;* **G06f** *11/12*
U.S. Cl. 340—146.1 **8 Claims**

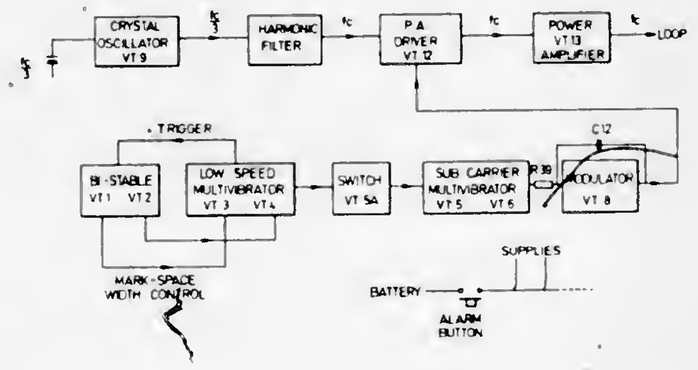


This invention relates to a memory for a data processing system in which the data stored in the memory is encoded to form check bits that permit identifying and correcting an error in a word of data read from the memory. The specification teaches improved circuits for changing the check bits to agree with a corrected word after an error has been detected and corrected.

3,568,154
SECURITY ALARM TRANSMISSION OF RADIO FREQUENCY CODED PULSES

Edward C. Sills, Cranfield; Brian R. Moffitt, Bedford, and David W. McQue, Bletchley, England, assignors to Securiton A.G., Zollikofen, Switzerland

Filed June 30, 1967, Ser. No. 650,446
Claims priority, application Great Britain, July 4, 1966, 29982/66
Int. Cl. H04q *7/00*
U.S. Cl. 340—167 **5 Claims**

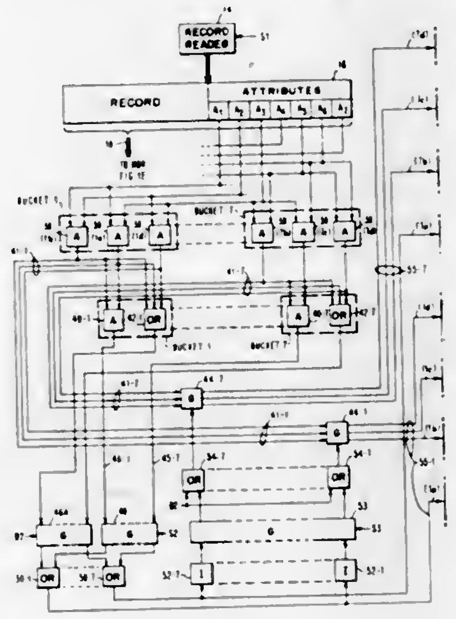


A security alarm system wherein an alarm signal is sent by a transmitter which generates a radiofrequency carrier wave modulated by an audiofrequency signal which is further pulse code modulated. A receiver is provided which includes a tuned RF stage for selecting the transmitted signal, a detector and an audiofrequency filter for recovering the pulse modulated audiofrequency signal, and a pulse code demodulator for decoding the receiver pulses and supplying an actuating pulse to an alarm device.

3,568,155
METHOD OF STORING AND RETRIEVING RECORDS

Chacko T. Abraham, Yorktown Heights; Sakti P. Ghosh, Peekskill, N.Y., and Dwijendra K. Ray-Chaudhuri, Worthington, Ohio, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 10, 1967, Ser. No. 629,485
Int. Cl. G11c *15/00;* **G06f** *15/40*
U.S. Cl. 340—172.5 **9 Claims**



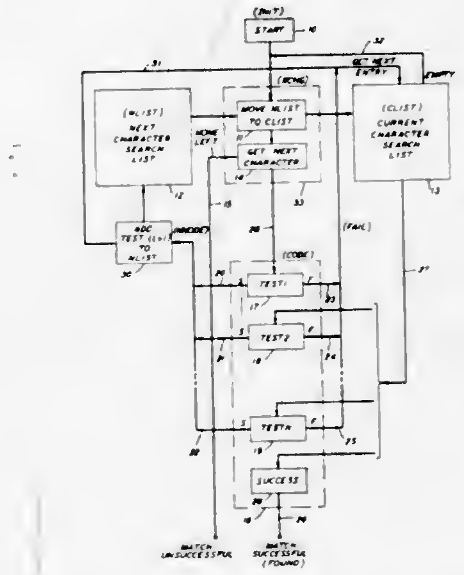
The method is embodied in a data processing apparatus in which a plurality of records, each having a number of different attributes, are stored in the memory file of the machine and the file is then interrogated to retrieve those records which include a particular combination of attributes. The records are first prepared in machine readable form and applied as an input to the machine. The machine circuitry is controlled to store each input record in the memory file of the machine. The attributes for each record are analyzed in predetermined combinations of two or more attributes, and the address for each stored record is stored in one or more buckets in the memory file according to the combination(s) of attributes in each record. After the records are stored, the file is interrogated by applying input queries which specify certain combinations of attributes. From each input query, the machine circuitry is controlled to locate the bucket in which the addresses of all records which satisfy the query are stored. These addresses are then read out and used to retrieve the records themselves from the record file. In order to minimize the redundancy of storage of the addresses of the records, the addresses are grouped in buckets in the memory file in predetermined unique combinations of $k+1$ (e.g. 4) attributes, where k (e.g. 3) is the number of attributes in the queries for which the system is principally designed. In each such bucket the record addresses are arranged in $k+2$ (e.g. 5) subbuckets. The addresses for all records including all of the $k+1$ (e.g. 4) attributes are stored in one subbucket and the remaining addresses in that bucket are stored in the remaining $k+1$ (e.g. 4) subbuckets according to which of the combinations of k (e.g. 3) only of the $k+1$ (e.g. 4) attributes are present in the record identified by this particular address.

3,568,156
TEXT MATCHING ALGORITHM

Kenneth L. Thompson, Chatham Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 9, 1967, Ser. No. 659,389
Int. Cl. G06f *7/34*
U.S. Cl. 340—172.5 **8 Claims**

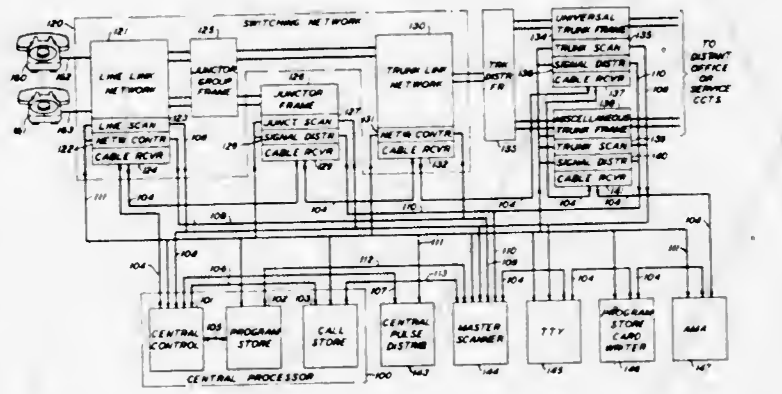
A general purpose computer program and special purpose apparatus for matching strings of alphanumeric characters are disclosed. The algorithm involved makes use of a current-character search list (augmented for all alternative characters) and a next-character search list (augmented for all successful character matches). These characters are portions of the test text to which the string to be matched is compared. Each character of the string to be matched is tested by the current character list, during which time the next character list is compiled. Then a new character is obtained, the next character list substituted for the current character list, and the process continues. The process terminates successfully when test text characters are exhausted, and terminates unsuccessfully when the searched text to be matched is exhausted.



3,568,157
PROGRAM CONTROLLED DATA PROCESSING SYSTEM

Randall W. Downing, Wheaton, Ill.; Michael P. Fabisch, Bronx, N.Y.; John A. Harr, Geneva; John S. Nowak, Wheaton; Frank F. Taylor, West Chicago, and Werner Ulrich, Glen Ellyn, Ill., assignors to Bell Telephone Laboratories Incorporated, New York, N.Y.

Original application Dec. 31, 1963, Ser. No. 334,875. Divided and this application Nov. 24, 1967, Ser. No. 685,642
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **31 Claims**

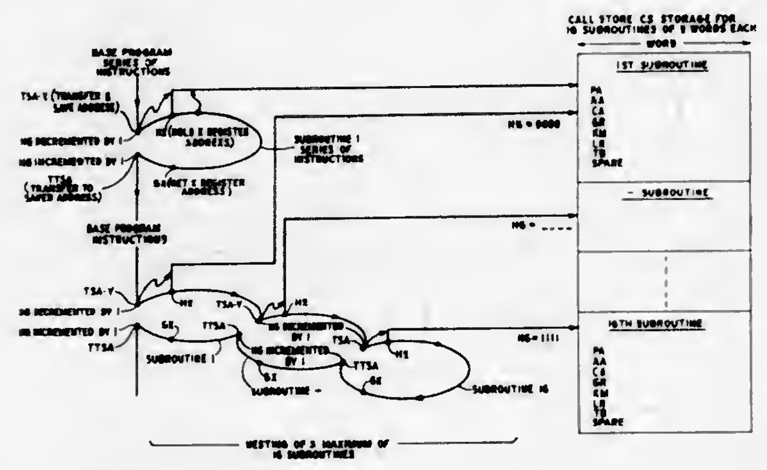


A program controlled telephone switching system is shown as an example of a real time program controlled data processing system. The system work functions of the telephone switching system are performed at assigned levels of a priority hierarchy. This hierarchy includes a base level at which routine jobs are performed, timed interrupt levels at which input-output jobs, which require a fair degree of timing precision, are performed and a plurality of trouble interrupt levels (maintenance interrupt levels), which are employed to initiate remedial actions in accordance with a prescribed remedial plan. The telephone functions which are performed at the base level are allocated processor time in accordance with a base level executive program frequency table. The base level executive program provides time for execution of certain low priority maintenance functions. In the absence of trouble the processor time is shared by the timed interrupt level programs and the base level programs. The trouble interrupt programs are initiated upon the detection of corresponding classes of trouble.

3,568,158
PROGRAM AND SUBROUTINE DATA STORAGE AND RETRIEVAL EQUIPMENT

Neil M. Haller, West Chicago, and Frank S. Vigilante, Naperville, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 3, 1968, Ser. No. 695,397
Int. Cl. G06f *9/00*
U.S. Cl. 340—172.5 **20 Claims**

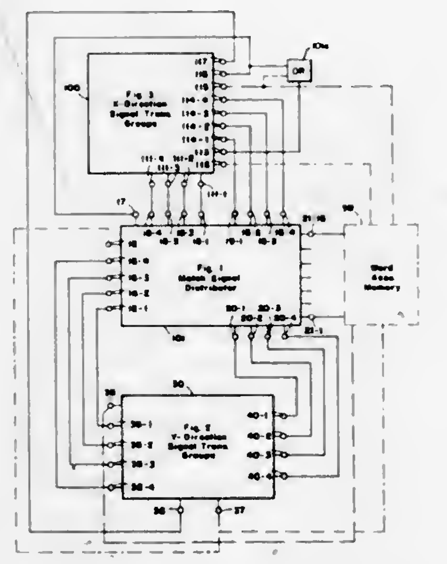

CALL STORE CS STORAGE FOR 16 SUBROUTINES OF 5 WORDS EACH
WORD
1ST SUBROUTINE
BASE PROGRAM SERIES OF INSTRUCTIONS
SUBROUTINE
16TH SUBROUTINE

An electronic program controlled telephone system is disclosed having a call processor for controlling the establishment of call connections among lines, trunks and service circuits via a switching network. The call processor comprises a program control which receives program instructions from a program store to control the establishment of call connections. A call store is included in the processor for storing call data under control of the program control and an input-output control circuit.

3,568,159
MULTIMATCH PROCESSING SYSTEM

Ryo Igarashi, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed Feb. 2, 1968, Ser. No. 702,686
Claims priority, application Japan, Feb. 9, 1967, 448499
Int. Cl. G06f *15/00*
U.S. Cl. 340—172.5 **16 Claims**

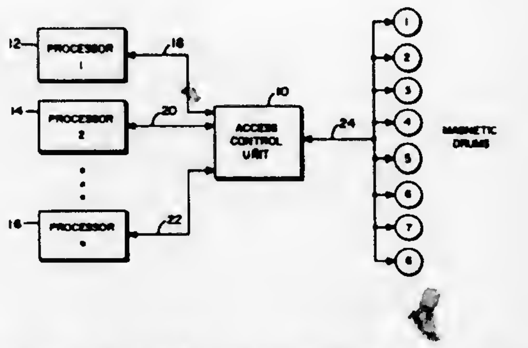


A multimatch system for processing the results of the matching of memory signals, including an *m*-number of flip-flop circuits disposed in an *X*-direction and an *n*-number of flip-flop circuits positioned in a *Y*-direction to indicate such matches thereby enabling the system to process an *m x n* number of memory words. The system also contains corresponding *m* and *n* numbers of each of AND and OR gates arranged in the *X* and *Y* directions for use with the respective *m* and *n* numbers of *X* and *Y* direction flip-flop circuits.

3,568,160
ACCESS CONTROL FOR PLURAL MAGNETIC MEMORIES

Anthony R. Talarczyk, Bloomington, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 3, 1968, Ser. No. 756,830
Int. Cl. G06f *13/00*
U.S. Cl. 340—172.5 **8 Claims**

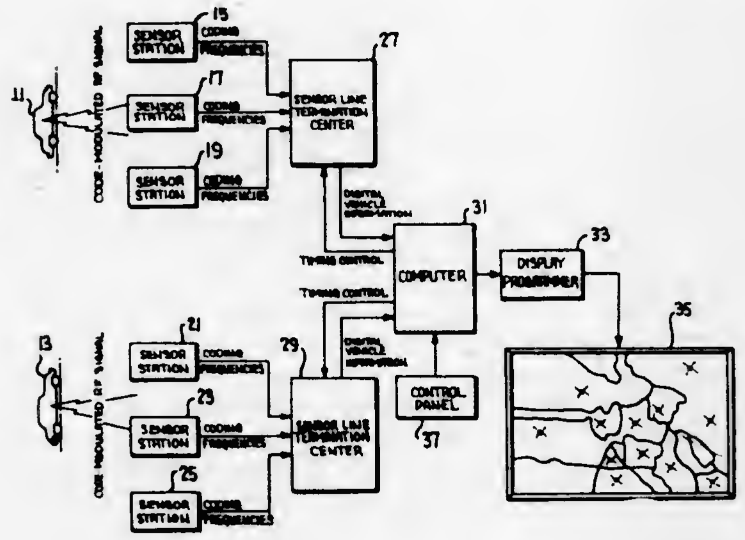


An access control system for handling a plurality of types of addressable-memory systems is described. Memory devices of varying types and having varying addressing systems are controlled and can be coupled to a single data processor input/output channel. The access control system described includes circuitry for responding to selected fields of control words for establishing the length and bit positions of other control fields in the control words.

3,568,161
VEHICLE LOCATOR SYSTEM

Elwyn Raymond Knickel, 2560 36th St. NW., Washington, D.C.

Filed Sept. 4, 1968, Ser. No. 757,410
Int. Cl. G06f *15/20*
U.S. Cl. 340—172.5 **35 Claims**

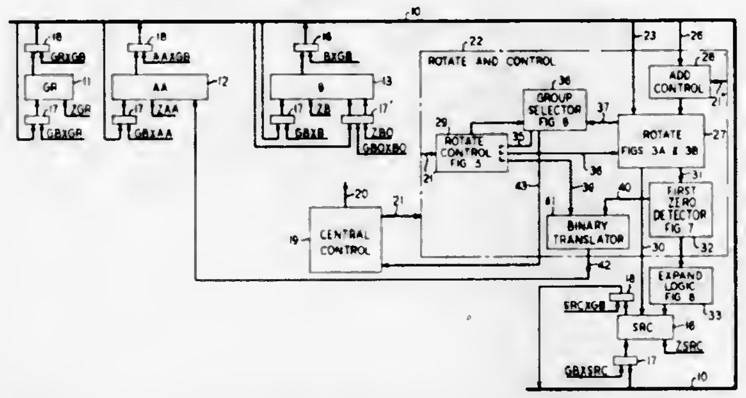


A system for automatically locating vehicles within a prescribed area utilizes an emitter comprising a coded transmitter device carried by each vehicle, a plurality of sensor stations disposed at preselected locations within the prescribed area for receiving vehicle identification-coded signals from nearby vehicles, a vehicle identification decoder for processing of coded signals received by the sensor stations, and a digital computer for processing decoded information to locate each vehicle on the basis of which sensor station most recently received that vehicle's coded signal. The system may be utilized for police car location, whereby existing police call boxes may be utilized as sensor stations, and wherein a display map is provided on which lamps are lighted to indicate the presence of a police car sufficiently close to a call box to have its signal received thereby. Apart from the identification code, additional coded information may be emitted indicating vehicle status (i.e., fully loaded bus, for example, in a bus locator system) or emergency situations.

3,568,162
DATA PROCESSING WITH DUAL FUNCTION LOGIC

Wing N. Toy, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 27, 1968, Ser. No. 763,198
Int. Cl. G06f *5/00*
U.S. Cl. 340—172.5 **13 Claims**

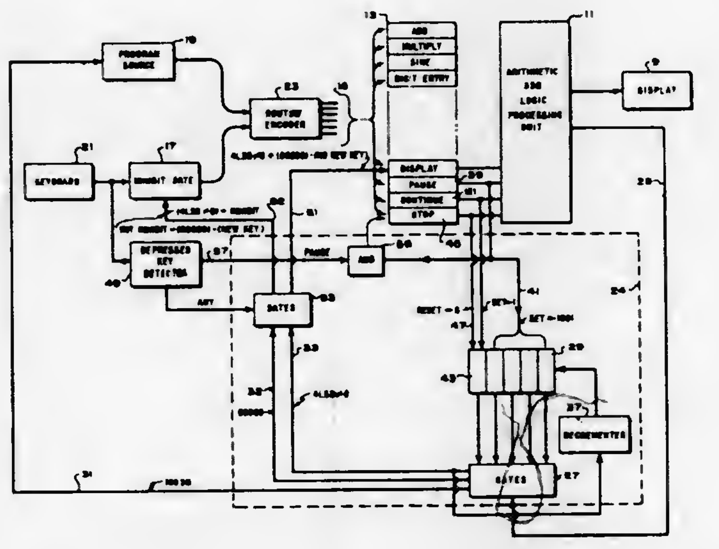


The contents of a selected one of plural general purpose registers in a data processing system are selectably coupled through first-ZERO-detecting logic to modify the contents of a buffer register. The modification takes the form of setting to the ONE state the bit position in the buffer register corresponding to the low order ZERO position of the originating register contents and resetting any lower bit positions to ZERO. The modified contents of the buffer register are then coupled back to the one originating register. Program-controlled circuits perform, in selectable sequences, the normal store and reset types of operations on the originating registers in the course of the movement of information to the ZERO detecting logic and back again. Illustrative processing functions that can be selected in this fashion include marking a low order ZERO and incrementing the contents of the originating register. Another first-ZERO-detecting logic circuit is employed to control the operation of a rotate circuit in cooperation with the first-mentioned ZERO detecting logic to permit both ZERO detectors to have a data bit width which is much smaller than the processor word size.

3,568,163
INCREMENTAL DISPLAY CIRCUIT

Thomas E. Osborne, San Francisco, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 7, 1968, Ser. No. 765,422
Int. Cl. G06f *3/14*
U.S. Cl. 340—172.5 **5 Claims**

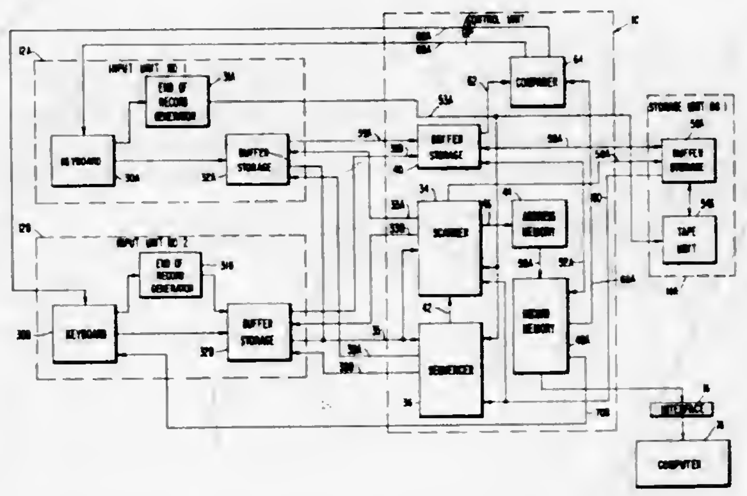


A display circuit for a calculating machine may be activated at selected intervals in a series of preselected program steps to provide a momentary output indication of an incremental calculation. Resumption of operation according to the preselected program steps may be inhibited manually to extend the duration of the output indication.

3,568,164
COMPUTER INPUT SYSTEM

Robert Schiller, Silver Spring, Md., assignor to Computer Entry Systems Corporation, Silver Spring, Md.

Filed Nov. 4, 1968, Ser. No. 772,934
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **5 Claims**

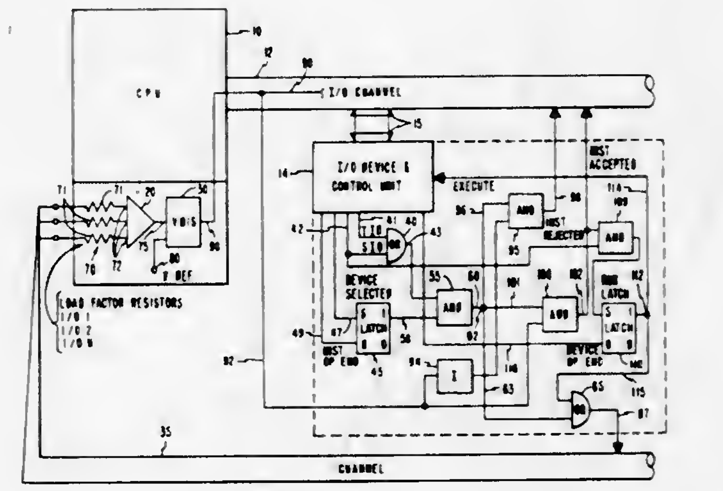


A computer input system. Data from a plurality of input units is transmitted through a single time-shared control unit to a like plurality of tape storage units. The control unit sequentially scans the several input units, and, when an input unit has a data character ready for storage, the control unit transfers the character to a buffer storage unit within the control unit. After a complete data record is in the buffer storage, it is transferred to the associated tape storage unit, and another data record is then applied from the input unit to buffer storage. After all data records are in the tape storage, they can be transferred through the same control unit to a utilizing computer without manual handling of the tape. The time-shared control unit cycles at a rate which permits continuous operation by all input units.

3,568,165
OVERRUN PROTECTION CIRCUIT FOR A COMPUTING APPARATUS

John W. Kerr, Byron, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 14, 1969, Ser. No. 791,007
Int. Cl. G05b *19/38*
U.S. Cl. 340—172.5 **6 Claims**

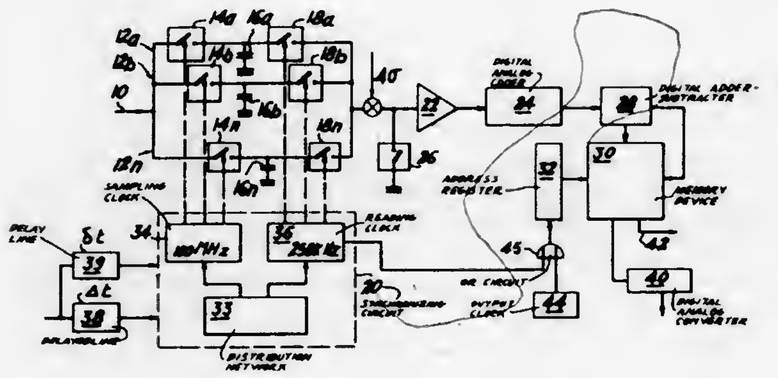


An overrun protection circuit for a computing apparatus having a plurality of I/O devices with predetermined load-operating characteristics operated in an overlap mode of operation. The overrun protection circuit includes a logic circuit at each I/O device and a test circuit at the CPU which provides a summation of load operating characteristics of all I/O devices operating in the computing apparatus at a predetermined instant and a comparison of such sum with a signal indicative of the maximum load-operating characteristic for the computer. The comparison signal determines whether the particular I/O device may be added to those operating in the computing apparatus at that instant and initiates operation in the logic circuit to accept or reject the operation request from the CPU.

3,568,166
METHOD AND DEVICE FOR DIGITAL ANALYSIS

Herveline Jeudon, Gentilly; Claude Fernandes, Chatillon-sous-Bagneux, and Jean-Pierre Felix, Palaiseau, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Feb. 27, 1969, Ser. No. 802,823
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **8 Claims**



A recurrent signal consisting of pulses which can be identified in time is analyzed in order to extract the signal from the background noise; samples of a first pulse are taken at instants which are separated by predetermined time intervals Y, and digitalized, the result is written in an addressable digital memory channel by a digital adder-subtracter, a zero level determined by sampling by the same sampling circuit at a selected instant is subtracted from the contents of each channel of the digital memory and the same sequence is carried on a large number of pulses which come later than the first pulse the samples being added in the digital memory channels.

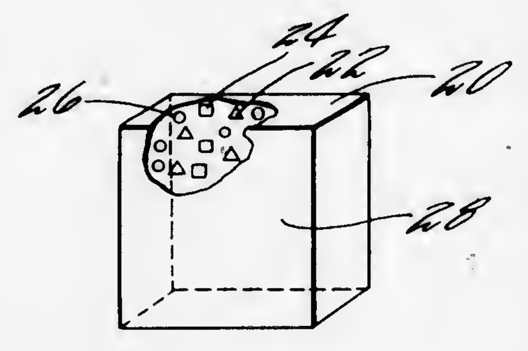
The successive samples of a same pulse are stored in a plurality of time delaying channels each having an analogue storage capacitor. A single lengthening channel may be used and an intermediate memory device fed by the coder stores the zero level and applies it to the input of the adder-subtracter.

3,568,167
OPTICAL INFORMATION STORAGE AND RETRIEVAL SYSTEMS

Arthur N. Carson, Bristol, Conn., assignor to Carson Laboratories, Inc., Bristol, Conn.

Filed May 5, 1965, Ser. No. 453,294
Int. Cl. G11c *13/04*
U.S. Cl. 340—173 **13 Claims**

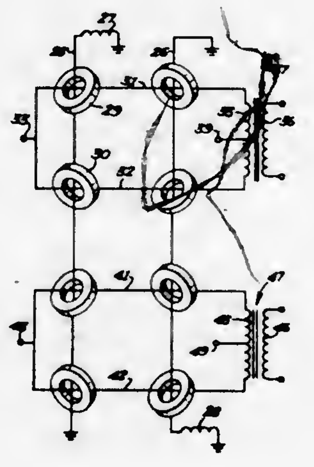
An optical information storage and retrieval system is presented employing hydrogenated color center crystals as the storage medium. A composite of such crystals, whether hydrogenated or not, may be employed for multicolor storage. Also, an erasing system is disclosed in which erasing light is delivered to a storage crystal in leading relationship with respect to signal light, and erasing light is delivered to the crystal in lagging relationship with respect to readout light.



3,568,168
MEMORY APPARATUS

William J. Neuman, Burnsville, Minn., assignor to Fabri-Tek Incorporated, Edina, Minn.

Filed May 25, 1966, Ser. No. 552,742
Int. Cl. G11c *7/00, 11/06, 5/02*
U.S. Cl. 340—174 **21 Claims**



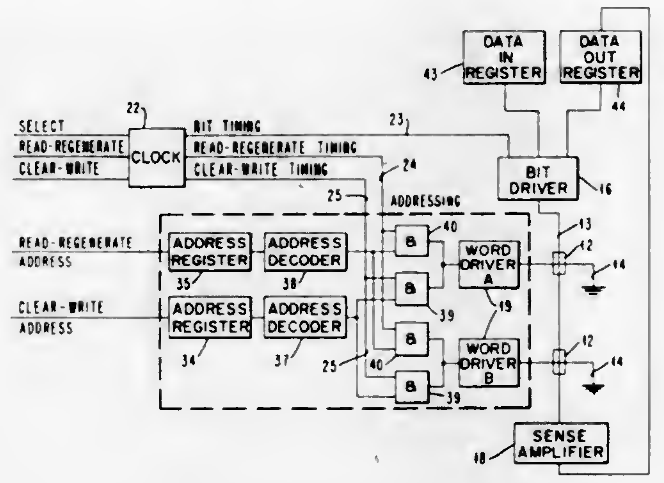
A two-wire coincident current selection system for magnetic cores arranged in columns and rows with adjacent cores having 90° angles relative to one another. A separate column winding threads each of the cores in each column and a separate row winding threads each of the cores in each row. The row windings are joined together in pairs and are connected at one end to output signal means, and are connected to current source means such that current can be selectively sent in either direction through a selected pair of row windings. The sense of the threading by the column and row windings is such that, with respect to the two cores in every column threaded by a joined pair of row windings, the row and column windings aid each other in a first of the cores and buck each other in a second of the cores.

3,568,169
DUPLEX CYCLE FOR 2-D FILM MEMORIES

Victor T. Shahan, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 11, 1967, Ser. No. 652,496
Int. Cl. G11c *7/00, 11/14*
U.S. Cl. 340—174 **6 Claims**

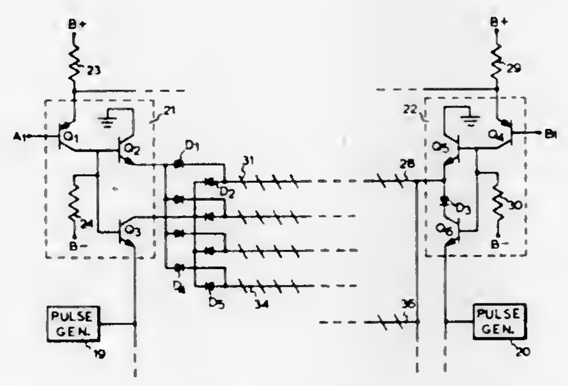
Magnetic memory having timing means to perform simultaneous operations on two words of the memory. In one embodiment the sequence is read A, clear B, write B, regenerate A. In a second embodiment the sequence is clear B, read A, write B, regenerate A.



3,568,170
CORE MEMORY DRIVE SYSTEM

Louis Catalani, Jr., Hawthorne, and Thomas J. Gilligan, Palos Verdes, Calif., assignors to Electronic Memories, Incorporated, Hawthorne, Calif.

Filed May 21, 1968, Ser. No. 730,821
Int. Cl. G11c *7/00, 11/06*
U.S. Cl. 340—174 **16 Claims**



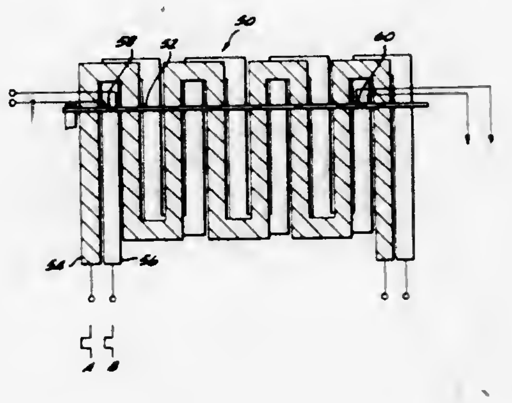
A core memory drive system with direct coupling to a decoder is provided by: a first bank of sink-drive switches, one switch for each of *M* decoder output signals selecting a group of *N* lines; and a second bank of sink-drive switches, one switch for each of *N* decoder output signals selecting the other end of one line of a group of lines selected by the first bank of switches. A current pulse is applied directly to the switches of the first bank for a store operation, and a current pulse is applied directly to the switches of the second bank for a read operation. Each switch comprises a switching transistor and two other transistors directly connected to the switching transistor and a group of lines. At least one blocking diode isolates the two transistors connected to a group of lines. Additional diodes are provided to prevent sneak current paths in the memory array.

3,568,171
HIGH DENSITY SHIFT REGISTER STORAGE MEDIUM

Tommy G. Lesher, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 23, 1968, Ser. No. 786,123
Int. Cl. G11c *19/00, 11/12*
U.S. Cl. 340—174 **9 Claims**

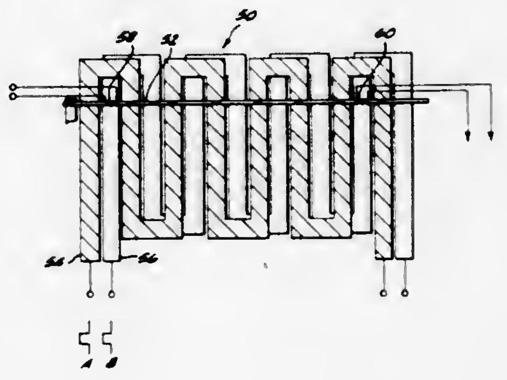
A magnetic shift register including a fine drawn wire magnetic recording medium of cobalt, iron and vanadium which is annealed, the wire being wound under tension in a helix around a cylindrically disposed polyphase advancing array which includes a plurality of advancing windings oriented transverse to the wire so that a magnetic domain recorded on a segment of the wire can be propagated through the length of the wire by the polyphase advancing array when current pulses are applied to the windings. A read winding is disposed around the wire toward one end thereof so that the propagated magnetic domain induces an output signal in it as it is propagated therethrough.



3,568,172
HIGH DENSITY SHIFT REGISTER STORAGE MEDIUM

Tommy G. Lesher, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 23, 1968, Ser. No. 785,917
Int. Cl. G11c *19/00, 11/12*
U.S. Cl. 340—174 **9 Claims**



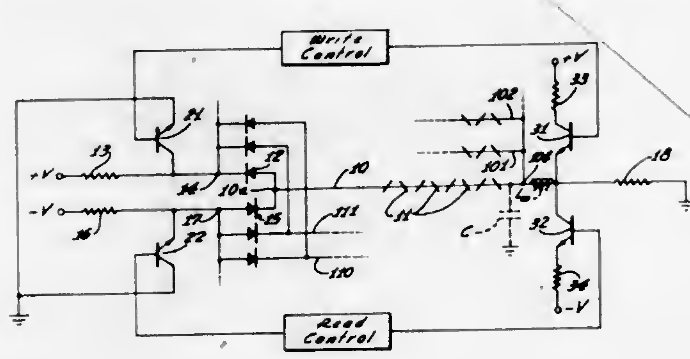
A magnetic shift register including a fine drawn wire magnetic recording medium of cobalt, iron and vanadium which can be annealed, the wire being wound under tension in a helix around a cylindrically disposed polyphase advancing array which includes a plurality of advancing windings oriented transverse to the wire so that a magnetic domain recorded on a segment of the wire can be propagated through the length of the wire by the polyphase advancing array when current pulses are applied to the windings. A read winding is disposed around the wire toward one end thereof so that the propagated magnetic domain induces an output signal in it as it is propagated therethrough.

3,568,173
MEMORY STROAGE ELEMENT DRIVE CIRCUIT

Lance T. Klinger, Playa Del Rey, Calif., assignor to Scientific Data Systems, Inc., Santa Monica, Calif.

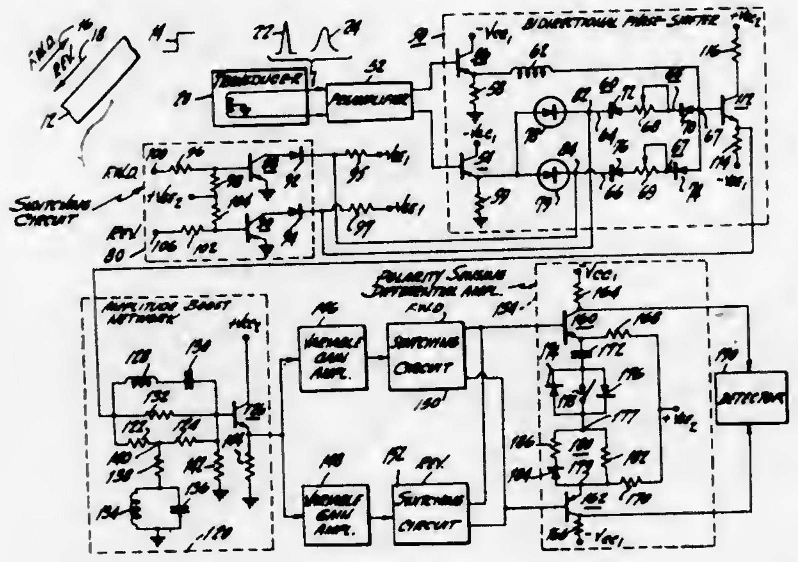
Filed Aug. 19, 1968, Ser. No. 753,541
Int. Cl. G11c *7/00, 11/06;* **H03k** *17/66*
U.S. Cl. 340—174 **10 Claims**

A memory core wire drive circuit is disclosed in which one wire end is normally biased to ground but controlled through a pair of transistors each connecting through series resistors to sources of opposite potentials. The other wire end connects through reversely biased diodes and two transistors directly to ground.



3,568,174
COMPENSATED READBACK CIRCUIT

George V. Jacoby, Bala-Cynwyd, Pa., and Joseph D. Gleitman, Camden, N.J., assignors to RCA Corporation
Filed Mar. 15, 1968, Ser. No. 713,459
Int. Cl. G11b *5/44, 5/00*
U.S. Cl. 340—174.1 **10 Claims**

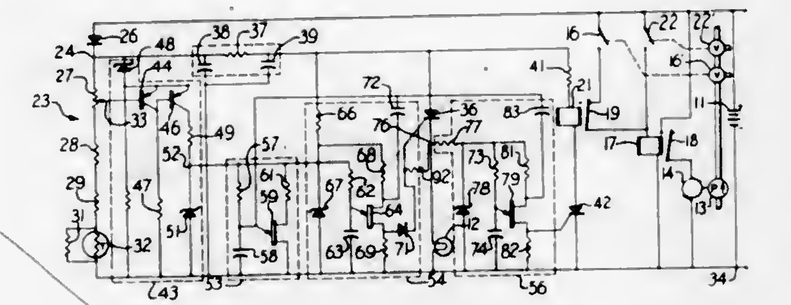

BIDIRECTIONAL PHASE-SHIFTER
SWITCHING CIRCUIT
POLARITY SENSING DIFFERENTIAL AMPL.
VARIABLE GAIN AMPL.
SWITCHING CIRCUIT
DETECTOR

In high performance data recording and readback systems, both forward direction and reverse direction reading of the storage medium occurs. The readback signals derived from reading in either direction are phase compensated to make the self-timing clock signal extracted therefrom more accurate.

3,568,175
PROTECTIVE MONITORING CIRCUIT FOR A VEHICLE BATTERY

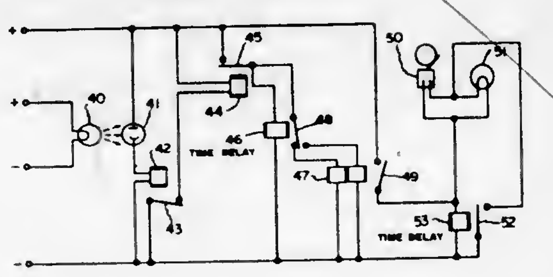
Richard A. Schwehr, South Euclid, and Marc A. Pohm, Lorain, Ohio, assignors to Towmotor Corporation, Cleveland, Ohio
Filed Mar. 14, 1968, Ser. No. 713,113
Int. Cl. G08b *21/00;* **H02j** *7/00.*
U.S. Cl. 340—249 **2 Claims**

A solid-state circuit provides a visual indication when the battery of an industrial truck is approaching a discharged condition and if the condition is not corrected within a predetermined time the circuit automatically inactivates one or more electrical components thereby protecting the battery and forcing the operator to take remedial action. The circuit discriminates against brief voltage drops which do not necessarily indicate a discharged battery.



3,568,176
SIGNAL MONITORING APPARATUS

Carroll W. Schouest, New Orleans, La.
Filed Jan. 6, 1968, Ser. No. 701,030
Int. Cl. G08b *21/00*
U.S. Cl. 340—251 **2 Claims**

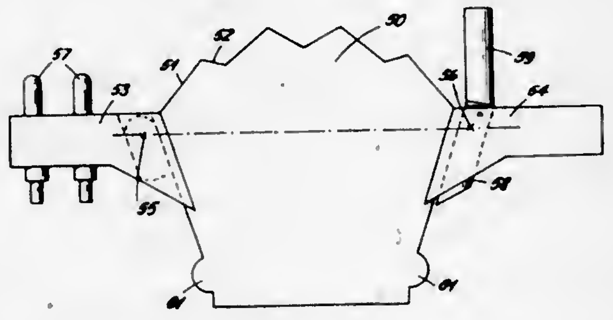


The present invention pertains to apparatus for monitoring the time interval of an uninterrupted number of pulses of a light source, preferably that emanating from the line light of a conventional telephone set. More particularly, an electrical device for monitoring the time interval of an uninterrupted number of flashes of a telephone line light whereby an operator will be reminded after a predetermined time interval that a party has been on "hold" for such time.

The present invention in its preferred embodiment basically comprises photocell means in combination with a series of contacts and relays whereby the time interval of a number of uninterrupted number of flashes of a telephone line light are monitored.

3,568,177
MULTICOLOR INDICATORS

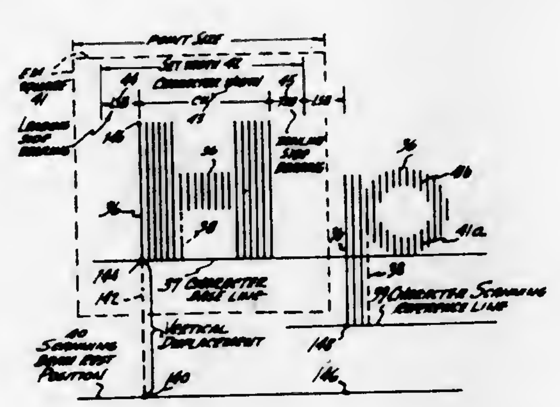
Edmond F. Hasler, Ashstead, Surrey, England, assignor to Central Electricity Generating Board, London, England
Filed Aug. 31, 1967, Ser. No. 664,727
Claims priority, application Great Britain, Sept. 2, 1966, 39234/66
Int. Cl. F21v *7/04*
U.S. Cl. 340—324 **6 Claims**



A multicolor indicator system has two or more lamps with differently colored filter and a housing with a plurality of reflecting facets such that light is reflected out through a viewing aperture from each lamp over the whole of a required range of viewing angles.

3,568,178
ELECTRONIC PHOTOCOMPOSITION SYSTEM

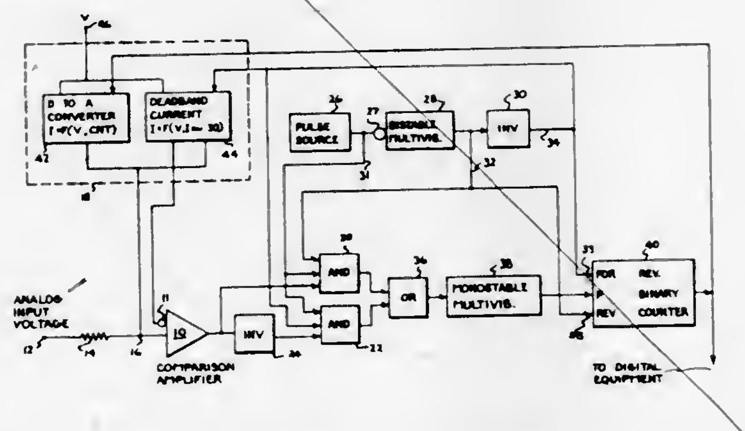
Robert F. Day, Trenton, N.J., assignor to RCA Corporation
Filed Dec. 8, 1967, Ser. No. 689,044
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 **11 Claims**



An electronic photocomposition system forms patterns, including characters, on an imaging device, such as a cathode ray tube, and focuses the patterns onto a photosensitive surface for recording thereon. The characters formed include ascender characters that ascend from a predetermined character baseline and descender characters that descend below the character baseline. Each character is formed by a plurality of successive vertical scans that create individual character slices. The start of each scan is positioned at the character baseline for each ascender character and is displaced to the bottommost portion of the character for each descender character. Each scan of each character is retraced immediately upon traversing the outer periphery of a character during the scan so that the length of the scans corresponds to the contour of the characters. The scans are stepped across the character as the character is scanned and, at the end of scanning a character, the scans are jumped to the position where the next character begins with no intercharacter space being scanned.

3,568,179
ANALOG-TO-DIGITAL CONVERTER

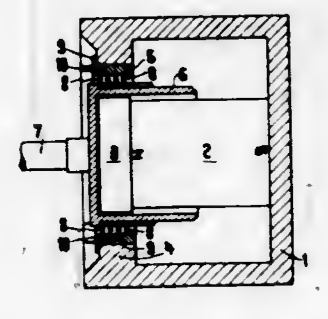
John O. Lampkin, Jr., Roanoke, Va., assignor to General Electric Company
Filed Sept. 20, 1967, Ser. No. 669,179
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 **3 Claims**



A continuously tracking analog to digital converter including a switching comparison amplifier, a pulse source, a reversible binary counter, and a gating circuit which allows pulses to be applied to the counter only under certain conditions of current imbalance at the amplifier. A negative analog signal is balanced at the amplifier by a positive D to A converter current and by a deadband current, the polarity of which is changed by the pulse source. The D to A current magnitude is a function of the counter contents and of the supply voltage for the D to A converter. The deadband current is a function of the supply voltage and of the state of a bistable multivibrator connected to the pulse source. When only slight current imbalance exists at the amplifier, the amplifier is continuously switched by the changing deadband current, a condition which inhibits the application of pulses to the counter.

3,568,180
ENCODER

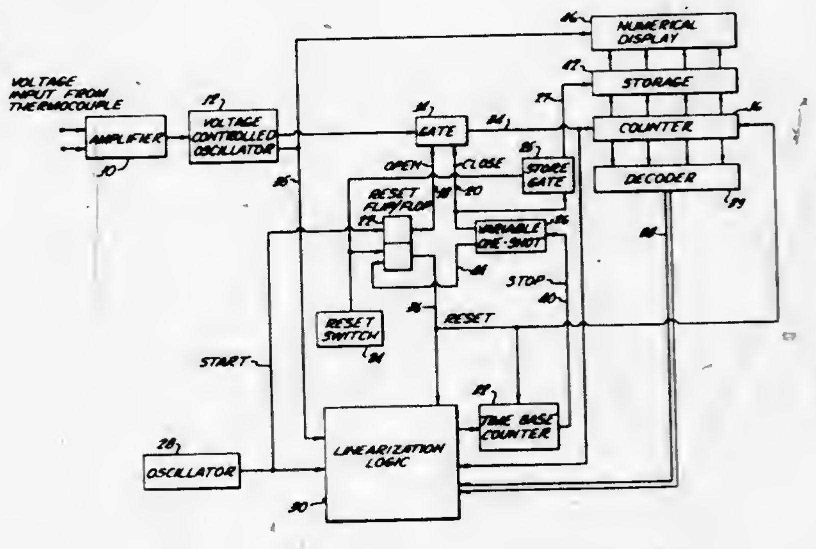
Eduard Rosch, Le Locle, Switzerland, assignor to Dixi S. A., Le Locle, Neuchatel, Switzerland
Filed Nov. 1, 1967, Ser. No. 679,838
Int. Cl. G08c *9/04*
U.S. Cl. 340—347 **10 Claims**



An encoder having a number of output circuits including each a resistor of which the resistance value depends on the magnetic field intensity in it, the field intensity being controlled by a code track associated with each resistor.

3,568,181
SYSTEM FOR LINEARIZING A NONLINEAR CONTINUOUS FUNCTION BY VARIABLE TIME SAMPLING

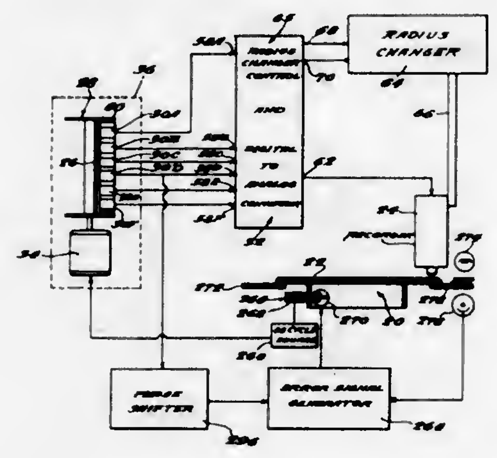
John H. Weaver, Encino, Calif., assignor to Anadex Instruments, Inc.
Filed July 12, 1968, Ser. No. 744,529
Int. Cl. H03k *13/00*
U.S. Cl. 340—347 **5 Claims**



A voltage representing a point on a nonlinear continuous curve having a known characteristic shape is converted to a periodic function having a frequency determined by the magnitude of the input voltage. A gating means is enabled by a variable time base generating means and applies the periodic function to a counting means for a sample time determined by the frequency of the periodic function, the accumulated count in the counting means, and the characteristic shape of the voltage curve. When the gating means is disabled at the end of the sample time, the counting means contains a value representing the magnitude of the input voltage.

3,568,182
METHOD FOR PRODUCING CODE MEMBERS

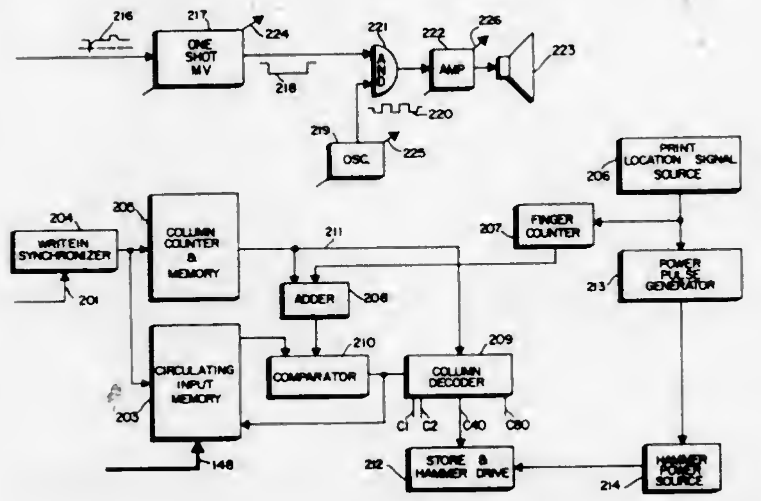
Edward M. Jones, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio
Original application June 18, 1962, Ser. No. 203,354, now Patent No. 3,235,878. Divided and this application Dec. 13, 1965, Ser. No. 513,478
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 **6 Claims**



A method for recording an image on a photosensitive surface rotating on a turntable in which the area of the image is varied responsive to the numerical value of a digitally recorded tape transported in synchronism with the rotation of the turntable.

3,568,183
KEYBOARD SYNCHRONIZED TONED GENERATOR

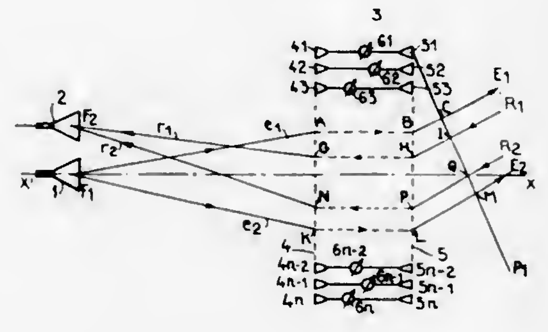
Jacob K. Snell; John J. Larew, and Clifford M. Jones, Waynesboro, Va., assignors to General Electric Company
Filed July 9, 1968, Ser. No. 743,470
Int. Cl. H04l *15/12*
U.S. Cl. 340—365 **18 Claims**



In a keyboard printer arrangement utilizing the multibit, binary coded digital signals representative of the printable symbols associated with an operated key to generate separate sounds synchronized with key operation and audibly distinguishable from nonsynchronized or changing printing sounds.

3,568,184
DIRECTIONAL ANTENNA ARRAY HAVING IMPROVED ELECTRONIC DIRECTIONAL CONTROL

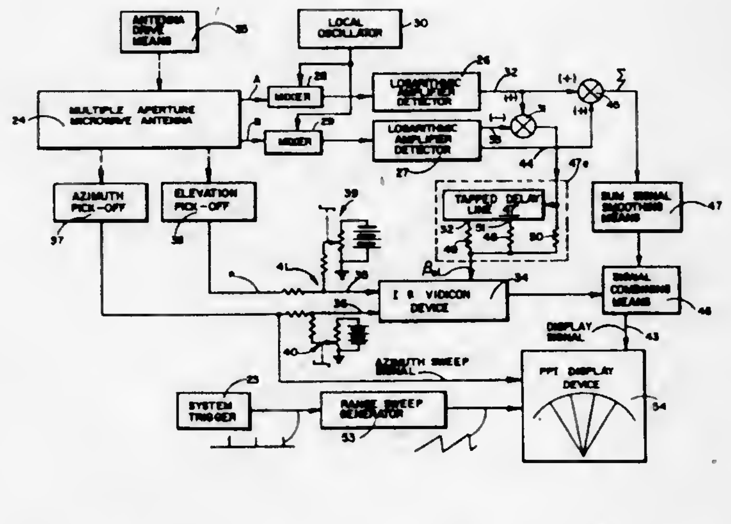
Serge V. Drabowitch, Chatenay Malabry, France, assignor to Compagnie Francaise Thomson Houston - Hotchkiss Brandt, Paris, France
Filed Sept. 30, 1966, Ser. No. 583,309
Claims priority, application France, Oct. 14, 1965, Nov. 2, 1965, 34931;36937
Int. Cl. G01s *9/02;* **H01q** *19/06, 3/26*
U.S. Cl. 343—5 **10 Claims**



A plurality of transmitting and/or receiving radiators made operational in a predetermined sequence, confront a focusing assembly which includes an array of controllable phase shifters for converting planar waves into spherical waves or vice versa, the phase shifts introduced by this array being periodically altered under the control of a timer to center the spherical wave fronts on one side of the array successively upon the several radiators whenever the latter are made operational.

3,568,185
MAPPING SIGNAL DISPLAY APPARATUS

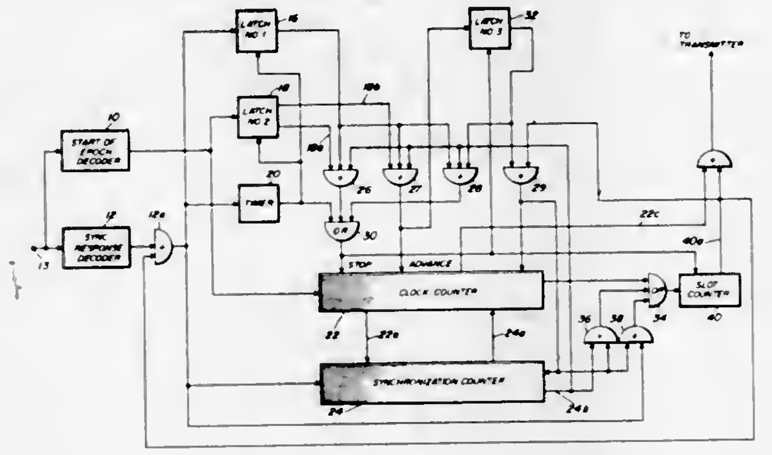
Jerome M. Page, Fullerton, Calif., assignor to North American Rockwell Corporation
Filed Mar. 30, 1964, Ser. No. 356,357
Int. Cl. G01s *9/00*
U.S. Cl. 343—6 **10 Claims**



Multiple-sensor means for detecting a multiple-energy target comprising pulsed energy monopulse scanning means for providing signals indicative of the range and direction of a detected target; passive radiant energy means in cooperation with said monopulse means for providing signals indicative of radiant energy radiated from said direction other than said pulsed energy; and signal combining means responsive to said pulsed energy means and said passive sensor means for providing a display signal indicating the presence of a target which both reflects said pulsed energy and radiates said radiated energy.

3,568,186
EXTENDED RANGE CLOCK SYNCHRONIZATION FOR COLLISION AVOIDANCE SYSTEM

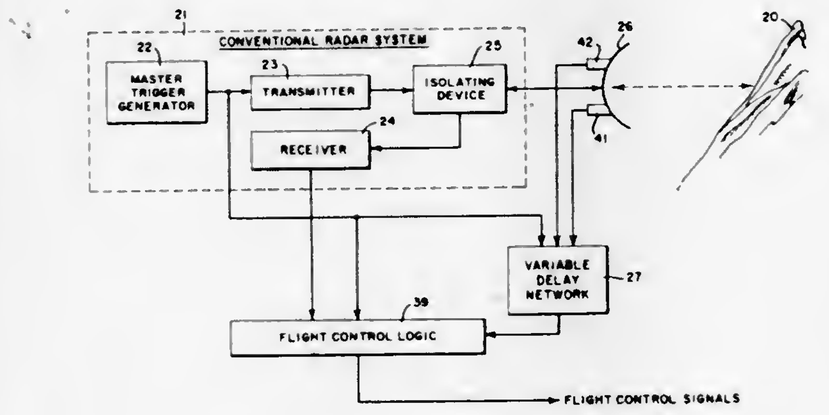
Wayne G. Shear, Pompano Beach, Fla.; Merlin E. Olmstead, Baltimore, Md., and Samuel Roger Everett, Ft. Lauderdale, Fla., assignors to The Bendix Corporation, Fort Lauderdale, Fla.
Filed Dec. 3, 1968, Ser. No. 780,729
Int. Cl. G01s *9/56*
U.S. Cl. 343—6.5 **11 Claims**



Apparatus for synchronizing clocks within a cooperative collision avoidance network wherein an aircraft after operating in an isolated environment for a predetermined time sets its clock in a standby position and listens for start of epoch signals. Upon hearing a start of epoch signal the aircraft immediately starts its clock and begins counting epochs and the time slots contained therein. During own time slot, as determined by its clock, the aircraft transmits a clock synchronization request. If no synchronization responses are received the aircraft will automatically advance its clock by a predetermined amount and once again transmit a synchronization request during its next time slot. If a synchronization response is now received the aircraft will synchronize its clock taking into account the amount of time by which its clock had to be advanced in order to receive the synchronization response. If no response is received the aircraft automatically returns its clock to the standby condition.

3,568,187
TERRAIN AVOIDANCE RADAR SYSTEM

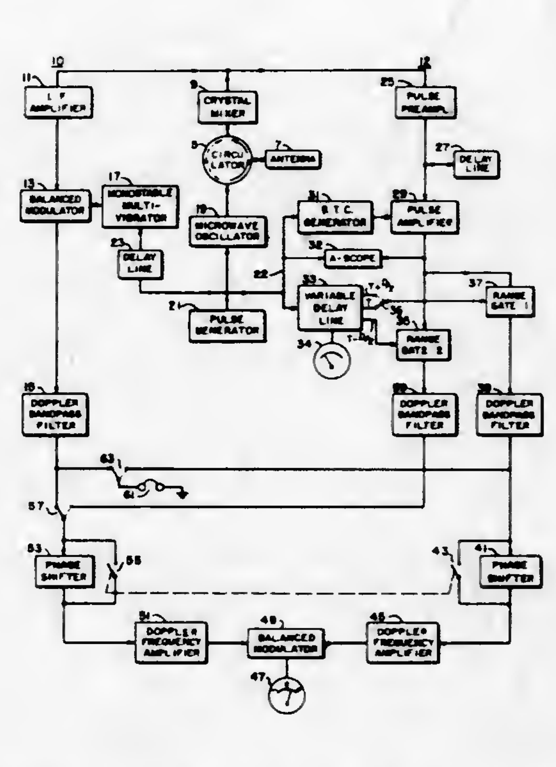
Bartow Bechtel, Mountain View, Calif.; Grady D. Satterwhite, and James H. Sharp, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 29, 1961, Ser. No. 163,358
Int. Cl. G01s *9/02*
U.S. Cl. 343—7 **12 Claims**



The present invention relates to radar systems and more particularly relates to a terrain avoidance system for monitoring and detecting terrain and other obstacles in the path of an airborne vehicle and automatically programming the flight of the vehicle to avoid the detected obstacles.

3,568,188
CONTINUOUS WAVE RADAR WITH MEANS FOR INDICATING MOVING TARGET DIRECTION

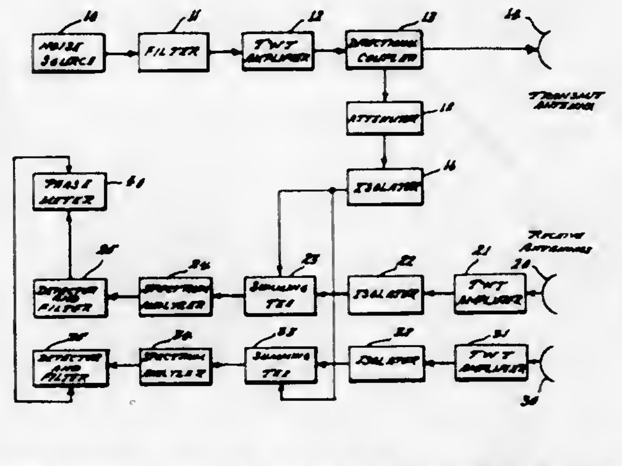
William Fishbein, Elberon, and Otto E. Rittenbach, Neptune, N.J., assignors to the United States of America, as represented by the Secretary of the Army
Filed Mar. 7, 1967, Ser. No. 624,650
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **6 Claims**



A continuous wave radar set in which the transmitted wave is periodically gradually reversed in phase by frequency modulating the microwave oscillator thereof. The target echoes are heterodyned with a sample of the transmitted wave and applied in parallel to an all-range channel and a ranging channel. Doppler frequency signals from all moving targets within the radar beam appear in the all-range channel, whereas in the ranging channel Doppler frequency signals at any range can be selected by means of range gates. By correlating Doppler signals from the two channels, or a pair of signals from the ranging channel, target range and directivity information may be obtained.

3,568,189
SPECTRUM ANALYSIS RADAR SYSTEM FOR ANGLE DETERMINATION

Joseph L. Poirier, 26 Brian Road, Chelmsford, Mass.
Filed Mar. 11, 1969, Ser. No. 806,227
Int. Cl. G01s *9/02*
U.S. Cl. 343—16 **9 Claims**

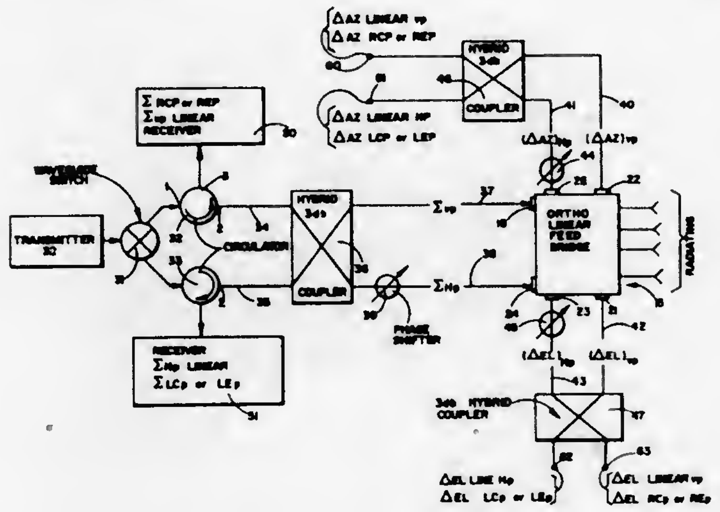


Spectrum analysis radar system in which the location of modulation nulls depends upon the exact electrical range to a target so that with two antennas separated by a known distance, the small difference in range to a target causes the null location to shift relative to each other to provide the angle of arrival of the reflected target.

3,568,190

FULL MONOPULSE VARIABLE POLARIZATION FEED BRIDGE

Sam H. Wong, Yorba Linda, Calif., assignor to North American Rockwell Corporation
Filed July 26, 1968, Ser. No. 748,066
Int. Cl. G01s *9/22*
U.S. Cl. 343—16 **8 Claims**

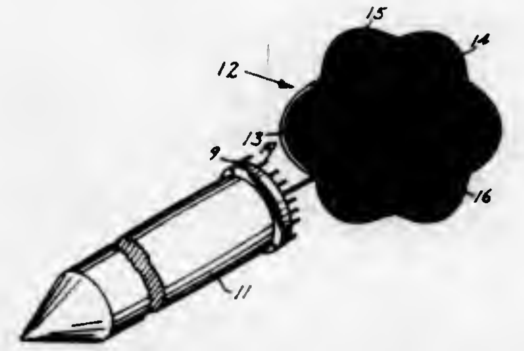


The device of this invention is a monopulse microwave feed bridge for transmitting and receiving selected polarizations which is comprised of an ortholinear, full monopulse feed bridge having a pair of mutually orthogonal linear polarization monopulse sum ports and a set of dual-plane monopulse difference ports comprised of a first and second pair of mutually orthogonal linear polarization receiver ports. The phase at one port of each of the three pairs of ports is adjustable and a 3db hybrid coupler is interposed at each pair of ports. A waveguide switch cooperates with the summation channel 3db hybrid coupler and the variable phase shifter to selectively control and vary the polarization of the transmitted waves. The 3db hybrid couplers at the monopulse difference channel outputs and the adjustable monopulse difference channel phase shifters provide difference channel receiver responses to selected polarizations in a multimode system application. This particular configuration allows the selection of any particular type of transmitted polarized wave while simultaneously providing the capacity to selectively receive the transmitted polarization and its orthogonal polarizations. In a second embodiment of the invention, the 3db hybrid couplers are replaced by 3db hybrid switches to provide a linear polarization mode on transmit and receive.

3,568,191

METHOD FOR DEFENDING AN AIRCRAFT AGAINST A FRONTAL ATTACK

James C. Hiester, Baltimore, Md., and Harry L. Van Trees, Jr., Watertown, Mass.
Filed Dec. 15, 1960, Ser. No. 076,082
Int. Cl. H01q *15/20*
U.S. Cl. 343—18 **1 Claim**

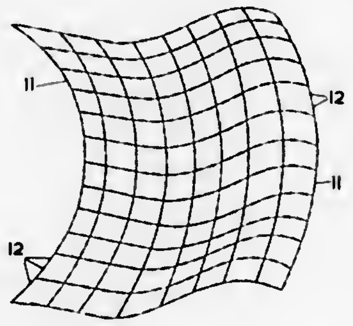


A method for defending an aircraft against a frontal attack by an interceptor comprising, launching a rocket in the direction of travel of said aircraft, said rocket containing in a collapsed condition a collapsible reflector having three orthogonal surfaces of wire mesh, then ejecting said reflector from said rocket whereupon said reflector is expanded, and then towing said reflector whereby said reflector serves as a target for attracting said interceptor.

3,568,192

ARTIFICIAL SATELLITES

Thomas William Grant Dawson, Washington, D.C., assignor to Minister of Technology in Her Britannic Majesty's Government to the United Kingdom of Great Britain and Northern Ireland, Millbank, London, England
Filed Oct. 24, 1966, Ser. No. 589,129
Claims priority, application Great Britain, Oct. 28, 1965, 45765/65
Int. Cl. H01g *15/14*
U.S. Cl. 343—18 **4 Claims**

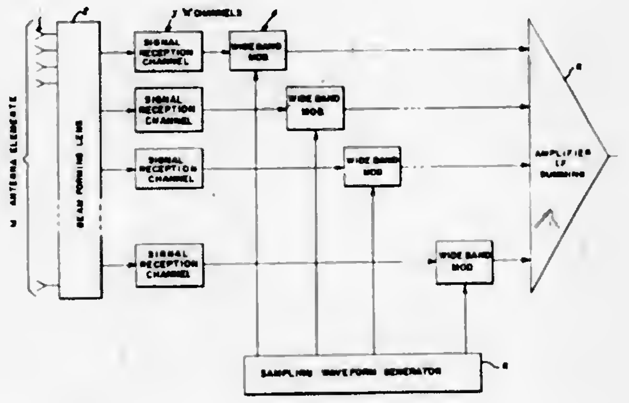


A very light, easily dispensed, efficient and durable passive radial communication satellite comprising a filamentary net-like structure of which alternate lengths of the filaments are metal coated to comprise dipoles, and in which those surfaces of the net filaments between the metal covered dipole regions are covered with a layer of metal which affords protection against damage to the net by long-wavelength ultraviolet radiation and reduces the rate of evaporation of the net material, said layer of metal being of small thickness compared to that forming the dipoles so that radio wave reflection therefrom is negligible.

3,568,193

ANGLE DISCRIMINATION RADAR RECEIVING SYSTEM HAVING SUBSTANTIAL SIDE LOBE CANCELLATION

David K. Barton, Lexington, and Eric W. Beasley, Framingham, Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Nov. 29, 1967, Ser. No. 686,678
Int. Cl. G01s *9/02*
U.S. Cl. 343—16 **10 Claims**

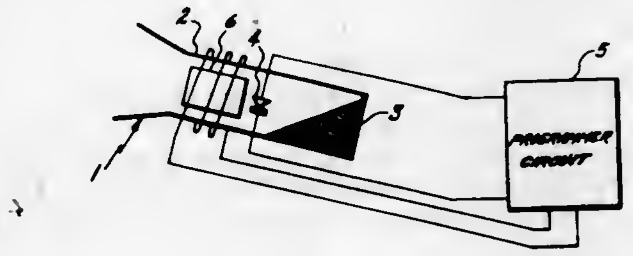


The receiving system comprises an antenna array of *m* elements spaced at discrete points for obtaining Shannon samples over an arc of an incident signal phase front, the arc center being taken at the antenna array. The phase front signals from the *m* elements are distributed onto *n* reception channels, *n* being less than *m*. Each phase front signal present in a given rank ordering of reception channels is multiplied by a sampling signal. This multiplication results in a time domain weighted analog of the received signal space of the phase front along the arc. A summing network extracts the angle of incidence information from the time domain weighted analog signal.

3,568,194

SYSTEM FOR DEGRADING RADAR RETURN SIGNALS

Robert G. Wilson, Riverside, Calif.; Gordon L. Burton, Acton, Mass., and Edward N. Skomal, Redlands, Calif., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Oct. 11, 1967, Ser. No. 675,278
Int. Cl. G01s *7/42*
U.S. Cl. 343—18 **1 Claim**

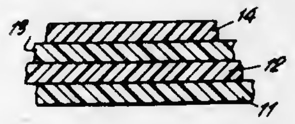


A method and system for degrading the performance of radars that track satellites, reentry vehicles and the like. The method and system comprises phase and/or amplitude modulation of the radar signal by one or more "scattering" sources positioned on the target vehicle, thus causing the return target signal to appear as an incoherent object. Scattering sources suitable for appropriate modulation include antenna reflectors connected to variable load transmission lines.

3,568,195

ELECTROMAGNETIC WAVE ATTENUATING DEVICE

Ludwig Wesch, Heidelberg, and Hans H. Meinke, Munich-Gauting, Germany
Filed Nov. 23, 1959, Ser. No. 854,979
Claims priority, application Germany, Dec. 4, 1958, E16 822VIIIa/21a4
Int. Cl. H01q *17/00*
U.S. Cl. 343—18 **19 Claims**



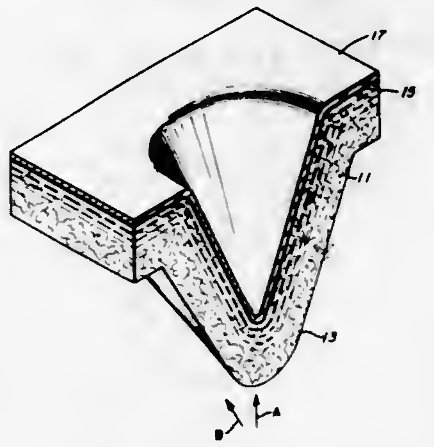
A radar wave absorber is disclosed which does not require a metal backing layer. The absorber operates according to interference principles, with a portion of the wave reflected from the absorber's back layer interfering with the wave reflected from the surface layer. The backing material must exhibit a high relative dielectric constant, or a high relative magnetic permeability and dielectric loss tangent, or a high magnetic loss tangent, or a combination of these properties.

3,568,196

RADIO FREQUENCY ABSORBER

Richard O. Bayrd, Wakefield, and Raymond P. Tuinila, Beverly, Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Feb. 6, 1969, Ser. No. 797,042
Int. Cl. H01q *17/00*
U.S. Cl. 343—18 **6 Claims**

An absorber for radio frequency energy using incombustible materials to minimize adverse effects from the conversion of such energy to heat, including a fibrous mat of nonabsorbing material in which the absorbing material is distributed in such a manner that discontinuities in the index of refraction,

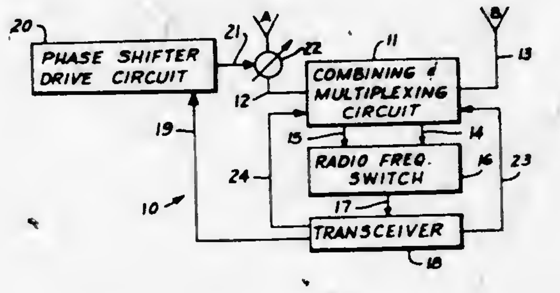


meaning always the electrical index, in the path of the energy to be absorbed are minimized.

3,568,197

ANTENNA ARRAY PHASE QUADRATURE TRACKING SYSTEM

Harold Dean Cubley, Houston, Tex., Assignor to the United States of America as represented by the administrator of the National Aeronautics and Space Administration.
Filed Dec. 5, 1969, Ser. No. 882,577
Int. Cl. G01s *3/46*
U.S. Cl. 343—100 **9 Claims**



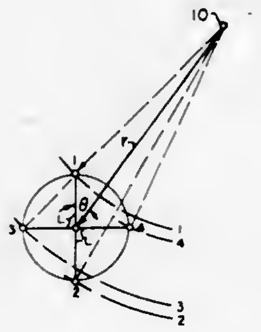
The system input signals on two separate antenna elements in an antenna array are combined to form two processed signals with one such signal representing the absolute value of the sum of the two antenna signals and the other representing the absolute value of the difference of the signals. The two processed signals are time multiplexed through a radiofrequency switch operating at 10-millisecond intervals to form a single input signal to a receiver which in turn detects amplitude modulation in the multiplexed signal and forms an amplitude dependent signal to control a variable phase shifter circuit. The latter circuit automatically alters the relative phase between the two antenna signals whenever any amplitude modulation exists in the multiplex signal. Relative phase shift of the two antenna signals stops when the absolute value of the two processed output signals are equal to each other which occurs only when the two antenna signals are in phase quadrature. The described procedure may be employed for any number of antennas connected in parallel to provide substantially omnidirectional antenna coverage and the time multiplexing and signal processing operations may be performed with stripline circuitry and techniques. For transmitting, a phase detector is employed to detect the phase modulation in the received multiplexed signal to establish and switch to the antenna in the array which will provide the greatest system gain for use while transmitting.

The invention described herein was made by an employee of the United States Government and may be manufactured and used by or for the government for governmental purposes without the payment of any royalties thereon or therefor.

3,568,198
CORRELATION CURVATURE RADAR

Sidney Borowitz, New York; Norman Caplan, Brooklyn; Gordon C. Dewey, and Milton Stoller, New York, N.Y., assignors to the United States of America as represented by the Secretary of the Army

Filed May 31, 1963, Ser. No. 285,557
Int. Cl. G01s *5/14*
U.S. Cl. 343—112 **11 Claims**

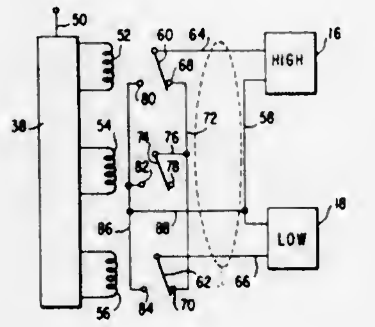


Short base line range measuring system having a plurality of receiving stations in a circle and a central station. Correlation techniques are used with pairs of stations connected sequentially through coarse and fine delay lines, and processing the signals to determine range.

3,568,199
RADIO CONTROLLED TRAP SHOOTING APPARATUS

William R. Hartness, 207 E. Main St., Sanford, N.C. 27330

Filed Apr. 7, 1967, Ser. No. 629,195
Int. Cl. H04b *7/12;* **F41c** *19/12*
U.S. Cl. 343—225 **1 Claim**



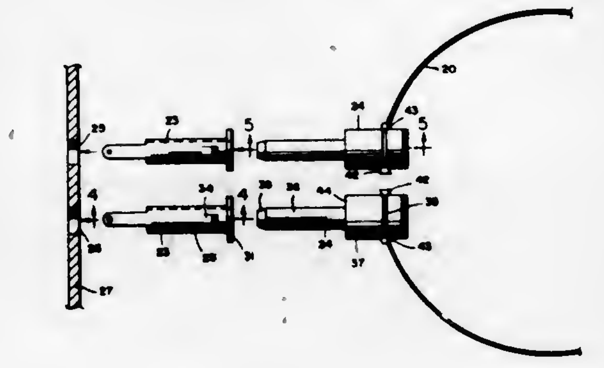
A portable apparatus for remotely controlling the launching of disc targets. A multichannel radio transmitter is mounted on a scoring board and a fixed multichannel radio receiver, adapted to receive selected signals from the transmitter, is connected to target launching mechanisms to provide a trigger therefor. The desired launching mechanism is triggered by the choice of the transmitting channel over which a signal is sent.

3,568,200
MOUNTING ASSEMBLY FOR LOOP ANTENNA

Peter G. Seyler, Franklin Park, Ill., assignor to Perfection Spring & Stamping Corporation, Mt. Prospect, Ill.

Filed Nov. 19, 1969, Ser. No. 877,986
Int. Cl. H01q *1/24*
U.S. Cl. 343—702 **14 Claims**

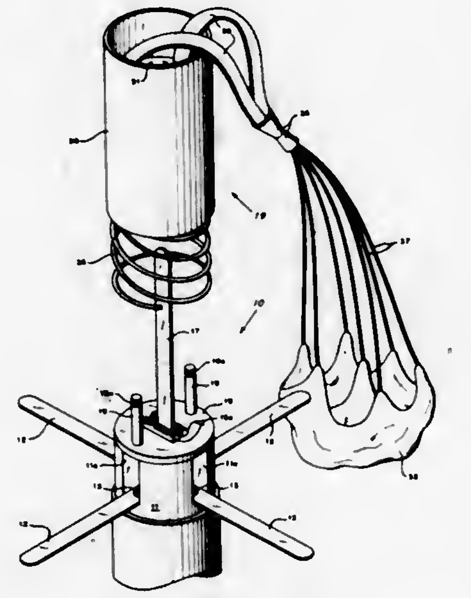
A mounting assembly for a loop-shaped television antenna includes a pair of pin members and a pair of socket members. Each pin member is provided with a slot for rotatably receiving an end of the antenna and includes an elongated portion which is rotatably received by a tubular portion of the socket member.



3,568,201
AIR DROPPED ANTENNA WITH DEPLOYMENT APPARATUS

David W. Spoonamore, Monroeville; Kenneth A. Renno, Fort Wayne, and Paul E. Kite, South Whitley, Ind., assignors to the United States of America as represented by the Secretary of the Navy.

Filed Aug. 12, 1969, Ser. No. 849,421
Int. Cl. H01g *1/28*
U.S. Cl. 343—705 **10 Claims**



Antenna deployment apparatus for an air-launched electronic buoy having a self-erecting main antenna element and a plurality of self-erecting, radiating ground plane antenna elements which are retained during descent in undeployed, spirally wound conditions by a spring loaded housing assembly in turn maintained in deployment preventing position by a pivotally mounted latch which is pinned in interlocking engagement with a pair of locking posts. At some time after landing, a timer activates an explosive squib to force the latch to shear a pin and move to a releasing position causing assembly ejection which facilitates antenna deployment and parachute separation.

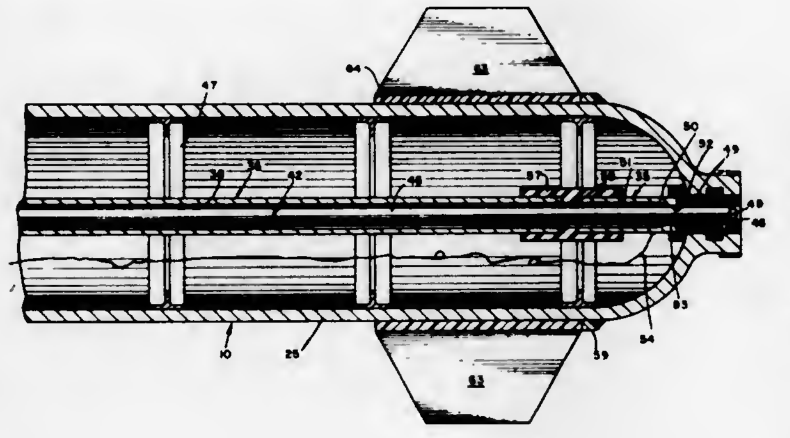
3,568,202
EXTENDIBLE ANTENNA FOR BATHYTHERMOGRAPH

John A. Fitton, Jr., Santa Monica; James W. Hoffer, Redondo Beach, and Clyde E. Williamson, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Feb. 8, 1968, Ser. No. 703,971
Int. Cl. H01g *1/34, 1/10, 1/50*
U.S. Cl. 343—709 **11 Claims**

An extendible antenna for a bathythermograph and combination thereof, in which there are supporting means for the

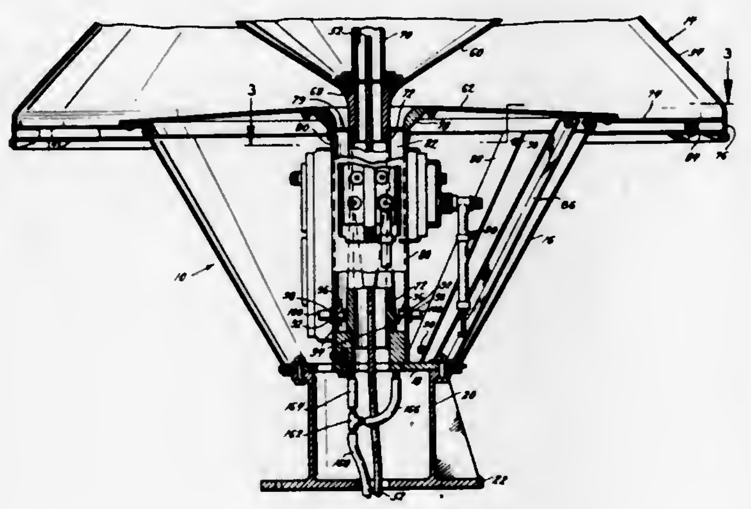
antenna in a stowed position within the bathythermograph and in an extended position outwardly of the latter, including means to move the antenna to its extended position at a predetermined time, and means to secure the antenna in the latter position as it is being fully extended and where electrical connection is made.



3,568,203
DIRECTION FINDING ANTENNA ASSEMBLY

Donald C. Venters, Nashua, N.H.; John W. Krah, and Belton H. Gardner, Florissant, Mo., assignors to McDonnell Douglas Corporation, St Louis County, Mo.

Filed Nov. 1, 1967, Ser. No. 679,680
Int. Cl. H01q *21/28*
U.S. Cl. 343—725 **10 Claims**



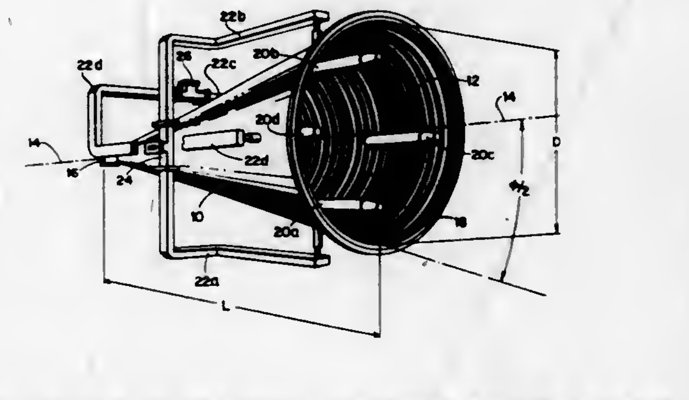
A direction finding antenna assembly including a horn antenna structure and associated microwave circuitry capable of operating to instantaneously and continuously determine the direction from which a signal is being received. The assembly may also include in the same structure a collinear antenna array.

3,568,204
MULTIMODE ANTENNA FEED SYSTEM HAVING A PLURALITY OF TRACKING ELEMENTS MOUNTED SYMMETRICALLY ABOUT THE INNER WALLS AND AT THE APERTURE END OF A SCALAR HORN

Leonard L. Blaisdell, Medway, Mass., assignor to Sylvania Electric Products Inc.

Filed Apr. 29, 1969, Ser. No. 820,160
Int. Cl. H01g *21/00, 13/00, 1/36*
U.S. Cl. 343—725 **5 Claims**

An antenna feed system employing a plurality of tracking elements mounted symmetrically about the inner walls and at the aperture end of a scalar horn. The tracking elements

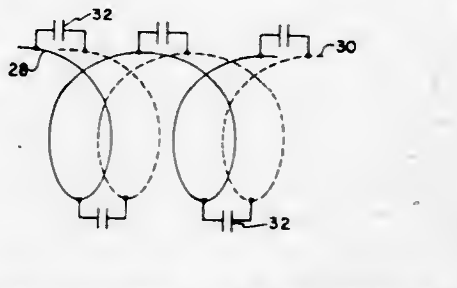


have a single axis of directivity coincident with the axis of directivity of the scalar horn.

3,568,205
NOVEL HELICAL ANTENNA

Albert C. Buxton, Akron, and Jerrold S. Foley, Stow, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Feb. 12, 1968, Ser. No. 704,671
Int. Cl. H01g *1/36, 9/00*
U.S. Cl. 343—749 **8 Claims**

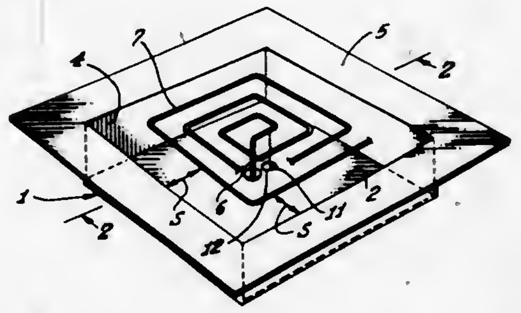


A directional electromagnetic radiating antenna with circular polarization capable of operating over wide frequency bands and having a greater electrical length than actual physical length. The invention applies basically to a helical antenna utilizing one or more unifilar or multifilar windings which possess the characterizing feature of having an increased electrical path length whereby the operating characteristics of the antenna will resemble that of a larger physical structure than is actually necessary to support the hardware comprising the antenna.

3,568,206
TRANSMISSION LINE LOADED ANNULAR SLOT ANTENNA

Austin R. Sisson, Canoga Park; Dale W. Milligan, Chatsworth, and Robert D. Wanselow, Calabasas, Calif., assignors to Northrop Corporation, Beverly Hills, Calif.

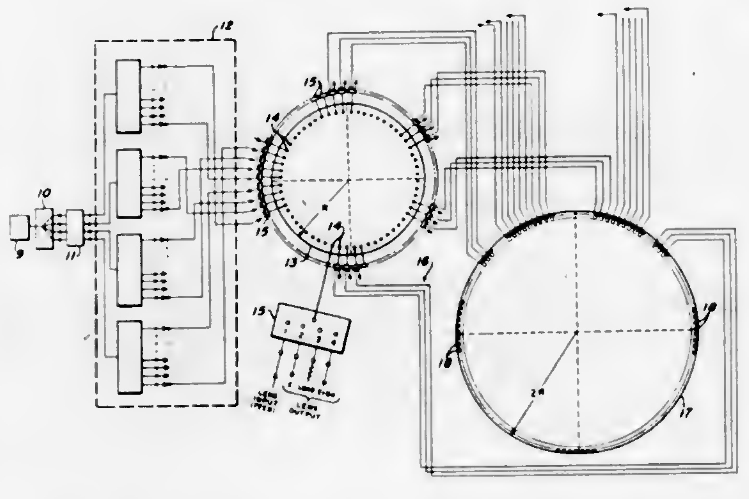
Filed Feb. 15, 1968, Ser. No. 705,841
Int. Cl. H01q *9/26, 13/18, 1/36*
U.S. Cl. 343—750 **4 Claims**



A probe is connected to the bottom of a cavity, and a spiraled conductor is connected to the top of the probe, where the outer turns of the spiral are spaced from the cavity top edges to form an electrically small slot. This antenna is fed from the cavity bottom near the probe by the extension of the center conductor of a terminated coaxial line.

3,568,207
PARALLEL-PLATE FEED SYSTEM FOR A CIRCULAR ARRAY ANTENNA

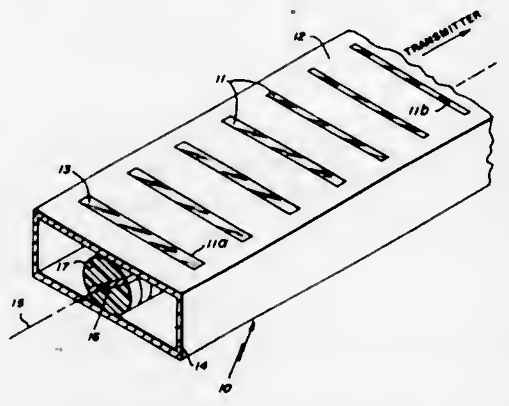
Jerry E. Boyns; Archer D. Munger; Joseph H. Provencher; John Reindel; and Bernard I. Small, San Diego, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Feb. 25, 1969, Ser. No. 802,008
Int. Cl. H01q *19/06, 3/26*
U.S. Cl. 343—754 **4 Claims**



A parallel-plate feed system for a circular array antenna is disclosed. The feed system comprises a parallel-plate region which places the correct phases at the array radiating elements when the parallel-plate region and the array radii are in a 1:2 ratio. Positioned about the periphery of the region are a plurality of input-output ports or probes. A plurality of adjacent input ports are fed simultaneously with a tapered amplitude distribution. By feeding more than one of the input probes simultaneously, the energy propagated through the parallel-plate region is highly directive, and the amplitude distribution obtained at the output probes has a considerable taper. By applying the resulting amplitude distribution to a sector of the circular array with the proper phase from the region low sidelobe patterns can be obtained. The beam is scanned in azimuth by means of diode switches at each lens port and by additional circuitry to maintain the proper input-probe taper. The system is operable over a 20 percent frequency band.

3,568,208
VARYING PROPAGATION CONSTANT WAVEGUIDE

Burrell R. Hatcher, and Troy E. Plunk, Bedford, Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Oct. 22, 1968, Ser. No. 769,563
Int. Cl. H01q *13/10, 13/00, 3/21*
U.S. Cl. 343—768 **4 Claims**



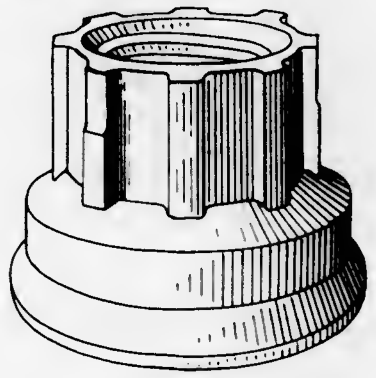
A phased array waveguide antenna system having a rotatable member with a plurality of discontinuities to adjust for the electrical parameters disposed along the longitudinal axis of the waveguide feed line. The rotatable member may be rotated continuously at varying rates of speed of, for example, one scan per second and pulsed as well as continuous energy signals may be propagated.

DESIGNS

MARCH 2, 1971

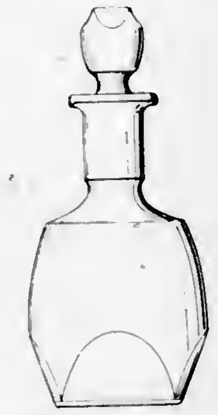
220,027
LOCKNUT

Paul D. Myers, Fullerton, Calif., assignor to Microdot, Inc., South Pasadena, Calif.
Filed June 23, 1969, Ser. No. 17,829
Term of patent 14 years
Int. Cl. D8—*04*
U.S. Cl. D8—273



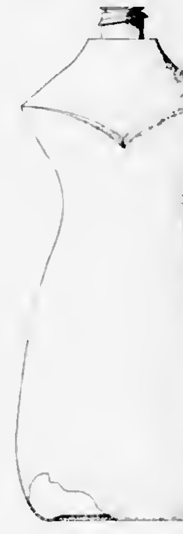
220,028
COMBINED BOTTLE AND STOPPER THEREFOR

Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Dec. 31, 1969, Ser. No. 20,727
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—113



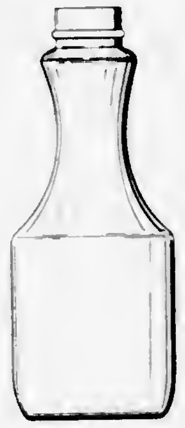
220,029
BOTTLE

Roland E. Johnson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Sept. 25, 1969, Ser. No. 19,296
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—116



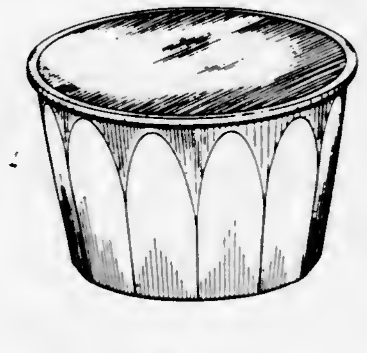
220,030
BOTTLE

James E. Plummer, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Dec. 11, 1969, Ser. No. 20,464
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—160



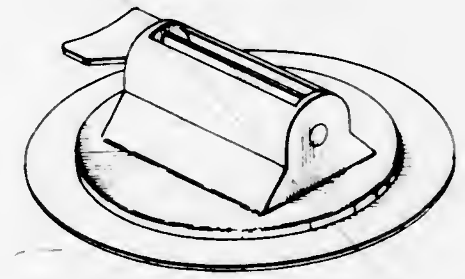
220,031
FOOD PACKAGE CUP OR SIMILAR ARTICLE

Donald W. Donovan, Glastonbury, Conn., assignor to Monsanto Company, St. Louis, Mo.
Filed Nov. 17, 1969, Ser. No. 20,134
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—220



220,032
MEASURED DOSE DISPENSING CLOSURE FOR A JAR OR THE LIKE

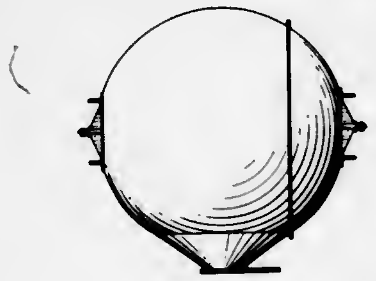
Emanuel Dee, Nassau, Bahamas, assignor to Dee's International S.A., Nassau, Bahamas
Filed Nov. 20, 1968, Ser. No. 14,551
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—275



220,033
STORAGE CONTAINER FOR SMALL GRAINS OR THE LIKE

Leo M. Becker, 42 Janssen Place,
Kansas City, Mo. 64109
Filed July 9, 1969, Ser. No. 18,118
Term of patent 14 years
Int. Cl. D25—*99*; D23—*01*

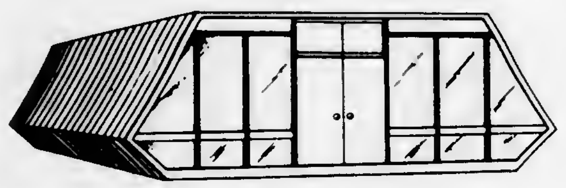
U.S. Cl. D13—1



220,034
VACATION HOUSE

William S. Bowers, 22800 76th W.,
Edmonds, Wash. 98020
Filed Nov. 3, 1969, Ser. No. 19,919
Term of patent 14 years
Int. Cl. D25—*04*

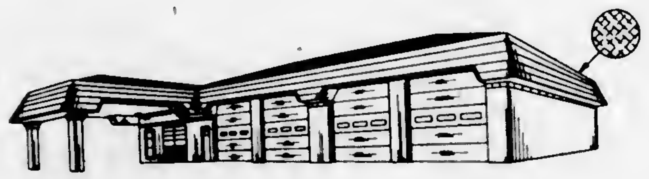
U.S. Cl. D13—1



220,035
BUILDING

Kenneth D. Sauder, 1861 Brentwood Drive,
Clearwater, Fla. 33516
Filed Nov. 24, 1969, Ser. No. 20,230
Term of patent 14 years
Int. Cl. D25—*04*

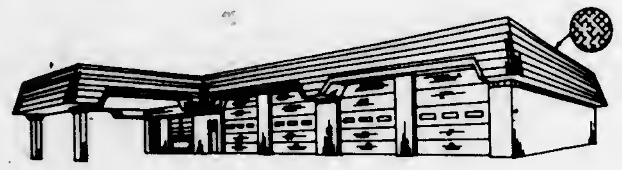
U.S. Cl. D13—1



220,036
BUILDING

Kenneth D. Sauder, 1861 Brentwood Drive,
Clearwater, Fla. 33516
Filed Jan. 23, 1970, Ser. No. 21,044
Term of patent 14 years
Int. Cl. D25—*04*

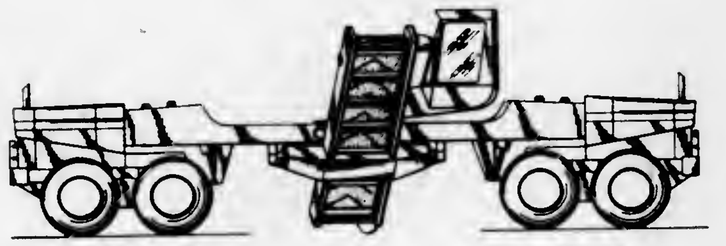
U.S. Cl. D13—1



220,037
EXCAVATING MACHINE

George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Mar. 20, 1969, Ser. No. 16,338
Term of patent 14 years
Int. Cl. D12—*09*

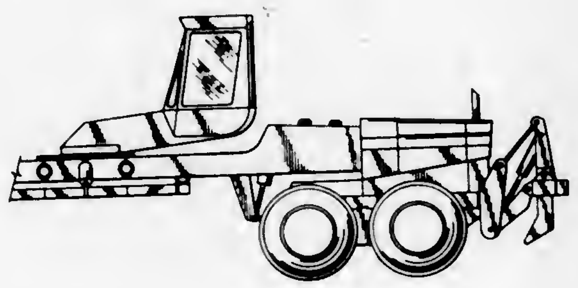
U.S. Cl. D14—3



220,038
SCARIFIER MACHINE

George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Mar. 20, 1969, Ser. No. 16,346
Term of patent 14 years
Int. Cl. D12—*09*

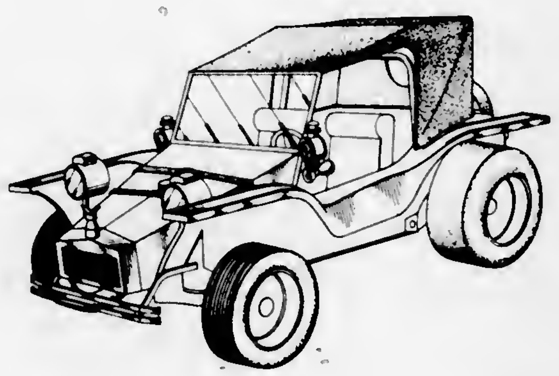
U.S. Cl. D14—3



220,039
SPORT BUGGY

George Barris, Encino, Calif., assignor to Barris Buggies, Inc., Anaheim, Calif.
Filed Nov. 24, 1969, Ser. No. 20,255
Term of patent 14 years
Int. Cl. D12—*08*

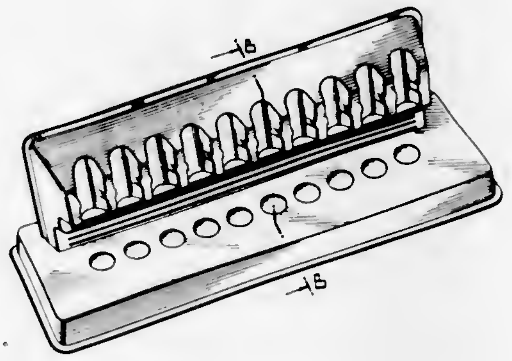
U.S. Cl. D14—3

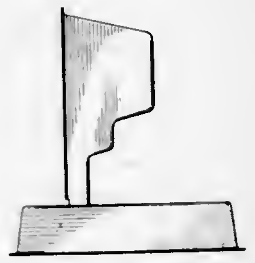


220,040
DIAGNOSTIC MULTIPLE TEST VIEWING RACK FOR TEST TUBES

Horace E. Carver, Jr., Frenchtown, N.J., assignor to Ortho Pharmaceutical Corporation
Filed July 17, 1969, Ser. No. 18,343
Term of patent 14 years
Int. Cl. D24—*02*; D6—*99*

U.S. Cl. D16—1

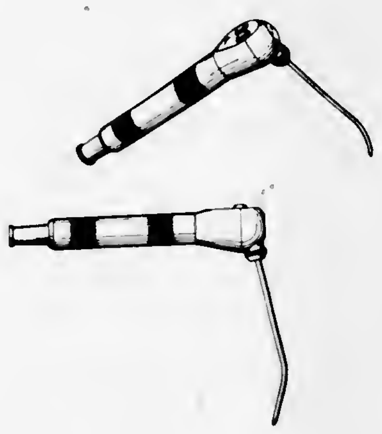




220,041
SYRINGE HEAD

Rodrick Koutnik, Vista, Calif., assignor to Coastal Dynamics Corporation
Filed Dec. 12, 1969, Ser. No. 20,649
Term of patent 14 years
Int. Cl. D24—*03*

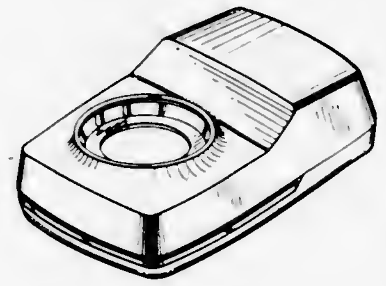
U.S. Cl. D24—1

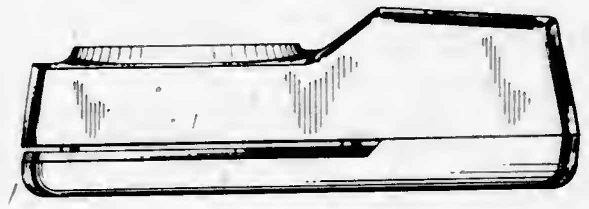


220,042
HOUSING FOR A REMOTE CONTROL ELECTRONIC THERMOSTAT

Joseph A. Rinaldi, Fort Lee, N.J., assignor to Kimco Laboratories, Inc., Brooklyn, N.Y.
Filed Dec. 17, 1969, Ser. No. 20,548
Term of patent 14 years
Int. Cl. D13—*03*

U.S. Cl. D26—13

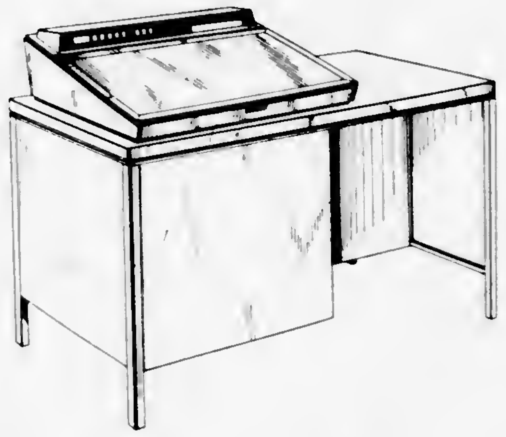




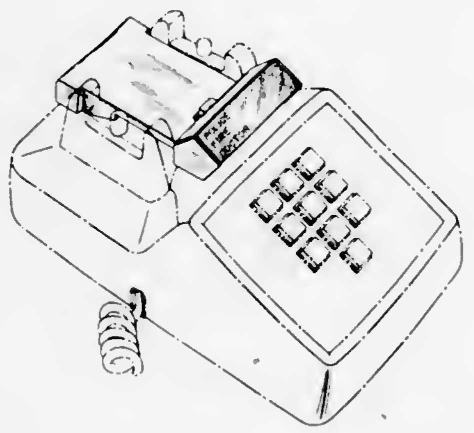
220,043
MAGNETIC TAPE CARTRIDGE DUPLICATOR

Leonard N. Albrecht, Tiburon, and James M. Zeiszler, Mill Valley, Calif., assignors to Cybercom Corporation, Sunnyvale, Calif.
Filed July 17, 1969, Ser. No. 18,249
Term of patent 14 years
Int. Cl. D14—*02*

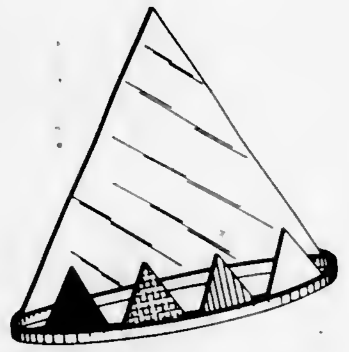
U.S. Cl. D26—14



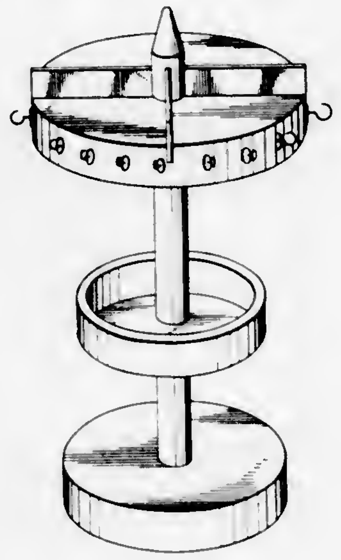
220,044
EMERGENCY TELEPHONE LIGHT
Fred G. Sinclair, 1330 NE. 144th St.,
North Miami, Fla. 33161
Filed Nov. 14, 1969, Ser. No. 20,078
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



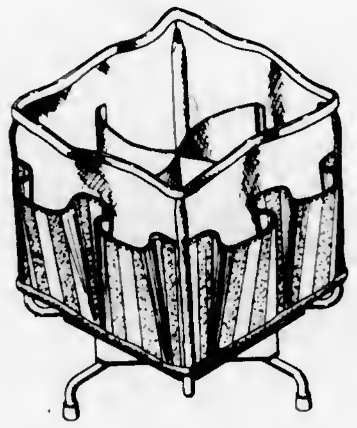
220,045
RELIGIOUS ORNAMENT OR THE LIKE
James J. Simon, 28180 Lorraine, Warren, Mich. 48092
Filed June 2, 1969, Ser. No. 17,480
Term of patent 14 years
Int. Cl. D11—*99*
U.S. Cl. D29—23



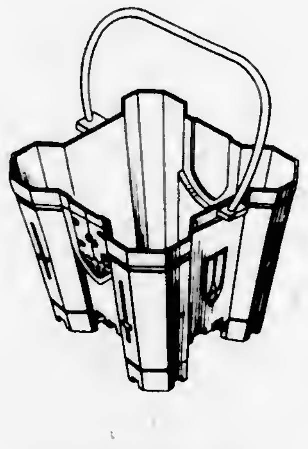
220,046
JEWELRY CADDY
Virgil Pascarella and Arlene Pascarella, both of 133
Laurel Ave., New Castle, Pa. 16101
Filed Oct. 22, 1969, Ser. No. 19,676
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—3



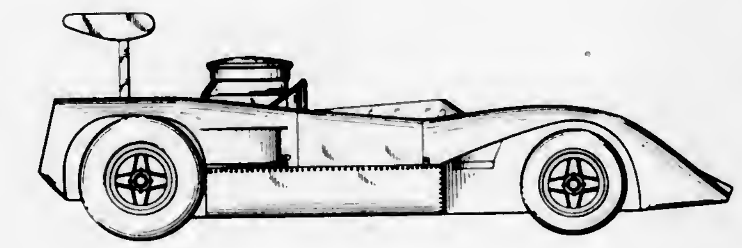
220,047
STORAGE CONTAINER FOR SHOES
David H. Fiel, 2318 Baylis Ave., Elmont, N.Y. 11003
Filed Nov. 12, 1969, Ser. No. 20,035
Term of patent 7 years
Int. Cl. D6—*01*
U.S. Cl. D33—3



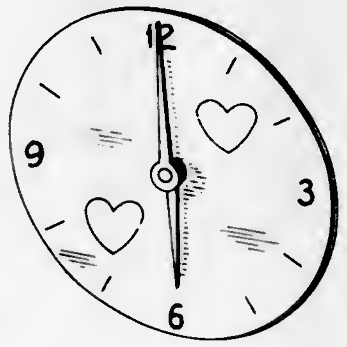
220,048
CASTELLATED SAND BUCKET
Peter William Reading, Stevenage, England, assignor to
Tortoys Limited, London, England
Filed Nov. 6, 1969, Ser. No. 19,968
Claims priority, application Great Britain May 8, 1969
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15

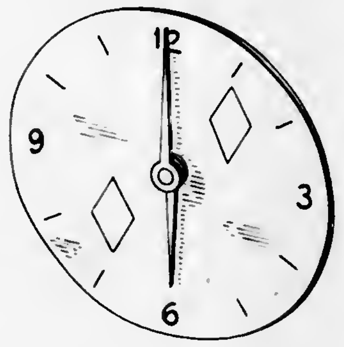


220,049
MODEL RACING CAR
Bruce Leslie McLaren, Weybridge, England, assignor to
Bruce McLaren Motor Racing Limited, Colnbrook,
Buckinghamshire, England
Filed Jan. 14, 1970, Ser. No. 20,922
Claims priority, application Great Britain July 26, 1969
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15

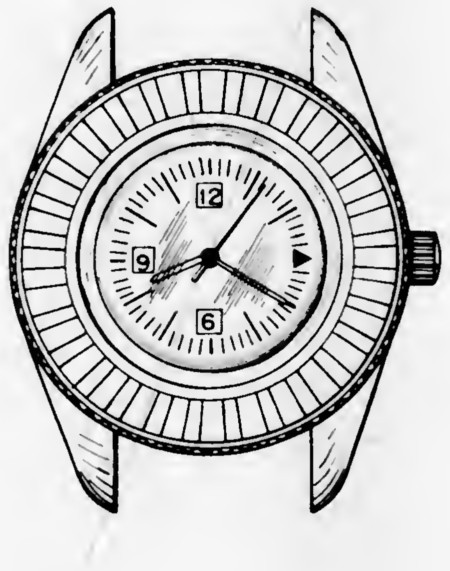


220,050
COMBINED DIAL AND HANDS FOR A WATCH OR SIMILAR ARTICLE
Louis A. Yannich, 36 Bonham Drive,
Edison, N.J. 08817
Filed Sept. 30, 1969, Ser. No. 19,344
Term of patent 7 years
Int. Cl. D10—*06*
U.S. Cl. D42—1

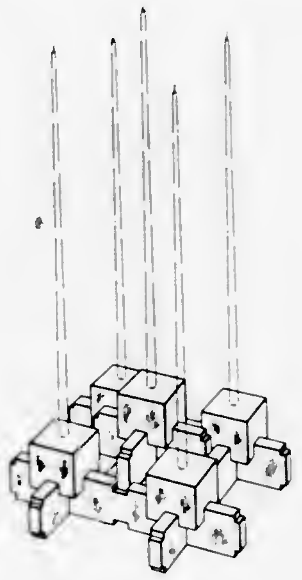




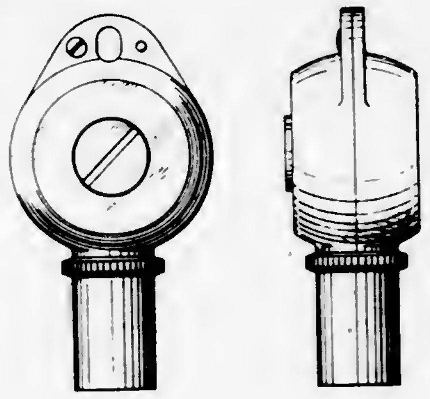
220,051
WRISTWATCH
Cyril C. Gsell, Port Chester, N.Y., assignor to R. Gsell
& Company, Inc., New York, N.Y.
Filed Aug. 6, 1969, Ser. No. 18,563
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—8



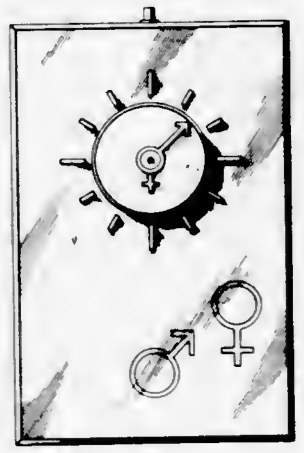
220,052
CANDLESTICK
Harold D. Stoner, 355 Adams St.,
Oakland, Calif. 94610
Filed Jan. 29, 1970, Ser. No. 21,129
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—2



220,053
PULLEY FOR VERTICALLY ADJUSTABLE HANGING LAMP
Luigi Caramella, Varallo, Vercelli, Italy
Filed June 9, 1969, Ser. No. 17,571
Claims priority, application Italy Dec. 12, 1968
Term of patent 14 years
Int. Cl. D26—*02;* D8—*03*
U.S. Cl. D48—4



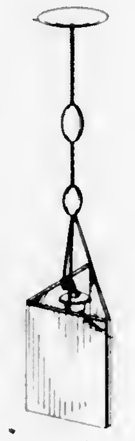
220,054
CLOCK
Guy A. Morse, Jr., 710 E. Michigan Ave.,
Orlando, Fla. 32806
Filed Aug. 11, 1969, Ser. No. 18,622
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7



220,055

COMBINED SUSPENDED MIRROR AND LIGHT THEREFOR

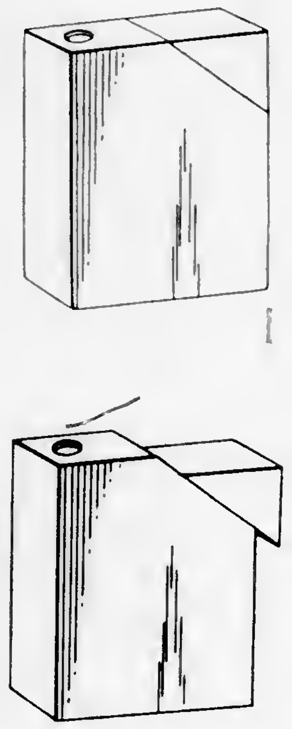
De Anna L. Holton, 3806 Sycamore Drive,
Boise, Idaho 83703
Filed Jan. 14, 1970, Ser. No. 20,923
Term of patent 14 years
Int. Cl. D26—*02;* D28—*03*
U.S. Cl. D48—20



220,056

CIGARETTE LIGHTER

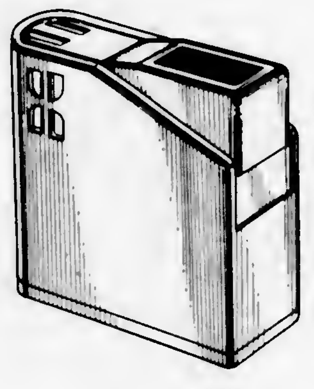
William Retzler, Wickham, England, assignor to
Tetra Molectric Limited
Continuation-in-part of design application Ser. No. 12,972, July 26, 1968. This application Aug. 4, 1969, Ser. No. 18,765
Claims priority, application Great Britain Feb. 16, 1968
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27



220,057

CIGARETTE LIGHTER OR SIMILAR ARTICLE

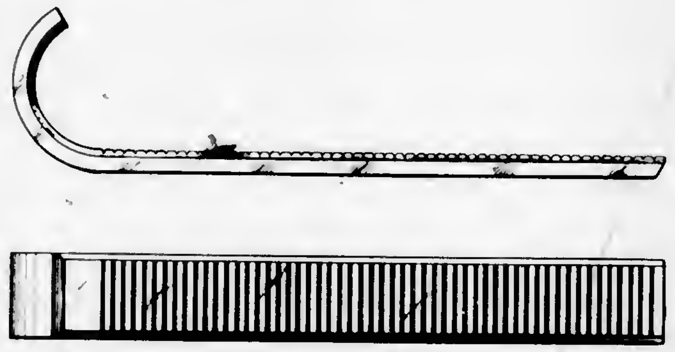
Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Tokyo, Japan
Filed Nov. 18, 1969, Ser. No. 20,165
Claims priority, application Japan May 22, 1969
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27



220,058

AUTOMOBILE FENDER LIGHT MARKER

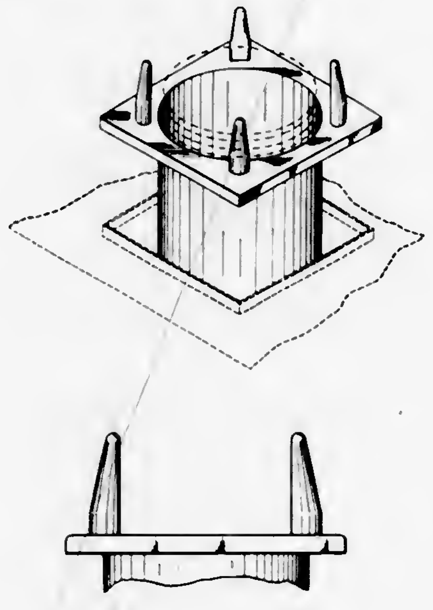
A. Robert Bernstein, 14 Eastwood Lane,
Easton, Conn. 06425
Filed July 18, 1969, Ser. No. 18,271
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D48—32



220,059

SELF-LEVELING DISPENSER

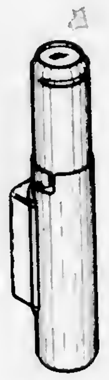
Henry H. Rothschild, Teaneck, N.J., assignor to Caddy Corporation of America, Secaucus, N.J.
Filed Mar. 13, 1969, Ser. No. 16,231
Term of patent 14 years
Int. Cl. D6—*99;* D12—*02*
U.S. Cl. D52—2



220,060

COMBINED COIN CONTAINER AND DISPENSER

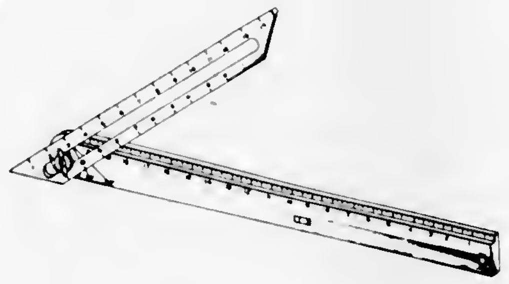
George Luisa, South Country Road,
Brookhaven, N.Y. 11719
Filed Nov. 3, 1969, Ser. No. 19,885
Term of patent 7 years
Int. Cl. D20—*99*
U.S. Cl. D52—4



220,061

COMBINED PROTRACTOR AND STRAIGHT RULE

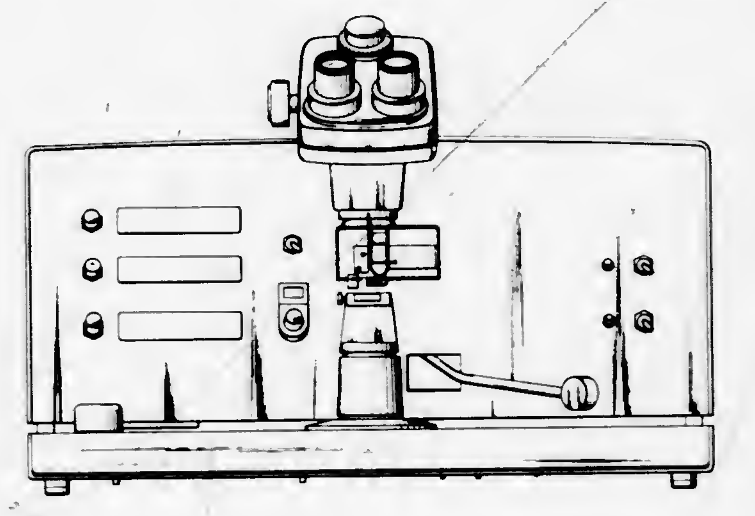
Herb Kerns, P.O. Box 715, Florence, Oreg. 97439
Filed Feb. 2, 1970, Ser. No. 21,208
Term of patent 14 years
Int. Cl. D10—*08*
U.S. Cl. D52—6

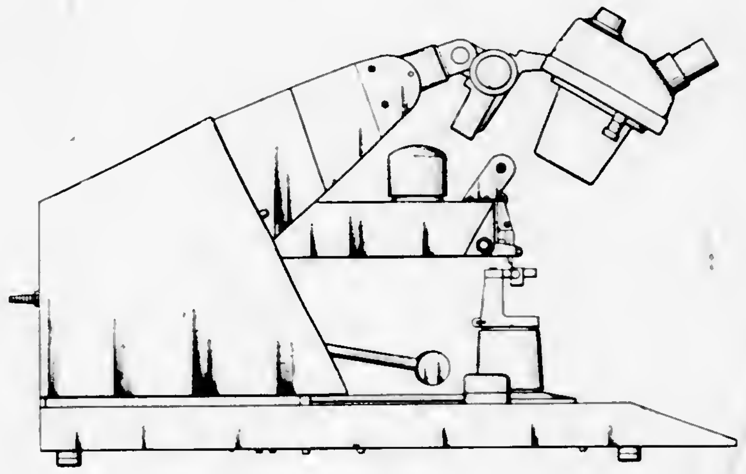


220,062

BONDER

William H. Hill and Robert C. Botting, Carlsbad, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Oct. 3, 1969, Ser. No. 19,408
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1

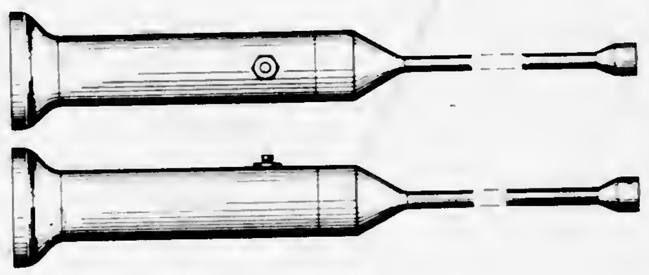




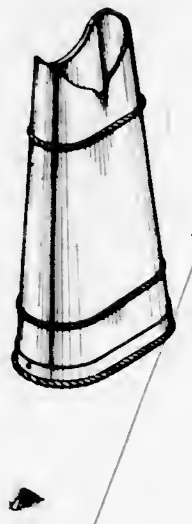
220,063

PHOTOELECTRIC MUSICAL TONE GENERATOR

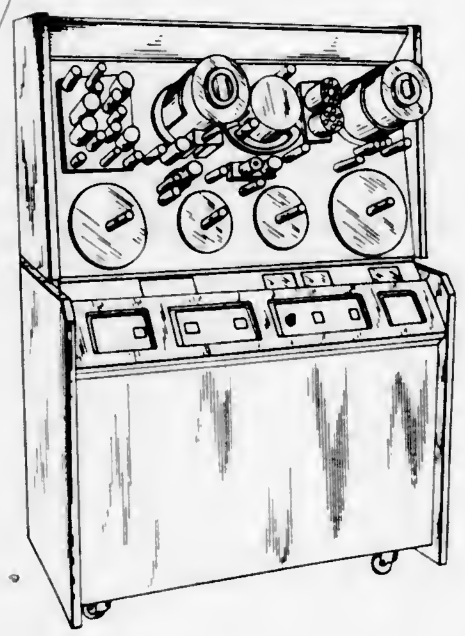
Bruce C. Haack, 228 W. 72nd St., New York, N.Y. 10023, and Phyllis J. Horowitz, 3359 Ocean Ave., Oceanside, N.Y. 11572
Filed Dec. 19, 1969, Ser. No. 20,574
Term of patent 14 years
Int. Cl. D17—*99*
U.S. Cl. D56—1



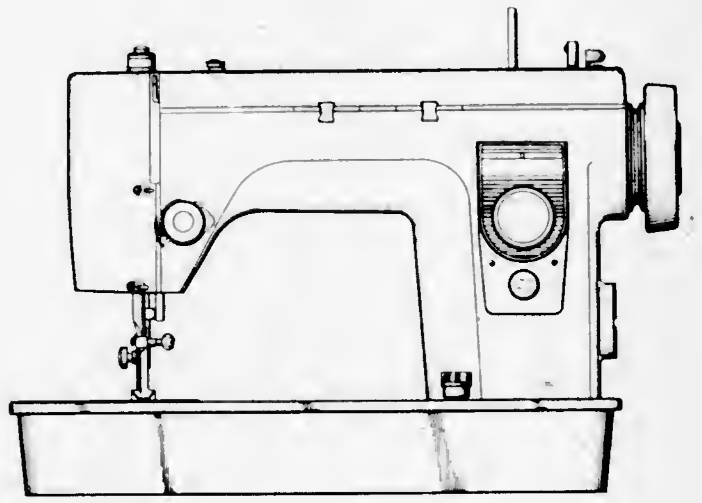
220,064
UNDERWATER VIEWING DEVICE
Richard E. Warren, 3089 Alki Ave. SW., Seattle, Wash. 98116
Filed July 15, 1969, Ser. No. 18,205
Term of patent 14 years
Int. Cl. D16—*08*; D2—*03*
U.S. Cl. D57—1



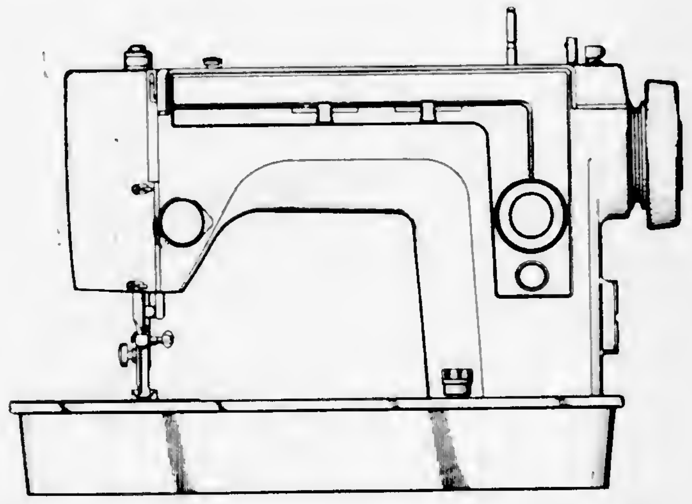
220,065
PRINTER-PROCESSOR FOR VESICULAR PHOTOGRAPHIC FILM
James H. Gabler, Metairie, La., assignor to Kalvar Corporation, New Orleans, La.
Filed Dec. 22, 1969, Ser. No. 20,607
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D61—1



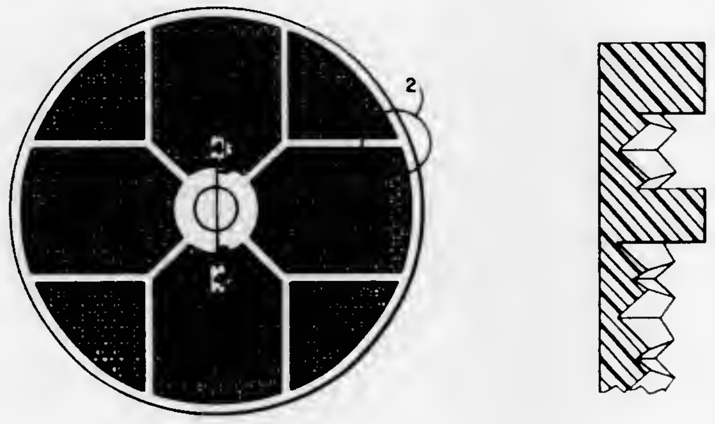
220,066
SEWING MACHINE
Yoshiaki Eguchi and Yasuaki Yamamoto, Tokyo, Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Oct. 28, 1969, Ser. No. 19,766
Claims priority, application Japan May 28, 1969
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D70—1



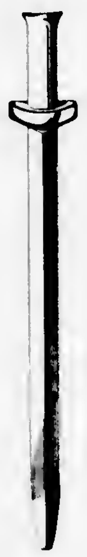
220,067
SEWING MACHINE
Yoshiaki Eguchi, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Oct. 28, 1969, Ser. No. 19,772
Claims priority, application Japan May 28, 1969
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D70—1



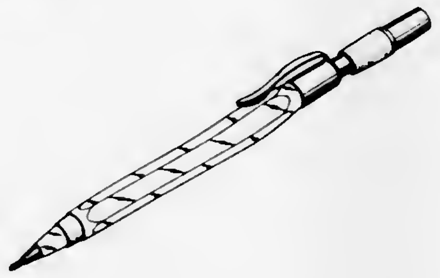
220,068
REFLECTOR
Sidney A. Heenan, Park Ridge, Ill., assignor to Amerace Esna Corporation, Union, N.J.
Filed Nov. 5, 1969, Ser. No. 20,076
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D72—1



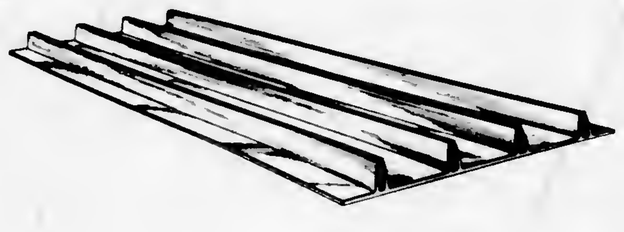
220,069
CLIP FOR A WRITING INSTRUMENT
Jean Michel Collaud, Moillesulaz, Geneva, Switzerland, assignor to Fabrique Suisse de Crayons Caran d'Ache S.A., Geneva, Switzerland
Filed May 20, 1969, Ser. No. 17,238
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D74—2



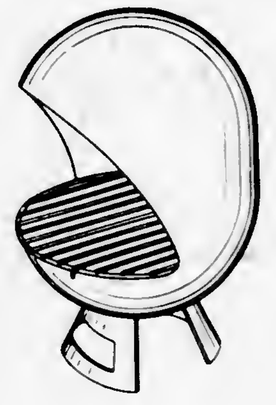
220,070
REFILL PEN
Kosei Iwasaki, Tokyo, Japan, assignor to Iwasaki Kinzoku Kogyo Company, Limited, Tokyo, Japan
Filed Oct. 22, 1969, Ser. No. 19,677
Claims priority, application Japan Apr. 24, 1969
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D74—17



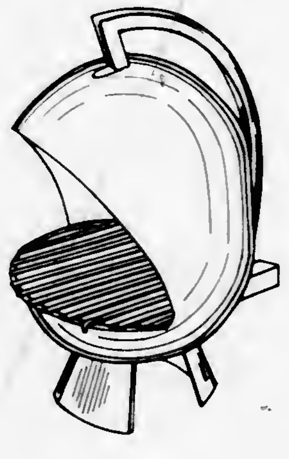
220,071
DISPLAY PANEL
John M. Le Vett, Jr., and Robert R. Barnes, Lakewood, Colo., assignors to Albar Products, Inc., Ogden, Utah
Filed Mar. 7, 1969, Ser. No. 16,107
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



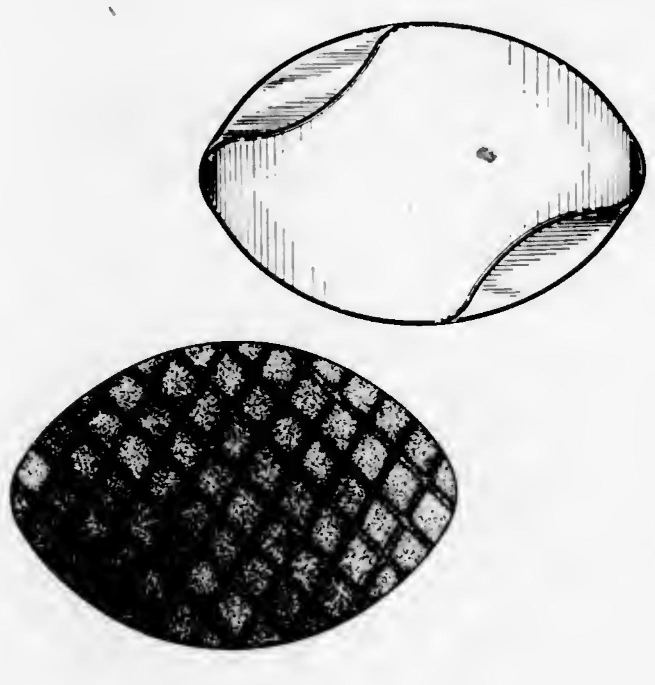
220,072
PORTABLE BARBECUE GRILL
James L. Hoff, Maple Plain, Minn., assignor to West Creek Co., Inc., Minnetonka, Minn.
Filed Mar. 26, 1970, Ser. No. 22,062
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



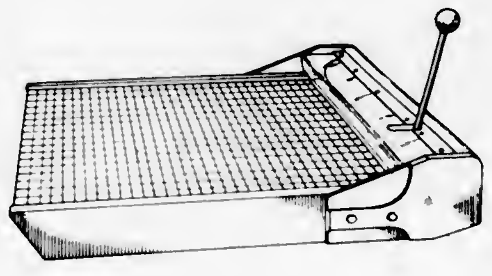
220,073
PORTABLE ELECTRIC BARBECUE GRILL
Merlin W. Ehrlichmann, Minnetonka, Minn., assignor to West Creek Co., Inc., Minnetonka, Minn.
Filed Mar. 26, 1970, Ser. No. 22,063
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



220,074
COMBINED CLOTHES AND LINT BRUSH
Nathan K. Morris, 600 8th Ave.,
Asbury Park, N.J. 08802
Filed Feb. 24, 1970, Ser. No. 21,587
Term of patent 14 years
Int. Cl. D28—*03;* D4—*02*
U.S. Cl. D86—13



220,075
PAPER TRIMMER
Robert B. Ford, 8834 E. Naomi Ave.,
San Gabriel, Calif. 91775
Filed Jan. 7, 1970, Ser. No. 20,790
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. [illegible]95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2D DAY OF MARCH, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A-Line Company: *See*—
Miller, Herbert Bernette, III, 3,567,237.
Aaron, Colin; Edwards, Alan Harold; and Tessier, Keith Campbell, to Esso Research and Engineering Company. Hydrocarbon-containing compositions. 3,567,639, Cl. 252-56.
Aberger, Norbert: *See*—
Armonier, Ulrich; Aberger, Norbert; and Rolf, Helmut,3,568,126.
A B Lyckeaborgs Bruk: *See*—
Lewin, Gunnar Erik Werner, 3,566,433.
Abraham, Chacko T.; Ghosh, Sakti P.; and Ray-Chaudhuri, Dwijendra K., to International Business Machines Corporation. Method of storing and retrieving records. 3,568,155, Cl. 340-172.5
Abuel-haj, Marwan J.: *See*—
Johnston, James David; and Abuel-haj, Marwan J.,3,567,728.
ACF Industries, Incorporated: *See*—
Nelson, Norman A., 3,567,178.
Acieries Reunies de Burbach-Eirh-Dudelange SA: *See*—
Mercatoris, Robert; and Nepper, Joseph, 3,567,202.
Acme-Hamilton Manufacturing Corporation: *See*—
Bauman, Joseph F.; Karlberg, John E.; and Rouze, Edward C., 3,566,953.
Ad-Tec Products, Inc.: *See*—
Whelan, James P., 3,567,033.
Adams, Albert C.; Crosby, John J.; and Graf, George W., to Republic Steel Corporation. Coiling apparatus. 3,566,654, Cl. 72-135.
Adams, Earl G.; and Eveleth, Edmund L. Aircraft weathervaning device. 3,567,160, Cl. 244-115.
Adams, Earl G.; and Eveleth, Edmund L. Weathervaning tie-down device for aircraft. 3,567,161, Cl. 244-115.
Adams, Henry J., to Commonwealth Industrial Gases Limited, The. Breathing aid administration device. 3,566,866, Cl. 128-145.8
Adams, Noel E.: *See*—
Waltrip, Owen R., 3,567,622.
Adams, Sidney George William, to Burn, James, & Co. Ltd. Bookbinding. 3,566,927, Cl. 140-71.
Adcock, Edmund Philip: *See*—
Morris, Cecil Edward; Birch, Ralph William; Adcock, Edmund Philip; and McDonnell, Neil Malcolm,3,567,546.
Adelaar, Hans Helmut: *See*—
Chu, Pe Tsi; Adelaar, Hans Helmut; and Termote, Alois Rene,3,567,865.
Advanced Drainage Systems, Inc.: *See*—
Sixt, Marty E., 3,566,607.
Advanced Equipment Corporation: *See*—
Dickson, Wesley B., 3,566,559.
Aeroflex Laboratories Incorporated: *See*—
Ruderman, Myron C., 3,568,119.
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- Zdanys, John, Jr., to CTS Corporation. Combination variable resistance and electrical switch actuating means. 3,567,876, Cl. 200-17.
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- Fisnar, Igor, and R. H. Lester, Jr., to Fairchild Camera and Instrument Corp. Incremental drive mechanism. Re. 27,080, 3–2–71, Cl. 74—143.
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- Klingler, Emil A., W. Dawihl, and E. Dorre, to Feldmuhle A.G. Sintered transparent bodies of aluminium oxide and method of preparing the same. Re. 27,083, 3–2–71, Cl. 106—65.
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- Macklin, Harold H., Jr.: *See—*
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- Morgan Construction Co.: *See—*
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- Shaw, Benjamin C., and H. B. Morrow, Jr., to Cooke Engineering Co. Radiation survey training apparatus. Re. 27,078, 3–2–71, Cl. 35—1.
- Shockley, Gilbert R., H. H. Macklin, Jr., E. F. Barkman, and H. J. Coats, to Reynolds Metals Co. Formation of low friction glass-like surface on aluminum silicon alloy for engine operation. Re. 27,081, 3–2–71, Cl. 123—193.
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- Ishida, Frank K., to Monrovia Nursery Co. Azalea plant. 3,031, 3–2–71, Cl. 57.
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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

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PATENT OFFICE NOTICES

Notice of Trademark Publications in February and March

Beginning Feb. 2, 1971, the OFFICIAL GAZETTE of the United States Patent Office, consisting of patent and trademark Sections, was separated into two distinct publications, the "OFFICIAL GAZETTE (Patent Section)" and the "OFFICIAL GAZETTE (Trademark Section)." Those subscribing to the OFFICIAL GAZETTE prior to the separation have received only the OFFICIAL GAZETTE (Patent Section) beginning with the date of its separation unless they requested a subscription to the OFFICIAL GAZETTE (Trademark Section). An effort was made to notify these subscribers that they would not receive the OFFICIAL GAZETTE (Trademark Section) after the separation on February 2 unless they subscribed separately to this publication. However, the notice has been misinterpreted by some former subscribers who, accordingly, have not requested a separate subscription to the OFFICIAL GAZETTE (Trademark Section) and, therefore, have not received this publication.

In view of the above, jurisdiction will be restored for all marks published for opposition on Feb. 2, 9, 16, and 23, Mar. 2, 9, and 16, 1971, to the Examiner of Trademarks and these marks will, by notice in the OFFICIAL GAZETTE (Trademark Section) of Mar. 23, 1971, be republished for opposition by reference to the OFFICIAL GAZETTE (Trademark Section) for those dates. The republication of these marks by reference will be effective as a publication in accordance with Section 12(a) of the Trademark Act of 1946 for the purpose of opposition by any person who believes he will be damaged by the registration of the mark. Oppositions to such republished marks may be filed within the time specified by Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any opposition received after the original publication and on or before Apr. 22, 1971, will be deemed to have been timely filed.

In addition, all persons desiring to receive the OFFICIAL GAZETTE (Trademark Section) should contact the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription to this publication costs $17.00 per annum. The Superintendent of Documents has advised that all persons subscribing during March will receive the previous February and March issues of the OFFICIAL GAZETTE (Trademark Section) until the excess weekly inventory of approximately 3000 copies is exhausted.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Feb. 25, 1971.

Patent Suits

Notices under 35 U.S.C. 290 ; Patent Act of 1952

2,645,107, T. R. Smith, COMBINED WASHING MACHINE AND CENTRIFUGAL EXTRACTOR ; **2,645,108**, same, COMBINED WASHING MACHINE AND CENTRIFUGAL FLUID EXTRACTOR ; **Re. 25,125**, same, FLUID CONTROL SYSTEM FOR WASHING MACHINE ; **Re. 25,157**, C. W. Burkland, TUB ASSEMBLY ; **2,948,372**, J. D .Goodlaxson, DRIVE ASSEMBLY ; **3,013,645**, same, **filed** Feb. 13, 1970, D.C., S.D. IOWA (Des Moines), Doc. 9–2473–C–1, *White Consolidated Industries, Inc. and Franklin Manufacturing Company* v. *The Maytag Company*. On stipulation, complaint and defendant's counterclaims dismissed with prejudice, Nov. 18, 1970.

2,645,108. (See 2,645,107.)

2,753,694, Trow and Nelson, ICE DISINTEGRATING AND CHIP DELIVERING SPIRAL ICE CHIP PRODUCING MACHINE, **filed** Oct. 31, 1967, D.C., N.D. Ill. (Chicago), Doc. 67o1894, *King-Seeley Thermos Co.* v. *Jefferson Ice Co.* By agreement cause dismissed without prejudice, Jan. 4, 1971.

2,790,362, Higonnet and Moyroud, PHOTO COMPOSING MACHINE ; **2,968,383**, Higonnet and Grea, METHOD AND APPARATUS FOR TYPE COMPOSITION ; **3,332,617**, Higonnet and Moyroud, TYPE COMPOSING APPARATUS, **filed** Dec. 22, 1970, D.C. Mass. (Boston), Doc. C.A. 70–1957–C, *Compugraphic Corporation* v. *Photon, Inc.*

2,823,775, R. E. Zwayer, HOIST MOTOR AND BRAKE CONTROL, **filed** Nov. 17, 1970, D.C., E.D. Mich. (Detroit), Doc. 35671, *Aro Corp.* v. *Mich. Pneumatic Tool, Inc. and Irving Wine*. Consent decree for permanent injunction, Dec. 11, 1970.

2,913,976, D. F. Cole, ELECTRIC BROILER ; **3,091,171**, same, BROILER, **filed** Nov. 19, 1970, D.C., N.D. Ohio (Cleveland), Doc. C70–1068, *David F. Cole* v. *Sears, Roebuck & Co.*

2,925,665, T. R. Smith, CLOTHES DRIER WITHOUT CASING ; **2,958,138**, A. T. Ashby, CLOTHES DRIER WITH STATIONARY COWLING ; **2,958,139**, same, CLOTHES DRIER ; **D. 211,602**, T. R. Smith, LAUNDRY MACHINE, **filed** Nov. 23, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2946, *The Maytag Company* v. *The Hoover Company*.

2,942,768, R. J. McCall, BOX, **filed** Dec. 8, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70–C–1496, *Mack-Chicago Corporation* v. *Sturdi-Box Corporation*.

2,948,372. (See 2,645,107.)

2,958,138. (See 2,925,665.)

2,958,139. (See 2,925,665.)

2,958,872, F. J. Meyer, Jr., SWIMMING POOL COVER, **filed** Sept. 8, 1970, D.C.N.J. (Newark), Doc. C–1222–70, *Fred J. Meyer, Jr.* v. *Major Pool Equipment Corporation*. Notice of dismissal, Nov. 10, 1970.

2,968,383. (See 2,790,362.)

3,013,645. (See 2,645,107.)

3,091,171. (See 2,913,976.)

3,110,905, T. M. Rhodes, TUFTED PILE FABRIC COMPRISING A FLAT WOVEN SYNTHETIC PLASTIC BACKING, **filed** Nov. 6, 1970, D.C., M.D. Fla. (Tampa), Doc. 70–516–C T., *Burlington Industries, Inc.* v. *Florida Tile Industries, Inc.*

3,147,801, L. Katz, HEAT RADIATOR ; **3,147,802**, same ; **3,187,087**, Katz and Schweitzer, HEAT RADIATOR AND ELECTRIC CONNECTION APPARATUS FOR RECTIFIERS AND THE LIKE, **filed** Nov. 25, 1970, D.C. Del. (Newark), Doc. 4022, *Astrodyne, Inc.* v. *M & T Chemicals, Inc.*

3,147,802. (See 3,147,801.)

3,187,087. (See 3,147,801.)

3,280,770, B. F. Kwiat, AIR SUPPLY UNIT FOR BOILERS ; **3,522,779**, same, AIR SUPPLY AND PREHEATING UNITS FOR BOILERS, **filed** Dec. 14, 1970, D.C. E.D. Pa. (Philadelphia), Doc. 70–3414, *B. F. Kwiat Industries, Inc. et al.* v. *Jack Adams et al.*

3,332,617. (See 2,790,362.)

3,339,366, Gogan and Joly, STRUCTURE FOR LEACHING FIELDS ; **Reg. No. 900,008** (AMERATION), American Precast Corp. **filed** Nov. 25, 1970, D.C. Mass. (Boston), Doc. 70–1706–C, *American Precast Corporation* v. *Maurice Concrete Products, Inc.*

3,379,373, R. Roberts, METHOD AND MEANS FOR PRODUCING AND CONTROLLING THE DISCHARGE OF FOG, **filed** Apr. 30, 1970, D.C., E.D. Va. (Newport News), Doc. CA–71–70–NN, *Root-Lowell Manufacturing Company* v. *Continental Manufacturing Company, Inc.*

3,497,877, Diemond and Greenberg, POOL WITH INTEGRAL SLIDE ; **D. 216,577**, Greenberg and Diemond, same, **filed** Nov. 27, 1970, D.C., S.D.N.Y., Doc. 70–C–5195, *General Foam Plastics Corp.* v. *Coleco Industries, Inc.*

3,522,779. (See 3,280,770.)

Re. 25,125. (See 2,645,107.)

Re. 25,157. (See 2,645,107.)

D. 211,602. (See 2,925,665.)

D. 216,577. (See 3,497,877.)

D. 217,314, J. R. Smith, MOTORCYCLE ROCKER ARM COVER, **filed** Dec. 14, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2792–DWW, *Jefferson R. Smith, doing business as Custom Cycle Engineering Co.* v. *A.E.E. Choppers, Inc.*

D. 218,106, C. M. O'Leary, BILLIARD TABLE OR SIMILAR ARTICLE, **filed** Dec. 11, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2776–CC, *Charles M. O'Leary* v. *Axel Ostergard, doing business as Ostergard Construction and Jensen Carpenter and Cabinetshop et al.*

Reg. No. 900,008. (See 3,339,366.)

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,240,528, A. Ciuffini and P. J. Williams, CONTROL FOR EXECUTIVE POSTURE CHAIR, decided Aug. 26, 1969, Interference No. 96,199, claims 1, 2, 3, 4, 5, 7 and 9.

Patent No. 3,387,735, R. F. DeMarco, METAL INSERT FOR WALL OPENINGS AND METHOD OF COMBINING THE SAME THEREWITH, decided Jan. 25, 1971, Interference No. 96,679, claims 1, 2, 4, 7 and 10.

Disclaimers

3,334,091.—*William J. Houlihan,* Mountain Lakes, N.J. SEDATIVES. Patent dated Aug. 1, 1967. Disclaimer filed Jan. 19, 1971, by the assignee, *Sandoz-Wander, Inc.*

Hereby enters this disclaimer to claims 2 through 5, inclusive, of said patent.

3,358,665.—*Thomas F. Carmichael,* Drayton Plains, and *Richard J. Maier,* Pontiac, Mich. IGNITION SYSTEM. Patent dated Dec. 19, 1967. Disclaimer filed Jan. 6, 1971, by the assignee, *Syncro Corporation.*

Hereby enters this disclaimer to claims 5, 29 and 30 of said patent.

Certificates of Correction for the Week of Mar. 9, 1971

P.P. 3,008
D. 219,291
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PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF FEBRUARY 23, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-04-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-08-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-09-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-01-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-07-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	5-01-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-01-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-24-70
PHYSICS, GROUP 280—R. L. EVANS, Director Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-14-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts; Household, Personal and Fine Arts.	5-11-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-04-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-01-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	10-13-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	2-25-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	12-24-69

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,670,468 to 2,673,977, inclusive
Plant Patents	Numbers 1,260 to 1,266, inclusive

DEFENSIVE PUBLICATIONS

MARCH 9, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T884,001
MEMBRANE SEPARATION

Robert O. Osborn, Snyder, and Daniel T. Meloon, East Amherst, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of application Ser. No. 659,887, Aug. 11, 1967. This application Dec. 30, 1968, Ser. No. 800,314
Int. Cl. B01d *13/00*
U.S. Cl. 210—23
No Drawing. 11 Pages Specification

A process for separating substances from aqueous mixtures by contacting an aqueous feed mixture with one side of an acrylonitrile polymer gel film membrane under permeation conditions and recovering from the opposite side of the gel film a permeated portion of said aqueous mixture containing a reduced amount of said substances. The gel film can be formed of homopolymer or copolymer of acrylonitrile wherein the acrylonitrile content is at least 75 percent by weight with the remaining portion of the copolymer comprising monomers copolymerizable with acrylonitrile; the polymer should have an intrinsic viscosity of at least 0.5 and the gel film should have a density of from 0.45 to 1.10 grams per cubic centimeter.

This process may be effectively utilized in areas such as dialysis, for example hemodialysis wherein the content of substances such as creatinine, uric acid and urea is reduced in the recovered permeated blood; and ultrafiltration, for example filtration of microorganisms from water wherein such contaminants are removed from the water as it passes through the gel film membrane.

T884,002
TRUNK MAT FOR AUTOMOBILES

Charles L. King, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 25, 1969, Ser. No. 852,942
Int. Cl. B32b *3/26, 7/02*
U.S. Cl. 161—160
No Drawing. 6 Pages Specification

An improved trunk mat for automobiles comprising:

(1) a first layer of a fabric which permits wicking when in contact with water,

(2) a core layer of a foam sheet of a polymer having a work-to-break value of at least 10,000 in.-lbs./in.^{3}, the foam sheet consisting essentially of polyhedral shaped closed cells whose median diameter is at least 500 microns, the foam sheet having a maximum density of 0.03 gram/cc. and a specific work-to-tear value of at least 250 in.-lbs./in.^{2}, and

(3) a layer of thermoplastic film, the several layers being bonded to each other in the order specified to form a unitary laminar structure.

The laminated mat has the following pictorial structure:

Top layer—Thermoplastic film
Core—Foam
Bottom layer—Fabric

T884,003
ORIENTED FOAM LAMINAR STRUCTURES

Leon Edward Wolinski, Buffalo, N.Y., and Roland G. Harris, Chadds Ford, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 7, 1969, Ser. No. 864,546
Int. Cl. B32b *3/12*
U.S. Cl. 161—161
No Drawing. 15 Pages Specification

Laminar structures comprising a core of oriented closed cell styrene polymer foam having specific elongation and tensile modulus, the core having thermoformable thermoplastic films bonded to the surfaces thereof, wherein the film bonded to a first side of the core comprises at least about 75% polystyrene and the thermoplastic film bonded to the second side of the core comprises at least about 75% polyvinyl chloride.

T884,004
PROCESS FOR PROMOTING ADHESION BETWEEN POLYOLEFINS AND VARIOUS SUBSTRATES

Charles H. Coney, 2008 Canterbury Road, and John R. Gossett, Jr., 2116 Glen Burn Road, both of Kingsport, Tenn. 37660
Filed Apr. 20, 1970, Ser. No. 30,249
Int. Cl. C08g *17/08;* **B32b** *27/28*
U.S. Cl. 260—29.2
No Drawing. 19 Pages Specification

A method of promoting adhesion between the surfaces of substrates such as aluminum foil, cellophane, paper, polyester and the like and the surface of a polyolefin substrate such as polyethylene or polypropylene to which the first mentioned substrates do not normally adhere. This involves coating the substrate surface with a water-dispersible polyester primer dispersed in an aqueous medium followed by drying. The adhesion producing polyester primer is derived from monomer components which include dicarboxylic acid, hydroxycarboxylic acid, aminocarboxylic acid, aminoalcohol, glycol, diamine or combinations of such monomer components wherein at least a part of the total of all such monomer components is a poly(ethylene glycol), and at least a part of said total is one or more of said monomer components substituted with one or more sulfonate metal salt groups. The aqueous dispersion of the polyester primer may be applied to either the polyolefin surface or to the surface of the substrate to be adhesively joined thereto. The invention also involves the use of the polyester primer itself as an ingredient of printing inks to adapt such inks to be permanently printed on polyolefin sheet material such as that composed of polyethylene or polypropylene.

T884,005
FOIL-FOAM LAMINAR STRUCTURES

Leon Edward Wolinski, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed May 1, 1970, Ser. No. 33,913
Int. Cl. B32b *3/12*
U.S. Cl. 161—161
No Drawing. 13 Pages Specification

A laminar structure comprising a core of oriented closed cell styrene polymer foam of specific elongation and tensile modulus having thermoformable thermoplastic film and metal foil bonded to a first and second surface of the core, respectively.

T884,006
HEAT PROCESSABLE SILVER HALIDE EMULSIONS WITH SOLARIZATION CHARACTERISTICS

George F. L. Wood, Kodak Park,
Rochester, N.Y. 14650
Filed July 27, 1970, Ser. No. 58,641
Int. Cl. G03c *1/28, 5/32*
U.S. Cl. 96—108
No Drawing. 10 Pages Specification

There are disclosed radiation-sensitive direct positive gelatino silver halide emulsions in which the silver halide grains have trivalent metal ions such as antimony, bismuth, arsenic, gold, iridium, or rhodium, on the inside thereof. The silver halide grains are formed by adding a trivalent metal ion at an advanced stage of the precipitation, i.e., at a time when grain growth has proceeded to at least about one half of the ultimate average grain diameter. This results in the formation of a grain having the trivalent metal ion closer to the surface of the grain than it would be if the trivalent metal compound had been added at the beginning of the precipitation.

Such emulsions are used in photographic systems having a halogen acceptor contiguous to the trivalent metal containing silver halide grains. This system is exposed to an image, the exposed coating is heated to a high temperature to repress subsequent photodevelopment of the non-exposed areas, and the coating is then photodeveloped, a direct positive silver image resulting due to solarization or reversal of the emulsion.

There is also disclosed in conjunction with such photographic systems the use of positive hole-trapping sensitizing dyes to enhance the solarization effect. Examples of such dyes are 3-carboxymethyl-5-[(2-thiazolidinylidene)-1-methylethylidene]-rhodanine, 3-ethyl-5-[(3-ethyl-2-benzothiazolinylidene) - 1 - methylethylidene]-2-thio-2,4-oxazolidinedione, and 3-ethyl-5-(1-ethyl-4(H)-pyridylidene)-rhodanine.

The silver halide emulsions and elements described may contain dispersing agents, coating aids, plasticizers, sensitizing dyes, hardeners, and other suitable addenda such as described in U.S. Pat. 3,447,927 of Bacon and Barbier, issued June 3, 1969.

T884,007
BULK YARN AND PROCESS

Donald Bowker Cook, R.D. 1, Box 126,
Hockessin, Del. 19707
Filed July 30, 1970, Ser. No. 59,714
Int. Cl. D02g *3/04, 3/24*
U.S. Cl. 57—140
No Drawing. 6 Pages Specification

The bulk level of a twist-set, nylon, carpet yarn spun and twisted from blended, crimped staple fibers of different deniers is increased without loss of tuft definition by setting the crimp in about half of the fibers while in the form of crimped tow. Usually, the fibers in one or more but not all deniers are crimp-set. About half of the blend is of fibers with a common denier per filament of less than 15 and best results have been achieved by setting the crimp in only that group of fibers.

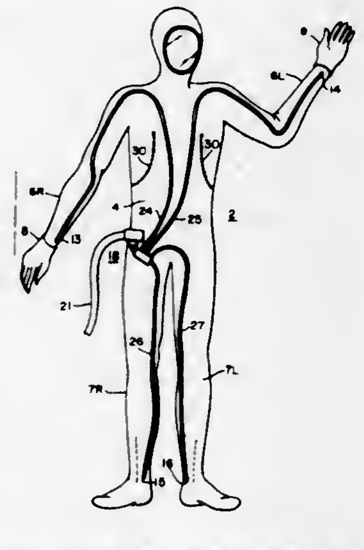
PATENTS

GRANTED MARCH 9, 1971

GENERAL AND MECHANICAL

3,568,209
PROTECTIVE SUIT APPARATUS

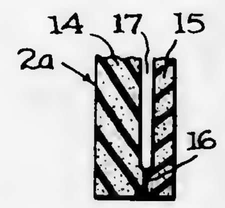
Wilber J. O'Neill, Severna Park, and Alan R. Krasberg, Crownsville, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 14, 1966, Ser. No. 579,425
Int. Cl. B63c *11/03*
U.S. Cl. 2—2.1 **6 Claims**



Diver's wet suit includes apertures at the wrist and ankle portions thereof, with a baffle located behind each aperture. Warm water is supplied to a distributor including a manifold section having conduits connected thereto and to the respective apertures whereby heated water by virtue of the baffles is directed toward the hand and feet extremities of the diver. The distributor includes a quick disconnect feature for emergency situations and a valve section for diverting the heated water to the ambient medium in which the diver is working.

3,568,210
PROTECTIVE HEADGEAR

Michael T. Marietta, 1806 Main St.,
Dallas, Tex. 75201
Filed Oct. 10, 1968, Ser. No. 766,514
Int. Cl. A42b *3/02*
U.S. Cl. 2—3 **1 Claim**

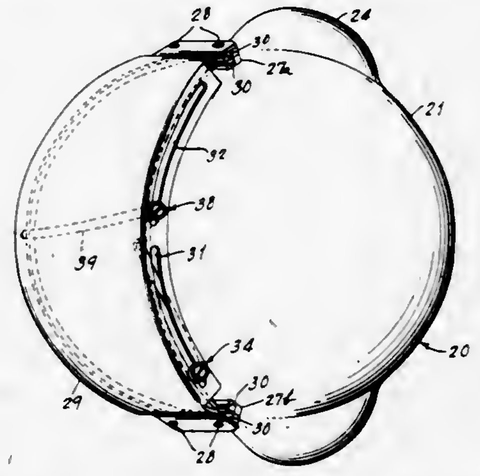


A customized protective helmet including a rigid outer shell of standard size and fitted with a specific sized cushioning head form with fastening means securing the head form to the shell.

3,568,211
DOUBLE VISOR HELMET

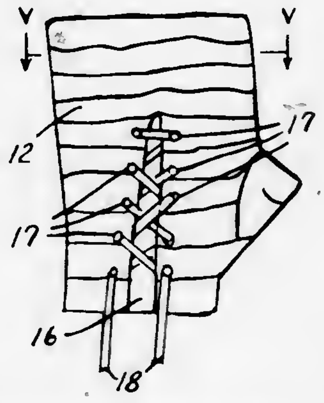
James Joseph Petruzella, Jr., Carbondale, Pa., assignor to Gentex Corporation, Carbondale, Pa.
Filed July 24, 1969, Ser. No. 844,468
Int. Cl. A42b *3/00;* **A61f** *9/04*
U.S. Cl. 2—6 **14 Claims**

A rigid protective helmet having a cover secured to a shell to define a recess for receiving first and second adjustable visors each movable independently of the other along a path between an eye-shielding position and a retracted position, each visor being controlled by a manually operable visor slider element. Each slider element projects outwardly from the visor through a slot in the cover and terminates in a control knob movable along the slot. Linking means connects each slider element to the visor at an upper central locality thereof. As the slider element is moved along the slot in one direction the visor is caused to move downwardly from a retracted position to an eye-shielding position and when the slider element is moved along the slot in the other direction the visor is moved from an eye-shielding position to a retracted position.



3,568,212
PERMANENT HAND BANDAGE FOR BOXERS

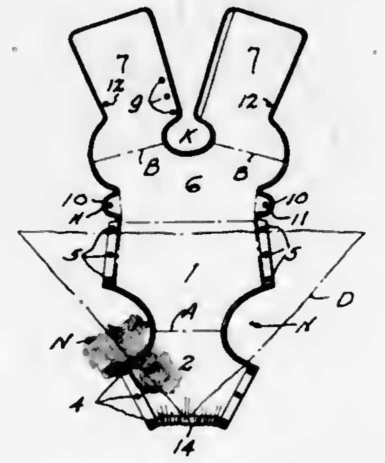
Ronald Seaborn, 909 E. 173rd St.,
New York, N.Y. 10032
Filed May 2, 1969, Ser. No. 821,298
Int. Cl. A41d *13/10*
U.S. Cl. 2—18 **6 Claims**



A permanent hand bandage glove for boxers includes an inner layer of large white tape wound to extend from the wrist to the knuckles, leaving the fingers free. Five or six layers of white gauze extend all over the sticky surface of the tape. A strip of foam rubber or rubber sponge extends over the knuckles of the user and is covered by one or two additional layers of gauze. The bandage is covered by an outer layer of large white tape which, along with gauze, also extends between the fingers. The bandage has an elongated opening upon the side covering the inner surface of the hand. This opening may be closed by strings extending through eye-holes.

3,568,213
INFANT'S GARMENT

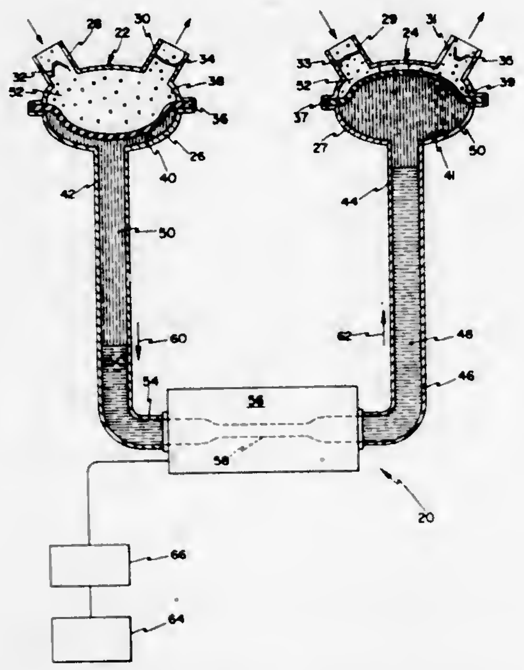
Elizabeth J. Mason, University City, Mo., assignor to Trimfoot Company, St. Louis, Mo.
Filed Sept. 24, 1968, Ser. No. 761,907
Int. Cl. A41d *11/00*
U.S. Cl. 2—80 **2 Claims**



This specification discloses a garment for an infant easily applied and removed and laundered, and having the appearance of separately formed trunks or pants and blouse or jacket, but readily opened into a flat continuous sheet for application and removal to and from an infant and for laundering.

3,568,214
ARTIFICIAL HEART SYSTEM AND METHOD OF PUMPING BLOOD BY ELECTROMAGNETICALLY PULSED FLUID

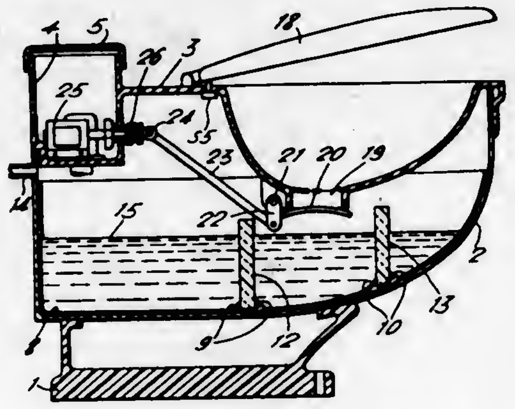
Fabio R. Goldschmied, Salt Lake City, Utah, assignor to University of Utah
Filed July 24, 1968, Ser. No. 747,394
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **8 Claims**



An artificial heart system including method and apparatus, the apparatus comprising, preferably, two interconnected ventricles, each internally provided with an accumulator diaphragm which is, according to the method, serially flexed in response to pulsatile displacement of electrically conductive fluid other than blood, the displacement being developed by an electromagnetic fluid driving device powered by thermoelectrically derived electrical energy.

3,568,215
TOILET AND SEWAGE TREATMENT APPARATUS

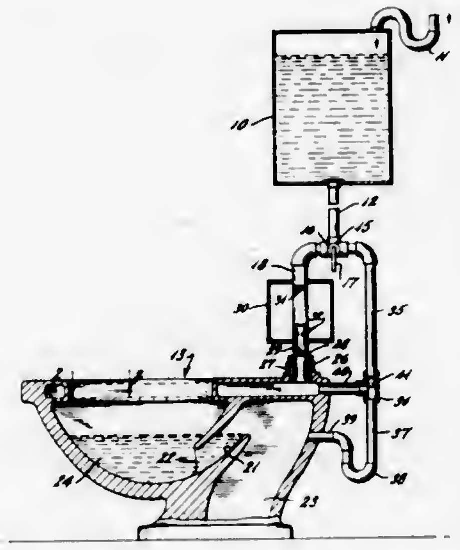
Rogers Riedel, Robert W. Norris, and Anthony Lepore, Belleville, Ontario, Canada; said Norris assignor to William E. Browning, Kingston, Ontario, Canada
Filed Jan. 27, 1969, Ser. No. 794,036
Claims priority, application Canada, Feb. 2, 1968, 11,446
Int. Cl. E03d *1/00*
U.S. Cl. 4—10 **4 Claims**



A compact, combined toilet and sewage treatment apparatus in which sewage is treated electrolytically and excess fluids are evaporated from the electrolyte.

3,568,216
TOILET FLUSHING AND VENTING MECHANISM

Joe M. Valdespino, 5023 Golf Club Parkway, Orlando, Fla. 32808
Filed Apr. 4, 1969, Ser. No. 813,447
Int. Cl. E03d *9/05*
U.S. Cl. 4—72 **2 Claims**

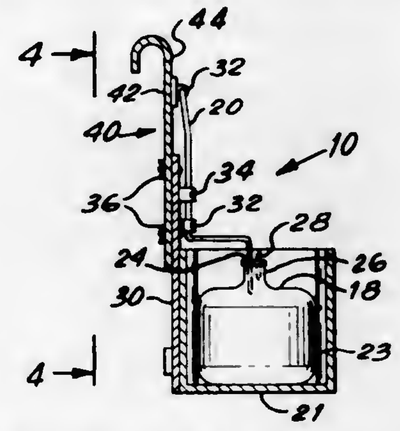


Apparatus using a single selectively operated valve for flushing a toilet bowl or exhausting odors therefrom and including a reservoir having a supply of liquid under pressure for flushing or venting the bowl.

3,568,217
COLLECTION DEVICE FOR WHEEL CHAIRS

Gertrude Anderson, 1236 Virginia Ave., Bronx, N.Y. 10473
Filed Sept. 10, 1968, Ser. No. 758,826
Int. Cl. E03d *13/00*
U.S. Cl. 4—110 **5 Claims**

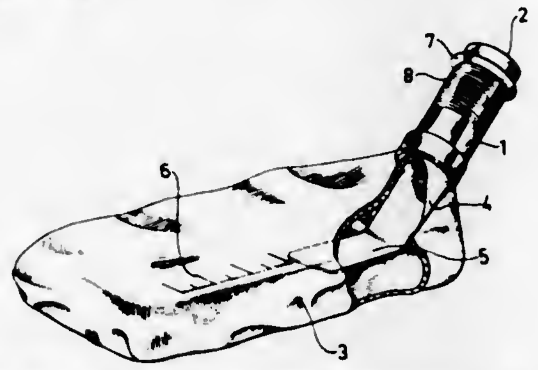
This invention relates to collection apparatus for an invalid chair which includes a back frame and a seat frame, both connected to a supporting frame. The collection apparatus comprises support plate means for adjustably attaching the support plate means to the frame, box-like reservoir holding means on the plate means, and to the reservoir and to the plate means for facilitating a reservoir detachably replaceably supported by the reservoir holding means. A collection tube is detachably secured delivery of fluid excretions to the collection reservoir and



valve means for controlling flow of fluid through said tube is secured to the plate means.

3,568,218
URINE COLLECTOR WITH FLEXIBLE CONTAINER AND INTERNAL SUPPORT

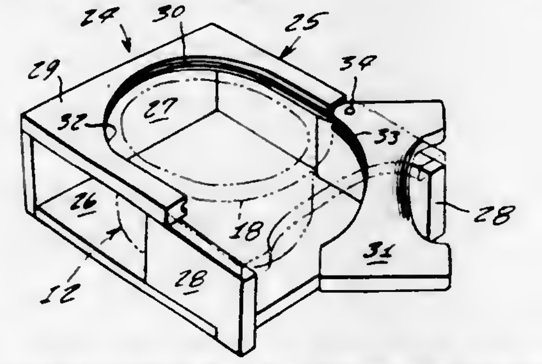
Elsa G. K. A. Beckman, Wittstocksgaten 2, Stockholm NO, Sweden, and Lars W. Othén, Helenelund, Sweden; said Othén assignor to said Beckman
Filed Oct. 29, 1968, Ser. No. 771,558
Int. Cl. E03d *13/00*
U.S. Cl. 4—110 **13 Claims**



A disposable urine container particularly for patients in beds which eliminates complicated cleaning procedures; which does not present any risk of leakage and nevertheless can be stored until an inspection (such as measuring) of its contents has been performed. To achieve this the device has a supporting means that is rather stiff in relation to the container in the device, said supporting means adapted, at the deposition of the device on a firm base, to rest against this base and at the same time locate the opening of the inlet channel to the container at a level above the liquid level in the container.

3,568,219
SUPPORT AND HOLDER FOR CHILDREN'S TOILET

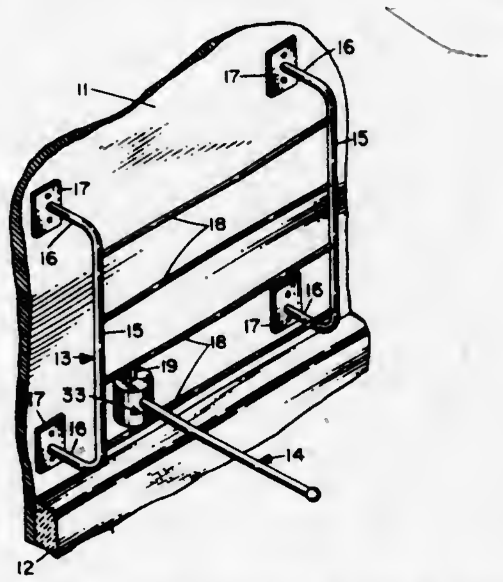
Shephard Roberts, P.O. Box 136, Brevoort Station, Brooklyn, N.Y. 11216
Filed July 5, 1968, Ser. No. 742,791
Int. Cl. A47k *11/02*
U.S. Cl. 4—134 **1 Claim**



An improved "pot" toilet for being placed upon the seat of an infant's high chair or the like; the toilet including a bowl removably supported on a frame.

3,568,220
ADJUSTABLE SUPPORT BAR

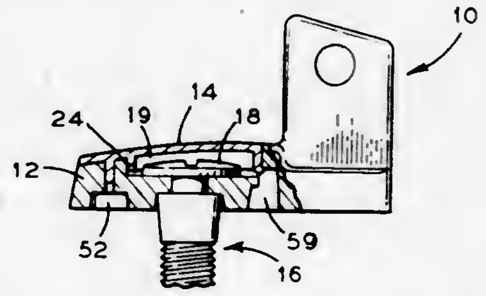
Georgie Dees, 30 Gilbert St., Hampton, Va. 23369
Filed Sept. 11, 1968, Ser. No. 758,928
Int. Cl. A47k *3/12*
U.S. Cl. 4—185 **7 Claims**



A vertical support rod interconnected in spaced, parallel relation with a wall surface and carrying an adjustable support bar pivotally connected thereto for swinging movement in a horizontal plane. The means for interconnecting the support rod and the adjustable support bar includes a vertically disposed, cylindrical element concentrically positioned about the vertical support rod and provided with a plurality of radially spaced, peripheral recesses, as well as a longitudinally moveable elongated element selectively positionable in certain of these recesses to maintain the adjustable support bar in certain preselected positions. The means for interconnecting the vertical support rod with the wall surface may include other horizontally and vertically disposed support rods graspable by the human hand.

3,568,221
HINGE ASSEMBLY

Ioakim Haidopoulos, Louisville, Ky., assignor to American Standard Inc., New York, N.Y.
Filed Apr. 9, 1969, Ser. No. 814,669
Int. Cl. A47k *13/12*
U.S. Cl. 4—240 **10 Claims**

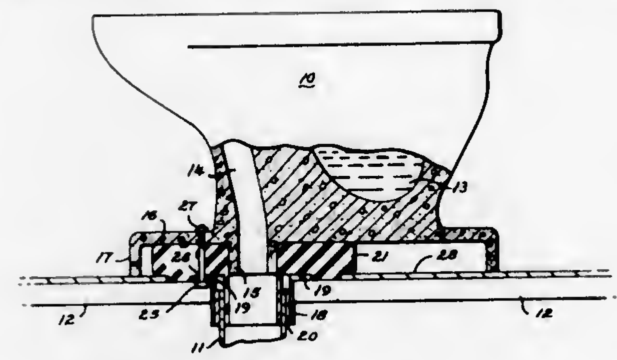


A hinge, particularly of the type employed in securing toilet seats, and toilet seat covers to toilets, is provided with a cover member which can be readily removed for access to a screw, but which is designed so as to minimize the chance of its being inadvertently dislodged from its assembled position.

3,568,222
SEALING MEMBER

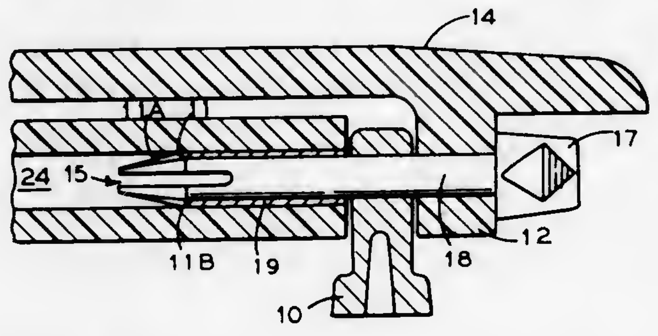
Robert W. Gantzert, 205 Cleveland Ave., San Jose, Calif. 95128
Filed Dec. 16, 1968, Ser. No. 784,092
Int. Cl. E03d *11/00*
U.S. Cl. 4—252 **3 Claims**

A sealing member for a toilet bowl and its connected waste pipe extending through an opening in a floor comprising a unitary body of resilient material defined by an annular main portion to provide a seal between the outlet of the toilet bowl and the waste pipe, an inner portion projecting from the main portion into the waste pipe to form an inner sleeve therefor, and an outer portion surrounding the main portion to provide another seal around said floor opening, said outer portion being of a relative thickness with respect to the main portion to allow it to be further easily compressed in order to withstand relative movements due to shocks or the like.



3,568,223
HINGE ASSEMBLY

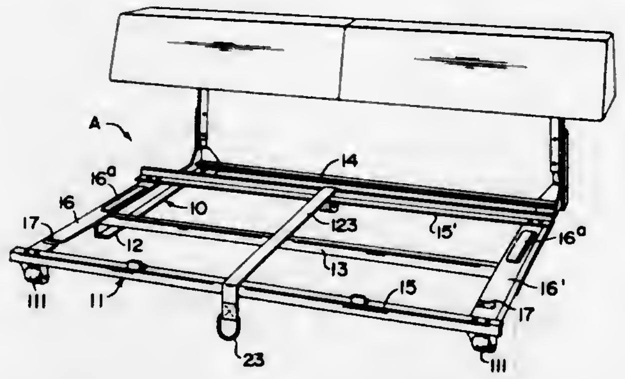
Ioakim Haldopoulos, Louisville, Ky., assignor to American Standard Inc., New York, N.Y.
Filed Feb. 24, 1969, Ser. No. 801,593
Int. Cl. A47k *13/12*
U.S. Cl. 4—236 **13 Claims**



A hinge, particularly of the type employed in securing toilet seats, and toilet seat covers to toilets, is provided with spring action pin which can be removed for easy disassembly of the unit.

3,568,224
DIVAN-BED CONTROLLED SLIDING MOVEMENT

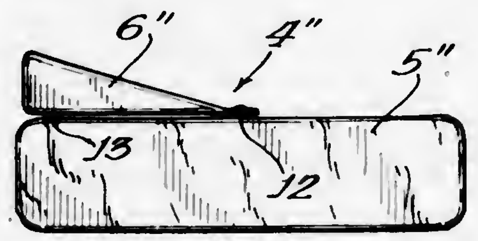
John T. Venaleck, Mentor, and John Perricone, Thompson, Ohio, assignors to Rusco Industries, Inc., Los Angeles, Calif.
Filed Oct. 14, 1968, Ser. No. 767,397
Int. Cl. A47c *17/14, 17/22*
U.S. Cl. 5—17 **6 Claims**



An extendable diven-bed structure comprising a fixed lower frame, a movable upper frame, and a gear and roller means engaging both the lower frame and the upper frame and other guide means position the upper frame to allow positive forward and reverse movement of the upper frame while retained parallel to the lower frame.

3,568,225
VEHICLE CUSHION HAVING POSITIONABLE BOLSTER CUSHIONS

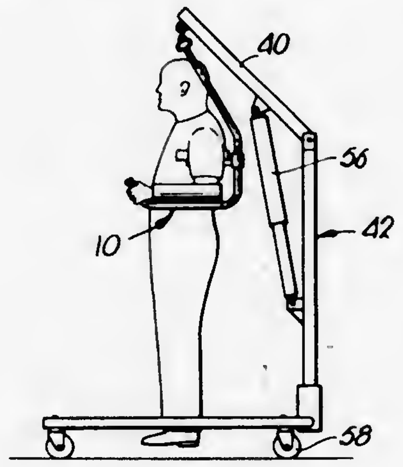
Arthur O. Radke, Milwaukee, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Nov. 29, 1968, Ser. No. 780,109
Int. Cl. A47c *27/22, 27/02*
U.S. Cl. 5—357 **9 Claims**



A vehicle seat cushion having a main cushion and bolster cushions swingably positionable against said main cushion, in order to vary the contour of the vehicle cushion to allow a more comfortable ride in a vehicle traveling transversely across a sloping surface.

3,568,226
INVALID LIFTING DEVICE

James E. Mater, 9621 Belinder Road, Leawood, Kans. 66206, Leon L. Parker, Kansas City, and Paul D. Gernhardt, Overland Park, Kans.; said Parker and Gernhardt assignors to to said Mater
Filed Oct. 16, 1968, Ser. No. 768,093
Int. Cl. A61g *7/10*
U.S. Cl. 5—81 **10 Claims**

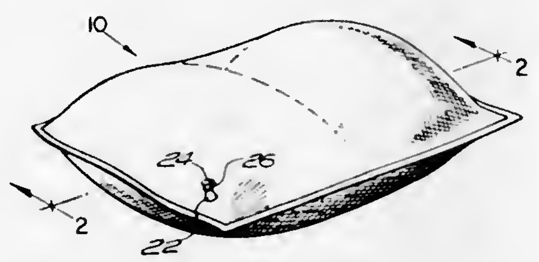


A lifting device for invalids has a pair of pivotally interconnected invalid-supporting frames. Each of the frames has a generally horizontal section adapted to support the arms of an invalid and a supporting member, the members being disposed to underlie and support the shoulders so that the weight of the invalid is carried by the frames through the supporting members.

3,568,227
INFLATABLE CUSHION AND APPARATUS FOR MAKING SAME

Philip N. Dunham, Biddeford, Maine, assignor to Philips Maine Corporation, Biddeford, Maine
Filed Apr. 10, 1968, Ser. No. 720,093
Int. Cl. A47c *27/08*
U.S. Cl. 5—349 **3 Claims**

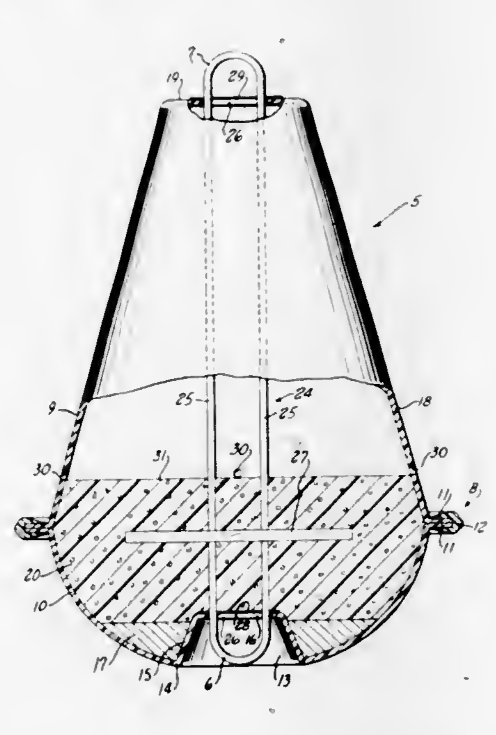
An inflatable cushion is of double-walled construction, the inner wall being a bladder of flexible, imperforate and heat-sealable material, such as polyethylene, and the outer wall, in the preferred mode, being a non-woven paper fabric bonded to the bladder only about the selvedge of the bladder. The bladder is formed with at least two interconnecting cells by means of transverse spot seals. The bladder is pleated parallel to the cell lengths to shorten the length of the bladder in a direction perpendicular to the spot seal line. The outer skin is dimensioned to fit over the shortened bladder whereby, when the bladder is inflated, the outer skin fits snugly over the bladder in all directions. The two walls provide counter forces of compression and tension when weight is applied to the cushion. By employing low-cost polyethylene for the bladder and a non-woven paper fabric on the outer layer a very inexpensive cushion is provided which may be discarded after a short period of use.



An apparatus for manufacturing the cushion includes a pair of rolls of heat sealable material, such as polyethylene, a nozzle applying station adapted to attach air nozzles at selected positions along the web which is indexed horizontally, a heat sealing roll to join the two superimposed webs along heat seal lines, pleating guides to gather the web and a pair of oppositely mounted rolls of non-woven fabric to apply the outer skin. Another heat seal roller is provided for marginally bonding the fabric to the bladder and a cut off station separates the completed units from the web.

3,568,228
BUOY

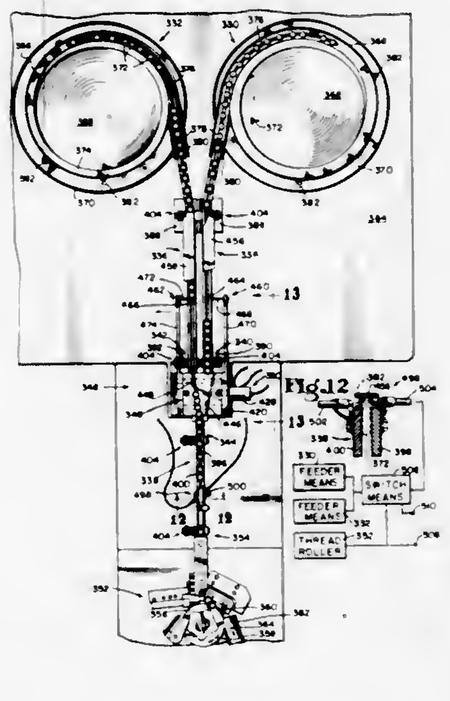
John Rudelick, % Rolyan Manufacturing Co., Inc., 4765 N. 32nd St., Milwaukee, Wis. 53209
Filed Jan. 13, 1969, Ser. No. 790,532
Int. Cl. B63l *21/52*
U.S. Cl. 9—8 **2 Claims**



A buoy having a body comprising a shell of plastic material which is shatter resistant and which is substantially unaffected by light in the ultraviolet band of the radiant energy spectrum. A ballast member is located on the bottom of the shell under a mass of permanently buoyant plastic foam.

3,568,229
SCREW-WASHER ASSEMBLY APPARATUS

Robert P. Moore and Burdette R. Steadman, Indianapolis, Ind., assignors to Moorfeed Corporation, Indianapolis, Ind.
Filed Apr. 7, 1969, Ser. No. 814,060
Int. Cl. B21h *3/02;* **B23g** *9/00, 19/08*
U.S. Cl. 10—2 **22 Claims**

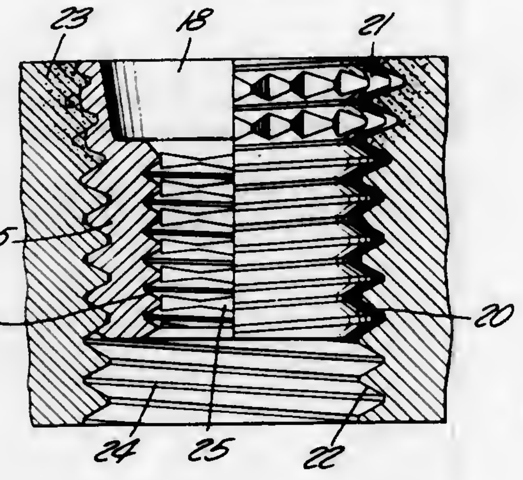


An apparatus for mating and assembling screw blanks and washers comprising vibratory-type feeder means and thread forming means. The feeder means is arranged to mate screw blanks with washers and to feed the mated blanks and washers to the forming means. In one embodiment, a pair of such feeder means is operatively connected to a thread forming means by a track mechanism which alternately feeds the outputs of the pair of the forming means. In another embodiment, the feeder means comprises a first feeder bowl for feeding screw blanks, a second feeder bowl for feeding washers, first track means for receiving screw blanks from said first bowl, and second track means for receiving washers from said second bowl, the track means being arranged so that screw blanks leaving the exit end of the first track means will mate with washers on the second track means. In other embodiments, the feeder bowls and track means are mounted for adjustable movement to accommodate screw blanks and washers of different size. Further, in some embodiments each bowl and track means is constructed so that it can be easily modified or adjusted to accommodate screw blanks and washers of different size.

3,568,230
METHOD OF MAKING AN INSERT WITH EXPANDABLE HEAD FOR LOCKING IN NON-COUNTERBORED BORES

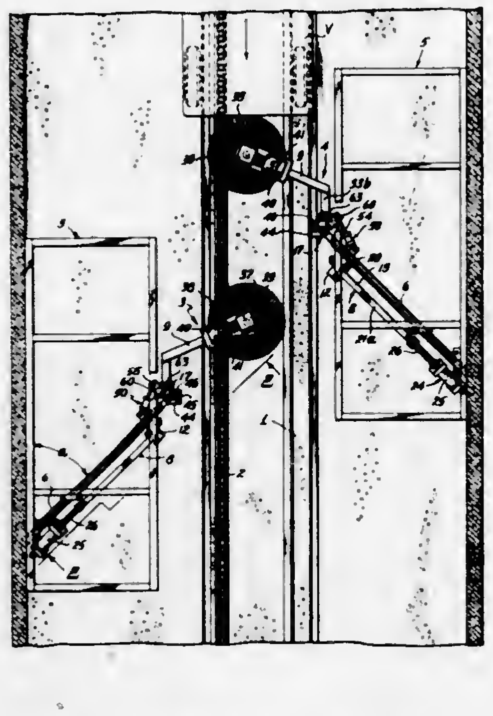
José Rosán, Sr., San Juan Capistrano, Calif., assignor to Rosan Engineering Corp., Newport Beach, Calif.
Application Dec. 11, 1967, Ser. No. 691,115, which is a continuation of application Ser. No. 534,360, Mar. 15, 1966. Divided and this application June 20, 1969, Ser. No. 847,773
Int. Cl. B21d *53/20;* **F16b** *25/00, 39/28*
U.S. Cl. 10—86 **8 Claims**

The method for making an insert capable of being locked into a threaded workpiece bore without the use of a counterbore by providing the insert with a serrated expandable head, but wherein the external threads thereof



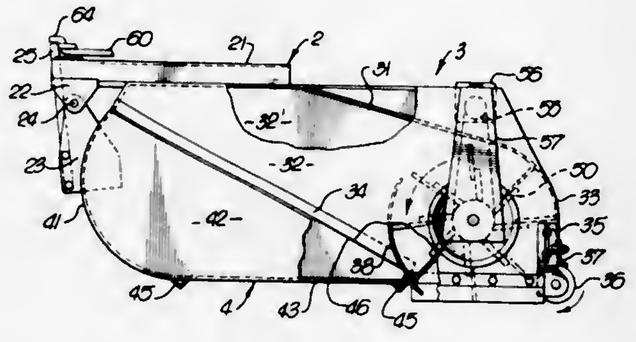
have a uniform height and profile throughout the length of the insert.

3,568,231
VEHICLE WASHING APPARATUS
James A. Carroll, 11708 135th St.,
Edmonton, Alberta, Canada
Filed Oct. 14, 1968, Ser. No. 767,413
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 **8 Claims**



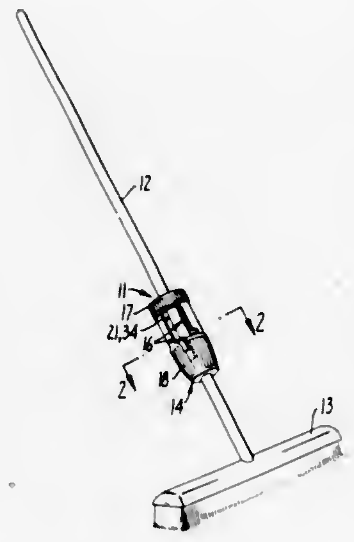
Apparatus for washing motor vehicles, characterized by employing rotary cleaning devices, such as brushes, in such fashion that the rotary cleaning devices are positively urged against the vehicle throughout a working cycle during which one cleaning device traverses first one half of the front of the vehicle, then all of one side of the vehicle, and finally one half of the rear of the vehicle. Each brush or the like is supported by a carriage arranged for rectilinear travel along a line which diverges from the path along which the vehicle being washed is moved. A rectilinear power device is arranged to move the carriage toward the path of travel of the vehicle and the power device yieldably opposes movement of the carriage in the opposite direction. The brush or the like is supported on its carriage by a swinging arm, swinging movement of the arm being limited in one direction by a stop and in the other direction by a device which yieldably opposes the swinging movement and is capable of returning the arm to the limit determined by the stop device. The rectilinear power device is controlled automatically, in response to swinging movement of the arm, so as to respond to the position of the brush or the like relative to the vehicle being washed.

3,568,232
ATTACHABLE SWEEPER
Raymond W. Swanson, Whittier, Calif., assignor to
M. P. McCaffrey Inc., Los Angeles, Calif.
Filed June 9, 1969, Ser. No. 831,610
Int. Cl. E01h *1/04*
U.S. Cl. 15—83 **9 Claims**



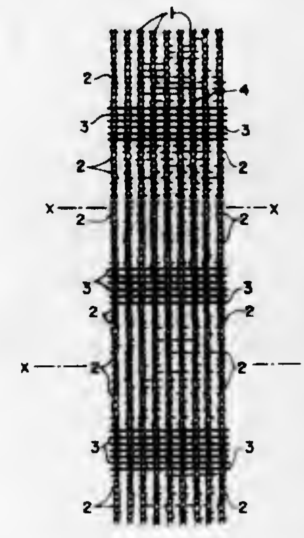
A bottom dump sweeper for removable attachment to fork lift trucks in which the vertical height of the attachable sweeper is minimized, thereby permitting the operator to see the road ahead, the sweeper including improved means for moving a debris pan from a closed position to an open position including means whereby the debris pan is automatically held in the desired position even though the actuating means is fluid powered.

3,568,233
KIT FOR AIDING SURFACE CLEANING
Leo L. Terzian, 712 Franklin St.,
San Francisco, Calif. 94102
Filed Sept. 18, 1968, Ser. No. 760,656
Int. Cl. A47l *13/12*
U.S. Cl. 15—105 **5 Claims**



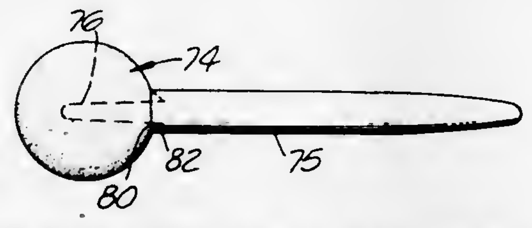
A kit for aiding cleaning of surfaces such as floors, the kit providing a receptacle attachable to the handle of a broom, mop or like surface-cleaning implement, the receptacle being adapted to receive material left on the floor surface following cleaning by such implement, at least one surface-cleaning device such as a scraper being removably mounted on the receptacle for usein removing such remaining material from the floor surface, and for introducing the removed material into the receptacle.

3,568,234
MOP ELEMENT AND A MANUFACTURING METHOD THEREOF
Toshiyoshi Komatsu, Osaka-shi, Japan, assignor to
Duskin Franchise Co., Ltd., Osaka-shi, Japan
Filed Dec. 31, 1968, Ser. No. 788,131
Claims priority, application Japan, Sept. 26, 1968,
43/69,730
Int. Cl. A47l *13/20*
U.S. Cl. 15—229 **2 Claims**



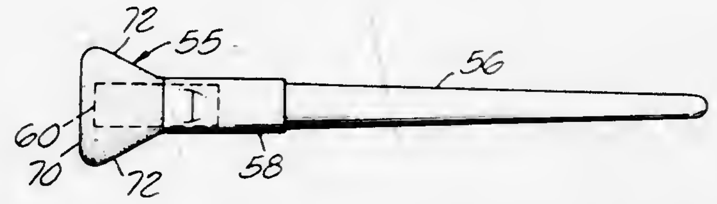
An improved mop element is manufactured by first arranging a number of tough, water-insoluble strands in the form of a neat row of parallel strands as the warps, thereafter weaving these warps into a continuous lengthy plain fabric by repeating the process of weaving two kinds of continuous adjacent plainly woven sections, one of which being woven, up to a predetermined breadth, with said warps of strands and wefts of a tough, but water-soluble chemical filament and the other of said adjacent sections being woven, up to a predetermined relatively narrow breadth, with the adjacent warps of strands and wefts of a water-insoluble tough yarn made of fibers selected from the group consisting of natural fibers, chemical fibers, synthetic fibers and their mixtures so that the resulting continuous plain fabric consists of a plurality of said two sections disposed in alternate fashion, and cutting the continuous lengthy plain fabric along the transverse center line in each of the sections woven with the warps of strands and wefts of a water-soluble chemical filament, so that the mop elements thus prepared are easily stitched to a piece of tough cloth to form a mop head. In use, it is only necessary to soak the resulting mop element stitched to a piece of cloth in water to dissolve said water-soluble chemical filament wefts.

3,568,235
COSMETIC APPLICATOR WITH HANDLE HAVING INTEGRALLY FORMED STIFFENER
Bruno D. Aston, 14211 Skyline Drive,
Hacienda Heights, Calif. 91745
Application Apr. 11, 1969, Ser. No. 816,183, which is a continuation of application Ser. No. 660,124, Aug. 11, 1967. Divided and this application Sept. 23, 1969, Ser. No. 860,301
Int. Cl. A47k *7/02;* **A47l** *13/46*
U.S. Cl. 15—244 **4 Claims**



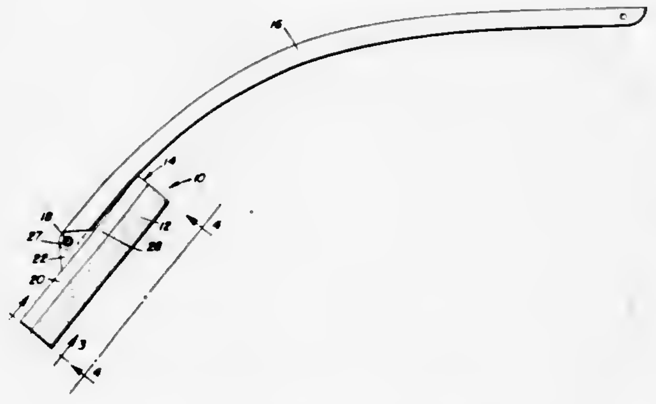
An applicator element mounted on a handle to serve the general purpose of a brush comprises a bulbous body of a soft, resilient, foamed plastic with the cells open to provide communication among the cells and to provide numerous minute outwardly open cavities formed by the outer cells. A stiffener element projecting from the handle is enclosed by the foamed plastic applicator element and is substantially smaller in cross sectional area than the applicator element.

3,568,236
COSMETIC APPLICATOR WITH FLEXIBLE STIFFENER
Bruno D. Aston, 14421 Autumn Moon Drive,
Hacienda Heights, Calif. 91745
Application Apr. 11, 1969, Ser. No. 816,183, which is a continuation of application Ser. No. 660,124, Aug. 11, 1967. Divided and this application Sept. 23, 1969, Ser. No. 860,304
Int. Cl. A47k *7/02*
U.S. Cl. 15—244 **2 Claims**



An applicator element mounted on a handle to serve the general purpose of a brush comprises a bulbous body of a soft, resilient, foamed plastic with the cells open to provide communication among the cells and to provide numerous minute outwardly open cavities formed by the outer cells. A stiffener element projecting from the handle is enclosed by the foamed plastic applicator element and is substantially smaller in cross sectional area than the applicator element.

3,568,237
SPONGE BACK WASHER
William L. Rhodes, P.O. Box 16,
Aiken, S.C. 29801
Filed Dec. 30, 1968, Ser. No. 787,810
Int. Cl. A47k *7/02*
U.S. Cl. 15—244 **2 Claims**

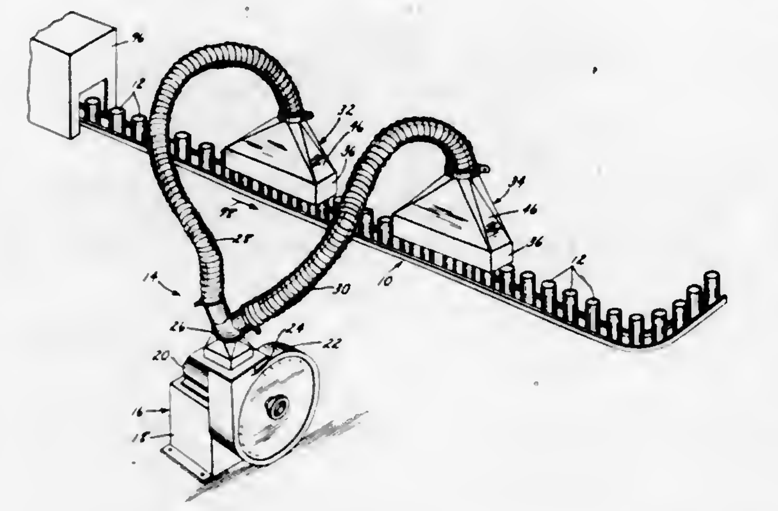


The invention is a sponge back washer, and consists of a rectangular base having upstanding flanges on each edge, the flanges on the long edges also then extending inwardly into cooperative slits on a cellulose sponge placed on the base between the upstanding flanges. As such, it serves as a sponge holder for use as a back washer as well as elsewhere, but for particular use in washing one's back, the holder is also provided with a curved handle pivotally secured to the base face of the base and extendible to a position forwardly of the forward face of the sponge.

3,568,238

FLUID DRYING APPARATUS

Philip L. Fischer, 42—51 Hunter St.,
Long Island City, N.Y. 11101
Filed Apr. 21, 1969, Ser. No. 817,639
Int. Cl. B67c *1/00*
U.S. Cl. 15—306 **7 Claims**

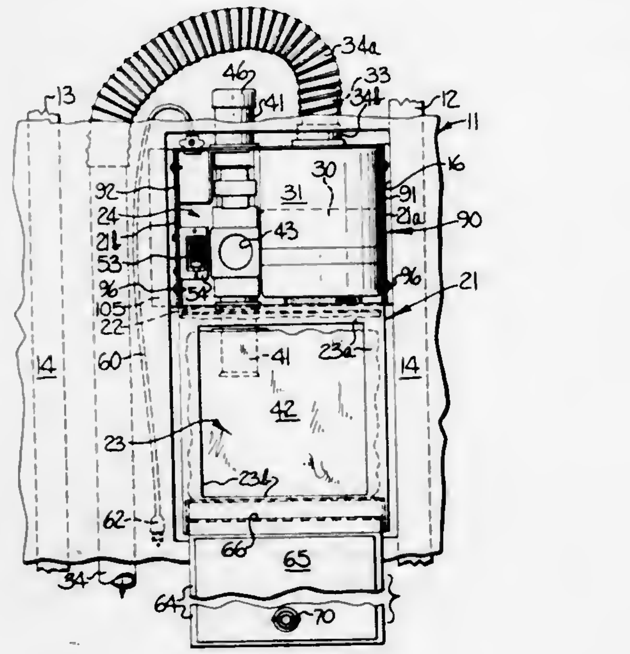


Air-operated apparatus for removing water from cans travelling on a conveyor line, includes a pair of plenum members mounted above the conveyor line and connected to an air compressor. Each plenum has a bottom wall overlying the cans travelling on the conveyor line and containing a series of inclined slots arranged to direct high-velocity jets of air in sheet-like form upon the tops of the cans travelling therebeneath, in a direction opposite to the direction of travel of the cans and at an angle to the axis of the conveyor line.

3,568,239

WALL-MOUNTED VACUUM CLEANER

James C. Hamrick, Matthews, N.C., assignor to JL Products Incorporated, Matthews, N.C.
Continuation-in-part of application Ser. No. 567,615, July 25, 1966, now Patent No. 3,422,482. This application Sept. 24, 1968, Ser. No. 762,083
The portion of the term of the patent subsequent to Jan. 21, 1986, has been disclaimed
Int. Cl. A47l *5/38*
U.S. Cl. 15—314 **20 Claims**

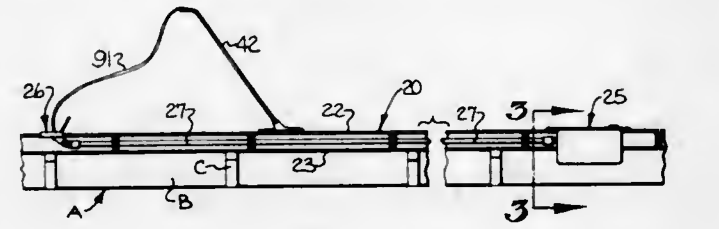


A vacuum cleaner unit positioned within an opening in a building wall and provided with means mounting the cleaner unit for ready installation thereof in and removal thereof from the building wall, the mounting means comprising a bracket means secured within the building wall and including laterally spaced, outwardly extending support arms which straddle the casing of the vacuum unit. Disconnectable means is carried by the arms of the bracket means and by the sidewalls of the cleaner unit for securing the same within the opening in the building wall in such a manner that the frontal portions of the cleaner unit casing project outwardly a predetermined distance from the building wall.

3,568,240

FLOOR INSTALLABLE VACUUM CLEANER

James C. Hamrick, Matthews, N.C., assignor to JL Products Incorporated, Matthews, N.C.
Continuation-in-part of application Ser. No. 567,615, July 25, 1966. This application Jan. 2, 1969, Ser. No. 788,395
The portion of the term of the patent subsequent to Jan. 21, 1986, has been disclaimed
Int. Cl. A47l *5/38, 9/10;* **B60s** *1/64*
U.S. Cl. 15—314 **17 Claims**

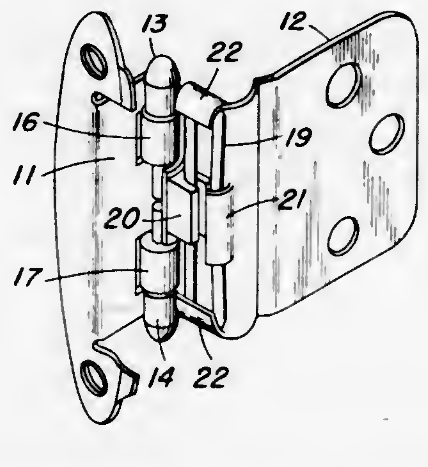


A compact self-contained vacuum cleaner unit especially designed for installation in the floor structure of mobile homes and apartment buildings and having an inlet fitting in one vertical wall thereof for connection thereto of a suction conduit extending beneath the flooring of, and within, the floor structure to an auxiliary hose-receiving receptacle remote from the vacuum cleaner. A hand-operated flexible suction hose is connectable to both the auxiliary receptacle and a main receptacle of the cleaner unit communicating with the inlet fitting and, when not in use, the suction hose is stored within the auxiliary receptacle and the suction conduit thereof.

3,568,241

HINGE

Joseph D. Uffner, Elmhurst, N.Y., assignor to U.S. Industrial Corporation, Corona, N.Y.
Filed May 14, 1969, Ser. No. 824,626
Int. Cl. E05d *11/08;* **E05f** *1/12*
U.S. Cl. 16—142 **5 Claims**

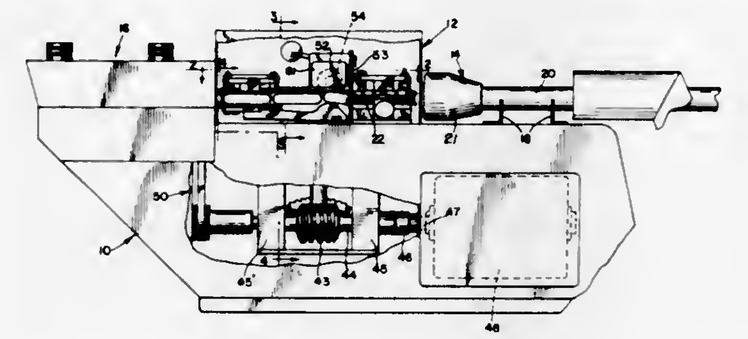


A spring-biased hinge which is biased against the opening of a cabinet door is disclosed. Such a hinge eliminates the need for a latch on a door. The spring biasing mechanism is simpler than prior art designs, and includes a spring retained in one hinge plate without an extra mounting member, and a cam follower which rides a tongue on the other hinge plate.

3,568,242

SAUSAGE CASING SLITTING APPARATUS

Lowell Bruce Moore, Moline, Ill., assignor to The Kartridg Pak Co., Davenport, Iowa
Filed June 11, 1969, Ser. No. 832,270
Int. Cl. A22c *13/00*
U.S. Cl. 17—1 **6 Claims**

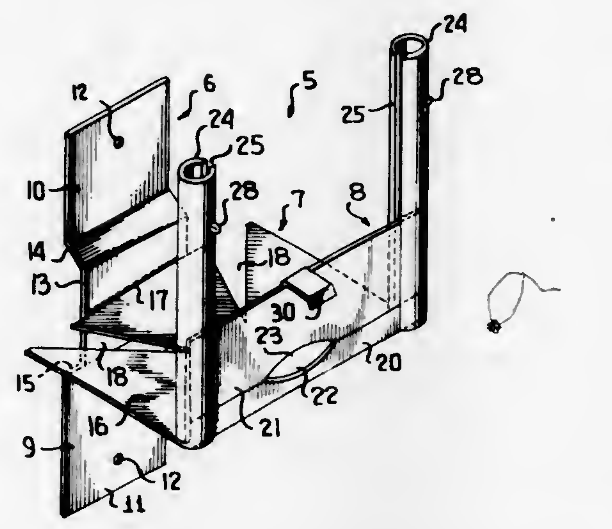


An apparatus for slitting the casing so as to enable the same to be removed from strings of sausage links wherein a traveling conveyor advances the encased sausages past a slitting knife which is set in a housing with the edge of the blade adjustably positioned in a slot so that it projects a sufficient distance to cut through the casing only and a spring pressed arm is disposed opposite the knife edge with a curved portion over which the sausages ride so that they are pressed against the face of the housing and into engagement with the projecting blade edge as they advance past the same.

3,568,243

ANIMAL SKINNING AND DRESSING ATTACHMENT

Noah Hines, General Delivery, Creston, La. 71020
Filed July 29, 1969, Ser. No. 845,728
Int. Cl. A22c *15/00*
U.S. Cl. 17—44.2 **9 Claims**

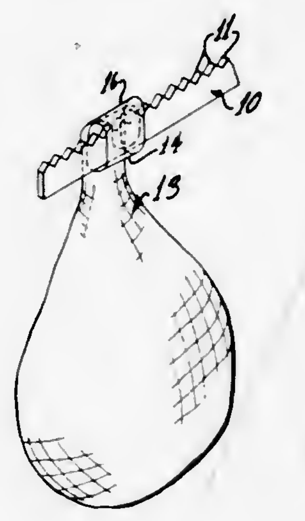


This disclosure relates to an animal skinning and dressing attachment which is primarily intended for use with small animals, such as squirrels, ducks, rabbits, etc. The attachment is particularly constructed to be secured to any convenient upright support, including a tree, and includes a horizontal plate having slots therein arranged in spread apart converging relation for anchoring the hind legs of an animal. In addition, at the forward edge of the plate there is a mechanism for gripping the neck of an animal, the mechanism including a vertically sliding door which is resiliently urged to a neck gripping position.

3,568,244

PROCESS AND APPARATUS FOR SUPPORTING MEAT PRODUCTS FOR CURING

Charles C. King, Jacksonville, Ala., assignor to Brecon Knitting Mills, Inc.
Filed Jan. 2, 1968, Ser. No. 694,986
Int. Cl. A22c *15/00*
U.S. Cl. 17—45 **1 Claim**

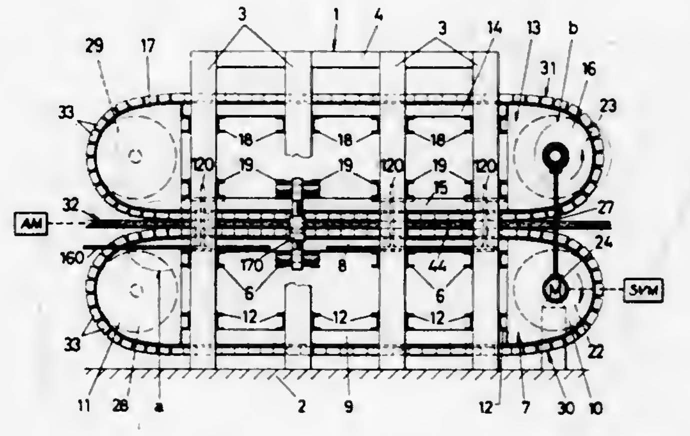


Process for supporting meat products for curing within stockinette-like members having a free end extending outwardly of the product. Upstanding friction members are provided on an upper portion of an elongated support bar frictionally engaging the free end of each stockinette member. Upon placing the free end of the stockinette member over the bar and wrapping the stockinette member around and under the bar and then over said free end, the weight of the product urges the portion of the stockinette member superjacent the free end into engagement with said free end.

3,568,245

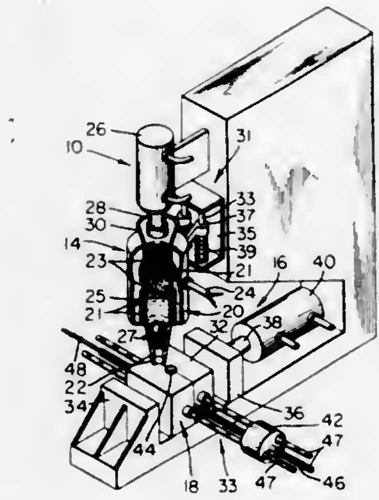
APPARATUS FOR MAKING COMPOSITION PANELS

Raimund Jetzer, 13 Hohenweg, 5415 Nussbaumen, Switzerland
Filed July 24, 1968, Ser. No. 747,265
Claims priority, application Switzerland, July 24, 1967, 10,617/67
Int. Cl. B29c *15/00*
U.S. Cl. 18—4 **12 Claims**



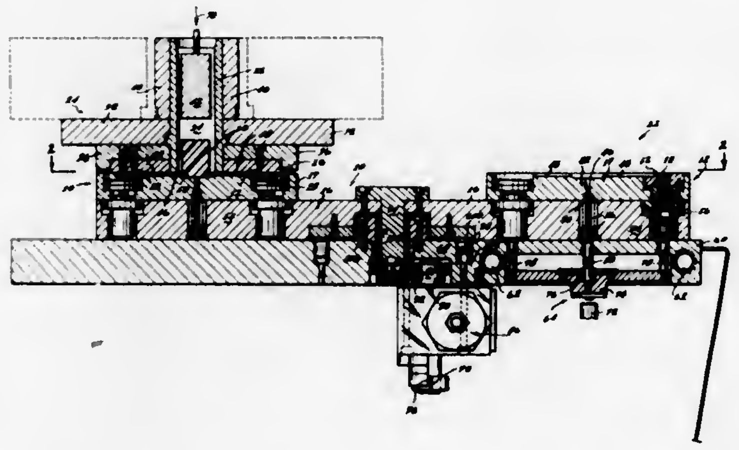
An apparatus for making composition panels consisting of solid constituents and initially flowable hardenable binding materials, comprises two endless belts arranged to be driven in mutually opposite directions and having spaced substantially coextensive facing stringers defining between themselves a gap through which a layer of the material advances with the binder in flowable state. The facing stringers of the belts exert pressure upon this layer from opposite sides thereof, and means is provided for varying this pressure. During travel through the gap the binder hardens and the layer issues at the downstream end of the gap as a solid panel.

3,568,246
APPARATUS FOR MOLDING IMPROVED BULKHEADS FOR SEISMIC STREAMERS AND THE LIKE
Richard P. David, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.
Filed Aug. 5, 1968, Ser. No. 750,237
Int. Cl. B29c *1/14, 11/00;* **B29f** *1/19*
U.S. Cl. 18—5 **9 Claims**



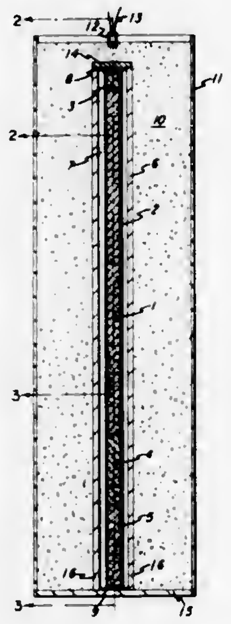
A bulkhead of improved impact strength and compressive loading properties is molded in place during the fabrication or repair of a streamer cable assembly. Fabrication in place is made possible by a split mold assembly having removable sections and either split or solid mandrels. The bulkheads may also be fabricated as a separate unit for use in other applications.

3,568,247
MOLDING MACHINE
Frank Lunn, South Pasadena, Calif., assignor to Spectrol Electronics Corporation
Filed Aug. 7, 1968, Ser. No. 750,906
Int. Cl. B29c *3/00*
U.S. Cl. 18—5 **8 Claims**



A molding machine for encasing electrical components. A rotatable platform is provided with oppositely disposed platens containing a plurality of mold cavities. The platens are spaced so as to be rotated simultaneously and respectively into and out of a loading station and a molding station. Each cavity is adapted to securely receive and readily eject electrical components. Means are also provided for urging encasing material from a central location on each platen into each cavity.

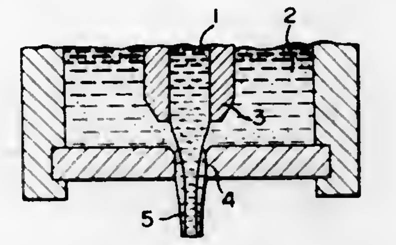
3,568,248
PLUG CLOSURE IN A CONTAINER FOR SUBJECTING SAMPLE TO SHOCK WAVE
George R. Cowan, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Mar. 4, 1969, Ser. No. 804,199
Int. Cl. B30b *11/00, 5/00, 15/00*
U.S. Cl. 18—5 **12 Claims**



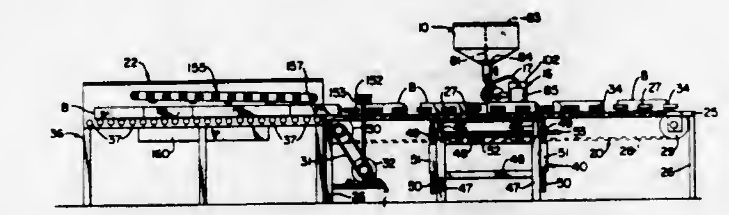
A plug closure for closing the end of a cylindrical container, e.g., one end of a circular metal cylinder, containing a sample that is being subjected to a shock wave, which retains the sample while permitting the shock wave to leave it by propagating into the closure across the sample/closure interface, comprising a first section in contact with the sample, which is of about the same shock impedance as the sample at the interface therewith and which is solid after passage of the shock wave through said section and of sufficient strength to retain the sample in the container; and a second section in contact with the surface of the first section opposite that which contacts the sample, the first and second sections having about the same shock impedance at their interface, and the second section carrying off, by spalling, momentum associated with the shock wave.

3,568,249
SPINNERET FOR PRODUCING COMPOSITE FILAMENTS
Masao Matsui, Osaka-fu, Japan
(7–18 Kitazono-cho, Takatsuki-shi, Osaka, Japan)
Original application July 29, 1965, Ser. No. 475,667. Divided and this application July 9, 1968, Ser. No. 801,873
Int. Cl. D01d *3/00*
U.S. Cl. 18—8 **3 Claims**

A spinneret for spinning two component filaments comprising a unitary core and a sheath conjointly melt-spun around the core and wholly covering the core, comprises an inner nozzle for extruding the core and an outer nozzle for spinning the sheath. The inner nozzle is arranged upstream in approximate alignment with the outer nozzle. The inner nozzle has an extrusion opening with a basically symmetrical cross sectional area of non-circular shape having a mean moment of inertia higher than that of a circular section of the same area. The corresponding cross sectional shape of the extruded core imparts flexural rigidity and bending resistance to the core. The cross sectional shape of the outer nozzle may be circular or may conform to that of the inner nozzle.

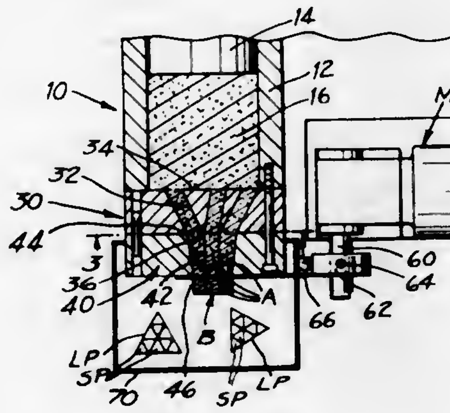


3,568,250
APPARATUS FOR EXTRUDING AND APPLYING PLASTIC MATERIALS
Le Roy Payne, Arvada, Colo., assignor to Weyerhaeuser Company, Tacoma, Wash.
Original application Sept. 10, 1965, Ser. No. 486,511, now Patent No. 3,469,281, dated Sept. 30, 1969. Divided and this application Apr. 28, 1969, Ser. No. 837,002
Int. Cl. B29d *7/04*
U.S. Cl. 18—12 **3 Claims**



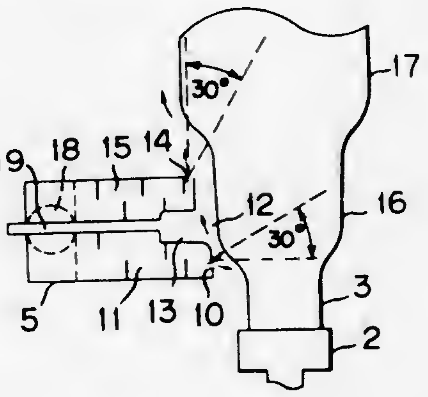
An extruder apparatus for plastic materials having an elongated extrusion chamber on a hollow feed screw mounted within the chamber. Material enters one end of the chamber through a hopper and exits from the opposite end of the chamber. Additional material may be placed in the chamber through a check valve which is operated by the feed screw. The diameter of the feed screw is smaller than the diameter of the chamber at the entrance to the chamber and the feed screw increases in diameter toward the exit end of the chamber. The exit end has a discharge slot which is aligned in parallel relation to the longitudinal axis of the chamber. The slot increases in width in the direction away from the chamber.

3,568,251
APPARATUS FOR MANUFACTURING TUMBLING MEDIA
Robert H. Walker, Worcester, Mass., assignor to Norton Company, Worcester, Mass.
Filed Jan. 29, 1968, Ser. No. 701,310
Int. Cl. B29d *31/00*
U.S. Cl. 18—12 **8 Claims**



Extruding a plastic abrasive mix through a multi-hole die adapted to combine emerging strands of the mix into a single strand whereby the strands move at the same linear rate. The single strand is cut into large pellets of uniform length, after which they are divided into smaller pellets corresponding to the original number, size, and shape of each of the combined strands and cured.

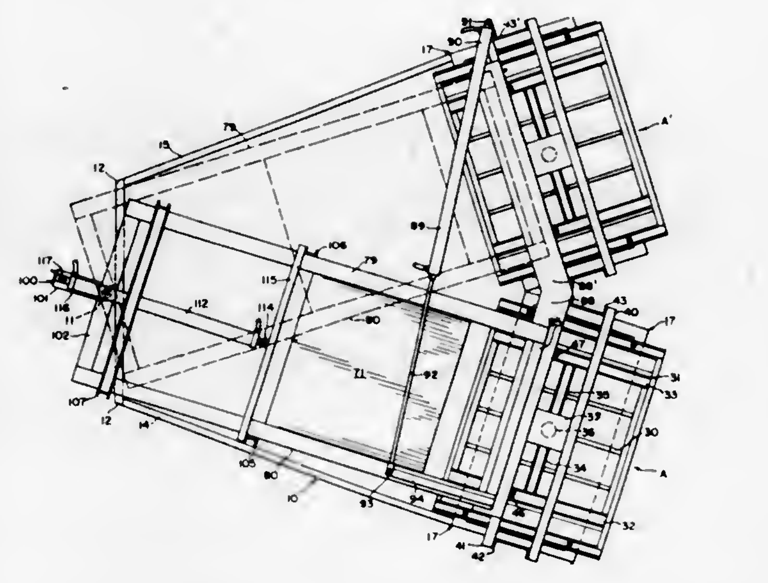
3,568,252
ANNULAR COOLING DEVICE FOR MANUFACTURE OF TUBULAR FILM
Kohei Masuda, Kazumasa Hasegawa, and Akio Okamoto, Yokkaichi-shi, Japan, assignors to Mitsubishi Petrochemical Co., Ltd.
Filed Mar. 6, 1968, Ser. No. 711,121
Claims priority, application Japan, Mar. 15, 1967, 42/16,180; Sept. 11, 1967, 42/58,289
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 **2 Claims**



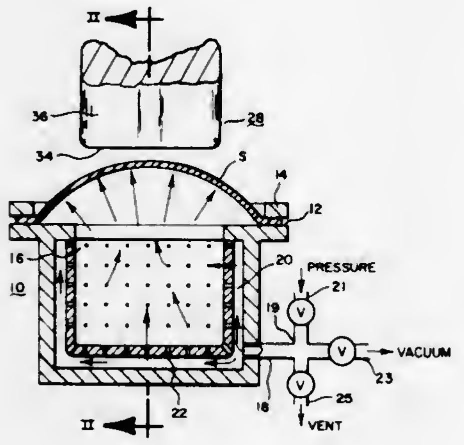
In the manufacture of a film of a thermoplastic resin according to an inflation method, the improvement which comprises extruding a molten resin from an annular die, cooling preliminarily thus extruded resin with a gaseous coolant to not lower than the softening point of said resin, inflating preliminarily thus cooled resin by air having reduced pressure, cooling thus inflated resin with a gaseous coolant rapidly to below the softening point of said resin while further inflating the same to a predetermined dimension by a gaseous medium sealed in the resulting tubular film of said resin and fixing the dimension of the resulting tubular film at the predetermined point. There is also disclosed an annular cooling device employed in the manufacture of the tubular film.

3,568,253
THERMOFORMING APPARATUS
Robert A. D. Schwartz, Oakland, and Barry Dep and Robert L. Hall, San Leandro, Calif., assignor to United Plastics Corporation, Oakland, Calif.
Filed Aug. 15, 1968, Ser. No. 752,980
Int. Cl. B29c *17/04*
U.S. Cl. 18—19 **4 Claims**

The apparatus includes frame structure providing a plurality of angularly spaced stations radially disposed with respect to the retracted position of a pair of heating elements reciprocable between such retracted position and extended positions at one or another of such stations so as to heat a sheet of material located thereat concurrently from the opposite sides thereof. Each of the forming stations is equipped with clamping mechanism selectively movable between open and closed positions to engage a sheet of material at the station along its perimetric edge portions and clamp the sheet in a generally horizontal orientation. Each of the forming stations is provided with platen structure comprising male and female platens cooperative with a heated sheet of material to deform the same mechanically toward its final configuration, and each of the female platens is equipped with means for reducing the pressure therewithin to enable the sheet of material to be deformed by a pressure differential thereacross into the final configuration intended therefor.



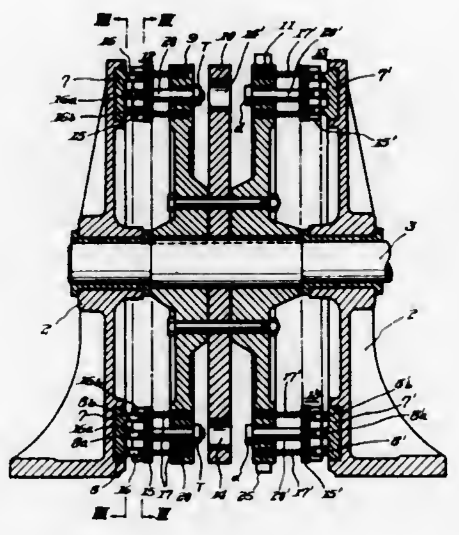
3,568,254
APPARATUS FOR DEEP DRAW MOLDING
Thomas J. Stolki, Wilbraham, Mass., assignor to
Monsanto Company, St. Louis, Mo.
Filed Sept. 19, 1968, Ser. No. 760,757
Int. Cl. B29c *17/03, 17/04*
U.S. Cl. 18—19 **7 Claims**



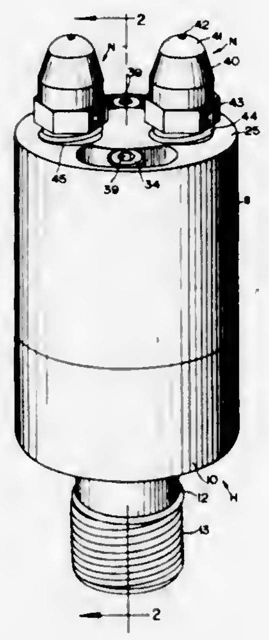
A specially contoured thermoforming plug having two sides with depressions formed therein in order to provide improved distribution of material in deep draw molded articles.

3,568,255
AUTOMATIC PLASTIC CAP MOLDING MACHINE
Mikihiko Hanai, 8–7 4-chome, Kachidoki,
Chuo-ku, Tokyo, Japan
Filed Feb. 6, 1968, Ser. No. 703,308
Claims priority, application Japan, Mar. 29, 1967,
42/19,223
Int. Cl. A22b *5/08*
U.S. Cl. 18—20 **4 Claims**

A rotary machine construction including an additional rotary disc which is interposed between the male- and female-mold carrying discs for rotation therewith and is so formed as to receive pairs of aligned male and female molds in their sequential operation under cam control. Molding and severing operation of increased accuracy is obtainable with this construction. The molds are to be replaceably mounted on the respective discs to enable the molding of caps in different shapes.

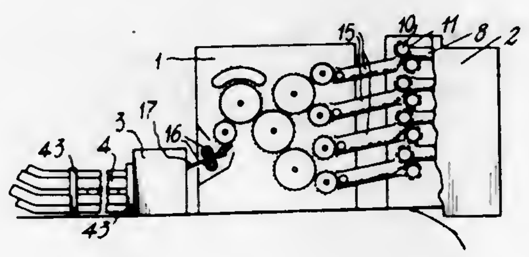


3,568,256
PLASTIC FEEDER HEAD
Clifford David Johnson, Jr., North Stonington, Conn.,
assignor to J.&J. Machine Co., Inc., Providence, R.I.
Filed July 15, 1968, Ser. No. 744,735
Int. Cl. B29f *1/00*
U.S. Cl. 18—30 **12 Claims**



This specification discloses a feeder head of the type now commonly employed in the molding of plastics for the purpose of delivering plastic to a mold. The head comprises two coaxial cylindrical parts. One of these has a passage communicating with the supply of plastic. The other carries a plurality of nozzles each of which is connected by a branch passage to a manifold in communication with the supply passage in the head part aforesaid. The head parts are angularly adjustable and held in an adjusted position by a pair of screw bolts anchored in the first head part and passing through diametrically opposed arcuate slots in the other part.

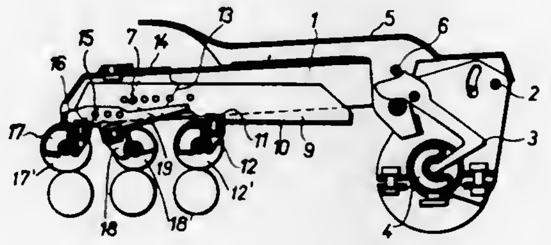
3,568,257
APPARATUS FOR CONVERTING TEXTILE STAPLE FIBERS TO CARDED SLIVER AND FEEDING SUCH A SLIVER IN CANS
Angelo Marinoni, Via Michelangelo da Caravaggio 17,
Bergamo, Italy
Filed Oct. 29, 1968, Ser. No. 771,562
Claims priority, application Italy, Nov. 6, 1967,
1,338/67; Oct. 7, 1968, 1,340/68
Int. Cl. D01g *15/40*
U.S. Cl. 19—150 **12 Claims**



Apparatus comprising a plurality of horizontal tubular containers into which a sliver of textile fibers from a multiple feeding carding machine is distributed by a rotating head.

The apparatus also comprises a conveyor belt on which metered amounts of textile staple fibers are loaded, such fibers being drawn therefrom and supplied to the carding machine by a pneumatic conveying device.

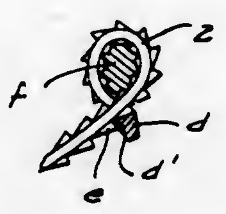
3,568,258
ADJUSTABLE TEXTILE DRAFTING APPARATUS
Adolf Schiltknecht and André Lattion, Winterthur, Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland
Filed July 11, 1968, Ser. No. 744,148
Claims priority, application Germany, July 13, 1967,
M 74,745
Int. Cl. D01h *5/56*
U.S. Cl. 19—295 **6 Claims**



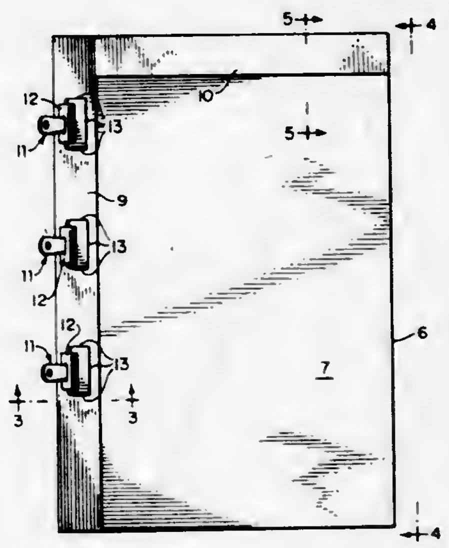
The guide arms pivotally mounts a rear saddle which in turn pivotally mounts the front saddle. The central pressure roller is adjustably mounted in the front saddle while the rear pressure roller is adjustably mounted in the rear saddle. Also, the central pressure roller and rear pressure roller are mounted in planes which intersect each other to form an enclosed acute angle thereby allowing a wide range of adjustment for long and short staple fibers.

3,568,259
TYING CLIP
Paul Gaudlitz, 30 Fuhlsbuttelerweg,
2000 Hamburg 61, Germany
Original application Feb. 17, 1966, Ser. No. 528,273, now Patent No. 3,473,292, dated Oct. 21, 1969. Divided and this application Aug. 4, 1969, Ser. No. 847,360
Claims priority, application Germany, Feb. 19, 1965,
G 42,883, G 42,884
Int. Cl. G65d *63/00*
U.S. Cl. 24—30.5 **3 Claims**

An elongated deformable clip for mechanically tying containers such as sausage casings, bags and the like, having two substantially parallel lateral strips, two connecting end portions, an elongated central slot and teeth on the upper and/or lower surface of said lateral strips. For tying said clip is bent around a constricted portion of the casing and one end portion of the clip is drawn through said central slot until the other end portion is engaged by said teeth, simultaneously forming a looped handle for carrying or supporting said tied container.



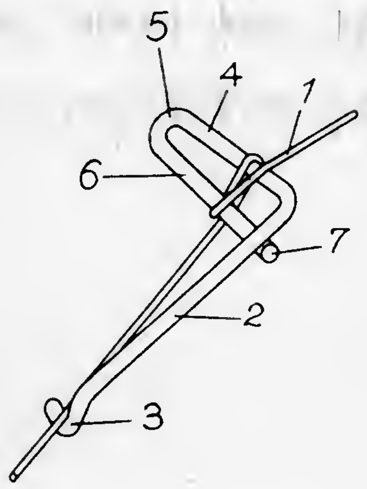
3,568,260
REGISTRATION BOARD
Maxwell B. Roberts, 60 W. 57th St.,
New York, N.Y. 10024
Filed May 7, 1969, Ser. No. 828,416
Int. Cl. A44b *21/00*
U.S. Cl. 24—67.5 **2 Claims**



A simple durable, practical and inexpensive registration board to be used in registering colored woodcuts, the device being particularly adapted for extra large work, and there is no risk of maladjusted registrations.

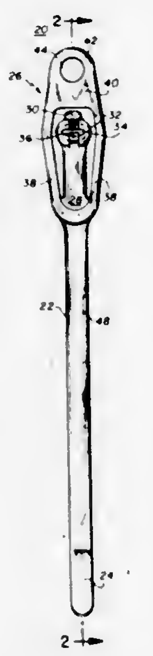
3,568,261
DEVICE FOR TIGHTENING WIRES
Erich Korb, Wachenheim, Germany, assignor to Gerd Elfgen, Wesseling, Bezirk Cologne, Germany
Filed Mar. 4, 1969, Ser. No. 804,233
Claims priority, application Germany, Mar. 5, 1968,
K 60,473
Int. Cl. A44b *21/00*
U.S. Cl. 24—71.3 **1 Claim**

A wire tightening device comprising a single length of wire one end portion of which forms a tensioning arm and has on one end a hook to engage the tightened wire while the other end portion of the length of wire is bent at a right angle to form a first winding arm and then is bent U-shaped and is formed into a second winding arm extending substantially parallel to the first winding arm and crosses the tensioning arm. Between the tensioning arm and the end portion of the second winding arm is left a space at least equal to the thickness of the wire to be tightened so as to insert the wire through this space and permit the wire to be wound about the two winding arms during the tightening operation.



3,568,262
PRE-MOUNTABLE BUNDLING STRAP

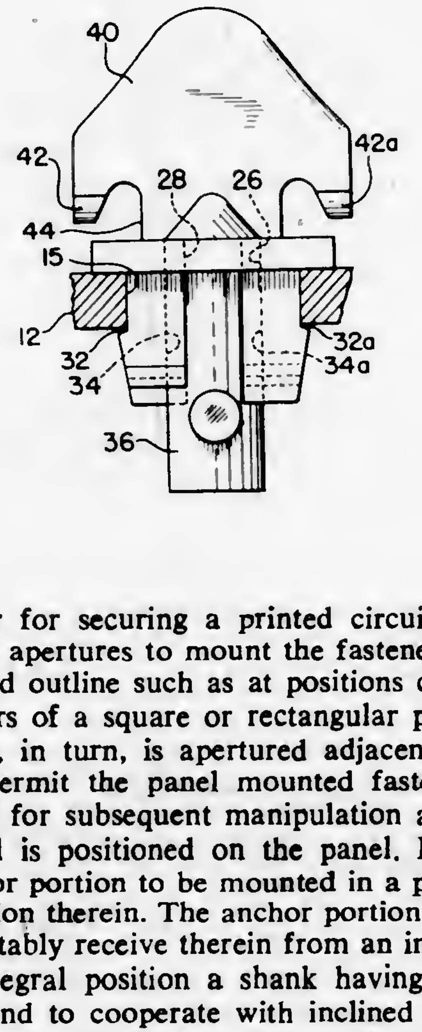
Jesse Woldman, East Orange, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Jan. 15, 1969, Ser. No. 791,452
Int. Cl. A44b *21/00;* **B65d** *63/00*
U.S. Cl. 24—73 **34 Claims**



The disclosure is directed to an article bundling strap which may be pre-mounted to a mounting surface and then placed about an article, or articles, to be bundled to affix such articles to the mounting surface. The strap in a first of its basic embodiments consists of an elongated bundling strap terminating at one end in a free tail end portion and at the other in a deflectable tongue having a boss thereon. At least two ribs extend from the body of the strap and terminate in a tab, having a boss thereon. Position room is left between the rib to permit the movement of the deflectable tongue. Either of the bosses may have placed therethrough transverse apertures to admit passage of the body portion of the strap therethrough and the remaining boss may have an aperture therethrough to admit passage of a fastening means for fastening the strap to a mounting surface. In a second embodiment of the device, a deflectable tongue, is mounted upon the tab portion supported by the extending ribs.

3,568,263
FASTENER

Clarence L. Meehan, Itasca, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Oct. 7, 1969, Ser. No. 864,436
Int. Cl. A44b *21/00, 17/00*
U.S. Cl. 24—73 **8 Claims**

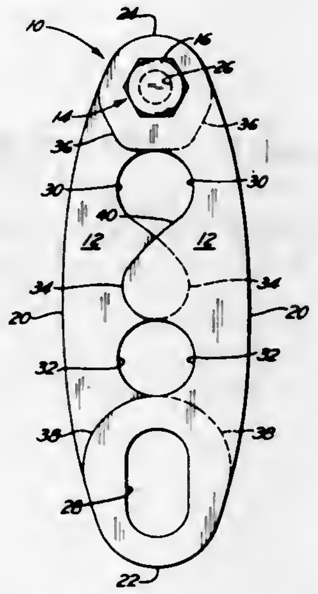


A fastener for securing a printed circuit board to a panel having apertures to mount the fasteners thereon in predetermined outline such as at positions corresponding to the corners of a square or rectangular printed circuit board which, in turn, is apertured adjacent the corners thereof to permit the panel mounted fasteners to pass therethrough for subsequent manipulation as the printed circuit board is positioned on the panel. Each fastener has an anchor portion to be mounted in a panel aperture against rotation therein. The anchor portion is itself apertured to rotatably receive therein from an initially axially projected integral position a shank having a transverse pin at one end to cooperate with inclined cam surfaces on the adjacent end of the anchor portion when rotated, the shank having at the opposite end thereof a wing projecting through a corresponding aperture in the printed circuit board and to be rotated a quarter turn to place the lateral clamping edges thereof in stressed engagement with the outer surface of the printed circuit board under influence of the coaction between the ends of the pin and the cam surfaces during such quarter turn rotation.

3,568,264
CLAMP

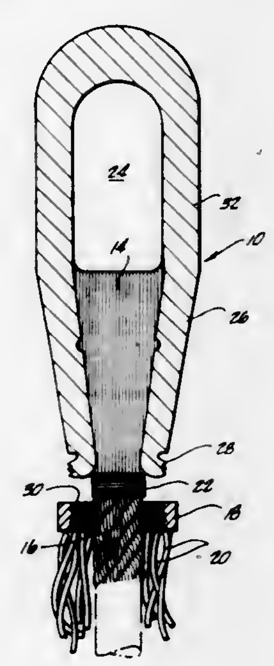
Guy R. Crist, Port Arthur, and Roy Earl Hill, Jr., Bridge City, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.
Filed Mar. 19, 1969, Ser. No. 808,606
Int. Cl. A44b *21/00*
U.S. Cl. 24—81 **8 Claims**

A scissor action clamp for use with a pair of spaced parallel members comprising a pair of substantially identical clamp halves hinged at one end and provided with registering openings at the other end, in the closed position of the clamp. The clamp is locked and simultaneously provides a location for attachment of other objects by cooperation between the registering openings and such other object.



3,568,265
DEAD END OF THE SPELTER SOCKET TYPE FOR WIRE CABLES

Randolph C. H. Michaelsen, Malibu, Calif., assignor to Global Marine Inc., Los Angeles, Calif.
Filed Dec. 5, 1968, Ser. No. 781,570
Int. Cl. F16g *11/00*
U.S. Cl. 24—123 **10 Claims**

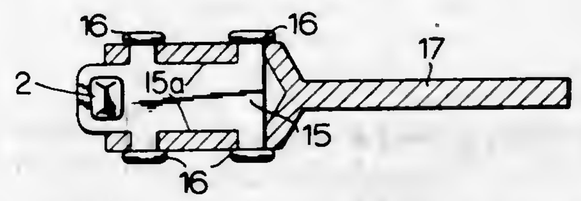


A collar having a plurality of wire strands is attached to a spelter socket after the latter is poured around a splayed end of a wire cable. The wires are braided around the wire cable to enhance the cable's fatigue life.

3,568,266
FASTENER ELEMENTS

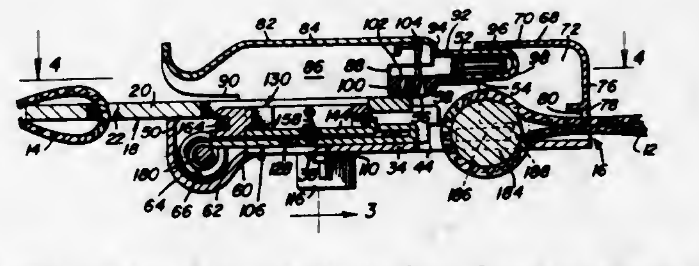
Wilhelm Uhrig, Wuppertal-Elberfeld, Germany, assignor to Supla Etablissment, Vaduz, Liechtenstein
Filed May 20, 1969, Ser. No. 826,236
Claims priority, application Germany, May 27, 1968, P 17 60 491.0
Int. Cl. A44b *19/06, 19/40*
U.S. Cl. 24—205.1 **5 Claims**

A slide fastener element is formed from a thin plastic block. The coupling means which interlock the successive fastener elements is carried by the faces of the block. Pointed securing means extend from a narrow side of the block. The pointed securing means may be in the form of pointed pins or prongs. The securing means are forced into and penetrate the supporting tape and extend beyond the tape. The extending portions of the securing means are heated and thereafter, are headed whereby the element is positively secured to the tape.



3,568,267
SEAT BELT BUCKLE CONSTRUCTION

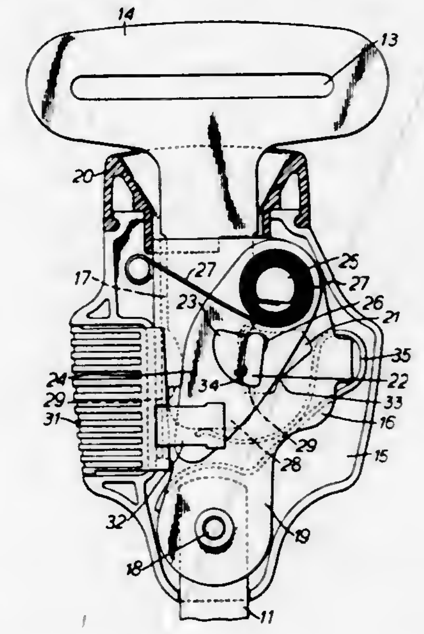
Louis A. Lefort, 142 Beekman St., Plattsburgh, N.Y. 12901
Filed Aug. 2, 1968, Ser. No. 749,628
Int. Cl. A44b *11/25*
U.S. Cl. 24—230 **3 Claims**



A pair of seat belt buckle sections for securement to adjacent ends of seat belt sections and manually releasably securable together against separation but including structure responsive to a force above a predetermined value being applied to separate the seat belt sections and subsequent termination of such force to release the seat belt buckle sections from interlocked engagement with each other for ready separation thereof.

3,568,268
RELEASABLE CONNECTING DEVICE

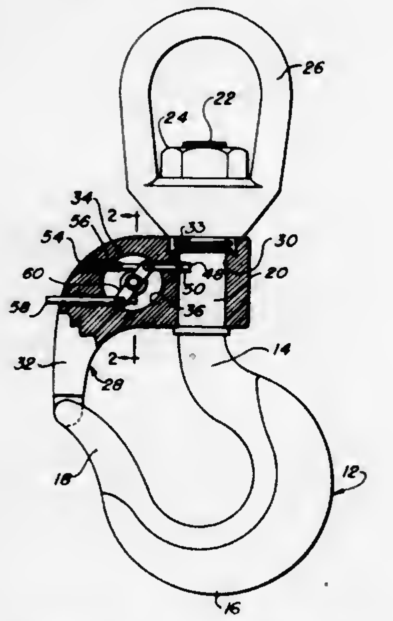
Douglas James Cunningham, Chichester, England, assignor to Wingard Limited, Chichester, Sussex, England
Filed July 30, 1969, Ser. No. 846,025
Claims priority, application Great Britain, July 30, 1968, 36,210/68
Int. Cl. A44b *11/26*
U.S. Cl. 24—230 **5 Claims**



A fastening device for releasably connecting two members incorporates a rigid frame, a release lever pivotally mounted on the frame, and a pawl angularly movable in aligned shaped openings in the frame and lever and adapted ot engage with a step or shoulder on a tongue inserted into the frame, the co-operation of the pawl with the openings being such that aforce acting to separate the members has a component acting on the release lever to hold it in the locked position when the members are engaged and a component urging the release lever away from the locked position after an initial movement in that direction effected manually.

3,568,269
HOISTING HOOK GATE LATCH

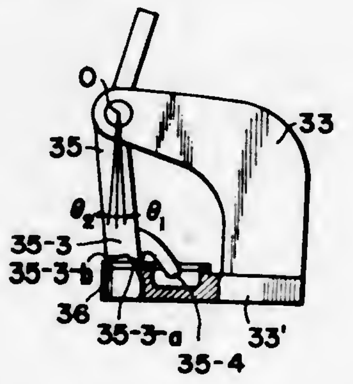
Anthony L. Moretti, San Rafael, Calif., assignor to
E. D. Bullard Company, Sausalito, Calif.
Filed Aug. 21, 1969, Ser. No. 851,782
Int. Cl. B66c *1/34*
U.S. Cl. 24—241 **4 Claims**



A lock for retaining a safety gate across the throat opening of a hoisting hook to prevent inadvertent disengagement of a load. The elements of the gate lock are formed by boring operations. The operative parts move radially of the axis of movement of the hook gate so that forces applied to unlock the gate do not tend to open the gate. A gate lock that can be expeditiously manipulated by a hot stick of the type used by power linemen.

3,568,270
TENTER CLIPS

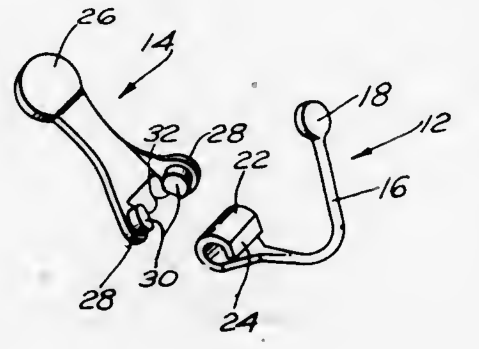
Saburo Ida, 10–203 Hatooka-danchi, 1–7 Hatooka-machi, Kita-ku; Yoshio Kobayashi, 3–35, Nishikawabata-cho, Naka-ku; and Matsuji Hiraoka, 43–209, Aza-Ozaki-yama, Narumi-cho, Midori-ku, all of Nagoya-shi Aichi-ken, Japan
Filed Nov. 5, 1968, Ser. No. 773,461
Claims priority, application Japan, Nov. 7, 1967, 42/71,610
Int. Cl. D06c *3/04*
U.S. Cl. 24—248 **3 Claims**



A tenter clip having a base plate on which the border of a strip to be clipped is placed and a clip lever rotatably pivoted to the clip body. The clip lever can be rotated in such a manner that the lower end thereof is brought into abutting relationship to the base plate. The lower end of the clip lever is formed with a plurality of edges at an angular interval in the rotating direction of the lever and at different distances from the fulcrum point of the clip lever.

3,568,271
EARCLIP

Anthony R. Saccoccio, 30 St. Mary's Drive, Cranston, R.I. 02910, and Henry P. Husserl, Providence, R.I.; said Husserl assignor to said Saccoccio
Filed Aug. 18, 1969, Ser. No. 850,986
Int. Cl. A44c *7/00*
U.S. Cl. 24—248 **6 Claims**

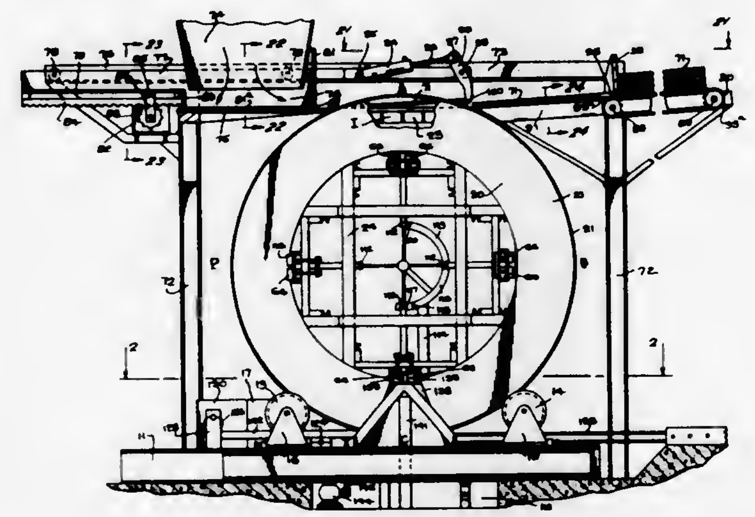


An earclip for use in earrings and the like comprising a pair of pivotally connected members, each of which has a portion adapted to engage opposite sides of a wearer's lobe to effect a clamping grip thereon, one of said members having a pair of integral pintles in alignment with but spaced from each other, and the other member having a rolled portion extending around said pintles to effect the aforesaid pivotal connection, said pintles and said rolled portion being configured and dimensioned so that a frictional drag is imparted as one member is pivoted with respect to the other, said frictional drag serving to maintain said members in any desired position of adjustment.

3,568,272
APPARATUS FOR PRODUCING MASONRY BLOCKS AND THE LIKE

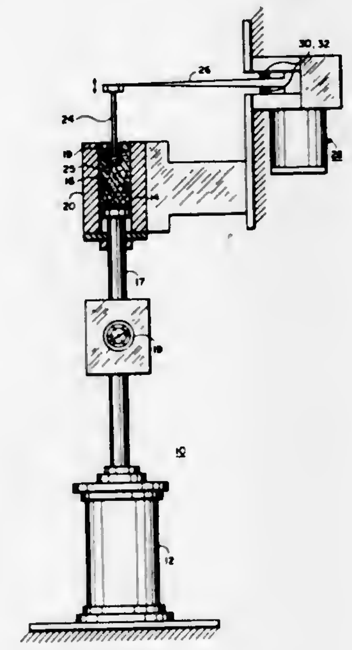
Leo D. Zmania, 4580 S. 14th St.,
Milwaukee, Wis. 53221
Filed Sept. 12, 1967, Ser. No. 667,112
Int. Cl. B28b *15/00*
U.S. Cl. 25—2 **18 Claims**

A concrete block forming machine which basically includes a revoluble drum having mounted within its interior for rotation about a horizontal axis a plurality of mold boxes which are uniformly spaced circumferentially about the axis of rotation of the drum, for movement successively from a station located at the top of the drum at which a mold box is charged with concrete to a station located at the bottom of the drum at which the mold box is stripped of the concrete block formed therein. In the machine as disclosed the mold boxes are four in number and so are spaced ninety degrees apart, with each box moving through an arc of 180 degrees from the mold charging station to the block stripping station. In addition to the revoluble drum with its interiorly mounted mold boxes, the machine includes in the base thereof operating mechanism for effecting rotation of the drum and thus successive positionment of the several mold boxes at the concrete charging station, which operating mechanism also includes means for effecting vibration of each of the mold boxes during the interval of time that it is being charged with concrete as well as during an interval just prior to its being stripped of the block formed therein.



3,568,273
PREPARATION OF CERAMIC BODIES AND THE LIKE

Larry M. Ogden and Boyd A. Wise, Penfield, N.Y., assignors to General Dynamics Corporation
Filed Nov. 3, 1967, Ser. No. 680,430
Int. Cl. B28b *1/10, 7/18, 21/14*
U.S. Cl. 25—3 **5 Claims**

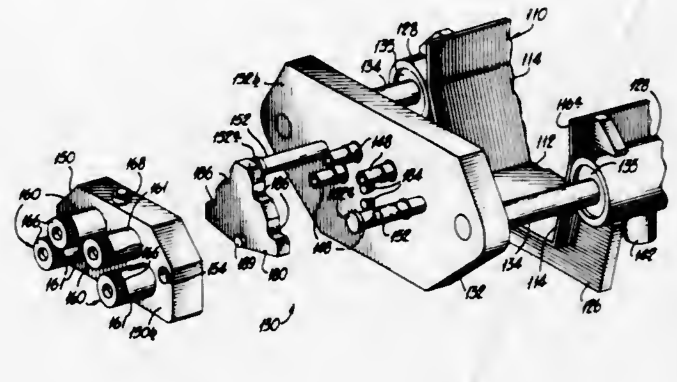


Method and apparatus for preparing ceramic bodies which method comprises fluidizing a charge of a wet clay body or the like either while it is being formed or in a post-forming operation. The fluidization provides a more homogeneous and isotropic body. Thereafter, the body is fired to form a finished ceramic part or object.

3,568,274
APPARATUS FOR MAKING PRESTRESSED CONCRETE MEMBERS

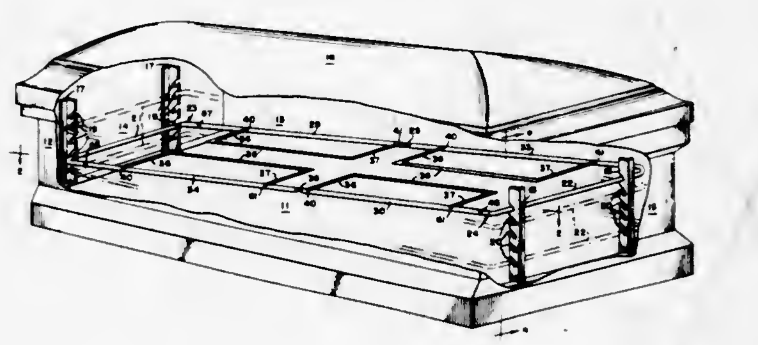
William P. Hidden, Wenham, and Robert S. Yetman, Concord, Mass., assignors to Arthur D. Little Inc., Cambridge, Mass.
Filed Apr. 16, 1968, Ser. No. 721,793
Int. Cl. B28b *7/00, 23/06*
U.S. Cl. 25—41 **15 Claims**

A system for manufacturing prestressed concrete members comprising a portable mold for receiving the reinforcing strand and concrete mix, and apparatus for accurately tensioning the strands in the mold to the desired pretensioning level. The portable mold includes end assemblies which include means to receive and grip the free ends of reinforcing strand extended through the mold body and means for maintaining the reinforcing strands under the desired pretensioning load after the strands are tensioned by means of the strand tensioning apparatus. The strand tensioning apparatus comprises means to tension the strands emplaced within the mold by either measuring the tensioning force applied to the strands or by measuring the elongation of the strands resulting from the application of a tensioning force thereto.



3,568,275
CASKET BED

William R. Carson, Jr., % Imperial Casket Company, Inc.,
Leesville, S.C. 29070
Filed June 7, 1968, Ser. No. 735,386
Int. Cl. A47c *19/02;* **A61g** *17/00*
U.S. Cl. 27—12 **8 Claims**

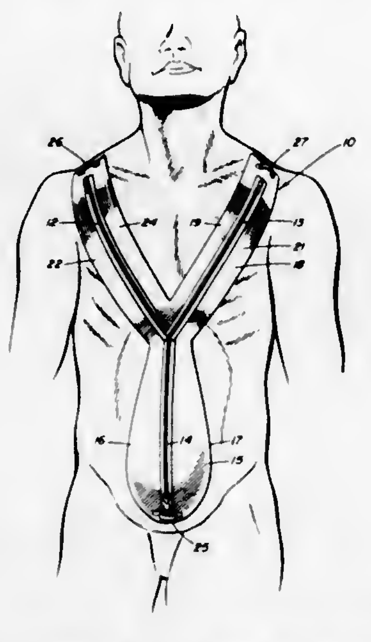


A simplified casket bed structure comprises two longitudinal U-shaped frame members of tubular stock. The ends of the arms of the members are adjustably secured together by bars inserted therein, one end of each bar being welded or otherwise permanently secured to the arm of one member while the other end is slidably engaged with the corresponding arm of the other member. Vertical brackets having hook slots are provided on the end walls of the casket to support the frame members. Lateral U-shaped rods having their tip ends bent downwardly are cantileverly supported by inserting the tip ends in apertures of the tubular members. Additional bed lengths can be achieved by adding U-shaped extension members to one end or to both ends of the assembled bed. These extension members are provided with inturned tips which register with apertures on opposite sides of each longitudinal frame member.

3,568,276

BODY INCISION CLOSURE

Robert W. Morgan, Worcester, Mass., assignor to Worcester County National Bank, Worcester, Mass.
Filed Nov. 19, 1968, Ser. No. 776,993
Int. Cl. A01n *1/00*
U.S. Cl. 27—21 **6 Claims**

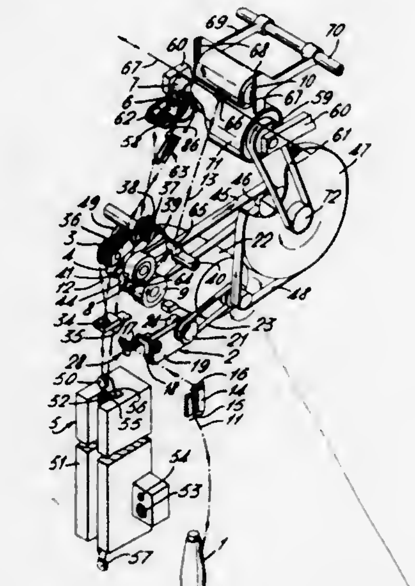


This invention relates to a body seal and, more particularly, to apparatus and methods useful during autopsy and embalming procedures for closing body incisions.

3,568,277

METHOD OF CRIMPING YARN

Denis Albert Edward Mattingly, London, England, assignor to The Klinger Manufacturing Company Limited, London, England
Continuation of application Ser. No. 830,202, May 26, 1969, which is a continuation of application Ser. No. 563,874, July 8, 1966. This application Jan. 29, 1970, Ser. No. 7,396
Claims priority, application Great Britain, July 22, 1965, 31,135/65; Mar. 18, 1966, 11,993/66
Int. Cl. D04b *19/00*
U.S. Cl. 28—72.16 **11 Claims**

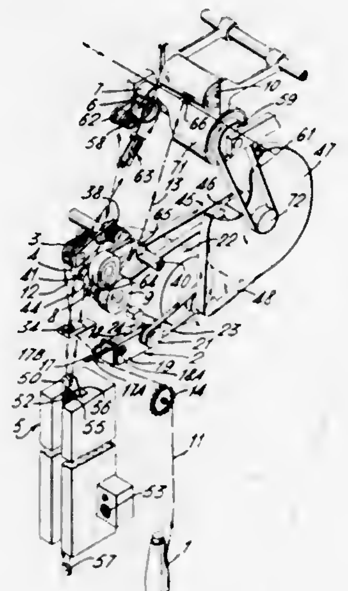


Yarn is crimped by forming it into a chain of stitches, setting the chain of stitches in the configuration of the stitches while the chain is under tension, and then unravelling the yarn from the chain. Apparatus for crimping includes a device for knitting yarn into a chain of stitches, positive driving means for conveying the chain under tension past a heater, and means for unravelling yarn from the chain of stitches.

3,568,278

METHOD OF DRAWING AND CRIMPING YARN

Denis Albert Edward Mattingly, London, England, assignor to The Klinger Manufacturing Company Limited, London, England
Continuation of application Ser. No. 701,248, Jan. 29, 1968. This application Feb. 27, 1970, Ser. No. 15,243
Claims priority, application Great Britain, Jan. 28, 1967, 4,316/67
Int. Cl. D04b *19/00*
U.S. Cl. 28—72.16 **5 Claims**

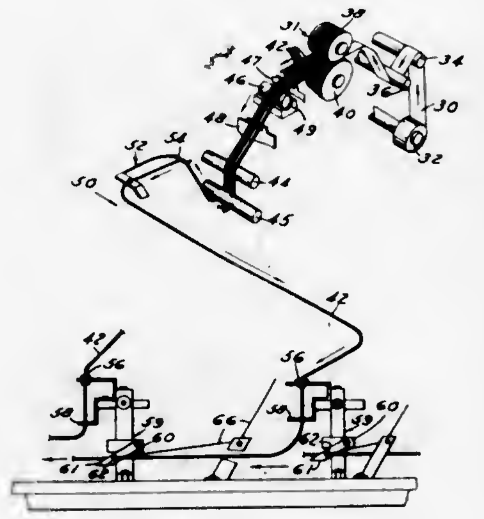


Undrawn or partially drawn yarn is crimped and drawn or more fully drawn by knitting the undrawn or partially drawn yarn into a body of stitches, stretching the body of stitches so as to drawn the yarn and setting the yarn while it is in the configuration of the stretched stitches. The body may be a chain of stitches which is continuously knitted, fed into the drawing and setting zone and then unravelled from its leading end.

3,568,279

PROCESS FOR LUBRICATING POLYMERIC MATERIALS

Peter P. A. Burnett, Birmingham, Paul D. O'Kray, Dearborn, and James W. Patterson, Mount Clemens, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed May 22, 1969, Ser. No. 827,005
Int. Cl. D02g *3/36*
U.S. Cl. 28—75 **5 Claims**



A lubricant used in manufacturing knitted polyvinyl chloride materials is formed from an aqueous emulsion of a plasticizer for the polyvinyl chloride, such as a dialkyl phthalate in which the alkyl radicals contain 6 to 10 carbon atoms. During subsequent processing the aqueous dispersion medium evaporates and the plasticizer is absorbed into the polyvinyl chloride film. The lubricant reduces process disruptions for equipment cleaning and produces materials having a more uniform color, surface appearance and pliability.

3,568,280

TEXTILE PROCESS AND PRODUCT

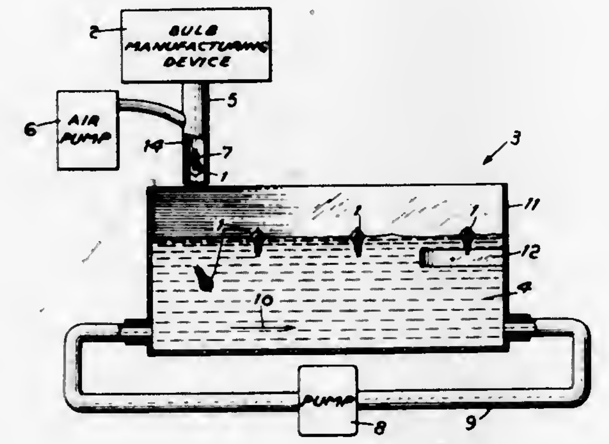
Ernst Weiss, Wattwil, Switzerland, assignor to Raduner & Co. AG., Horn, Switzerland
No Drawing. Filed Aug. 5, 1966, Ser. No. 570,400
Claims priority, application Switzerland, Aug. 24, 1965, 11,891/65
Int. Cl. D06c *3/00, 3/08, 3/10*
U.S. Cl. 28—76 **11 Claims**

Processes for increasing the strength of woven cellulosic textile fabrics comprising stretching one set of the threads of a moist fabric while such threads are in a substantially straight line (that is, they are not in a wave-like configuration), drying the fabric while it is so stretched, treating the fabric with a cross-linking agent, either before or after the stretching, and subsequently curing the cross-linking agent after said drying, together with textile fabrics so obtained.

3,568,281

PHOTOGRAPHIC FLASHBULB MANUFACTURING

Jack G. Barben, Paramus, N.J., Ernest J. Gallo, Queens Village, and Charles W. Johnson, Huntington, N.Y., and William B. Tyndale, Waverly, Pa., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Jan. 23, 1969, Ser. No. 793,471
Int. Cl. H01j *9/16, 9/44*
U.S. Cl. 29—25.18 **13 Claims**

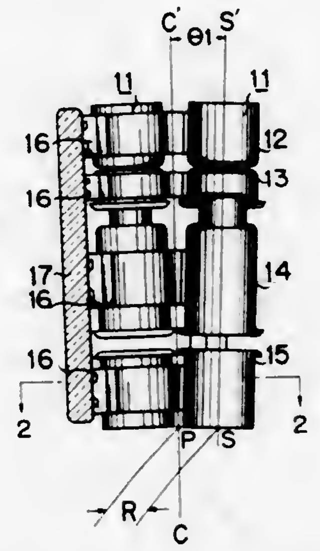


A method and apparatus for processing flashbulbs including a pneumatic tube for injecting said bulbs, tip first, into a vat of trichloroethylene so as to distribute zirconium foil throughout the bulb and to clean said bulbs. A barrier is provided at one end of the vat remote from the impact area, said barrier having slots formed therein. A pump is provided to set up a current in the trichloroethylene for carrying the bulbs, which float downstream in the trichloroethylene, from the impact area to the barrier area of said vat. Each slot in said barrier is slightly wider than one wire of the two-wire contact leads of each bulb, and is located below the surface of the trichloroethylene, and below the glass portion of the bulbs, at the level of the wire contact leads, so that the wires can only fit into the slot in such a manner that they are rotationally oriented about their longitudinal axis.

3,568,282

APPARATUS FOR ASSEMBLING A MULTI-ELEMENT ELECTRON GUN MEMBER

Shinichi Sawagata, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Aug. 9, 1968, Ser. No. 751,611
Claims priority, application Japan, Aug. 19, 1967, 42/52,961; Sept. 4, 1967, 42/56,530
Int. Cl. H01j *9/06, 9/10, 9/46*
U.S. Cl. 29—25.19 **8 Claims**

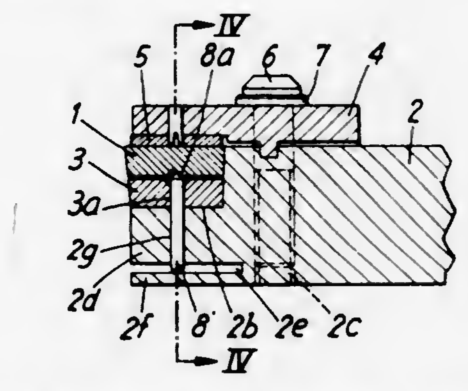


Apparatus for assembling a multielement electron gun member from cylindrical grid electrodes. The included central rods securely inserted into support holes formed in a support stand in prescribed relative positions. The outer circumferential surface of the central rod is shaped substantially in conformity with the inner circumferential surface of each of the electron gun units, and is also inclined to such an extent as is required to cause electron beams from each electron gun unit to converge exactly at a single point. Outside of the support holes of the support stand are rotatably pivoted support arms which act as a compensation member in locating the electron gun unit by the central rod and support hole when the cylindrical grid electrode surrounding the central rod is pressed from the side.

3,568,283

METAL CUTTING TOOL

Edgar Wyss, Morigen, Switzerland, assignor to Vereinigte Drahtwerke A.G., Biel, Bern, Switzerland
Filed Jan. 22, 1969, Ser. No. 793,094
Claims priority, application Switzerland, Feb. 2, 1968, 1,594/68
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 **4 Claims**

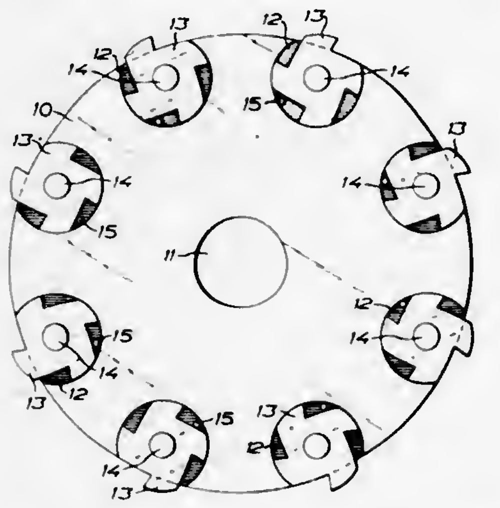


A spring tongue, integral with the toolholder, presses the upper end of a pin into and against the wall of a depression in the lower face of the cutting tip, the depression and the pin upper end being so shaped, dimensioned, and positioned that a resultant force exerted on the cutting tip prevents the latter from slipping.

3,568,284

CUTTING TOOLS

Tore Lunden, Knislinge, and Carl Astrand, Hanaskog, Sweden, assignors to Tarkett AB, Malmo, Sweden
Filed Apr. 8, 1968, Ser. No. 719,601
Claims priority, application Sweden, Apr, 10, 1967, 4,931/67; Nov. 29, 1967, 16,365/67
Int. Cl. B26d *1/00, 1/12*
U.S. Cl. 29—105 **11 Claims**

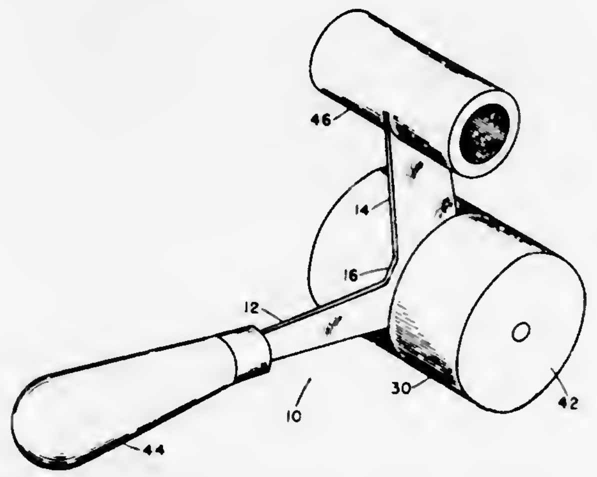


A cutting tool comprises one or more disk-shaped body members secured to a drive shaft and having recesses that intersect the body member periphery and each accommodates a cutting element which substantially lies within the space defined by the lateral planes of the associated body member, said cutting element projecting with a minor portion of its periphery beyond that of the body member and having on said projecting portion one or more cutting edges which can be exchanged for other cutting edges of the cutting element by rotation of the element in said recess and by fixation thereof in the angular position into which it has been set.

3,568,285

LAMINATE ROLLING DEVICE

Laurie O. Lieberg, 447 Meadow St., Fairfield, Conn. 06430
Filed Aug. 7, 1969, Ser. No. 848,280
Int. Cl. B05c *1/08*
U.S. Cl. 29—110.5 **6 Claims**

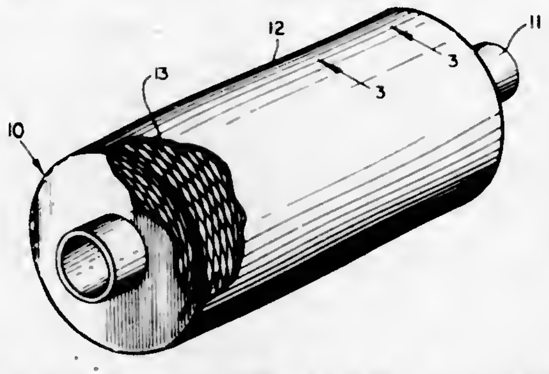


A rolling device for applying bonding pressure in the formation of special adhesively secured laminates. A heavy elongate pressure roller is mounted on a rigid frame having a first handle projecting rearwardly and a second handle projecting upwardly, both handles being fixedly secured to the frame, whereby longitudinal or forward and backward moving forces are applied to the first handle and simultaneously downward forces are applied to the second handle to obtain high bonding pressure on the surface of the outer layer of the laminate.

3,568,286

COMPRESSIBLE ROLL

William Campbell Ross, Winchester, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Continuation of abandoned application Ser. No. 588,174, Oct. 20, 1966. This application Apr. 17, 1968, Ser. No. 725,577
Int. Cl. B41l *23/18;* **B60c** *7/10*
U.S. Cl. 29—121 **16 Claims**

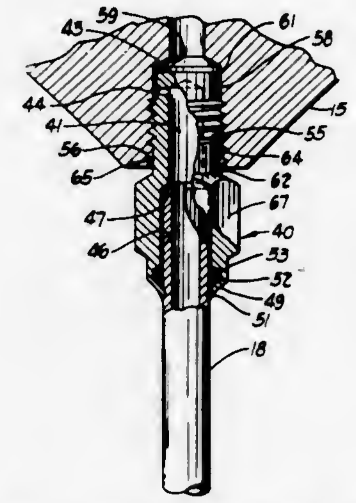


A novel product especially suitable as a printing roll is disclosed having elastomer-coated filaments (e.g. synthetic rubber coated glass filaments) wound on a core at an angle to the core and joined at the cross-over points by the elastomer. The filaments are wound in such a manner that void spaces are defined by the filaments.

3,568,287

METHOD OF MAKING CONNECTOR AND TUBE ASSEMBLY

Albert J. Balon, 9717 Greenhaven Parkway, Brecksville, Ohio 44141
Application Dec. 20, 1967, Ser. No. 692,073, now Patent No. 3,488,069, which is a division of application Ser. No. 501,545, Oct. 22, 1965, now Patent No. 3,460,804. Divided and this application Jan. 24, 1969, Ser. No. 793,864
Int. Cl. B21k *29/00*
U.S. Cl. 29—157 **3 Claims**



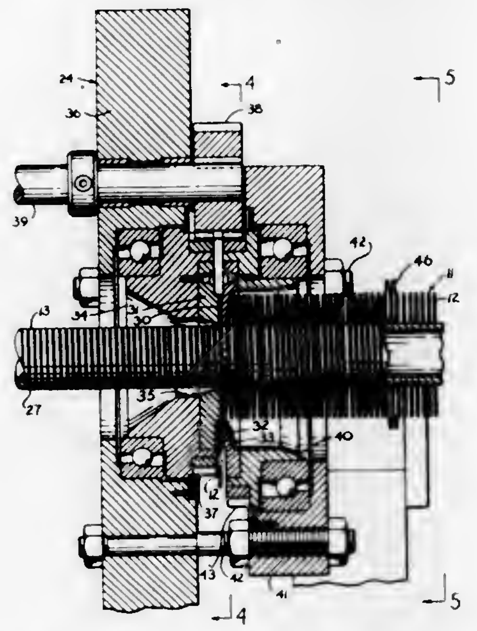
A process for making a rotatable, gastight joint between a tube and fitting including the steps of coating the tube with a sealant, inserting the tube in the bore of a fitting having a flange extending in spaced parallel relation with the tube, and spinning the fitting while exerting radial pressure on said flange to force said flange into biting engagement with said tube and to form a relief behind said engagement filled with said sealant.

3,568,288

APPARATUS AND METHOD FOR MAKING FINNED TUBING

Arvid C. K. Nihlen, Wooster, Ohio, assignor to The Falls Machine Company, Akron, Ohio
Filed July 12, 1968, Ser. No. 744,400
Int. Cl. B23p *15/16, 15/26*
U.S. Cl. 29—157.3 **18 Claims**

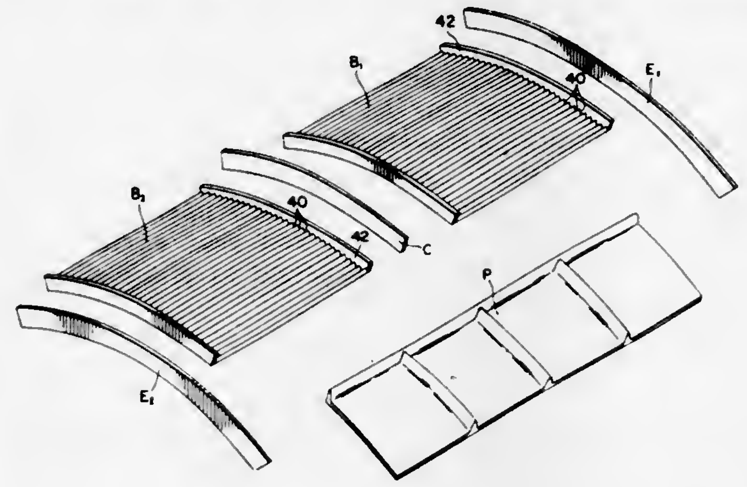
Method and means helically winds metal fin ribbon edgewise about a rotating, axially advancing tube into tight pressure engagement of inner edge portion of ribbon, while simultaneously tapering and elongating ribbon to progressively outwardly increasing extents towards requisite maximum elongation at outer portion of fin ribbon. Helical fin secured to tube as by tensioned reception of inner fin edge and crimping tube stock against inner portions of fin ribbon, or otherwise attaching inner portions of fin ribbon tightly against tube.



3,568,289

METHOD FOR BUILDING CARD SCREENS

Robert B. Jenkins, Sr., and Robert B. Jenkins, Jr., Gastonia, N.C., assignors to R. B. Jenkins & Co., Gastonia, N.C.
Filed July 11, 1968, Ser. No. 752,091
Int. Cl. B23p *15/12*
U.S. Cl. 29—160 **7 Claims**



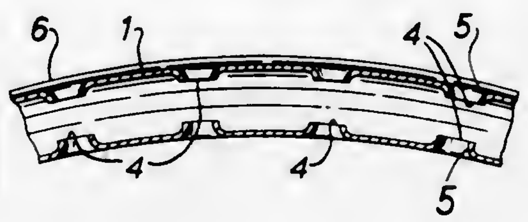
At least one bar sub-assembly is formed comprising a series of spaced parallel bars secured between a pair of end walls, the sub-assembly is then positioned between a pair of side ribs and fastened thereto to form the completed card screen.

3,568,290

METHOD OF MAKING RACKETS HAVING METAL FRAMES

William C. Carlton, Ardleigh, England, assignor to The Dunlop Company Limited, London, England
Original application June 13, 1966, Ser. No. 557,159, now Patent No. 3,431,626, dated Mar. 11, 1969. Divided and this application Jan. 21, 1969, Ser. No. 792,293
Int. Cl. B23p *15/16, 17/00*
U.S. Cl. 29—163.5 **4 Claims**

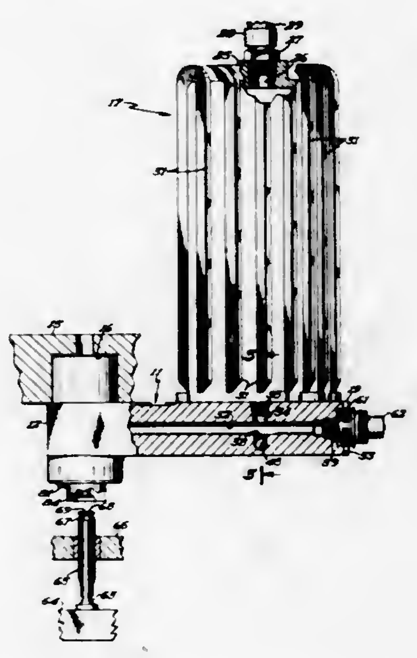
An improved method for the manufacture of metal frames for badminton, tennis and other games rackets having flanged apertures for the strings thereof, starting from a metal tube having an 0.2 proof stress not exceeding 30 tons/square inch, maximum stress not exceeding 55 tons/square inch and an elongation on 2 inches of not less than 25%. After the flanged apertures have been formed in the tube and the latter bent into the shape of the racket frame, the frame is subjected to a hardening process to give the metal a 0.2% proof stress and a maximum stress each not less than 70 tons/square inch and an elongation on 2 inches of not more than 15%.



3,568,291

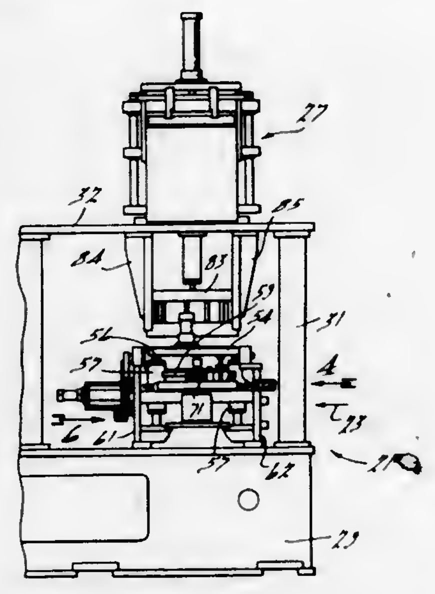
CRIMPING TOOL

Thomas S. Zastrow, St. Paul, Minn., assignor to Remmele Engineering, Inc., St. Paul, Minn.
Filed Jan. 2, 1969, Ser. No. 788,551
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 **10 Claims**



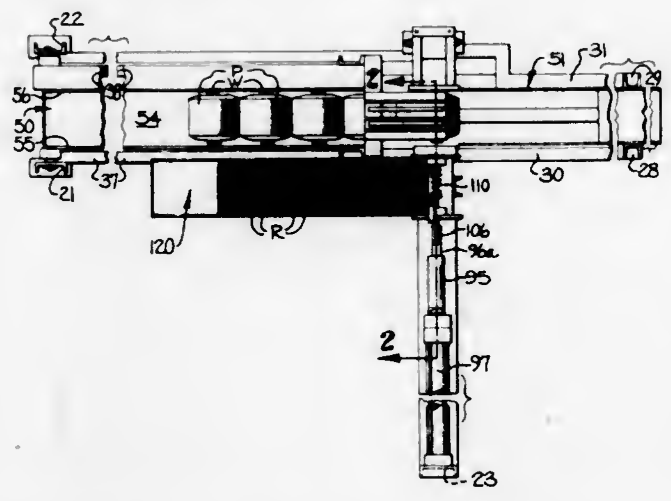
An improved tool used for crimping a primer in the end of a cartridge casing. The tool includes a body mounted on a reciprocally movable press platen. The tool body has a bore formed therein, and a punch assembly is mounted within the bore. A chamber is defined within the closed end of the bore, and more particularly, between the closed end of the bore and the inner end of the punch assembly. During the operation of the tool, the chamber is filled with pressurized hydraulic fluid. This fluid in the chamber permits movement of the punch assembly, relative to the tool body, during the portion of the stroke of the press platen during which the punch assembly is in contact with the cartridge casing. The chamber is connected with a pressurized fluid reservoir which, in the preferred embodiment, is mounted on and moves with the body. The reservoir is finned to assist cooling the fluid therein, and the fluid passages which interconnect the reservoir and the chamber are formed in the tool body so as to minimize the possibility of any leakage of pressurized fluid and to minimize maintenance of the tool.

3,568,292
DEVICE FOR ASSEMBLING VALVE PARTS
Cass S. Kasper, Grosse Pointe, Mich., assignor to Inter-Lakes Engineering Co., Mount Clemens, Mich.
Filed Aug. 15, 1969, Ser. No. 850,614
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 **15 Claims**



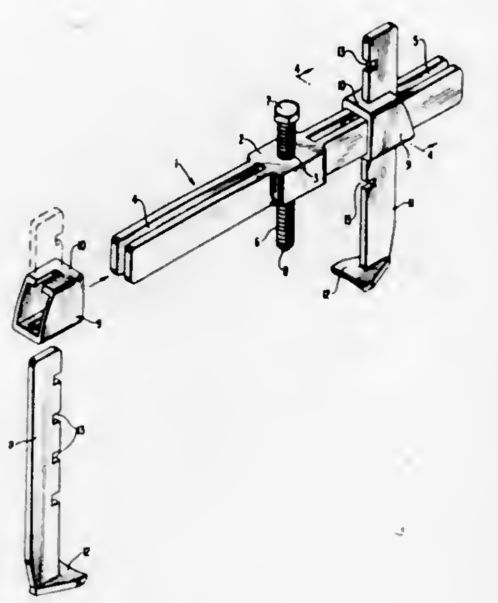
A machine for automatically assembling O-rings and spring retainer locking keys on valve stems of internal combustion engines. A cylinder head carrying valves is advanced to a station where, with the valve spring retainers held down, the head is rocked to a position for receiving the O-rings. These are picked up by spindles which rock between O-ring pick-up and mounting positions. The head is then swung back to a position to receive the keys. Pairs of keys are fed onto the inner of two telescoping quills and magnetically held thereon while the quills reciprocate to mount the keys in place.

3,568,293
MEANS FOR REPLACING SUPPORTING CORES OF PACKAGES OF YARN
William O. Young, Jr., Spartanburg, S.C., assignor to Butte Knitting Mills, a division of Jonathan Logan, Inc., Spartanburg, S.C.
Continuation-in-part of application Ser. No. 645,645, June 13, 1967. This application July 30, 1968, Ser. No. 755,759
Int. Cl. B23p *19/04*
U.S. Cl. 29—234 **12 Claims**



Apparatus for replacing a supporting core of a core-supported wound package of yarn with a longitudinally compressible replacement core, in order to prepare the package of yarn for subsequent treatment such as a dyeing process or the like.

3,568,294
GEAR AND WHEEL PULLERS
Jacob K. Conner, 9421 Hensley Road, Manassas, Va. 22110
Filed July 22, 1969, Ser. No. 843,633
Int. Cl. B23p *19/04*
U.S. Cl. 29—259 **3 Claims**

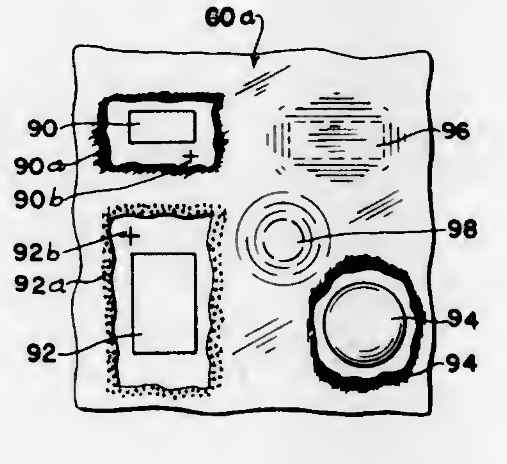


A wheel or gear puller comprising a base member having a vertically threaded central portion, the base member being provided at each end with open ended slots and a thread screw engaging the internal threads of the base member. Slidably mounted for lateral adjustment in each slot of the base member is a flattened sleeve having a rectangular bottom opening and a slotted top portion providing a shoulder for the support of a flat depending arm having an inwardly turned end for engaging the wheel or gear, the inner edge of each depending arm having a series of notches forming teeth to engage the shoulder portion of the sleeve to permit rapid vertical adjustment. The spacing between the depending arms and the bottom openings in the sleeves are sufficient to permit limited rocking movement of the depending arms to facilitate rapid lateral adjustment but when the device is in operative position and pressure is applied through the thread screw, the shoulder and rear edge of the bottom opening in the sleeve operate to positively lock the depending arms in position.

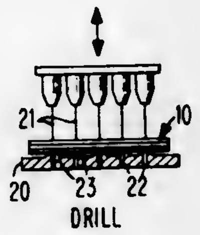
3,568,295
METHOD AND APPARATUS FOR ASSEMBLING ELECTRICAL COMPONENTS ONTO A CIRCUIT BOARD
Charles J. Moran, Cuyahoga Falls, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio
Filed Aug. 14, 1968, Ser. No. 752,706
Int. Cl. B23q *17/00*
U.S. Cl. 29—407 **4 Claims**

The disclosure relates to the assembly of electrical or electronic components onto conventional printed circuit boards already having the printed circuit thereon with holes therethrough. The boards are placed on a moving conveyor which stops for predetermined intervals at various stations as it moves down the conveyor. A mask template is placed over the board at each individual station which indicates by the cutout portion of the mask and the color coding combination which components are to be placed by the individual at that station onto that portion of the printed circuit board. The mask is removed before the board moves on to the next station where a different mask adapted to cover the components placed on the board at the previous station has cut out portions of its

own and color coding of its own so as to enable the placing of all of the components onto the printed circuit board in a minimum of time, and with a minimum possibility for mistake. In other words, a few components are placed on the board at each station by means of the mask template associated with that particular station. Upon the completion of the placing of the components upon the board, the components are temporarily held in position on the board, the electrical connectors to each component trimmed to proper spaced relationship through the holes, with the connectors then soldered into place, the temporary holding means removed, and the entire board cleaned for a final application into the necessary electrical or electronic circuit arrangement.



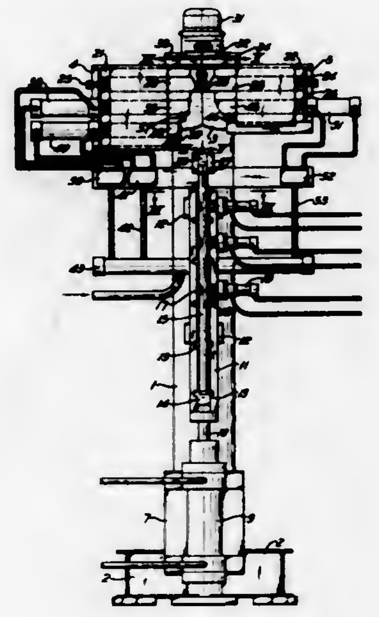
3,568,296
METHOD OF FORMING HOLES
Joseph G. Cutillo, Endwell, and John E. Linsky, Binghamton, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 14, 1969, Ser. No. 791,117
Int. Cl. B23p *17/00;* **H05k** *3/04*
U.S. Cl. 29—424 **8 Claims**



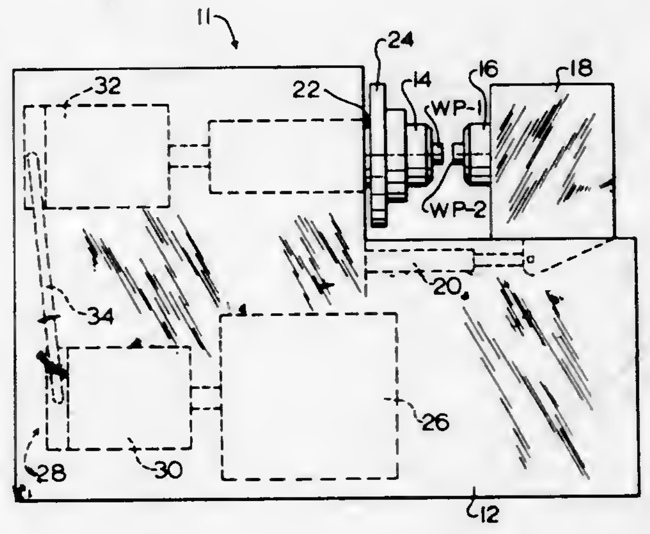
A process for drilling holes with reduced burr size at the exit edges of the holes which includes the steps of electrophoretically depositing a polymeric coating on the exit surface of the drilled member prior to drilling, curing the coating, drilling the holes and thereafter removing the cured coating.

3,568,297
METHOD AND APPARATUS FOR SECURING HANDLES IN SLEDGE HEADS
Wilbert H. Woodings, Pittsburgh, and Thaddeus S. Skowron, Verona, Pa., assignors to Woodings-Verona Tool Works, Verona, Pa.
Filed July 31, 1969, Ser. No. 846,472
Int. Cl. B21k *5/14*
U.S. Cl. 29—429 **13 Claims**

After the slotted front end of a sledge handle has been started in the passage through a sledge head, the head is held stationary while the front end of the handle is pushed through it and out of its front. The projecting front end of the handle then is removed. The front end of the remainder of the handle is pushed against a stationary blade to open the front end of the handle slot. The handle them is moved forward against a stationary wooden wedge to force the wedge into the slot. Finally, the handle is pushed forward against a stationary metal wedge to force the handle onto that wedge also.

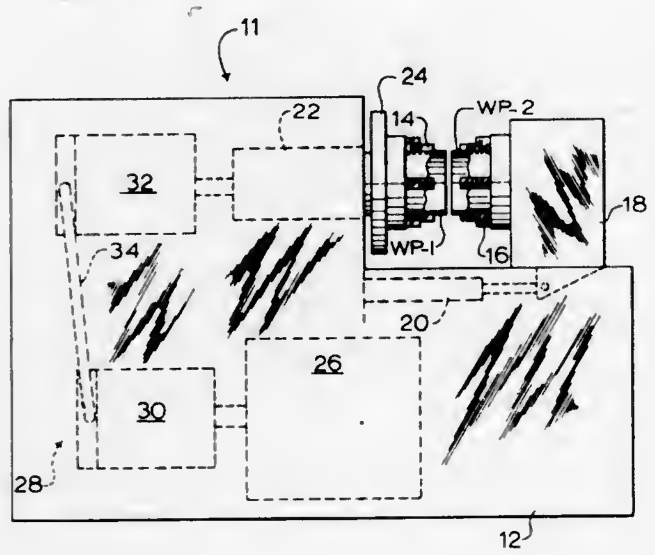


3,568,298
FRICTION WELDING MOLYBDENUM AND TUNGSTEN
Marion R. Calton, East Peoria, Henry J. Vermillion, Jr., Peoria, and Robert D. Williams, Toulon, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed July 15, 1968, Ser. No. 744,921
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 **5 Claims**



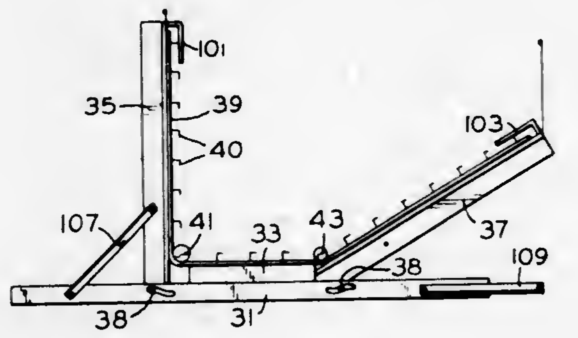
Friction welding molybdenum and tungsten materials, including inertia friction welding thereof, and further including speed, pressure and input energy parameters for the welding of these materials.

3,568,299
WELDING THIN WALL TUBES
Marion R. Calton, East Peoria, and James A. Willerton, Jr., Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed June 11, 1968, Ser. No. 736,039
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 9 Claims



Welding thin wall tubes of steel together or to other structures by friction welding at high speed including methods for determination of such speeds.

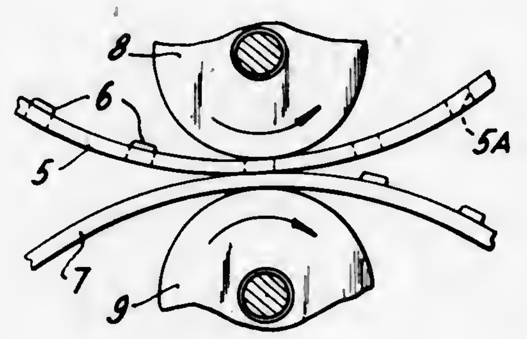
3,568,300
METHOD AND APPARATUS FOR FORMING SHIP HULLS
Arnold H. Zidell, Portland, Oreg., assignor to Zidell Explorations, Inc., Portland, Oreg.
Filed July 2, 1968, Ser. No. 742,070
Int. Cl. B23k *31/02*
U.S. Cl. 29—471.1 6 Claims



A method of and apparatus for fabricating sections of a vessel. The method comprises providing singly reinforced plate structures and bending them to desired form, and thereafter (1) joining together such bent plate structures, optionally with intervening unbent reinforced plate structures, to form a shell, and thereafter erecting trussing within the shell to reinforce the same, or (2) fabricating a trussed unit, and welding the bent plate structures to the trussed unit, with or without intervening unbent reinforced plate structures, and welding the plate structures to one another.

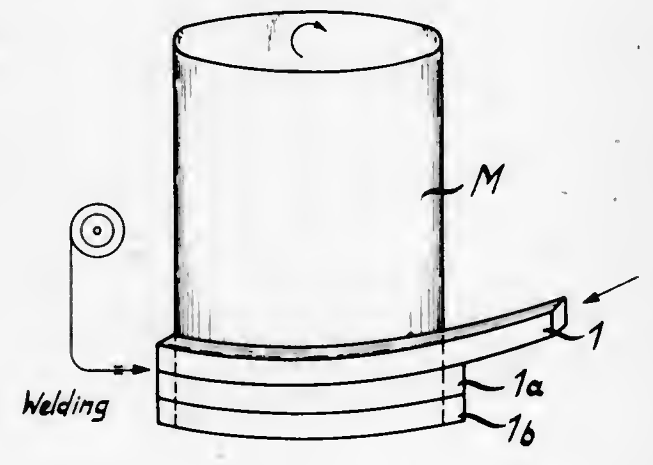
The apparatus comprises a stationary bed and one or more swing frames which are mounted so that they can be raised from lowered positions to erect positions to bend a singly reinforced plate about one or more mandrels which are supported in hold-down relation to a part of the plate structure.

3,568,301
BONDING OF PRECIOUS METAL TO A METAL SUBSTRATE AND PRODUCT THEREFOR
Akira Shibata, Tokyo, Japan, assignor to Chugai Electric Industrial Co., Ltd., Tokyo, Japan
Filed Jan. 2, 1969, Ser. No. 788,582
Claims priority, application Japan, Mar. 30, 1968, 43/20,714
Int. Cl. B23k *31/02*
U.S. Cl. 29—471.3 9 Claims



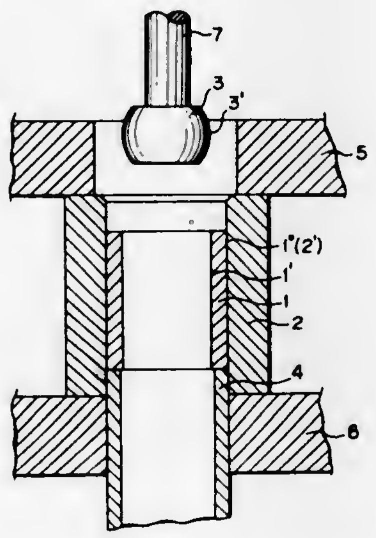
A method is provided for producing a composite metal strip comprising a metal substrate with pieces of precious metal bonded thereto in spaced positions in the longitudinal direction of the strip. The method comprises feeding a cold metal substrate strip to a bonding station comprising a lower die support on which the strip is supported and a pressure-applying die disposed above said supporting die, progressively feeding pieces of precious metal to between said upper and lower dies, and immediately applying bonding pressure sequentially to each of said pieces sufficient to deform each piece at least 20% of its height while the piece is at a temperature above its recrystallization temperature but below its melting point, whereby each of the pieces is metallurgically bonded to the cold substrate strip in spaced positions along the strip with substantially no alloy diffusion zone at the bonding interface of the composite.

3,568,302
METHOD OF MAKING PRESSURE CONTAINERS
Werner Oehler and Werner Müller, Gummersbach, Rhineland, Germany, assignors to L. & C. Steinmuller G.m.b.H., Gummersbach, Germany
Filed Mar. 4, 1968, Ser. No. 710,250
Claims priority, application Germany, Mar. 3, 1967, St 26,581
Int. Cl. B23k *31/02*
U.S. Cl. 29—477.3 4 Claims



A method of making pressure containers from tubular means, which includes the steps of winding the tubular means in the form of an individual flexible tube or in the form of a group of superimposed flexible tubes around a core member having an outer contour corresponding to the inner contour of the container to be built up by said tubular means, and welding the thus formed windings together along their outer and inner contacting areas.

3,568,303
METHOD FOR WORKING A YOKE OF A SMALL-SIZED ELECTRIC MACHINE
Akio Ito, 93 Tsukasa-machi 2-chome, and Kazuhide Naruki, 45 Takara-machi 4-chome, both of Kariya-shi, Aichi-ken, Japan
Filed May 2, 1967, Ser. No. 635,573
Int. Cl. B23k *31/02*
U.S. Cl. 29—480 1 Claim



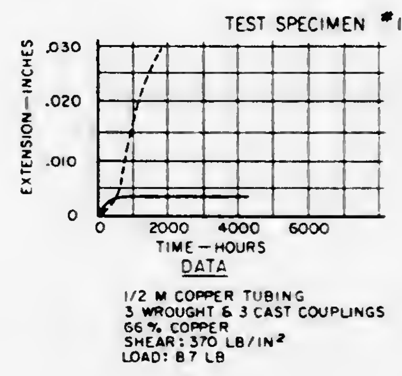
A method of forming a yoke for a small-sized electric machine in a plastic working operation to obtain its final inside and outside diameter dimensions comprised of the steps of forming a tubular wall section having an inside diameter and outside diameter less than the final inside diameter and outside diameter dimensions of the yoke, placing the tubular wall section within a laterally confined space having an inside diameter substantially equal to the final outside diameter of the yoke, exerting a transverse linear force uniformly about the interior of the tubular wall section for plastically deforming it outwardly whereby its inside diameter conforms with the final inside diameter of the yoke and its outside diameter conforms to the final outside diameter of the yoke.

Apparatus for forming a yoke of a small-sized electric machine comprised of a tubular die member having an inside diameter substantially equal to the final diameter of the yoke and a head member having at least a partly spherical surface. The spherical surface of the head member has a diameter substantially equal to the final inside diameter of the yoke and a rod member is associated with the head member. Accordingly, when a tubular wall section having an inside and an outside diameter smaller than the final inside and outside diameters of the yoke is inserted into the tubular die member and the head member is inserted within the tubular wall section and a radially outwardly directed linear force is exerted uniformly about the transverse interior surface of the tubular wall section; it is plasticly deformed and provided with its final inside and outside diameter dimensions.

3,568,304
METHODS OF FORMING SOFT SOLDER JOINTS
Bertram C. Raynes, Pepper Pike, and Michael Pescatrice, Lakewood, Ohio, assignors to Nibco Inc., Elkhart, Ind.

Original application Nov. 22, 1965, Ser. No. 509,053, now Patent No. 3,418,179, dated Dec. 24, 1968. Divided and this application May 17, 1968, Ser. No. 729,981

Int. Cl. B23k *31/02*
U.S. Cl. 29—489 14 Claims

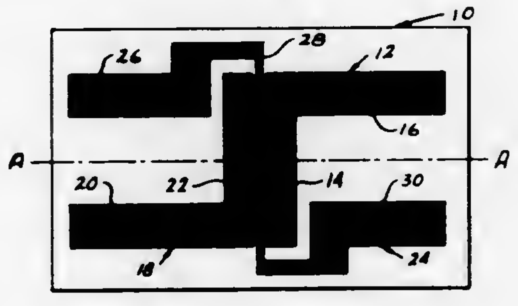


In the art of forming soft solder sweat joints connecting tubular copper members, the method of introducing into the joint area around one of the members a solder-reinforcing agent consisting of copper, and thereafter introducing a molten soft solder.

3,568,305
METHOD FOR PRODUCING A FIELD EFFECT DEVICE
John L. Janning, Dayton, Ohio, assignor to Ledex, Inc., Dayton, Ohio

Original application June 28, 1965, Ser. No. 467,649, now Patent No. 3,445,732. Divided and this application Dec. 2, 1968, Ser. No. 780,319

Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 6 Claims



Method for producing a thin film field effect device having a gate elcment insulated by electrolytic action.

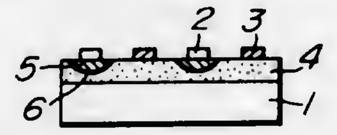
3,568,306
METHOD OF MAKING PHOTOVOLTAIC DEVICE BY ELECTROPLATING
Kazuo Yamashita, Toyonaka-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sept. 20, 1966, Ser. No. 580,663

Claims priority, application Japan, Sept. 25, 1965, 40/59,271; Dec. 2, 1965, 40/75,452; June 22, 1966, 41/41,147

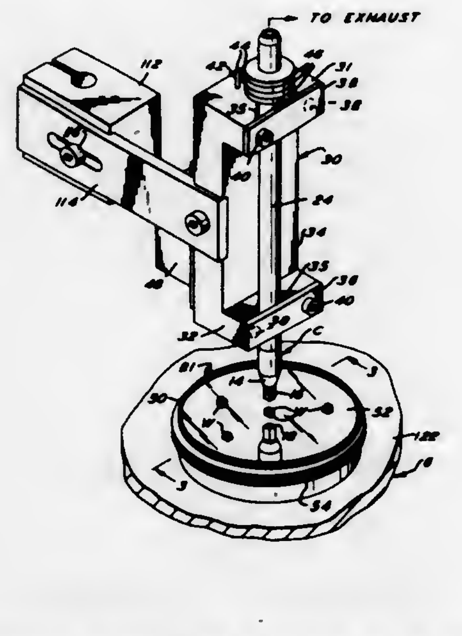
Int. Cl. B01j *17/34;* **C23b** *5/48;* **H01m** *15/02*
U.S. Cl. 29—572 11 Claims

A method of making a photovoltaic cell employing powdered polycrystalline photoelectric material, the method comprising, forming at least one electrode on a photoelectric layer and electroplating a p-type determining metal, such as copper, on said electrode at least partially through the photoelectric layer whereby the portion of said photoelectric layer subjected to said electroplating process is converted to p-type by the metal ions proceeding to the electrode, forming thereby a p-n junction therearound, and a photovoltaic cell thus formed.



3,568,307
METHOD OF PICKING UP AND BONDING SEMICONDUCTOR WAFERS TO A CARRIER

Earl A. Zanger, San Jose, and Peter R. Szasz, Bear Valley, Calif., assignors to Kulicke and Soffa Industries, Inc., Fort Washington, Pa.
Application Aug. 9, 1967, Ser. No. 659,539, now Patent 3,458,102, which is a continuation of application Ser. No. 404,035, Oct. 15, 1964. Divided and this application Apr. 10, 1969, Ser. No. 815,117
Int. Cl. B01j *17/00;* **H01l** *7/02, 7/16*
U.S. Cl. 29—589 **5 Claims**

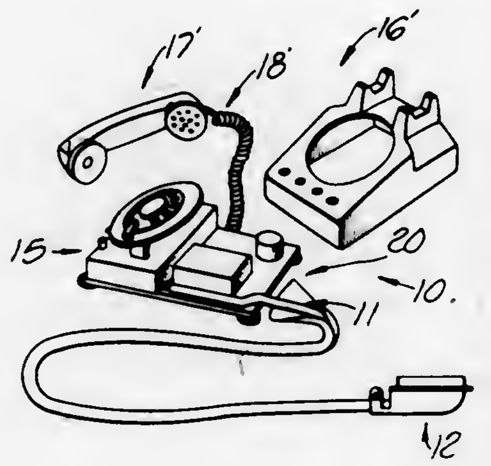


A mechanized method of picking up a partially preoriented semiconductor wafer from a plurality of semiconductor wafers on a tray, orienting the semiconductor wafer during the step of picking it up and simultaneously placing and bonding the semiconductor wafer on a carrier in a desired predetermined position.

3,568,308
METHOD AND MEANS FOR REFURBISHING AND CUSTOMIZING SERVICE CORD ASSEMBLIES

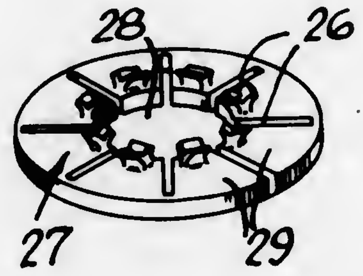
Edward S. Plaskon, Clifton, N.J., assignor to Walter A. Plummer, Sherman Oaks, Calif.
Filed July 30, 1968, Ser. No. 748,835
Int. Cl. H01s *4/00*
U.S. Cl. 29—592 **10 Claims**

A method and means for refurbishing, customizing and converting service cord assemblies and the like simply, economically and without need for tools, skilled services or interruption of service. Worn, damaged, discolored or non-harmonizing cord sheaths are quickly refurbished or replaced with a new sheath of selected color harmonizing with the old or some new decorative decor expeditiously and in a highly professional manner. The invention technique and advantages are typified by an appliance such as a telephone set and service cord assembly wherein a standard phone chassis and service cord can be employed selectively with any of a wide range of matching colored cover shells and service cord sheaths.



3,568,309
METHOD OF MANUFACTURING DYNAMO ELECTRIC MACHINES

Kenneth Preece, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Original application July 24, 1967, Ser. No. 655,493. Divided and this application Feb. 25, 1969, Ser. No. 816,861
Int. Cl. H01r *43/00*
U.S. Cl. 29—597 **2 Claims**



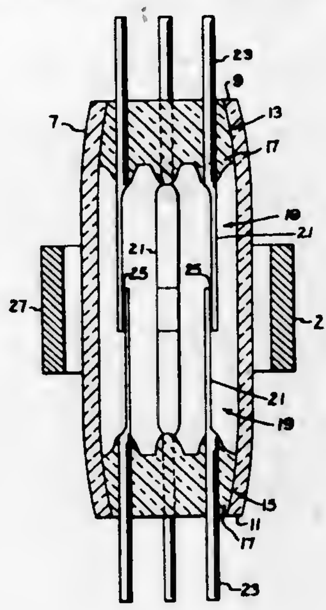
A dynamo electric machine including a rotor and a commutator rotatable with the rotor, the ends of the windings of the rotor being connected to the conductive segments of the commutator, and constituting part of each of the faces of the conductive segments of the commutator on which the brushes of the machine run in use.

3,568,310
HERMAPHRODITIC MULTI-CONTACT REED SWITCH

Ralph E. Neuber, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc.
Original application Mar. 14, 1968, Ser. No. 713,216, now Patent No. 3,471,813, dated Oct. 7, 1969. Divided and this application Apr. 17, 1969, Ser. No. 816,990
Int. Cl. H01h *11/00*
U.S. Cl. 29—622 **2 Claims**

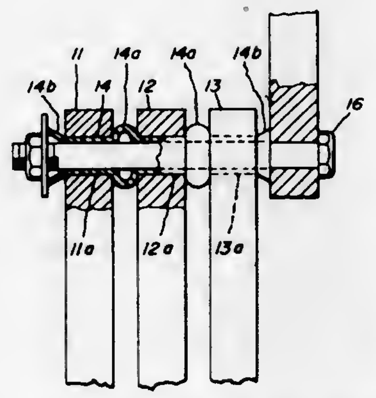
A hermaphroditic multi-contact reed switch includes a tubular envelope having a pair of substantially identical headers sealed into the opposite ends and contains an inert atmosphere. Each of the headers includes a plurality

of switch members having a magnetizable portion extending interiorly of the envelope and in longitudinally overlapping relationship with the magnetizable portion of the switch members of the opposite header. The longitudinal overlapping magnetizable portions of the matching switch members of the opposing headers have a desired gap therebetween which is dependent upon the circumferential displacement of one header with respect to the other.



3,568,311
INSULATING AND SPACING ELECTRICALLY CONDUCTIVE MEMBERS

Elliott J. Lawton, Cleverdale, N.Y., assignor to General Electric Company
Original application Apr. 1, 1966, Ser. No. 539,487. Divided and this application Sept. 30, 1968, Ser. No. 763,852
Int. Cl. H01b *7/00*
U.S. Cl. 29—624 **2 Claims**

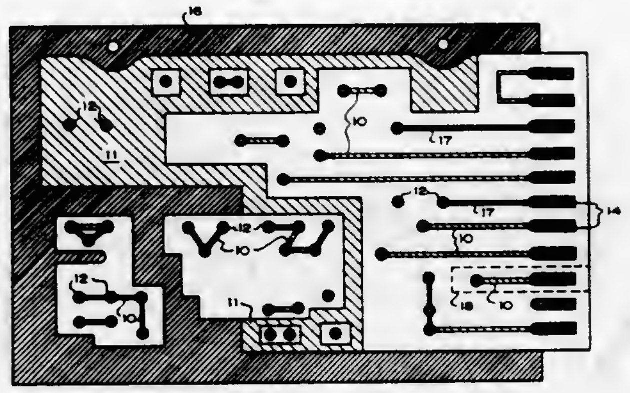


Means for the support of each of a plurality of spaced electrically conductive members in spaced, insulated relationship in an electrical apparatus is described. An elongated member of insulating material is employed passing through aligned apertures in the conductive members with portions of the insulating member between conductive members being expanded. The expanded portions cooperate either with each other or with an end support to firmly hold the conductive members in fixed spaced relationship.

3,568,312
METHOD OF MAKING PRINTED CIRCUIT BOARDS

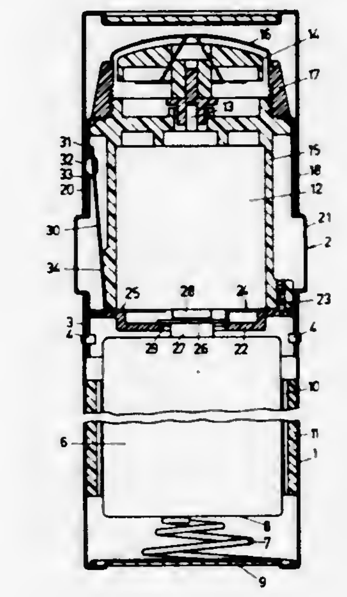
Robert A. Perricone, San Jose, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 4, 1968, Ser. No. 765,262
Int. Cl. H05k *3/06;* **B41m** *3/08*
U.S. Cl. 29—625 **3 Claims**

A foil clad substrate having holes therethrough is selectively etched to provide desired electrical circuit paths on both sides of the substrate. The substrate is coated with an electroless metal, and a metal coating is selectively deposited on the substrate and within the holes in the substrate to provide electrical interconnections between the circuit paths on both sides of the substrate. An encapsulant coating is then selectively deposited on the substrate to prevent the circuit paths from coming into contact with the surrounding environment.



3,568,313
ELECTRIC SHAVER

Beda Hutter, Rorschacherberg, Switzerland, assignor to August Belz, Goldach, Switzerland
Filed May 5, 1969, Ser. No. 821,747
Claims priority, application Switzerland, May 29, 1968, 7,997/68
Int. Cl. B26b *19/14*
U.S. Cl. 30—43.6 **8 Claims**

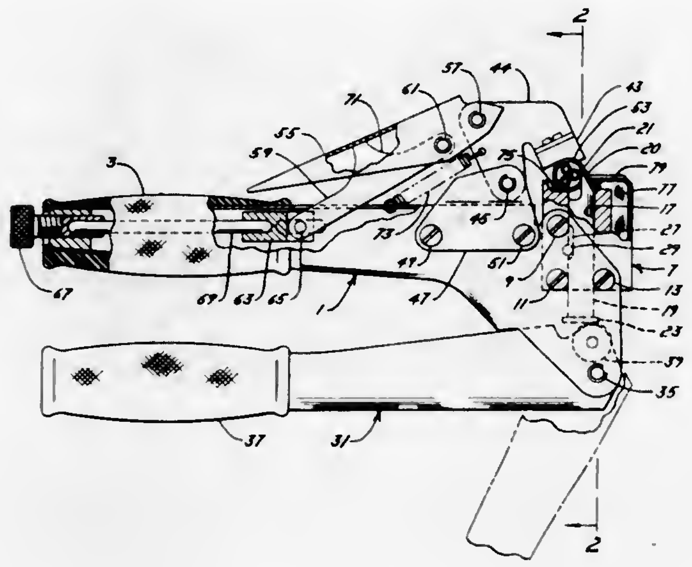


Battery-operated shaver comprises a two-part electrically conductive housing through which the circuit is closed by a spring contact that is free to move against one housing part when the cap is removed or, in a second embodiment, a ring is turned.

3,568,314
TOOL FOR SEVERING THE SPIRALLY WOUND ARMOR OF AN ELECTRICAL CABLE

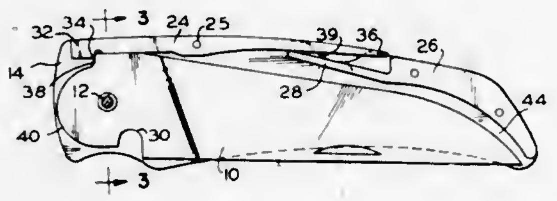
Francis Allen Adams, 88 Manchester Ave., North Haledon, N.J. 07508
Filed Apr. 3, 1970, Ser. No. 25,428
Int. Cl. B26b *27/00*
U.S. Cl. 30—90.2 **13 Claims**

The tool has a pair of jaws for clamping a length of cable therebetween, a cutting element having a cutting edge, and cam means for moving the cutting element in a bore in the tool so that the cutting edge moves in a plane substantially tangent to the inner periphery of the armor into engagement therewith to make a paring cut in the armor for severing a turn thereof. This arrangement avoids damaging the insulation of the electrical conductors and bends the severed turn outwardly to facilitate removal of the severed portion of the armor from the insulated conductors.



3,568,315
FOLDING KNIFE HAVING CLOSURE ARRESTING MEANS

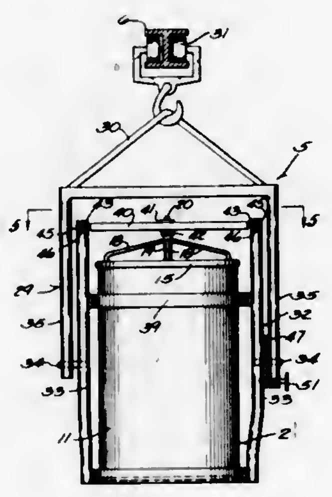
Franklin G. Smith, Portland, Oreg., assignor to Gerber Legendary Blades, Portland, Oreg.
Filed Oct. 2, 1968, Ser. No. 764,439
Int. Cl. B26b *1/02*
U.S. Cl. 30—161 **16 Claims**



A folding knife is described in which a closure arresting means is provided to prevent the knife blade from snapping shut from an open to a closed position, by abruptly increasing the closing resistance of the blade when it reaches an intermediate position at an acute angle with respect to the handle. The closure arresting means includes a spring biased stop member pivotally mounted intermediate its ends on the knife handle with one end engaging the blade and the other end engaging a leaf spring member. A shoulder portion of the stop engaging surface of such blade engages the stop member close to its pivot to provide the abrupt increase in closing resistance in the intermediate position of the blade. The stop member also forms part of a lock means which locks the blade in its fully open position by engagement of a latch portion on the end of such member within a notch in such blade. Release of the lock means is accomplished by pressing on the other end of the stop member to move such end against the force of a leaf spring member in engagement therewith. In addition the latch portion also engages the shoulder on the blade in its closed position to space the cutting edge of such blade from the spring member to prevent dulling.

3,568,316
APPARATUS FOR DRAINING WHEY FROM CHEESE

Otis O. Hensel, P.O. Box 186, Hustisford, Wis. 53034
Filed Jan. 21, 1969, Ser. No. 792,599
Int. Cl. A01j *25/11*
U.S. Cl. 31—48 **15 Claims**



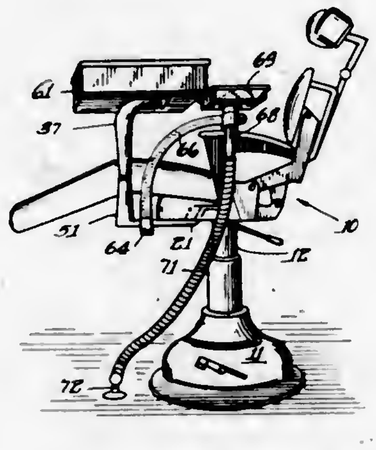
An apparatus for pressing and draining whey from cheese. The cheese to be treated is contained within a barrel enclosed with a perforated head or lid. A hoist unit lifts the barrel into a supporting cradle which rides on an overhead rail extending within the plant. The cradle comprises an outer frame suspended from the rail, and an inner frame containing the barrel is pivotally connected to the outer frame about a horizontal axis, so that the barrel can be tilted to thereby permit the whey to drain from the cheese through the perforated head.

A locking mechanism is included to lock the barrel in the upright position as well as to lock the barrel in the titled or inclined position.

The lid for the barrel includes an axial pin which is journalled within the inner frame so that the barrel, when the tilted or inclined position.

3,568,317
DENTAL INSTRUMENT CENTER

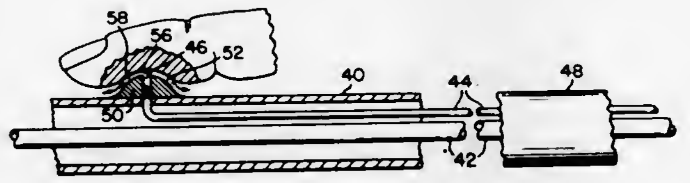
Milton L. Braun, Flossmoor, and Thomas W. Fleming, Glenwood, Ill., assignors to Auning Corporation, Olympia Fields, Ill.
Filed Feb. 23, 1968, Ser. No. 707,579
Int. Cl. A61c *19/02*
U.S. Cl. 32—22 **3 Claims**



A dental instrument center which is constructed and arranged, in combination with a dental chair, to move upwardly and downwardly together with the upward and downward movement of the dental chair, as well as horizontally in an infinite number of positions, the operative mechanism being mounted below the seat of said dental chair.

3,568,318
CONTROL FOR DENTAL HANDPIECES AND THE LIKE

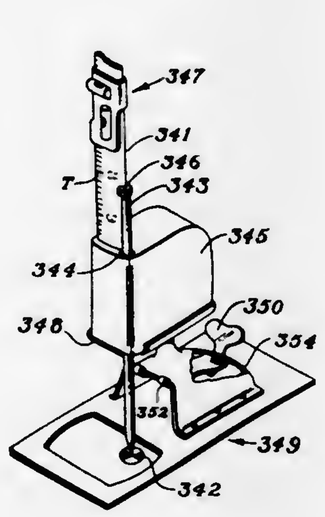
James C. Martin, Pittsford, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed May 1, 1969, Ser. No. 820,884
Int. Cl. A61c *1/10*
U.S. Cl. 32—27 **12 Claims**



A finger operated means for controlling the speed of an air driven handpiece, flow of cooling water, and/or vacuum aspiration wherein bleed air from the power air line is fed to a pressure operated valve and then exhausted through a nozzle to atmosphere. Placing a thumb or finger over the exhaust nozzle creates a back pressure to operate the valves which control the speed of the handpiece, flow of cooling water and/or vacuum aspiration. The nozzle has a convex shape which seats the nozzle in the flesh of the thumb or finger overcoming the tendency of the finger to slip off the nozzle due to the low friction created by air exhausting through the nozzle and against the surface of the finger. This control nozzle can be mounted in any convenient location such as on the dental handpiece itself or on a dental mouth mirror.

3,568,319
LAYOUT SYSTEM FOR ATTACHMENTS FOR COILED, FLEXIBLE TAPE

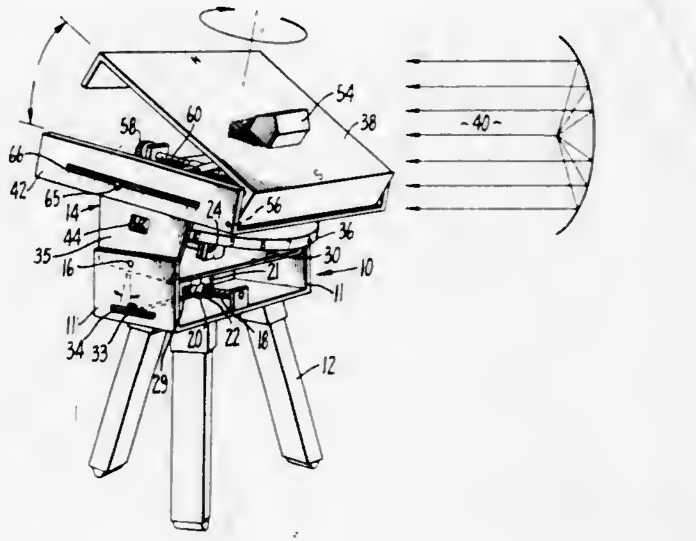
Oswin C. Moll, 1640 Chippendale Circle, Bethlehem, Pa. 18017
Filed June 26, 1968, Ser. No. 740,269
Int. Cl. B43l *13/20*
U.S. Cl. 33—1 **22 Claims**



A layout tool employing retractable tapes and coupling means. A level is mounted on the tape or housing, and a plumb is attached to the tape for locating the plumb over a bench mark.

3,568,320
ARCHITECTURAL SHADOW INDICATOR

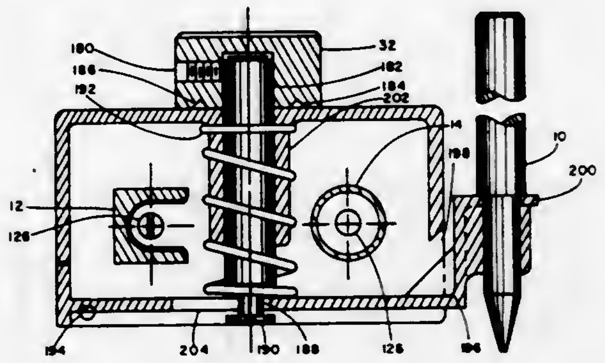
Eugene Clifford Potter, 101 Walnut St., San Francisco, Calif. 94118
Filed Mar. 12, 1969, Ser. No. 806,462
Int. Cl. G01c *1/00*
U.S. Cl. 33—1 **6 Claims**



There is disclosed an architectural shadow indicating apparatus, sometime referred to as a heliodon, which affords a compact and precise instrument for accurately showing the shadow pattern cast by a fixed light source representing the sun, on a structural model. The cast shadow can be determined for any hour of the day at any position of latitude and at any point in the seasonal inclination of the earth.

3,568,321
LOW COST PLOTTER

Charles H. Maps, West Long Branch, and Edward J. Paschetto, Little Silver, N.J., assignors to Electronic Associates, Inc., West Long Branch, N.J.
Filed Sept. 6, 1968, Ser. No. 757,881
Int. Cl. B43l *13/02*
U.S. Cl. 33—18 **1 Claim**

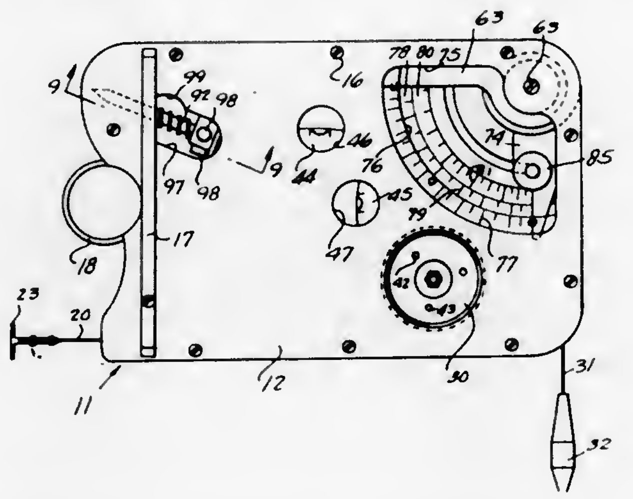


A low cost plotter having a plotting surface which serves as the main structural support for the plotter, an arm mounted for travel along opposite sides of the plotting surface, a pen holding mechanism mounted for movement along the arm, with the arm being driven at both sides of the surface by a dual bead belt drive to prevent arm skew and to ensure accurate squaring.

3,568,322
MEASURING INSTRUMENT

Garth A. Showers, Main St., Tannersville, N.Y. 12485
Filed Dec. 13, 1968, Ser. No. 783,559
Int. Cl. B43l *9/00;* **G01b** *3/10, 3/16*
U.S. Cl. 33—27 **5 Claims**

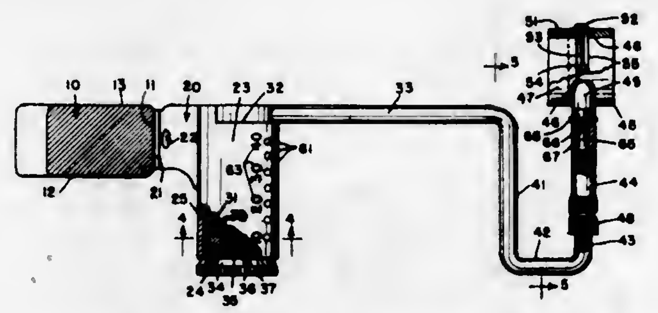
A combination measuring, marking, angle measuring, and arc-scribing instrument, including bubble levels. The instrument has a case containing a flexible measuring tape, a plumb bob cord reel with cord and plumb bob attached, an angle scale, and adjacent distance scales arranged concentrically on an arc with pivoted pointer swingable thereover. The pointer has a clamp for securing it in adjusted position. A scriber arm is attached



perpendicularly to the pointer and is swingable outwardly relative to a side edge of the case. The case contains an extensible center pivot point which can be engaged in a surface to be scribed. The center pivot point is biased to a normally retracted position, but can be manually extended and rotated to lock it in extended position.

3,568,323
PERSONALLY CALIBRATED BOW SIGHT DEVICES

Jesse P. Lendway, 4259 Snail Lake Blvd.,
St. Paul, Minn. 55112
Filed Feb. 3, 1969, Ser. No. 802,720
Int. Cl. F41g *1/00, 5/00*
U.S. Cl. 33—46 **10 Claims**

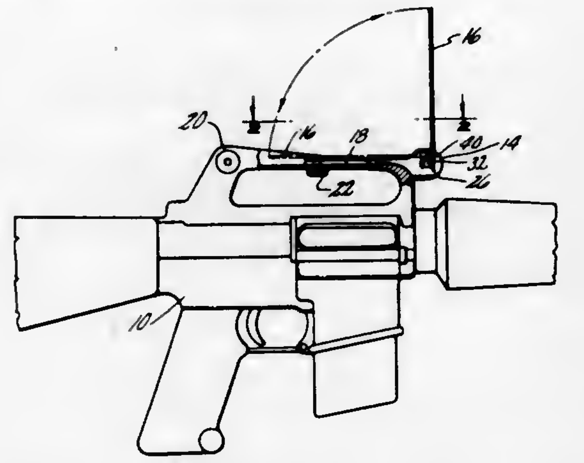


A personally calibrated bow-sight device in which a swinging arm carrying at one end a sight and pivoted at its other end to a support attached to the bow, said arm being formed with a part having either a plane surface or a cylindrical surface overlying a similar part on the support, one of said parts having spaced holes therein and numerals associated therewith indicating distances of flight and the other part being in the form of a disc or a tube on which marks may be made through the appropriate holes in the first named part when the arm is in the proper position to cause the arrow to reach the target and when the target is sighted with reference to the sight.

3,568,324
BATTLE SIGHT FOR AN AUXILIARY PROJECTILE LAUNCHER

John K. Jorczak, Springfield, Mass., assignor to
Colt's Inc., Hartford, Conn.
Filed Jan. 9, 1969, Ser. No. 789,994
Int. Cl. F41g *1/48*
U.S. Cl. 33—47 **4 Claims**

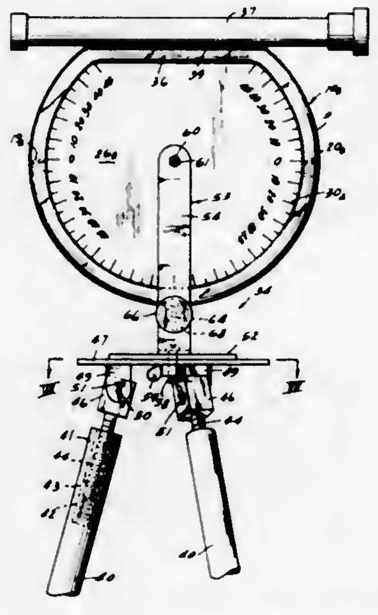
A pivotable auxiliary sight assembly having a series of preselected range apertures with the sight assembly secured to the carrying handle of a portable firearm having auxiliary projectile launcher may be expeditiously and accurately aimed under battle field conditions. The auxiliary sight assembly including a sight element that has



stable detented storage and operational positions, either position permitting unobstructed use of the basic point fire sight of the firearm.

3,568,325
LIQUID LEVEL DEVICE

George William Baltz, R.R. 4,
Pocahontas, Ark. 72455
Filed Nov. 17, 1969, Ser. No. 877,404
Int. Cl. G01c *1/02, 9/20*
U.S. Cl. 33—69 **1 Claim**



The disclosure includes a liquid level device comprising a circular tube made of clear plastic and partially filled with colored water. The tube may be mounted on a protractor for measuring angles relative to the horizontal. The disclosure also includes a method of ascertaining the water line of a proposed stock pond or the like through the use of the liquid level device. In addition the disclosure includes a transit theodolite which comprises a plastic liquid level device having a telescope mounted thereon, the entire assembly being mounted on adjustable legs.

3,568,326
EXTENSOMETER

Roland K. Dodds, 520 SW. 6th Ave.,
Portland, Oreg. 97204
Filed Aug. 12, 1968, Ser. No. 751,931
Int. Cl. G01b *5/02, 5/30*
U.S. Cl. 33—125 **4 Claims**

An extensometer for measuring movement in a land mass by measuring the displacement of wires anchored to the land mass. Each wire has an end that extends into

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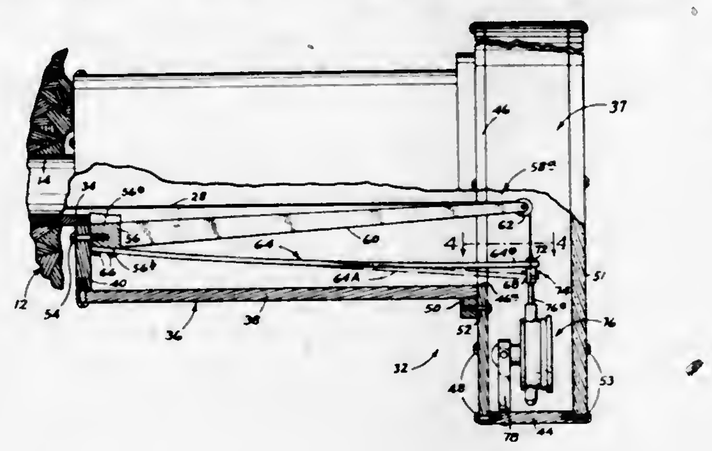
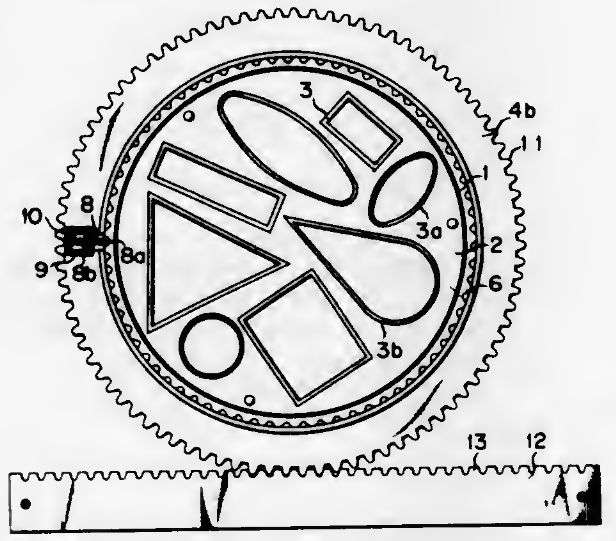
a casing in the extensometer, and the wire end is detachably fastened to a movable spring-biased ferrule which tenses the wire. A gauge in the casing, viewable from the



casing's front, indicates directly any change in the position of the ferrule produced by displacement of the wire.

3,568,327
APPARATUS FOR DRAWING COMPOSITE PICTORIAL PATTERNS

Hideto Furuoka, Tokyo, Japan, assignor to
Gakken Company Limited, Tokyo, Japan
Filed Nov. 6, 1968, Ser. No. 773,876
Claims priority, application Japan, Nov. 10, 1967,
42/94,450; June 8, 1968, 43/47,948; Oct. 31,
1968, 43/94,483
Int. Cl. B44d *3/30*
U.S. Cl. 33—174 **2 Claims**

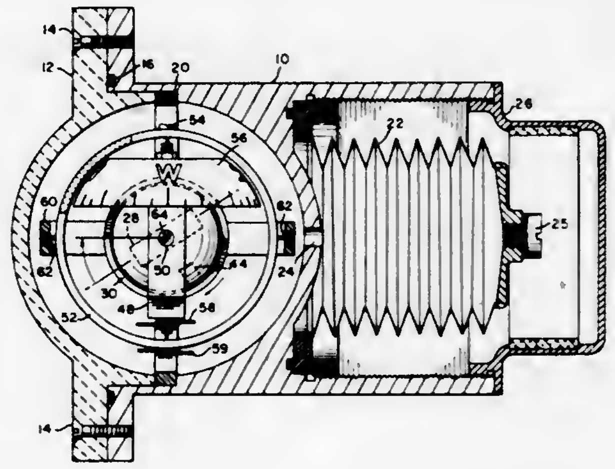


An apparatus for drawing composite pictorial patterns is provided with an inner frame notched all along its periphery for holding a disk perforated with a prototype aperture or apertures, an outer keep frame having an inner circular guide rail disposed on the inside thereof so as rotatably to set the inner frame on said guide rail, and means for mutually engaging said frames by interlocking with each notch by turns.

3,568,328
AIRCRAFT COMPASS

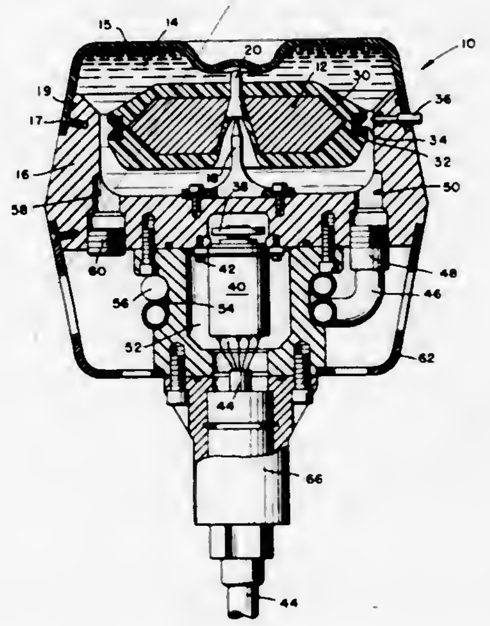
Edgar John Sharpe, Willowdale, Ontario, Canada, assignor to Patrick Harrison & Company Limited, Toronto, Ontario, Canada
Filed July 1, 1968, Ser. No. 741,429
Int. Cl. G01c *17/08*
U.S. Cl. 33—223 **4 Claims**

This invention relates to a magnetic compass especially suited for aircraft. The magnet is universally mounted so that it can rotate in azimuth and in dip and the azimuth axis is made pendulous so that it is normally vertical. With compasses of this kind the pendulous azimuth axis tends to swing out of control to beyond the 90° dip position as the aircraft turns. If the dip of the magnet exceeds 90°, the universal mounting means for the magnet operate to bring the magnet around into the resultant magnetic field and at the same time they turn the compass card of the magnet through 180°. The result is that the compass reads 180° out after such a misalignment and is entirely unreliable to a pilot. This invention overcomes this difficulty by counteracting the magnet about its dip axis by means of a weight. The weight is designed to counteract dip and has a magnitude sufficient to prevent the magnet from exceeding the 90° dip position in an aircraft turn. A compass constructed according to the invention is very much more stable than the standard aircraft magnetic compass. It also has better characteristics from a vibration point of view when used in a heavy vibration machine, such as a helicopter.



3,568,329
MAGNETIC FLUID COMPASS

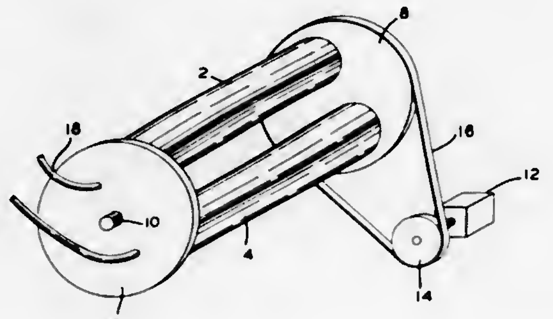
Leslie T. Campbell, Lakewood, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 28, 1968, Ser. No. 771,223
Int. Cl. G01c *17/08*
U.S. Cl. 33—223 **5 Claims**



A magnetic compass which includes a bar magnet; a fluid compartment which encloses the magnet; a needle support means mounted within the compartment so as to support the magnet for rotation in a horizontal plane; and buoyant material mounted on the magnet for supporting the magnet in the fluid with a slight negative buoyancy so that friction at the needle support is at a minimum; and a small slave bar magnet rotatably mounted to the compartment and in axial alignment with the large bar magnet so as to follow the movements of the large bar magnet.

3,568,330
TEMPERATURE MAINTAINING TRANSPORT ROLLS

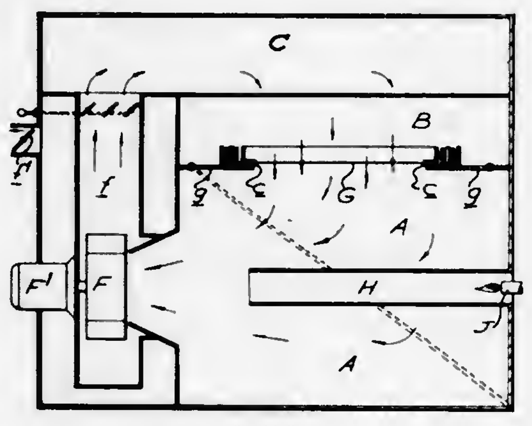
Oliver R. Bechtold, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
Filed July 31, 1969, Ser. No. 846,340
Int. Cl. F26b *11/02*
U.S. Cl. 34—113 **1 Claim**



The apparatus involves two heated rolls which are suspended between two large end supports. The sheet which is heated by the rolls passes around the rolls. Depending upon the positioning of the rolls relative to the path of movement of the sheet, the amount of contact that the sheet makes with the rolls may be varied. This variation of contact with the rolls will cause variations in the temperature to which the sheet is heated. Movement of the rolls relative to the pathway of the sheet is affected by the end supports which are capable of movement to position the rolls in different positions.

3,568,331
SUCTION DRYING APPARATUS

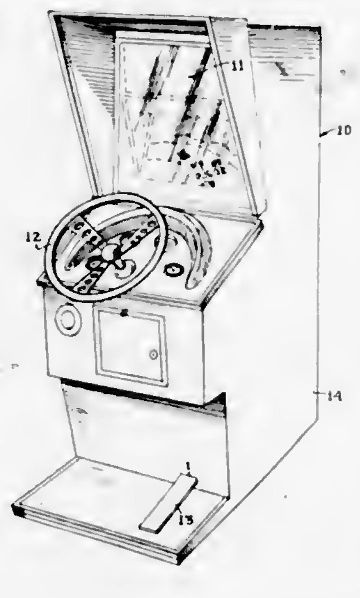
Harry W. Loveday, Blackburn, England, assignor to Greenbank Engineering Company Limited, Blackburn, England
Filed Jan. 8, 1969, Ser. No. 789,910
Int. Cl. F26b *13/10*
U.S. Cl. 34—155 **7 Claims**



A suction dryer for permeable fabrics or material in web form in which the fabric or material is traversed through the dryer on an endless perforated conveyor, which divides the drying chamber into two compartments, one compartment being a pressure compartment and the other a suction compartment sealing means being provided for the conveyor at both the inlet and discharge ends.

3,568,332
SIMULATED DRIVING APPARATUS

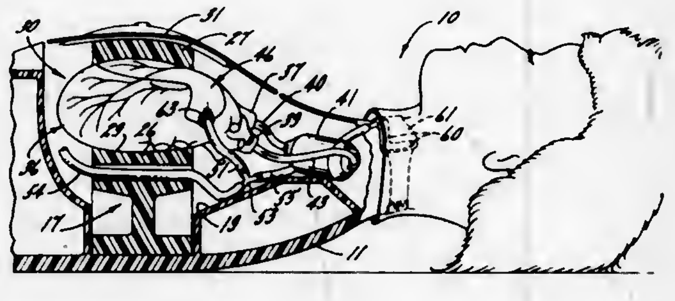
Jerry C. Koci, Barrington, Ill., and Albert L. Schlapa, Fort Atkinson, Wis., assignors to Chicago Dynamic Industries, Inc., Chicago, Ill.
Filed Mar. 12, 1970, Ser. No. 18,923
Int. Cl. A63f *9/14;* **G09b** *9/04*
U.S. Cl. 35—11 **8 Claims**



An apparatus for producing upon a screen an illusion of a panoramic roadway and simulated vehicle images moving competitively thereover as well as a steerable simulated vehicle image under the control of an operator of the apparatus. These images are created by a light source projected through a plurality of rotating transparent discs, with the images movable in response to the speed and direction of rotation of the discs as well as the movement of the light source relative thereto, all of which movements are under the control of the operator, thus testing and training the operator's coordination and reflex actions.

3,568,333
HEART FOR TEACHING AND PRACTICING EXTERNAL CARDIAC COMPRESSION

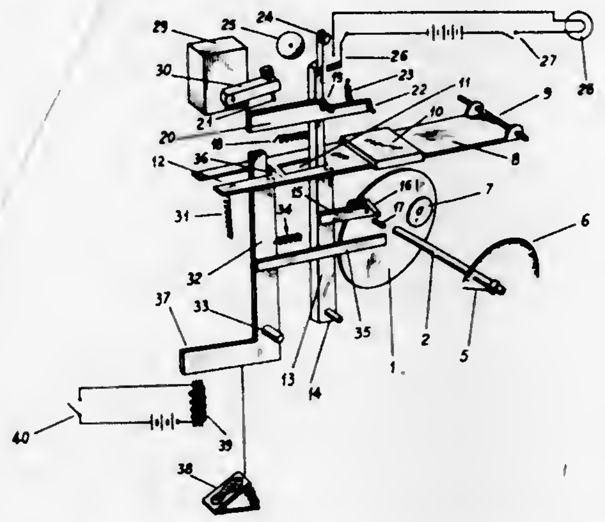
Roland R. Clark, Rockford, Ill., assignor to Medical Supply Company, Rockford, Ill.
Filed June 27, 1969, Ser. No. 837,202
Int. Cl. G09b *23/34*
U.S. Cl. 35—17 **6 Claims**



A simulated molded heat located between the sternum and spine of a simulated thorax unit is squeezed and released as compressive forces are alternately applied to and released from the thorax unit. The heart includes a liquid chamber from which blood-colored liquid is pumped when the heart is compressed for flow into a transparent circulatory system, and includes an air chamber from which air pulses are emitted for actuating a pressure gage and pulsating a simulated carotid artery. The air chamber is formed within a separately molded insert adapted to interfit with the main portion of the heart defining the liquid chamber.

3,568,334
APPARATUS FOR MEASURING THE PHYSIOLOGICAL REACTION TIME TO A VISUAL OR ACOUSTIC STIMULUS

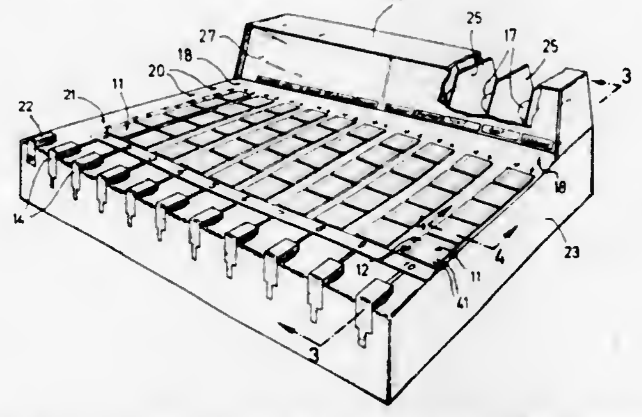
Pietrangelo Gregorio, Naples, Italy, assignor to s.r.L. "CAEM" (Limited Company), Naples, Italy
Filed June 11, 1968, Ser. No. 736,072
Claims priority, application Italy, June 13, 1967, 31,324/67, Patent 817,919
Int. Cl. G09b *19/00*
U.S. Cl. 35—22 **7 Claims**



A device for testing the reaction time of an individual including a rotary body rotatable about an axis spaced somewhat from its center of gravity. Timer operated release means holds the body in a position of unstable equilibrium until such time as a visual or acoustic signal is rendered when the body is released. A pointer integral with the body axle registers the angle of rotation and hence the time interval of rotation when the body is stopped by a manually operated brake.

3,568,335
EDUCATIONAL COMPUTER

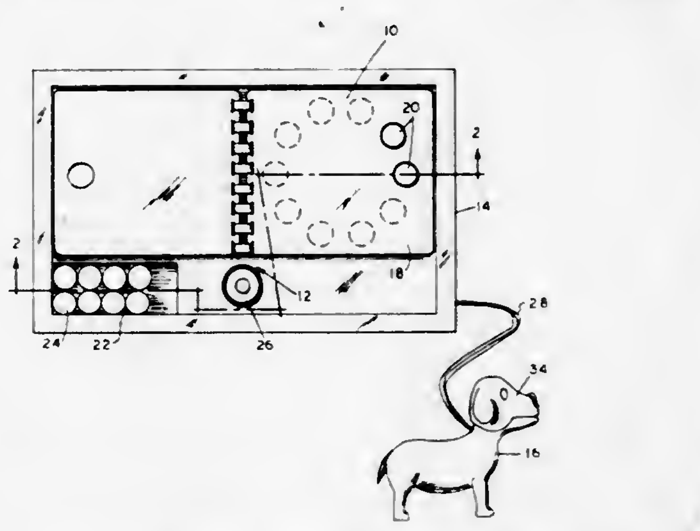
Euchar R. Nehmann, Leinfelden-Unteraichen, Horst Link, Boblingen, and Joachim Weimer, Stuttgart-N, Germany, assignors to Franckh'sche Verlagshandlung W. Keller & Co., Stuttgart-O, Germany
Filed Oct. 28, 1968, Ser. No. 771,189
Claims priority, application Germany, Feb. 7, 1968, P 16 78 336.1
Int. Cl. G09b *5/00*
U.S. Cl. 35—30 **16 Claims**



An educational computer comprising a plurality of connecting groups, each of the connecting groups including a plurality of connecting points and sets of the connecting groups being arranged in rows on a programming board; and source of electricity; a plurality of indicators each associated with the set of connecting groups in one of the rows and connected with the source of electricity; a key connected with the source of electricity and the connecting groups; a plurality of wires for connecting the plurality of indicators with the connecting groups; and a plurality of movable contactors each associated with the set of connecting groups in one of the rows to selectively connect adjacent connecting points in a connecting group.

3,568,336
REMOTE-CONTROLLED EDUCATIONAL GAME

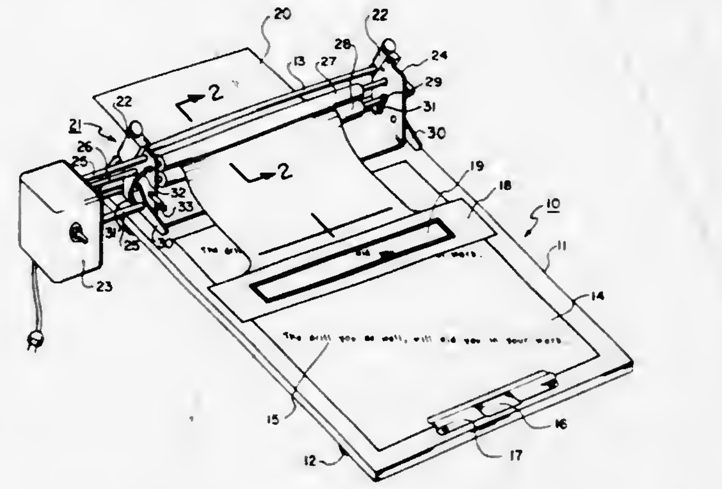
Sid Noble, West Orange, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
Filed May 8, 1969, Ser. No. 822,988
Int. Cl. A63h *33/26*
U.S. Cl. 35—32 **10 Claims**



A remote-controlled educational game with an answering toy, such as a dog, is provided. The remote-control unit transmits electrical pulses to the toy. Actions of the child, such as arranging pegs in the control unit, determine the number of pulses sent for each cycle of operation of the actuating switch. Each pulse received by the toy actuates a cycle-timer in the toy for one cycle of operation. A cycle of operation would include, for example, having the dog's mouth open and emit a barking sound. Thus, the dog would bark once for each pulse, that is, would bark as many times as had been predetermined by the child's actions.

3,568,337
TYPIST PACESETTING DEVICE

Walter M. Sharp, Jr., Columbus, Ohio, assignor to The Battelle Development Corporation, Columbus, Ohio
Continuation-in-part of application Ser. No. 638,543, May 15, 1967. This application Apr. 17, 1968, Ser. No. 729,865
Int. Cl. G09b *17/04*
U.S. Cl. 35—35 **10 Claims**

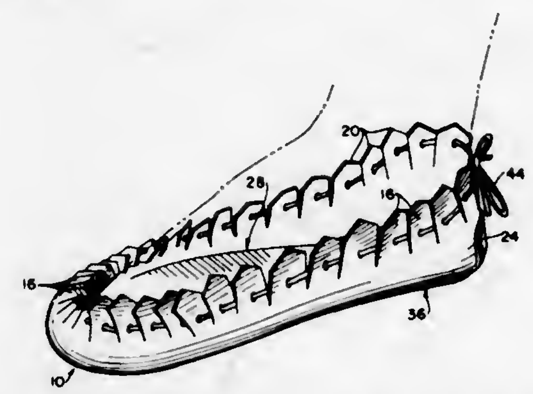


A pacesetting apparatus for improving typing skills including a means for affecting relative motion between a copy sheet and a masking member having an elongated opening or transparent window at a constant predetermined rate. Various type symbols are arranged on the copy sheet in lines which slant from left to right. The various symbols successively become visible through the opening or transparent window for a predetermined period of time as the masking member achieves relative motion with respect to the copy sheet.

3,568,338

MOCCASIN FOOTWEAR AND METHOD OF MANUFACTURE

Martin S. Nadler, 208 Alpine Drive,
Paramus, N.J. 07652
Filed Oct. 7, 1969, Ser. No. 864,470
Int. Cl. A43b *3/14;* **A43d** *9/00*
U.S. Cl. 36—11 **7 Claims**

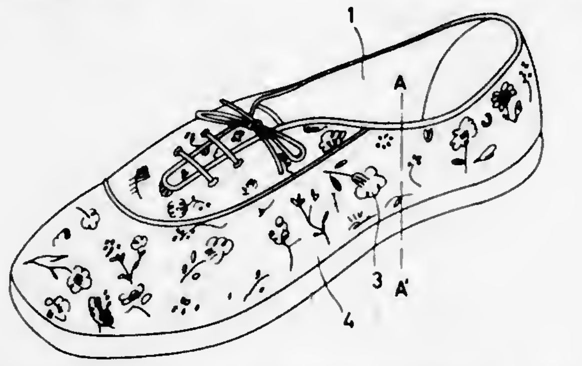


The present invention includes footwear of the moccasin type. A sole member includes a plurality of juxtaposed peripheral projections, each of which is formed with an opening therethrough. A draw cord extends in tension through each of the openings such that the projections are positioned in overlapping relationship over and in contact with the toes of a user of the footwear.

3,568,339

SHOES

Masao Hara, Tokyo, and Eiji Yabuki, Buhei Mahide, and Hideaki Yoshida, Tochigi-ken, Japan, assignors to Harold Fleming trustee, Dallas, Tex.
Filed Nov. 14, 1968, Ser. No. 775,736
Claims priority, application Japan, Nov. 18, 1967, 42/96,804; Apr. 4, 1968, 43/26,396; June 7, 1968, 43/47,169, 43/47,170
Int. Cl. A43b *1/10, 23/00*
U.S. Cl. 36—2.5 **7 Claims**



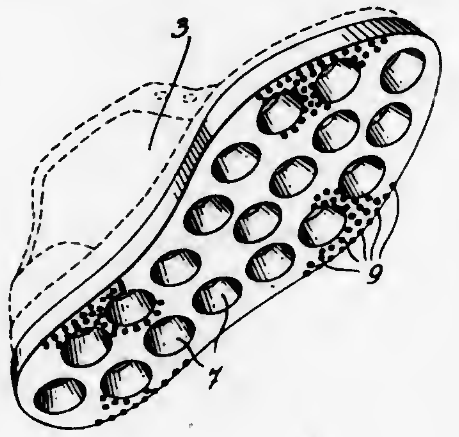
Shoes having the uppers thereof shaped of an imitation leather formed of a synthetic resin, the outer surface of which is covered by and adhered to the previously printed surface of a transparent or semi-transparent film of synthetic resin for preventing discolouration of printed layer of synthetic resin film.

3,568,340

SKID-PREVENTING FOOTWEAR

Denys Gardner, Acton Vale, Quebec, Canada, assignor to The Acton Rubber Ltd., Acton Vale, Quebec, Canada
Filed Apr. 25, 1969, Ser. No. 819,297
Int. Cl. A43b *13/06*
U.S. Cl. 36—32 **5 Claims**

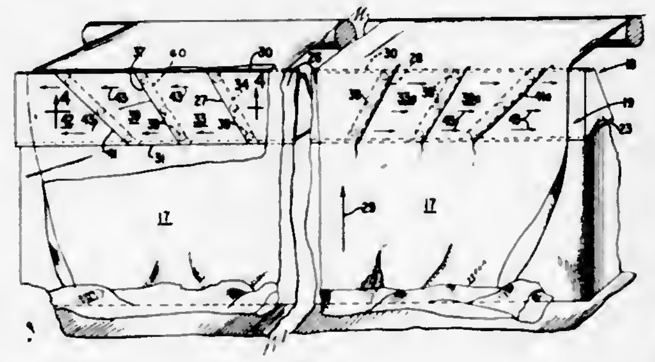
A skid-preventing footwear formed of a thick outsole made of soft sponge or microcellular rubber and having opened cavities so that it will easily yield under the weight of a wearer. The cavities have apertures opening on the ground-contacting side of the outsole and each has a depth extending over the major portion of the thickness of the outsole. The cavities are spaced from one another a distance such as to create, between them, separating walls that will easily yield when the outsole sets on a flat surface or onto an obstacle on the ground. The outsole is further integrally formed with closely spaced, short, protuberances distributed between the cavities on the ground-contacting side of the outsole.



3,568,341

FEEDER WITH DIVERGING SLOTS

Benjamin Alvin Buss, East Moline, Ill., assignor to Ametek, Inc., New York, N.Y.
Filed Jan. 29, 1970, Ser. No. 6,710
Int. Cl. D06f *67/04*
U.S. Cl. 38—143 **6 Claims**



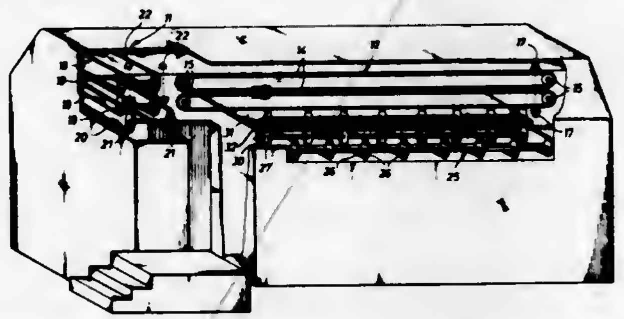
A vacuum spreader box for mounting at the entrance of a laundry flatwork ironer includes an inclined feed plate comprising a plurality of overlapping plates with the lateral edges diverging outwardly. The outer lateral edge of one plate overlaps the inner lateral edge of the next plate with these overlapping edges being spaced apart to define a plurality of pairs of diverging slots.

3,568,342

PREALIGNMENT DEVICE FOR LAUNDRY MANGLES

Wilhelm Betsch, Hoefigheim, Germany, assignor to Hans F. Arendt Maschinenbau, Bietigheim, Wurttemberg, Germany
Filed Dec. 6, 1968, Ser. No. 781,932
Int. Cl. D06f *67/04*
U.S. Cl. 38—143 **13 Claims**

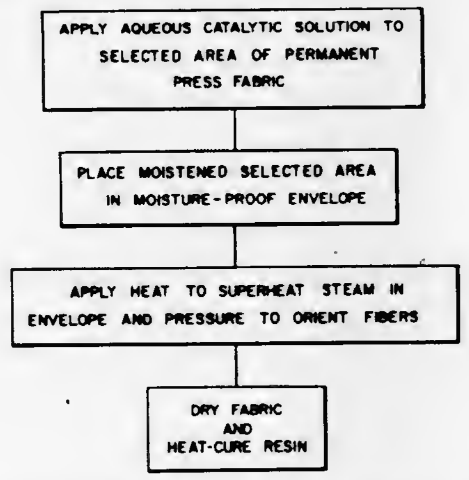
This invention is directed to a prealignment device for laundry mangles in which a piece of laundry is first picked up and straightened by opposed sets of belts and its leading end is then directed downwardly between the open jaws of a clamp, after which the clamp closes and a tucker blade moves laterally to displace the trailing end of the laundry piece onto a lateral conveyor belt, after which the clamp reopens to release the leading end of the laundry piece.



3,568,343

METHOD FOR ALTERING PERMANENT PRESS GARMENTS BY DISRUPTING CROSS-LINKAGES IN THE WET STATE AND REFORMING THEM IN THE DRY STATE

James R. De Loach, Warrenville, S.C., assignor to Graniteville Company, Graniteville, S.C.
Original application Oct. 12, 1966, Ser. No. 586,199, now Patent No. 3,453,747, dated July 8, 1969. Divided and this application Oct. 29, 1968, Ser. No. 771,499
Int. Cl. D06f; D06m *1/18, 1/24*
U.S. Cl. 38—144 **10 Claims**

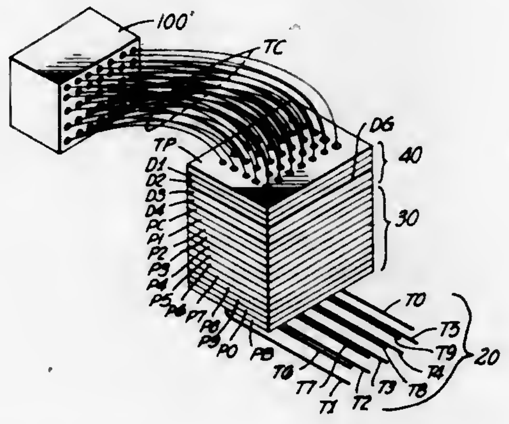

APPLY AQUEOUS CATALYTIC SOLUTION TO SELECTED AREA OF PERMANENT PRESS FABRIC
PLACE MOISTENED SELECTED AREA IN MOISTURE-PROOF ENVELOPE
APPLY HEAT TO SUPERHEAT STEAM IN ENVELOPE AND PRESSURE TO ORIENT FIBERS
DRY FABRIC AND HEAT-CURE RESIN

This invention relates to a process for altering garments, and more particularly to a process for altering creased garments made from a permanent press fabric wherein an undesired crease may be removed and a new crease made in the fabric after altering the garment.

3,568,344

FLUIDIC READOUT DEVICE

William H. King, Riverside, Calif., assignor to Bourns, Inc.
Filed Aug. 15, 1969, Ser. No. 850,427
Int. Cl. G09f *11/00*
U.S. Cl. 40—28 **5 Claims**

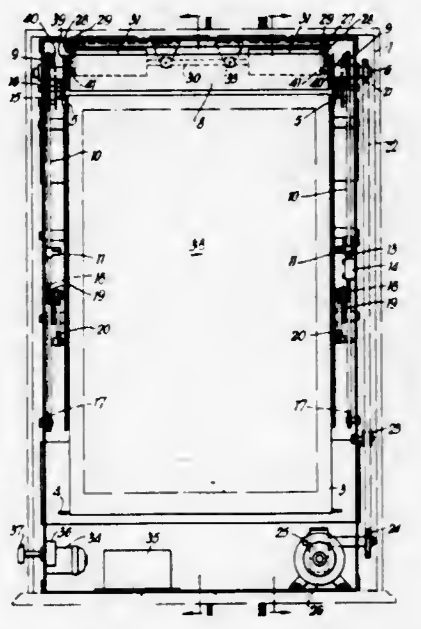


A device arranged to receive fluid-pressure signals via any of ten fluid lines denominated 0 through 9 and in response thereto create a visible representation of the decimal number corresponding to the line currently providing the fluid-pressure signal.

3,568,345

DISPLAY DEVICES

Maurice Grosse, London N. 10, England
Filed July 24, 1968, Ser. No. 747,205
Claims priority, application Great Britain, Aug. 2, 1967, 35,588/67
Int. Cl. G09f *11/32*
U.S. Cl. 40—36 **9 Claims**

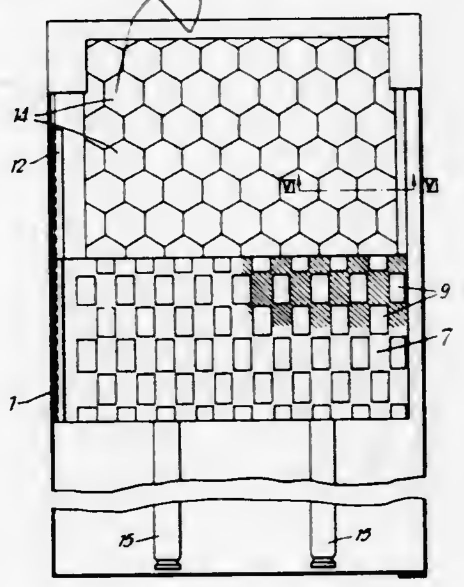


A device for displaying both sides of a series of posterlike sheets in a continuously repeated manner, the sheets being positively engaged and transferred, one at a time, around a roller from a viewing position to the rear of a stack of the sheets and the device including electrically-operated delay mechanism to govern the length of viewing time for each side of each sheet.

3,568,346

SIGN FOR CONVEYING INFORMATION TO AN OBSERVER MOVING WITH RESPECT THERETO

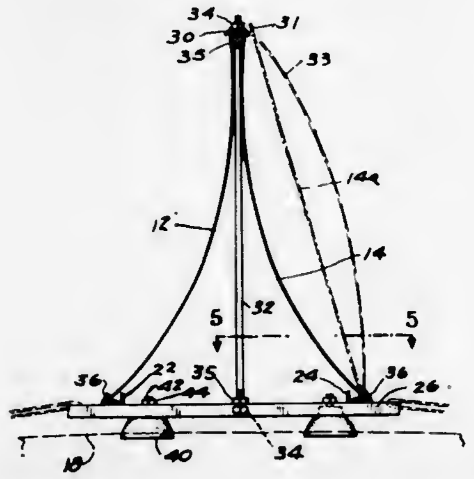
Edwin James Smith, North Scale, Barrow in Furness, England, assignor to Traversign Limited, Manchester, England
Filed July 22, 1968, Ser. No. 746,329
Int. Cl. G09f *7/00*
U.S. Cl. 40—125 **3 Claims**



A sign for presenting information to an observer of the sign moving with respect thereto which comprises a housing, a plurality of identical optical objects linearly disposed within and secured to the housing, each optical object being a representation of the information the sign is to present, a plurality of lenses linearly disposed within and secured to the housing, each of said lenses being in registry with one of said optical objects and each of said optical objects being in the focal plane of the lens with which it is in registry, and a light source to illuminate said optical objects, so that an observer moving linearly past the sign has the impression that only one representation of the information is seen, which representation appears to be stationary with respect to the observer's movement.

3,568,347
VEHICLE TOP SIGN

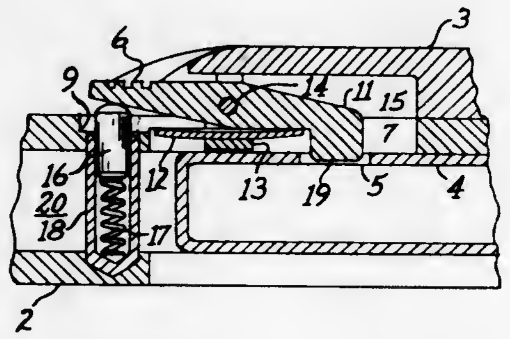
Fodes F. Sheker, 3000 E. Jefferson Ave.,
Detroit, Mich. 48207
Filed Feb. 27, 1969, Ser. No. 802,902
Int. Cl. G09f *1/10*
U.S. Cl. 40—125 **5 Claims**



A two-panel display device for mounting on a vehicle roof with a holding frame of two generally parallel channels with upturned edges and a third M-shaped channel positioned above, laterally between and parallel to the other channels. Cross braces are connected to the two channels and tie rods connect the cross braces to the third channel. Two normally flat, resilient and flexible display panels are each bowed inwardly toward each other and inserted between the third channel and one of the other channels so that they are urged, due to their inherent resiliency, into firm engagement with and held in position by the channels.

3,568,348
FIREARM MAGAZINE CATCH

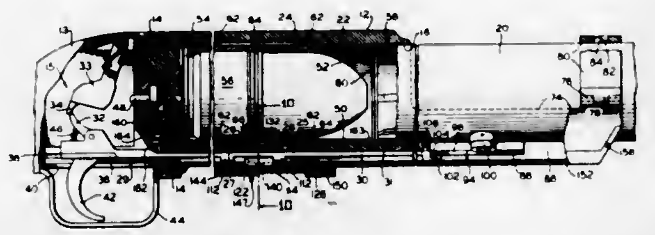
Gary Wilhelm, Hamden, Conn., assignor to Stoeger Arms Corporation, South Hackensack, N.J.
Filed June 25, 1968, Ser. No. 739,816
Int. Cl. F41c *25/00, 25/06*
U.S. Cl. 42—7 **2 Claims**



Disclosed is a spring biased pivotal magazine catch for an automatic pistol mounted in a side wall of the frame on a pin about which the catch pivots and which pin locks the parts in operable position.

3,568,349
TRIGGER-OPERATED MAGAZINE INDEXING MEANS FOR A SEMIAUTOMATIC GRENADE LAUNCHER

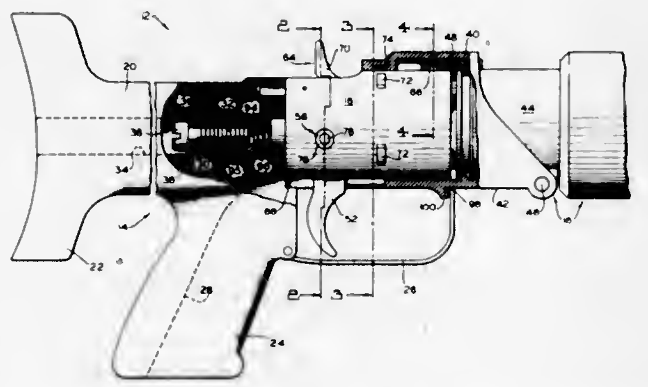
Charles E. Lanizzani, Davenport, Iowa, assignor to the United States of America as represented by the Secretary of the Army
Filed May 12, 1969, Ser. No. 823,891
Int. Cl. F41c *13/00, 19/14, 21/12*
U.S. Cl. 42—39.5 **14 Claims**



A semiautomatic grenade launcher wherein each of the individual firing chambers in a transversely fed magazine are successively retained in firing alignment with a longitudinally slidable barrel first by a detent biased into releasable engagement with the magazine and thereafter by the engagement of the breech end of the barrel in the firing chamber in alignment therewith, and wherein the firing retraction of the trigger is utilized to function separate cams for accomplishing the required actuation of both the barrel and the detent prior to the firing of the cartridge, the engagement between the barrel and each firing chamber being also arranged to seal the junction therebetween against the escape of the discharge gases generated by the firing of the cartridge.

3,568,350
EMERGENCY FIREARM

Stanley D. Silsby, Granby, Mass., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 17, 1968, Ser. No. 784,397
Int. Cl. F41c *7/06, 7/10, 23/00*
U.S. Cl. 42—75 **5 Claims**

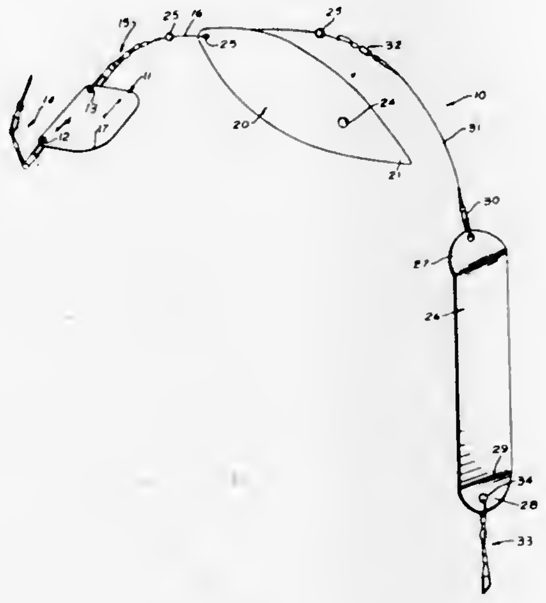


A survival firearm is separable into stock, breechblock and barrel-receiver units. To assemble the firearm the breechblock is secured within the receiver by lug and groove means and is releasably secured against unlocking rotation by the pin that pivotally mounts the trigger and sear in the breechblock. A bolt secures the stock to the breechblock.

3,568,351
FISH ATTRACTER WITH BAIT ACTIVATOR

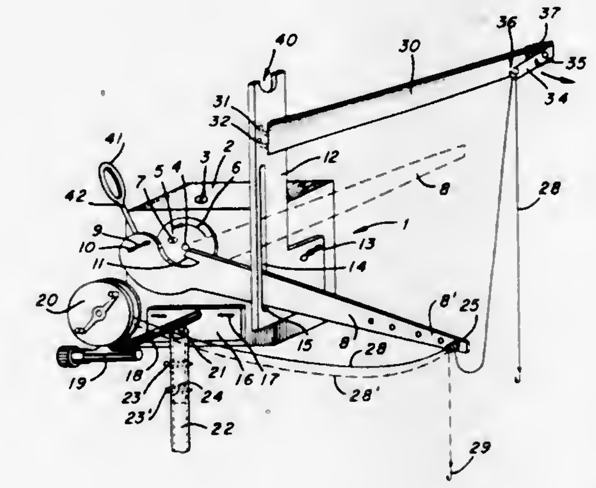
Earl Frank Perrin, Perrin's Landing, Rte. 3,
Traverse City, Mich. 49684
Filed Jan. 17, 1969, Ser. No. 791,918
Int. Cl. A01k *85/04*
U.S. Cl. 43—17.1 **2 Claims**

An attracter and activator comprising, in order along its elongated overall extent, three appropriately plated components, i.e., a leading rudder or keel member, an intermediate blade having a sonic hole, and a rear activator blade having oppositely bent leading and trailing ends. These components are flexibly articulated by steel leader, swivel and snap members, including steel snaps at the front and rear of the lure at which a trolling line and a hook are connected.



3,568,352
FISHING DEVICE

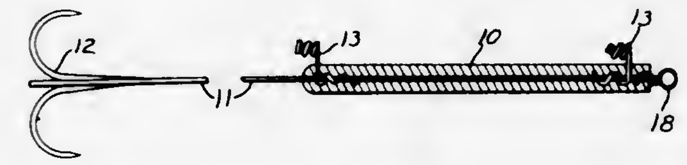
Wilmot George Hill, 269 Raglan St. S.,
Renfrew, Ontario, Canada
Filed June 27, 1969, Ser. No. 837,193
Claims priority, application Canada, Nov. 29, 1968,
36,526
Int. Cl. A01k *97/12*
U.S. Cl. 43—17 **11 Claims**



A device for automatically playing one or more fishing lines comprising a rotating member driven by a motor in a casing with the rotating member having a pin thereon, and an arm pivotally secured at one end to the casing and having a cam surface engageable by the pin so as to move the arm in a vertical plane. The casing is mounted on a support and has a reel secured thereto with a line extending to releasable securing means on the free end of the arm and thence into the water. The movement of the arm imparts a jigging movement to the line. Brackets may be added to the casing to hold a fishing pole carrying a fishing reel, and an additional detachable arm may project from the device to which the fishing line may be removably secured to impart various and selectable movements to the fishing line. A signal flag is secured to the device and associated with the fishing line in a manner to indicate the bite of a fish.

3,568,353
FISHING TACKLE RETRIEVER

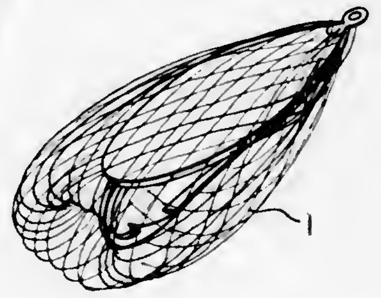
Earnest B. Kilgore, 413 W. Ridge Road,
Moses Lake, Wash. 98837
Filed July 14, 1969, Ser. No. 841,366
Int. Cl. A01k *97/00*
U.S. Cl. 43—17.2 **8 Claims**



A retrieving device for fishing tackle comprising an elongated weighted body supporting a protruding flexible wire having a hook mounted to its outer end. The body is provided with longitudinally-spaced guides for selective attachment to a fishing line.

3,568,354
LUMINESCENT FISHING LURES AND ACCESSORIES

Edward M. Yacko, Bridgeport, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.
Filed Feb. 7, 1969, Ser. No. 797,543
Int. Cl. A01k *85/00*
U.S. Cl. 43—17.6 **4 Claims**

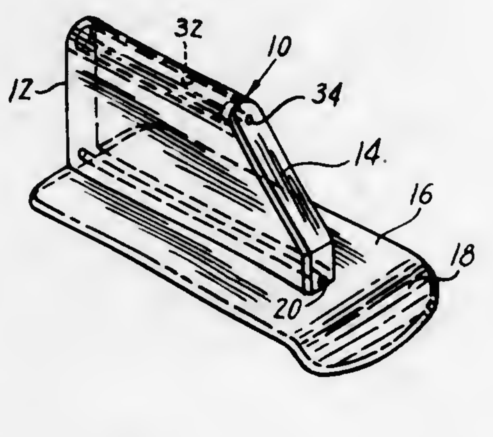


This disclosure relates to fishing lures and materials which can be attached to fishing lures to cause them to glow in the dark with the objective of attracting fish. The attracting element is in the form of a polyolefinic plastic film, rope, thread or netting impregnated with an oxyluminescent material which glows after exposure to the oxygen in the air. For an illustrative embodiment, a protective container is provided which maintains a supply of the material out of contact with the air until it is to be used.

3,568,355
SLIDING FISHING SINKER

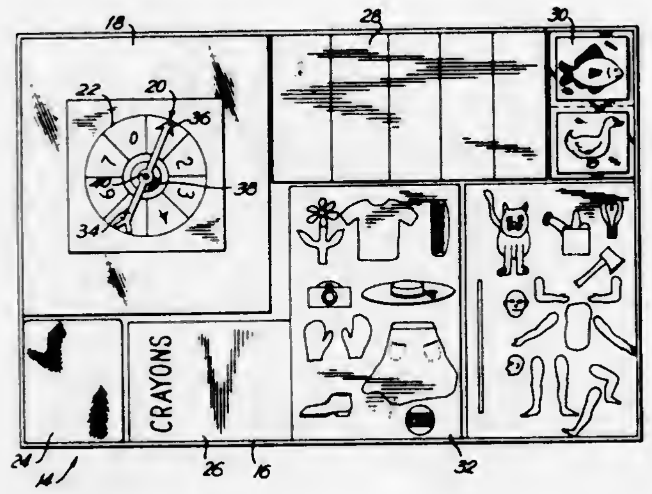
Jack V. Hassell, 902 Del Paso Blvd., Space 3,
Sacramento, Calif. 95815
Filed Aug. 29, 1969, Ser. No. 854,043
Int. Cl. A01k *93/00, 95/00*
U.S. Cl. 43—43.13 **7 Claims**

A rib-like body is fixed to and preferably integral with a thin widened base portion centrally thereof whereby the device is of elongated T-shaped cross-section. Two openings extend longitudinally through the body adjacent vertically spaced edges thereof, one of these openings being adapted to receive one or more lead weights and the fishing line being adapted to extend through the other opening, namely the one adjacent the base. The swivel and leader are connected to such line after it is threaded through its opennig. When so used, the weighted edge portion of the body will be at the bottom of the device. The line may be passed through the opening which usually carries the weights and the latter are eliminated, in which case the base will be at the bottom of the device so that the latter may be used in trolling, one end of the base projecting beyond the body to tend to draw the device downwardly from the surface of the water.



3,568,356
TELEVISION COORDINATED PLAY KIT

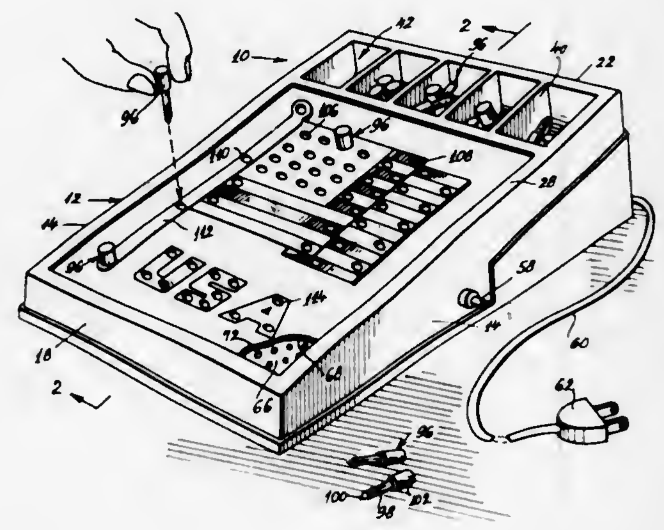
Morton R. Berman, Brooklyn, N.Y., assignor to Screen Magic Inc., Hempstead, N.Y.
Filed Feb. 3, 1969, Ser. No. 795,870
Int. Cl. A63h *33/14*
U.S. Cl. 46—16 **24 Claims**



A play kit for coordinated use with a television series for children. The play kit includes a soft limp transparent film (hereinafter called the "panel") which is tacky on both broad surfaces thereof so that it can be self-adherent to the transparent front of a television set whereby moving images on the television screen can be viewed therethrough. The kit further includes opaque forms of a soft limp plastic sheet tacky on both broad surfaces thereof so that they can be reversibly self-adherent to the exposed front surface of the panel. Additionally, the kit includes crayons and a spinner. A child watching a television play follows the conversation of the characters with or without a running action commentary and uses the crayons and forms to add objects to the panel which are coordinated with the moving images displayed on the screen. In addition, the kit includes a playboard which duplicates a background set shown in the television program and on which the child can apply crayon markings and forms to match those on the panel. Alternately, the panel can be stripped from the television screen and transferred to the playboard.

3,568,357
PEG-A-LIGHT GAME BOARD

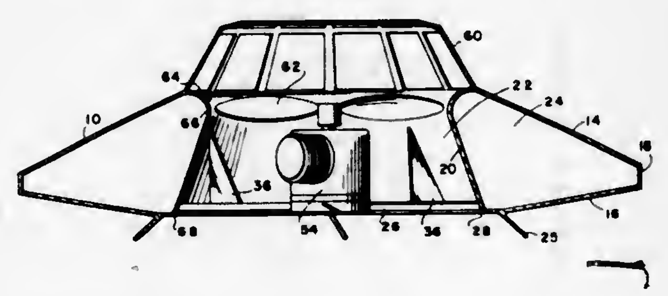
Moe Lebensfeld, Newark, N.J.
(82–56 213th St., Nollis Hill, N.Y. 11427)
Filed Nov. 4, 1968, Ser. No. 772,965
Int. Cl. A63h *33/06*
U.S. Cl. 46—17 **1 Claim**



Game apparatus for forming pictures or playing games by means of illuminated pegs or molded objects inserted in holes of a peg board. The apparatus utilizes a perforated peg board supported above an incandescent lamp operatively connected to an electric source. A punctured lining pad adhered to the rear of the peg board serves to normally close the perforations of the peg board. The lining is formed of a plastic or rubber material that has a memory for returning to its original form after deformation, the punctures close when the pegs are removed. The pegs or objects such as checkers, chess men, etc., are transparent and molded or formed of different colored transparent plastic material such as styrene, butyrate-plexiglass or any other material that can be formed or molded to a polished clear finish so as to transmit light from the lighted lamp inside the apparatus to the surface thereby illuminating the objects inserted into the peg board.

3,568,358
FLYING SAUCER TOY

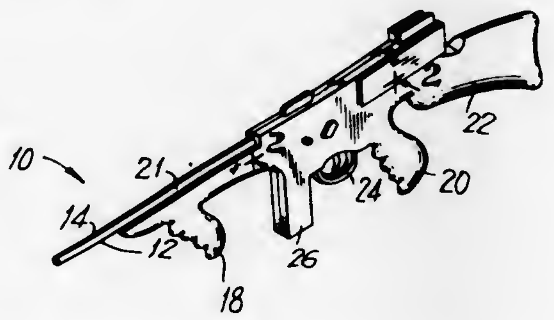
Joel T. Bruce, 4401 Caruth, Dallas, Tex. 75225
Filed Oct. 4, 1968, Ser. No. 765,240
Int. Cl. A63h *27/00*
U.S. Cl. 46—75 **9 Claims**



A flying toy resembling a flying saucer including an annular shaped body having a central duct extending through the body portion wherein the duct is of generally conical shape providing a conical cushion of air beneath the toy in flight to increase its stability. There is also disclosed means for providing a torque in opposition to the torque produced by the propeller including airfoil means positioned within the duct.

3,568,359
TOY HAVING INTEGRALLY BIASED RECIPROCATING COMPONENTS

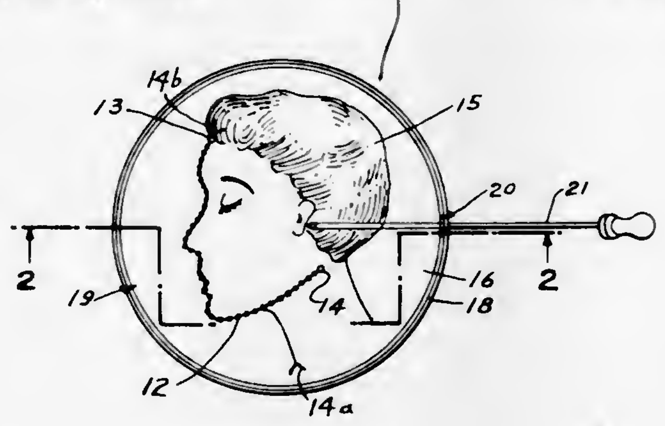
Norman C. Lee, Rocky Mount, N.C., assignor to Carolina Enterprises, Inc., Tarboro, N.C.
Filed Aug. 14, 1968, Ser. No. 752,625
Int. Cl. A63h *5/00*
U.S. Cl. 46—191 **8 Claims**



The sounder in a toy gun is actuated by an inertia motor driven through a gear train by a toothed portion of a reciprocating trigger. Elements of the gear train disengage when the trigger is not pulled back. A driven cam on one of the gears of the train engages a reciprocating clapper hammer pivotally mounted within the housing of the toy gun. Both the trigger and the reciprocating hammer are biased to idle positions by integrally formed cantilever leaf springs unitarily molded with the respective elements.

3,568,360
TOY WITH A FLEXIBLE MEMBER AND A BASE MEMBER ONE OF WHICH IS MAGNETIZED

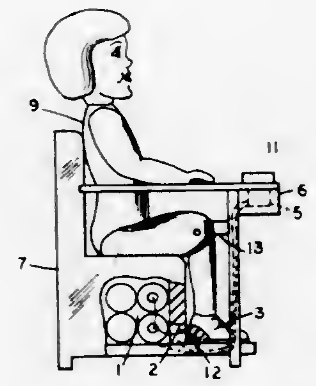
Alfred H. Wallach, Bronxville, N.Y. (% Walco Toy Co. Inc., 38 W. 37th St., New York, N.Y. 10018)
Filed Dec. 30, 1968, Ser. No. 787,666
Int. Cl. A63h *33/26*
U.S. Cl. 46—236 **9 Claims**



A toy is disclosed which uses a flexible member usually a chain, which may be anchored at its ends with a substantial length between the points of attachment whereby the flexible member can be manipulated to complete a figure or a portion of a figure by shifting portions of this member to any positions desired. A base means is provided which includes a base member. One of these members is magnetized and the other member is of magnetic material so that the flexible member is releasably retained in place when manipulating the flexible member and against inadvertent dislocation of the same. Preferably the device is enclosed in a box with a transparent cover and a manipulator is projected through a hole in a wall for manipulating the flexible member.

3,568,361
CONTROLLED DUAL-ACTION DOLL

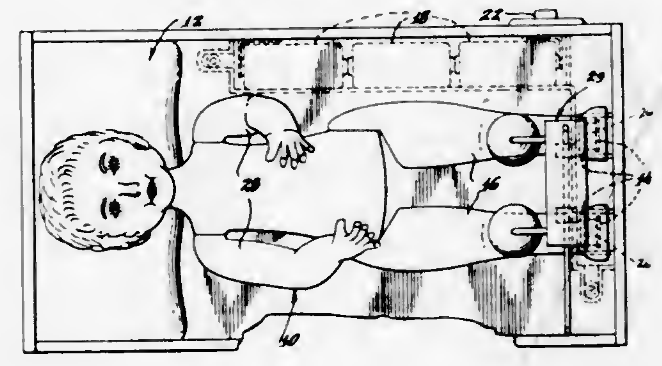
Philip D. Bart, Monsey, N.Y., and Patrick M. Tomaro, Maplewood, N.J., assignors to Remco Industries, Inc., Harrison, N.J.
Filed May 7, 1969, Ser. No. 822,512
Int. Cl. A63h *33/26*
U.S. Cl. 46—239 **10 Claims**



A doll sitting in a high chair responds to the placing of a plate on the tray of her high chair by either jumping up and down or shaking her head "No." The plate contains magnets which activate switches located in the tray to determine the direction and speed of rotation of a reversible motor. Linkages responsive to motor's direction will cause the doll to shake her head "No," or to jump for joy.

3,568,362
ANIMATED DOLL

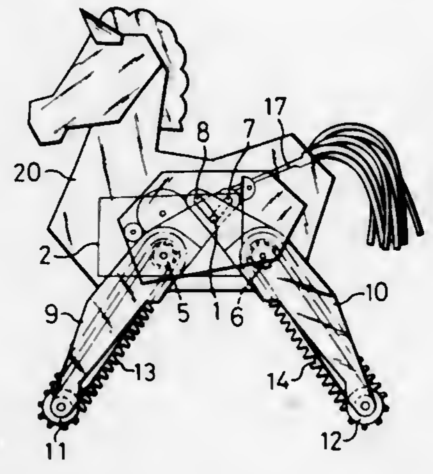
Patrick M. Tomaro, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.
Filed Feb. 14, 1969, Ser. No. 805,939
Int. Cl. A63h *3/20*
U.S. Cl. 46—241 **9 Claims**



This invention discloses a doll capable of moving from a reclining position to a sitting position with simultaneous movement of the doll's arms. When in the sitting position the moving arms can contact flexible rattles and the like to more closely imitate the movements of a baby. A spring torque producer aids a power actuator which includes a motor and three-piece crank arm; the motor is operatively associated with the three-piece crank arm and arranged to pivot the upper portion of the doll with respect to its lower portion. On the heels of the doll there are metallic plates electrically connected to the motor. Magnetic contacts are located in a crib or other foundation. A power source located in the foundation is electrically connected to the magnetic contacts. When the metallic plates and magnetic contacts engage one another a switch is actuated causing energy to flow from the power source to the motor, thereby actuating the three-piece crank arm causing the doll to begin to move toward a sitting position.

3,568,363
MOVABLE ANIMAL TOY

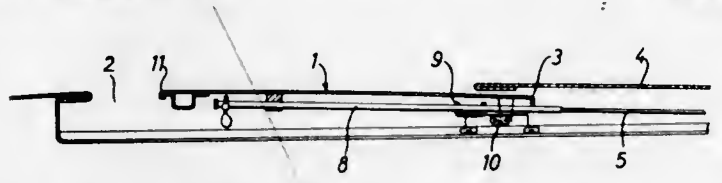
Yoshiji Tanimura, Saitama-ken, Japan, assignor to Kabushiki Kaisha Bandai, Tokyo, Japan
Filed June 24, 1969, Ser. No. 836,034
Claims priority, application Japan, Sept. 12, 1968, 43/78,939
Int. Cl. A63h *11/00*
U.S. Cl. 46—247 **7 Claims**



A movable animal toy provided with endless tracks each mounted on each of the front and rear legs of the animal toy which are pivotally connected thereto for continuous movement in pivotal reciprocation motion relative to one another as a crank shaft rotates. The animal toy can move as the front and rear legs are moved back and forth in pivotal reciprocation motion relative to one another by the rotating crank shaft while the endless tracks are also moved by the rotating crank shaft.

3,568,364
DEVICE FOR EMERGENCY CLOSING OF A POWER OPERATED AUTOMOBILE SUNROOF

Alfred Schmid, Munich-Furstenried, Germany, assignor to Webasto-Werk G.m.b.H., Stockdorf, Germany
Filed Oct. 8, 1969, Ser. No. 864,784
Claims priority, application Germany, Oct. 25, 1968, P 18 05 347.9
Int. Cl. E05f *15/00*
U.S. Cl. 49—139 **6 Claims**

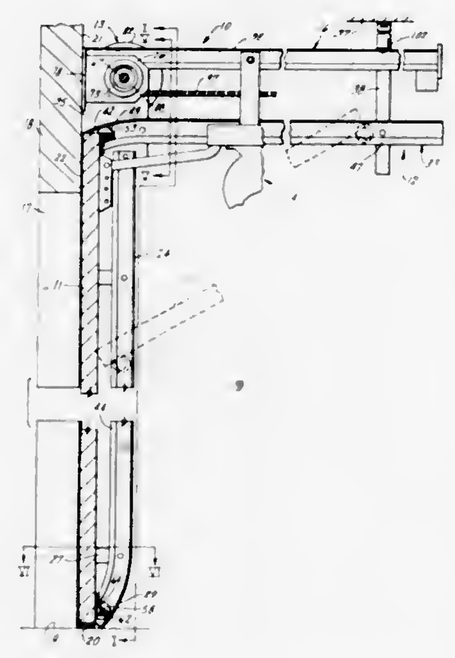


A device for the emergency manual closing of a power operated automobile sunroof which has a rear transverse carrying bridge and linkage to lower and raise the rear portion of the sunroof which is pulled open and pushed closed by an electric motor and a screw-threaded cable whose forward end is attached to the bridge. The closing device consists of a forward extension of the cable and a connecting tube extending forward from the bridge to a point where the two are connected in a quick-release coupling, and means for manually pulling the sunroof closed.

3,568,365
DOOR ASSEMBLY

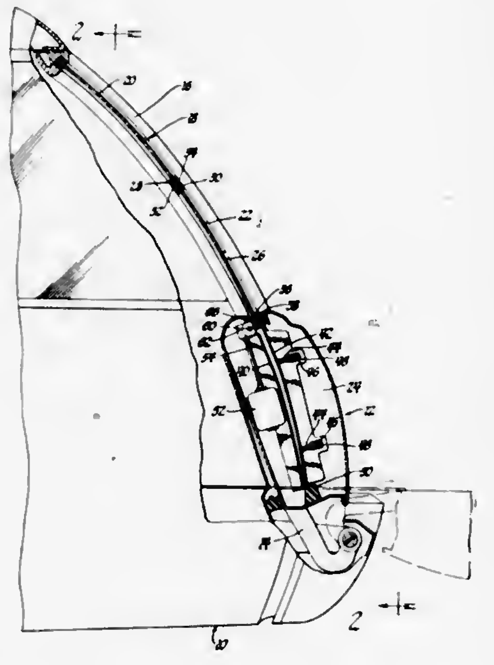
Paul E. Pemberton, Donald S. Harris, and Gail L. Thornburg, Dallas, Tex., assignors to Overhead Door Corporation, Dallas, Tex.
Filed May 16, 1969, Ser. No. 825,220
Int. Cl. E05d *15/38*
U.S. Cl. 49—197 **6 Claims**

Apparatus adapted to support a one-piece, upwardly acting door for movement between a substantially horizontal, opened position and a substantially upright closed position closely adjacent wall means having an opening closed by said door when in the closed position. The apparatus includes a pair of spaced, horizontal and parallel tracks for guiding a pair of rollers mounted on the upper end of the door and a pair of spaced, parallel and upright tracks for guiding a pair of rollers mounted on the lower end of the door. The two pairs of tracks have curved end portions whereby the entire door moves downwardly at an angle into the closed position against the wall means.



3,568,366
MULTIPLE PANE VEHICLE WINDOW

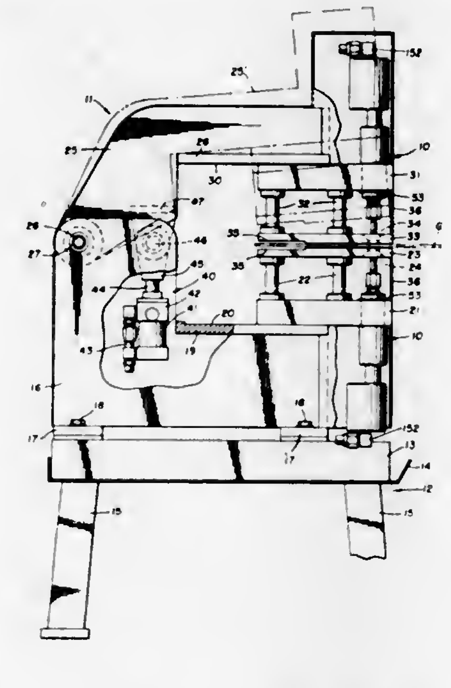
Richard F. Carella, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 7, 1969, Ser. No. 813,992
Int. Cl. E05f *15/08*
U.S. Cl. 49—349 **6 Claims**



A vehicle body has a plurality of window panes which are movable between a closed position in which the panes cover a body opening in edge to edge continuation and an open position wherein the panes are disconnected and stored juxtaposed to each other in a storage compartment communicating with the opening. A guide arrangement is provided for guiding the panes between the open and closed positions and a driving arrangement is provided for moving the window panes between open and closed positions.

3,568,367
GLASS DRILLING APPARATUS

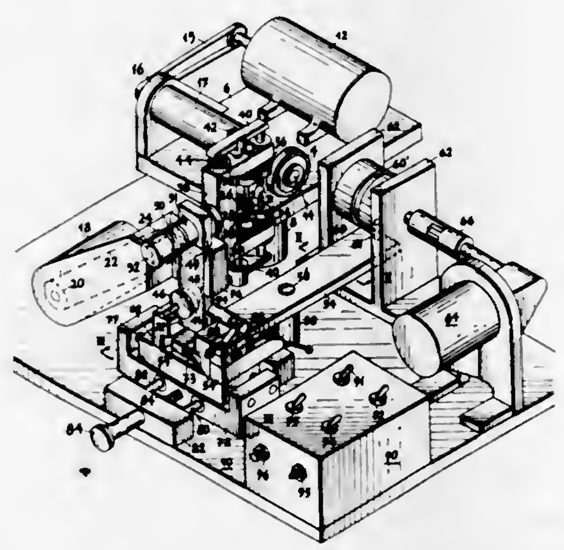
Daniel O. Myers, Mansfield, Ohio, assignor to Akron Crane & Conveyor Company, Akron, Ohio
Filed June 10, 1968, Ser. No. 735,845
Int. Cl. B24b *7/00*
U.S. Cl. 51—81 **6 Claims**



A compact glass drilling apparatus having a hydraulic motor rotating a bit at a selected speed and driving hydraulic mechanism to rapidly position the bit with respect to the glass to be drilled and to selectively control the rate of travel of the bit through the glass and having mechanism separately feeding a fluid lubricant to the bit.

3,568,368
CONTINUOUS DIAMOND GIRDLE POLISHING MACHINE

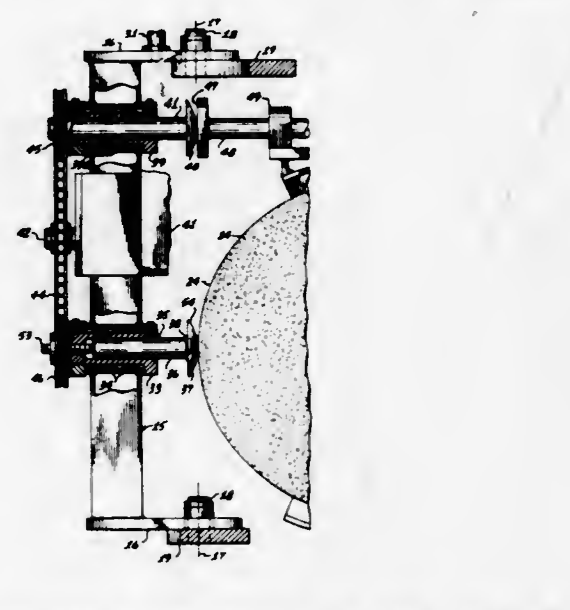
Efraim Gwircman, 387 S. 1st St., Brooklyn, N.Y. 11211
Filed June 3, 1968, Ser. No. 733,986
Int. Cl. B24b *3/00;* B28d *5/00*
U.S. Cl. 51—95 **5 Claims**



A continuous diamond girdle polishing machine comprises a diamond holder driven about the axis perpendicular to the plane of the diamond girdle, a polishing wheel driven about a horizontal axis, and an oscillating bar acting against one of the above, preferably the diamond holder, to effect a continuous reciprocation of the diamond across the polishing wheel during the polishing operation.

3,568,369
GEM GRINDING MACHINE

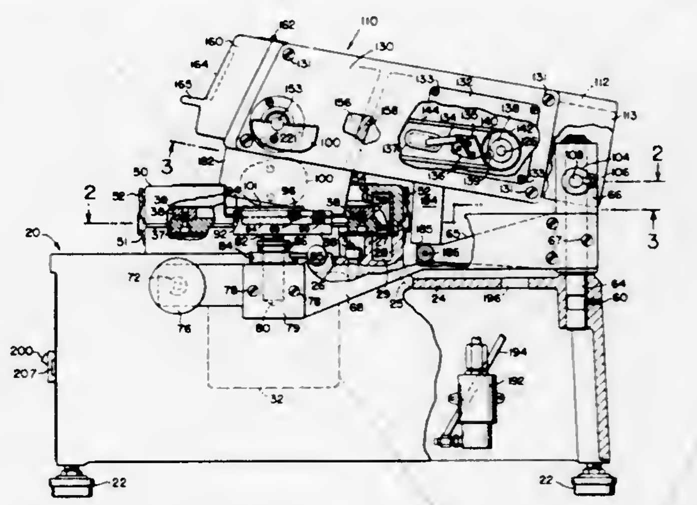
Edwin G. Marshall, 209 Crawford, Nogales, Ariz. 85621
Filed May 1, 1969, Ser. No. 820,931
Int. Cl. B24b *5/16, 17/02*
U.S. Cl. 51—97 **4 Claims**



A machine arranged to eliminate the hand work in grinding cabochons of semiprecious gems in which the size and shape are mechanically controlled.

3,568,370
LENS CRIBBER

Guy J. Wicksall, Fayette, N.Y., assignor to Textron Inc., Providence, R.I.
Filed Nov. 12, 1968, Ser. No. 774,769
Int. Cl. B24b *9/14*
U.S. Cl. 51—127 **13 Claims**

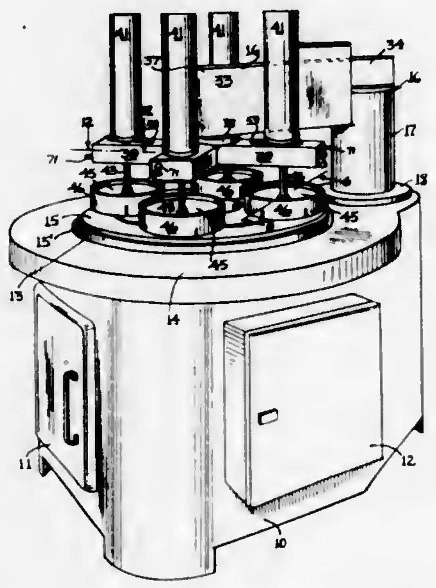


Lens cribbing is effected by engaging the lens blank around successively different portions of its periphery with a rotary annular grinding wheel that has a plane active surface perpendicular to its axis. The blocked lens blank and a template are releasably secured by chucks to opposite ends of the work spindle, which is rotatably journaled in a carrier that is pivotal into and out of an operative position. A flat on the lens block engages a cooperating flat on the lens chuck to assure that the template and blank will be properly aligned angularly about the spindle axis. The template engages a plane-faced shoe, whose upper face lies in the same plane as the active surface of the grinding wheel to effect intermittent indexing of the spindle. After one revolution, the carrier is moved automatically to inoperative position. A cycle pushbutton is actuatable to swing the carrier to its operative position.

3,568,371
LAPPING AND POLISHING MACHINE

Lawrence Day and Joseph Dobrick, Chicago, and Arthur Kay, Evanston, Ill., assignors to Spitfire Tool & Machine Co., Inc., Chicago, Ill.

Filed Mar. 12, 1969, Ser. No. 806,513
Int. Cl. B24b *5/00, 29/00*
U.S. Cl. 51—161 **10 Claims**

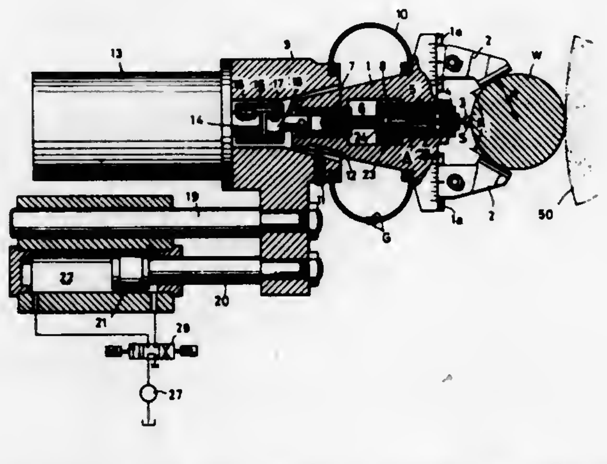


A machine for lapping and polishing work placed upon a work table disposed beneath a superstructure rotatable about a vertical axis at one side of the machine and carrying a plurality of lapping rings and pressure plates within the rings, the rings and pressure plates being elevated vertically with respect to the superstructure for movement as a unit therewith from position upon and over the work plate to provide an unobstructed area with respect to the work plate.

3,568,372
SIZING DEVICE FOR EFFECTING SIZING OVER A WIDE RANGE

Hiroaki Asano and Hideo Nishimura, Kariya-shi, Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya-shi, Japan

Filed Dec. 4, 1968, Ser. No. 781,105
Claims priority, application Japan, Dec. 15, 1967, 42/80,368; Nov. 4, 1968, 43/80,485
Int. Cl. B24b *49/04*
U.S. Cl. 51—165 **12 Claims**

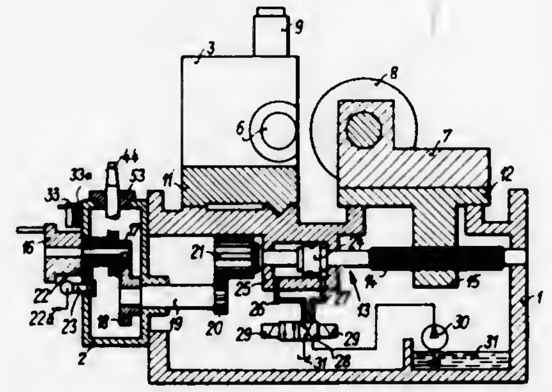


A sizing device for grinders or the like which uses a feeler or feelers mounted on a sizing head for contacting a workpiece, and a displacement detector for sensing the displacement of the feeler or feelers caused by a change in the outer circumferential dimension of the workpiece so as to control the feed of wheel slide. The displacement detector is moved in accordance with numerical data previously stored, so that the point of generation of a sizing signal by the displacement detector can be moved. The sizing device measures the diameter of a workpiece accurately and over a wide range by eliminating master setting.

3,568,373
ADJUSTING DEVICE FOR THREAD GRINDING MACHINE

Gerhard Stade and Klaus Scherff, Berlin, Germany, assignors to Herbert Lindner GmbH, Berlin, Germany

Filed Dec. 17, 1968, Ser. No. 784,304
Claims priority, application Germany, Jan. 17, 1968, P 16 52 103.2
Int. Cl. B24b *49/00*
U.S. Cl. 51—165 **7 Claims**



An adjusting device on a thread grinding machine controls grinding of a male thread of high fitting accuracy on workpieces such as spindles, bolts and the like which are to be paired with female workpieces such as threaded ball bearing nuts and the like. The adjusting device includes a measuring cone for receiving a measuring head for the nut to be measured, and this measuring head is in geared connection with the usual fine adjusting shaft of the grinding machine and is so arranged as to be displaced axially within the measuring head when the fine adjusting device is operated. The measuring head is secured on the adjusting housing coaxially with the measuring cone which protrudes from the adjusting housing. The measuring head includes an expansion sleeve having an inner conical surface identical with the smooth-walled outer conical surface of the measuring cone, and this expansion sleeve is expanded by the aforementioned axial movement.

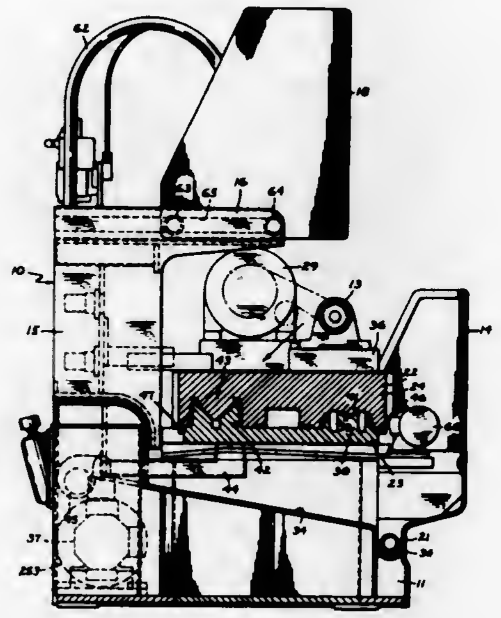
3,568,374
GRINDING MACHINE

Frederick A. Hohler, Holden, Mass., assignor to The Heald Machine Company, Worcester, Mass.

Application Apr. 28, 1965, Ser. No. 451,550, now Patent No. 3,382,623, dated May 14, 1968, which is a division of application Ser. No. 217,683, Aug. 17, 1962, now Patent No. 3,197,921, dated Aug. 3, 1965. Divided and this application Apr. 25, 1968, Ser. No. 724,057
Int. Cl. B24b *41/02*
U.S. Cl. 51—165.77 **2 Claims**

This invention has to do with the generation of surfaces of revolution by the abrasive process in which an

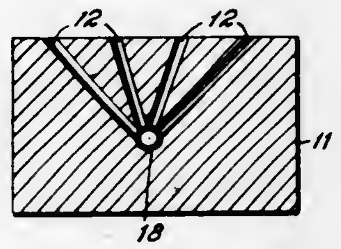
abrasive wheel is fed into the surface of revolution with a controlled force and various parts of the apparatus are formed with downwardly-directed concavities into which air under pressure is introduced.



3,568,375
METAL PANEL HOLDER

Mary Jo Ann Carroll, Aberdeen, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Apr. 4, 1968, Ser. No. 718,795
Int. Cl. B25b *11/00*
U.S. Cl. 51—235 **7 Claims**



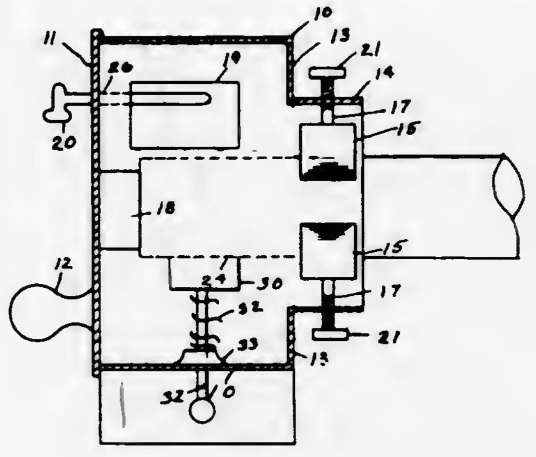
A device and system for securing metal test panels in order to subject the panels to a cleaning process, comprising an elastomeric material having an axial bore extending partially therethrough, means connecting the axial bore to a vacuum source, a series of traverse bores commencing from the surface of the elastomeric material and interconnecting with the axial bore. The test panels are secured by positioning them on the surface of the elastomeric material over the traverse bores and applying a vacuum.

3,568,376
POLISHER FOR PIPE ENDS

Donald G. Slater, 1449 W. 30th St., Erie, Pa. 16504

Filed May 2, 1968, Ser. No. 725,975
Int. Cl. B24b *19/00, 9/02*
U.S. Cl. 51—241 **5 Claims**

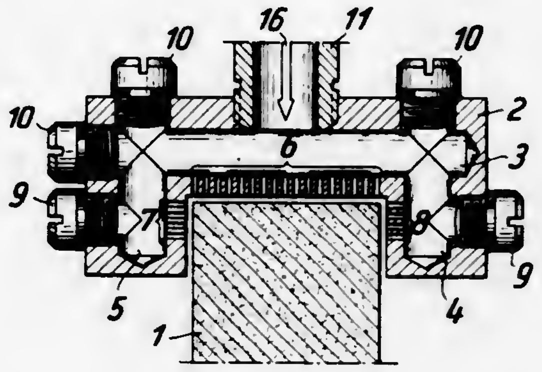
The tool disclosed herein is intended for use by plumbers and mechanics for cleaning the ends of pipes and tubing. The tool has a cylindrical body with a pipe guide means on one end. The pipe guide means can be a device having either radially adjustable jaws, circularly adjustable jaws or bushings or tongs. A roll of sand paper, emery paper or other abrasive strip may be supported on the tool to form an abrasive element. One end of the strip of abrasive is attached to the tool and the distal end of the strip is held in tension in engagement with the pipe. Thus, by rotating the tool, the pipe can be cleaned.



3,568,377
DEVICE FOR COOLING AND CLEANING OF GRINDING WHEELS

Robert Blohm, 63 Kampchaussee, 80 Hamburg, Germany, and Wlodzimierz Sawiuk, 82 Falkenried, 20 Hamburg, Germany

Filed Jan. 2, 1969, Ser. No. 788,366
Claims priority, application Germany, Jan. 9, 1968, P 16 52 003.9
Int. Cl. B24b *55/00*
U.S. Cl. 51—262 **8 Claims**



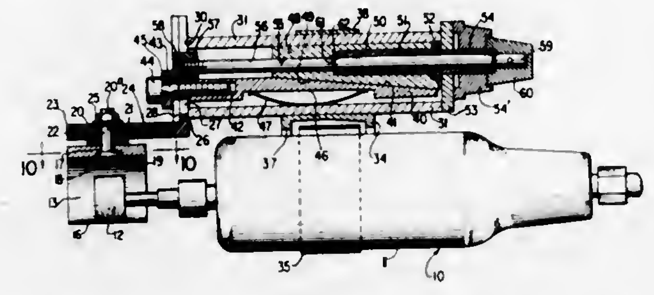
A device for the cooling and cleaning of grinding wheels during the grinding operation by means of a pressurized fluid applied through nozzles to the grinding surfaces of the grinding wheel. A multitude of nozzles are provided in a generally U-shaped block and adapted to discharge a jet of a high kinetic energy which impinges upon the grinding surfaces of the grinding wheel. Additional means may be provided for reducing the resistance caused by air turbulence between the nozzles and the grinding wheel.

3,568,378
ADJUSTABLE PRECISION GUARD FOR POWERED HAND TOOLS, SUCH AS GRINDERS, BUFFERS OR THE LIKE

John O. Emmerson, Hamden, and Charles L. Morris, West Hartford, Conn., assignors to The DSD Company, Hamden, Conn.

Filed July 19, 1968, Ser. No. 746,096
Int. Cl. B24b *55/04*
U.S. Cl. 51—268 **10 Claims**

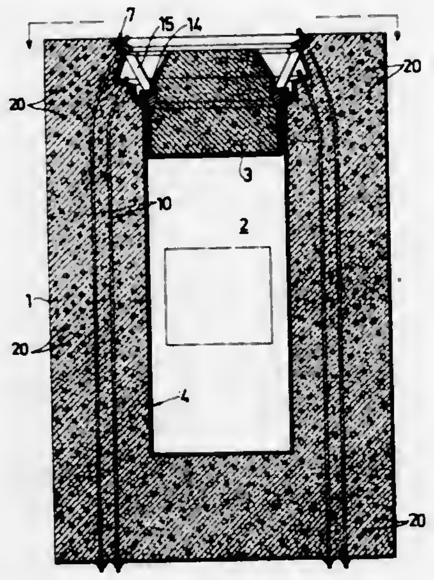
Adjustable precision guard for powered hand tools such as grinders, buffers and the like to smooth out rough surfaces or reduce raised areas while preventing contact between the grinder or buffer wheel and surfaces adjacent the work area which is of particular importance where dimensional precision is required of the final product, including a longitudinally slotted guard surrounding the grinding or buffing wheel and adjustably attached to a bracket, the bracket being supported on a tubular body mounted on the tool to permit coarse adjustment of its vertical relationship with respect to the periphery of the wheel to regulate crudely the extent of outward projection of the wheel's surface relative to the guard and being micrometrically adjustable on the tubular body for micrometric adjustment of said outward projection. The guard is also rotatively adjustable by a camming arrangement to insure proper alignment of its slot and the axis of the



wheel. The micrometric adjustment means is located within the tubular body. It includes wedge members, one of which is movable guidedly in axial direction of the tool shaft in reciprocal directions relative to the other as required by means of a manipulating screw to raise or lower the bracket and thus the guard with fine adjustment control relative to the wheel. Micrometric adjustments of the position of the guard slot relative to the wheel is provided by the combination of the thread pitch of the manipulating screw and the pitch of the engaging surfaces of the wedges so that the positional relationship between the guard and wheel may be controlled up to 0.0001". Locking means for the wedges and bracket and guard in any position of adjustment is provided.

3,568,379
PRESTRESSED CONCRETE PRESSURE VESSEL

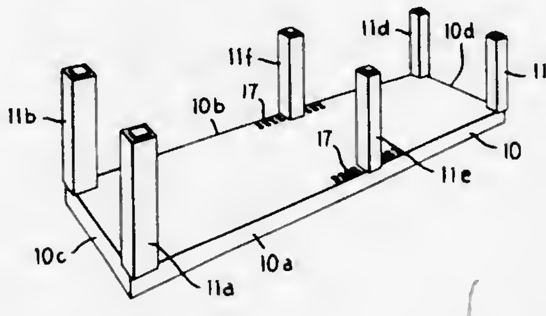
Erik Borje Johnsson, Stockholm, Taivo Tarandi, Lidingo, and Per Kurt Luthman, Stockholm, Sweden, assignors to Aktiebolaget Atomenergi, Stockholm, Sweden
Filed Nov. 14, 1968, Ser. No. 775,683
Claims priority, application Sweden, Dec. 11, 1967, 17,018/67; Nov. 7, 1968, 15,127/68
Int. Cl. E04h *7/20*
U.S. Cl. 52—21 **12 Claims**



A prestressed concrete pressure vessel comprises a concrete vessel, axial prestressing cable and circumferential prestressing cables. The vessel has a lid and an inner steel lining. The upper portion of the steel lining is designed as a comparatively rigid steel structure having a shoulder for supporting the lid and shoulders for fastening the upper ends of the axial prestressing cables.

3,568,380
PREFABRICATED BUILDINGS

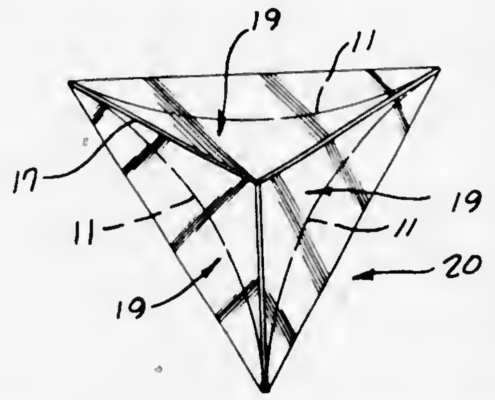
Fritz C. Stucky, Zug, Switzerland, assignor to Elcon A.G.
Filed Nov. 5, 1968, Ser. No. 773,460
Claims priority, application Great Britain, Nov. 10, 1967, 51,155/67; July 26, 1968, 35,710/68
Int. Cl. E04b *1/06;* **E04h** *1/12, 9/06*
U.S. Cl. 52—79 **17 Claims**



A prefabricated building unit, for forming the structural framework or back-bone of a transportable prefabricated building unit, consists of a prefabricated rectangular floor panel structure having a prefabricated vertical load-bearing column rigidly attached to it at each corner and at an intermediate region in the length of each side. In a modification a column may be omitted at one corner, and/or from one side, and replaced by a temporary column. Room elements may therefore be constructed of a length hitherto impracticable because in situ, the room elements in each upper storey are supported at the intermediate region by the intermediate columns of the lower room elements, thereby reducing the unsupported floor span. The floor panel structure may be a single panel or two co-planar panels disposed end to end at the intermediate region. It may be stressed to prevent it sagging (during transport and erection of the room element) at the intermediate region; the stress may be relieved or reduced after the room element has been placed in situ.

3,568,381
STRUCTURAL SYSTEM UTILIZING MEMBRANE STRUCTURAL PANELS HAVING DOUBLE RULED QUADRIC SURFACES

Jesse R. Hale, 14020 Budlong Ave., Gardena, Calif. 90247
Filed Nov. 27, 1968, Ser. No. 785,851
Int. Cl. E04b *1/32, 7/10*
U.S. Cl. 52—81 **12 Claims**

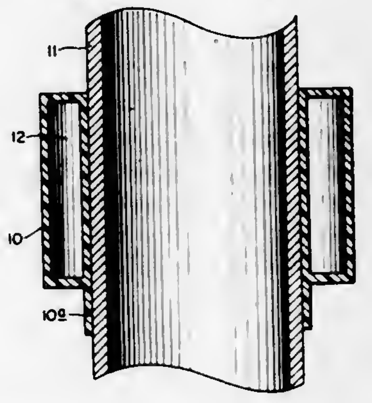


A basic structural element is formed from a warped membrane structural panel having double ruled quadric surfaces. The double ruled quadric surfaces of the panel

have biaxially oriented surface rulings, the edges of a preferred embodiment of the panel lying in planes parallel to one or the other of the sets of rulings. The membrane panel has four edges, pairs of which are equal in length. In some cases, the warped panel may be enclosed in a plane surfaced tetrahedral envelope, the edges of the plane surfaces being joined to the edges of the enclosed warped surfaces. Basic structural elements formed by the warped membrane panels, either by themselves or in combination with the plane surfaced tetrahedral envelope, may be added together to form various composite modules which can be further integrated to create structures useful as panels, posts, beams, and the like.

3,568,382
FRANGIBLE PIPE FLOOR FLANGE RECEPTACLE

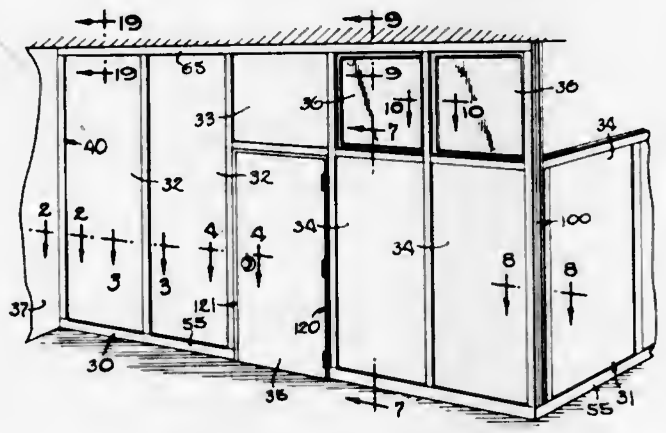
Robert J. Munn, P.O. Box 216, Zachary, La. 70791
Filed May 11, 1967, Ser. No. 637,778
Int. Cl. E04b *1/41*
U.S. Cl. 52—99 **4 Claims**



An article of manufacture comprising a pipe floor flange receptacle for forming a cavity around pipes that are to be used as plumbing in a building or structure having a concrete slab floor. The receptacle serves a dual role, i.e., provides a preformed cavity around the pipe enabling insertion of floor flanges after the concrete is poured and cured and provides a receptacle, for the floor flange, having uniformly smooth sides. The receptacle is preferably made of a frangible, plastic material that will withstand the pressure of the poured concrete and yet can be easily broken to provide access for insertion for the floor flange.

3,568,383
MODULAR DEMOUNTABLE WALL SYSTEM

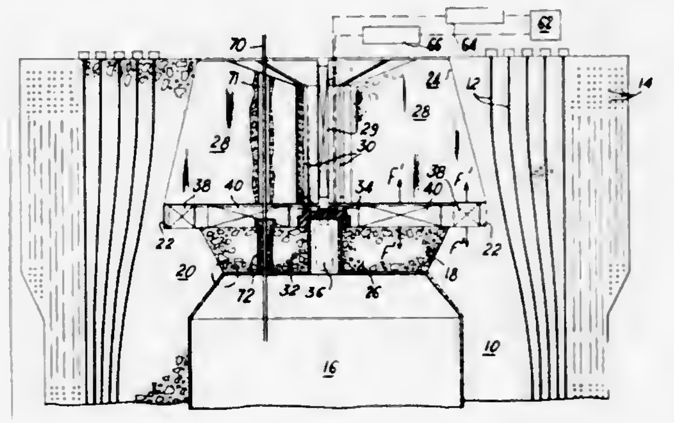
Thomas E. Judkins and Michael J. Kedel, Baltimore, Md., assignors to Eastern Products Corporation, Baltimore, Md.
Filed Oct. 15, 1968, Ser. No. 767,727
Int. Cl. E06b *1/12*
U.S. Cl. 52—210 **29 Claims**



A modular, demountable wall system is disclosed including one-piece sheet metal studs and snap-on battens for locating and retaining pre-cut wall panels. Floor and ceiling channels are also provided for spacing and locating the bottom and top edges of the wall panels and, similarly, starting, finishing and glazing channels are provided for the vertical edges of the end panels and for around the window openings. Reversible metal door framing elements are also provided with universal corner connectors and anchors for attaching the door framing elements to the studs of the wall system so that the door may be hinged to swing inwardly or outwardly from either its right or left side.

3,568,384
PRESTRESSED CONCRETE PRESSURE VESSEL

Jean-Louis Cruset, Paris, and Pierre Launay, Versailles, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed June 27, 1968, Ser. No. 740,637
Claims priority, application France, July 3, 1967, 112,909
Int. Cl. E04c *3/26*
U.S. Cl. 52—224 **9 Claims**

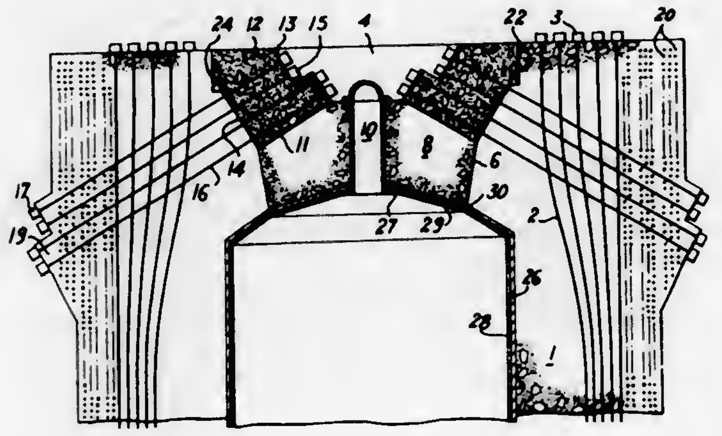


A substantially cylindrical pressure vessel has at least one removable end structure so as to provide an opening which practically corresponds in diameter to the interior of the vessel. The removable end structure comprises from the interior to the exterior of the vessel in the axial direction an outwardly-flared bearing face formed on a cornice of the internal vessel wall, a removable slab tightly applied against the bearing face, a flared abutment face formed in the internal vessel wall and an assembly of wedge-shaped elements each occupying an angular sector and forcibly applied against the abutment face. The removable slab is applied against the bearing face with variable pressure by means of first jacks mounted between the slab and the wedge assembly. The wedge assembly is applied against the abutment face either by means of second jacks mounted between the cornice and the assembly or by means of tensioned cables passed through the cylinder wall at right angles to the abutment face.

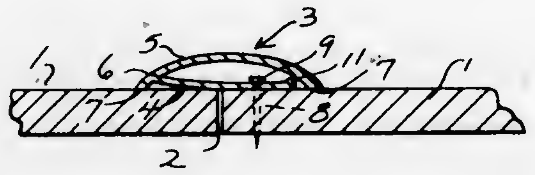
3,568,385
PRESTRESSED CONCRETE PRESSURE VESSEL FOR NUCLEAR REACTORS

Jean-Louis Cruset, Paris, Pierre Launay, Versailles, and Jacques Lemasson, Marly le Roy, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed July 1, 1968, Ser. No. 741,422
Claims priority, application France, July 3, 1967, 112,908
Int. Cl. E04c *3/10*
U.S. Cl. 52—224 **10 Claims**

At least one of the ends of the pressure vessel is pierced by an opening delimited by two successive frustoconical faces which are flared towards the exterior. In order to close the opening, a slab of corresponding shape is applied against the first face or internal face and a series of wedge-shaped elements are clamped both against said first face and against the second face of the opening by means of rectilineal cables which are passed right through the wedge elements and the pressure vessel wall. Peripheral prestressing cables serve to complete the forcible application of the slab and wedge elements against the vessel cylinder so as to form a tight pressure-resistant assembly. No relative displacement between the different components need be feared at the time of approach to full pressure within the pressure vessel or during operation of the reactor.



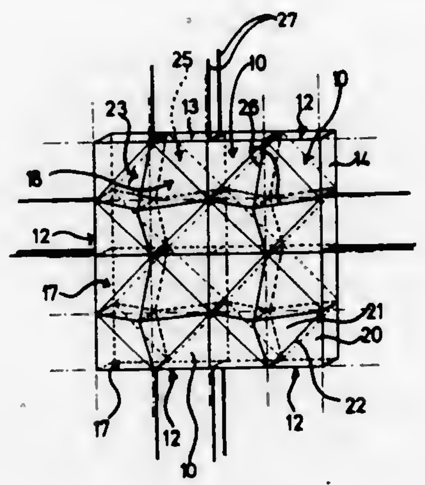
3,568,386
MOLDING CONSTRUCTION
John M. Gossen, 7645 N. Berwyn Ave.,
Milwaukee, Wis. 53209
Filed Mar. 17, 1969, Ser. No. 807,683
Int. Cl. E04f *19/02*
U.S. Cl. 52—288 **10 Claims**



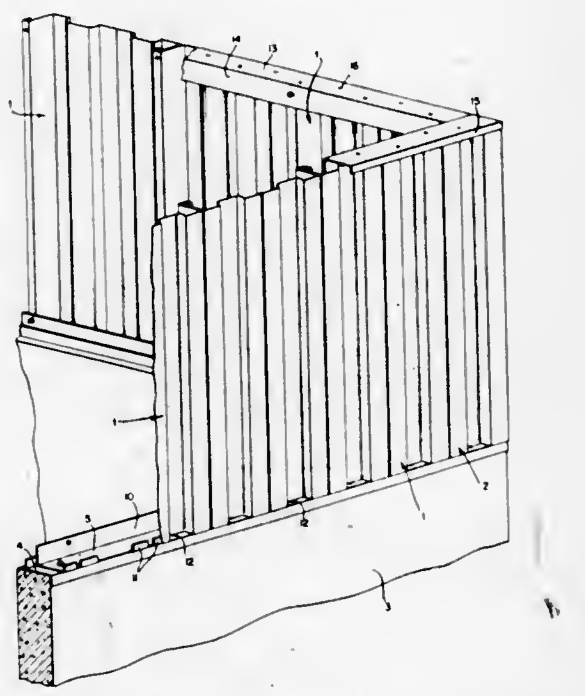
A flexible plastic molding for covering the joints in building panels. The molding includes a base which covers the joint between the panels and a curved or convex outer section is connected along its side edge to the base. A fastener, such as nail, is driven through the curved outer section and connects the base to the panel. As the nail passes through the outer section, the outer section is deformed inwardly toward the base, and a projection or ridge on the base engages the deformed outer section and urges it outwardly to its original position after the nail has been driven through.

3,568,387
STRUCTURAL ELEMENT
Günter Grabow, 42 Rosenstrasse,
7024 Bernhausen, Germany
Continuation of application Ser. No. 644,557, June 8, 1967. This application May 7, 1969, Ser. No. 824,739
Claims priority, application Germany, June 13, 1966, G 47,147; Oct. 11, 1966, G 35,588
Int. Cl. E04b *2/14;* **E04c** *1/42*
U.S. Cl. 52—306 **2 Claims**

A structural element which is particularly suitable for use in the erection of wall structures. The element comprises at least one block of vitreous material. This block has a first and a second major surface and at least one of these major surfaces is at least in part inclined to a central plane of the block whereby the thus-inclined portion has a predetermined relationship with the central plane of the block as well as with a general plane of the structural element.



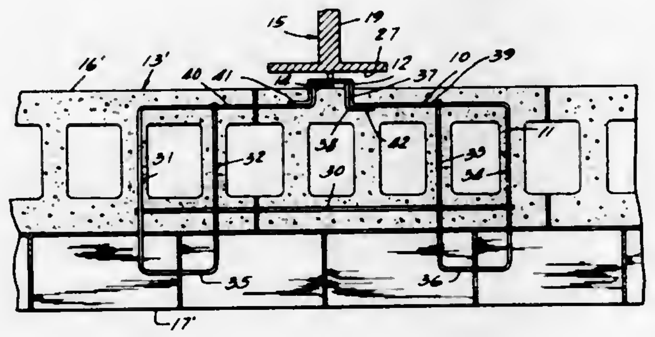
3,568,388
BUILDING PANEL
Charles T. Flachbarth and Robert L. Parsons, Parkersburg, W. Va., assignors to Textron Inc., Providence, R.I.
Filed Oct. 15, 1968, Ser. No. 767,613
Int. Cl. E04c *1/10, 2/32*
U.S. Cl. 52—588 **3 Claims**



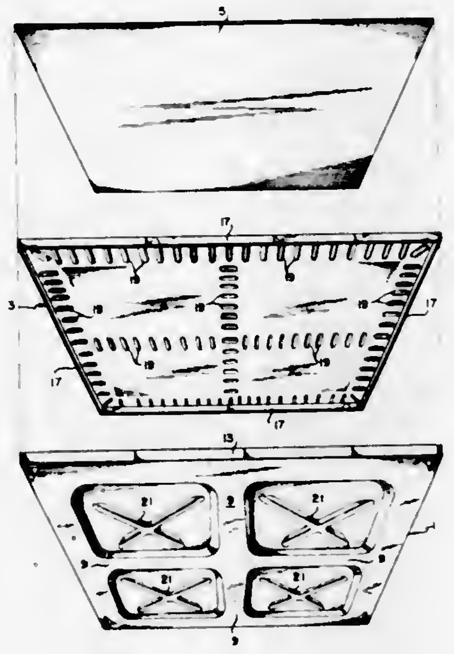
A building panel to be interlocked with similarly configured panels to form the exterior wall of a building, the panel being a pair of end sections, a center section therebetween and fluted sections respectively between the center section and the end sections, each of the end sections having means to make an interlocking fit with corresponding means on adjacent panel.

3,568,389
ANCHORAGE AND REINFORCEMENT DEVICE FOR MASONRY WALLS
Robert A. Gulow, Chicago, Ill., assignor to AA Wire Products Company, Chicago, Ill.
Filed Nov. 5, 1968, Ser. No. 773,463
Int. Cl. E04b *5/18;* **E04c** *1/41*
U.S. Cl. 52—714 **8 Claims**

A reinforcement and anchorage device having a longitudinally extending member and at least a pair of longitudinally spaced transverse members attached to the longitudinally extending member to provide a reinforcing structure for insertion into the mortar joint between courses of block members of a masonry wall. The reinforcing members include a pair of overlapping U-shaped portions which are connected to the transverse members along one side of the structure for surrounding and engaging an anchored tie attached to a supporting structure for tying the masonry wall thereto. The U-shaped portions are each provided with a free end to allow the anchor tie to be inserted therebetween for enabling the assembly of the device onto an anchor already attached to the supporting structure.

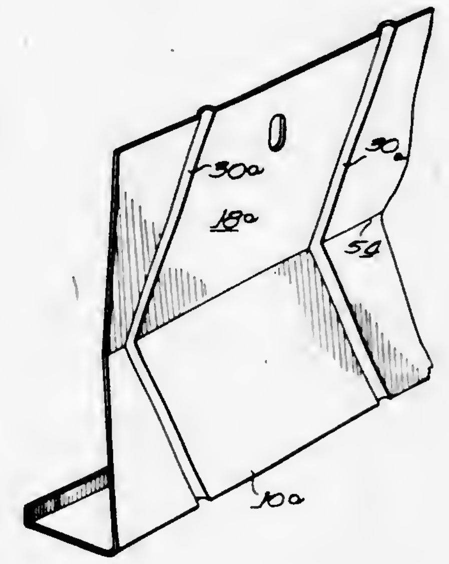


3,568,390
REINFORCED FLOOR PANEL STRUCTURE
Eugene L. Swensen and Raymond Gerald Sartori, Rockville, Md., assignors to Liskey Aluminum, Inc., Elkridge Landing Road, near Baltimore Friendship Airport, Md.
Filed Feb. 24, 1969, Ser. No. 801,442
Int. Cl. E04g *15/18*
U.S. Cl. 52—619 **8 Claims**



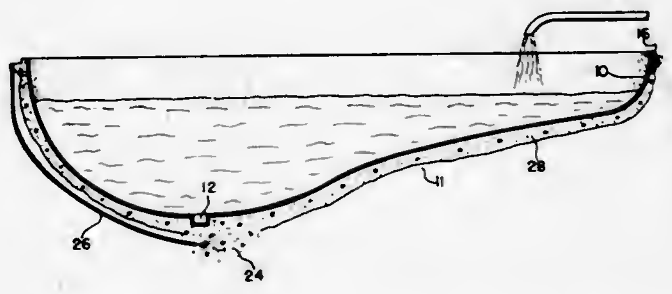
A floor panel to be used in an elevated floor assembly, including a flat top sheet member receptive to a tread surface, a bottom sheet with raised ribs and an intermediate sheet with corrugations. The intermediate and bottom sheet have opposing flanges that overlie one another to form panel sides. The ribs of the bottom sheet form channeled beams along the edges of the panel. The corrugations of the intermediate sheet are located within the channeled beams, the top sheet member and under sheets are secured to one another so that the panel resists deformation and deflections under load.

3,568,391
CASING BEAD FOR USE IN A JOINT CONSTRUCTION
Donald J. Conway, Glenview, Ill., assignor to United States Gypsum Company, Chicago, Ill.
Filed Oct. 30, 1968, Ser. No. 771,821
Int. Cl. E04b *1/70;* **E04f** *13/06*
U.S. Cl. 52—739 **2 Claims**



A stucco-covered, curtain wall construction employs a joint including an elongate L-shaped casing bead and an elongate generally wing-shaped drainage cap member. The two joint components form a horizontally-disposed, structurally yielding joint between outer covering panel sections. The two joint components provide ventilation and water drainage between the windward and leeward sides of the wall.

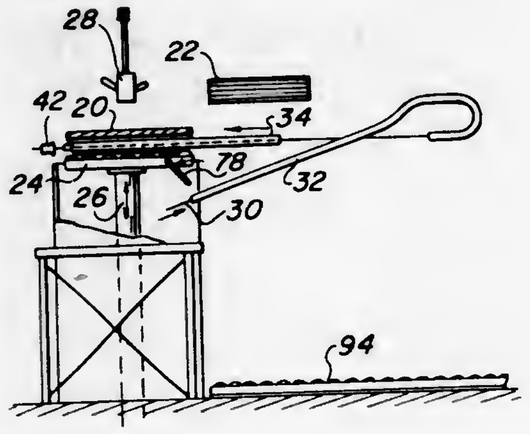
3,568,392
METHOD OF INSTALLING A ONE PIECE SWIMMING POOL
Robert G. Stark, Seattle, Wash., assignor to San Juan Products, Inc., Seattle, Wash.
Filed Apr. 10, 1969, Ser. No. 822,835
Int. Cl. E02d *27/32, 27/52*
U.S. Cl. 52—742 **5 Claims**



A one piece swimming pool liner of glass fiber reinforced plastic or other suitable material, is installed and leveled in place in an excavation lined with sand or a cementitious mixture, the excavation corresponding essentially to the contour of the pool liner, by partially filling the pool with water and introducing water into the sand layer at a pressure sufficient to permeate the sand layer and raise or float the pool and settle the sand underneath the pool.

3,568,393
CAN PACKAGING METHOD AND APPARATUS

John W. King and John D. Sweeney, Green Bay, Wis., assignors to National Can Corporation, Chicago, Ill.
Filed Feb. 24, 1969, Ser. No. 801,525
Int. Cl. B65b *13/04, 35/50;* **B65d** *63/16*
U.S. Cl. 53—3 **8 Claims**



An apparatus and a process for insuring that the open-ended cans that are loaded onto a pallet in layers within a palletizer maintain their proper position thereon as the loaded pallet is moved to a strapping station where the cans are moved securely affixed in place.

To insure that the cans will not move out of alignment during movement of the loaded pallet between the palletizer and the final strapping station, the stacks of cans are strapped to the pallet within the palletizer. Before the pallet is loaded in the palletizer, a strap is directed under the pallet into a clamping apparatus which will hold the strap in position relative to the pallet as the pallet is being loaded with layers of cans. After the strap is so positioned, the strap feeder or chute used to direct the strap under the pallet into a holding mechanism is withdrawn to permit the loaded pallet to be retracted and accept additional layers of cans, during which time, strap is payed out from a supply source. The strap is then disposed completely around the loaded pallet, after which it is tensioned and secured in position.

3,568,394
METHOD FOR PREPARING AEROSOL ANTIPERSPIRANT COMPOSITIONS

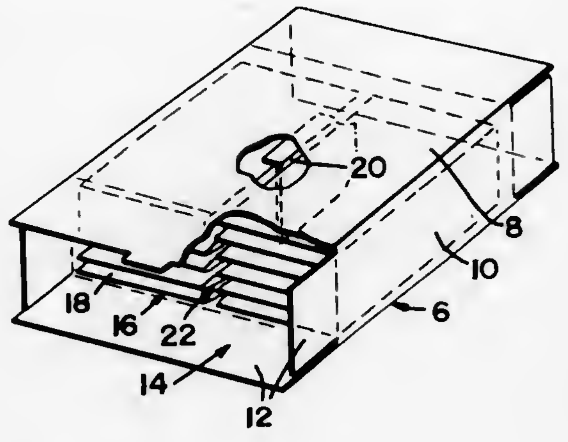
Elly T. Margolis, Los Angeles, Calif., assignor to Dart Industries Inc., Los Angeles, Calif.
No Drawing. Filed Aug. 24, 1967, Ser. No. 662,886
Int. Cl. A61j *3/00;* **A61k** *7/00;* **B65d** *47/20*
U.S. Cl. 53—21 **1 Claim**

This invention is directed to a method of preparing aerosol antiperspirant compositions containing an alkoxy aluminum chloride as the antiperspirant, and to aerosol antiperspirant compositions so prepared, said method comprising the formation of the alkoxy aluminum chloride within the aerosol container from the reaction of an alkyl aluminum chloride with an appropriate alcohol, the alkane second product of the reaction serving, either alone or in part, as the propellant for the aerosol.

3,568,395
APPARATUS FOR PLACING PARTITIONS BETWEEN STACKED RECEPTACLES IN A CONTAINER

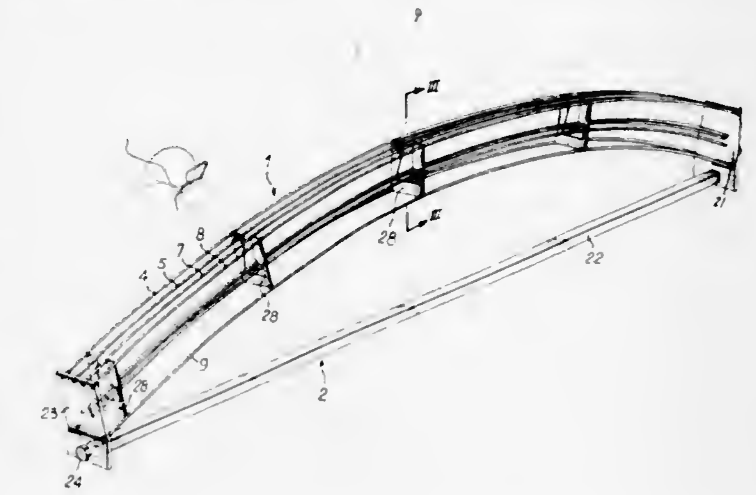
Marvin O. Docili, Box 217, Loleta, Calif. 95551
Filed Mar. 7, 1969, Ser. No. 805,303
Int. Cl. B65b *5/06*
U.S. Cl. 53—26 **11 Claims**

A method and apparatus for placing loose partitions between flat sides of a container such as a cardboard box in which the partition is disposed intermediate stacks of receptacles holding the articles being packed. The partitions are inserted into the box simultaneously with the receptacle stacks so that the stacks maintain the partition in an upright position during and after their insertion.



3,568,396
INSULATING PADS AND THEIR MANUFACTURE

André Jehier, 8 Rue Racine, 49 Angers, France
Filed Dec. 16, 1968, Ser. No. 784,139
Claims priority, application France, Dec. 28, 1967, 134,127
Int. Cl. B65b *43/08*
U.S. Cl. 53—29 **7 Claims**

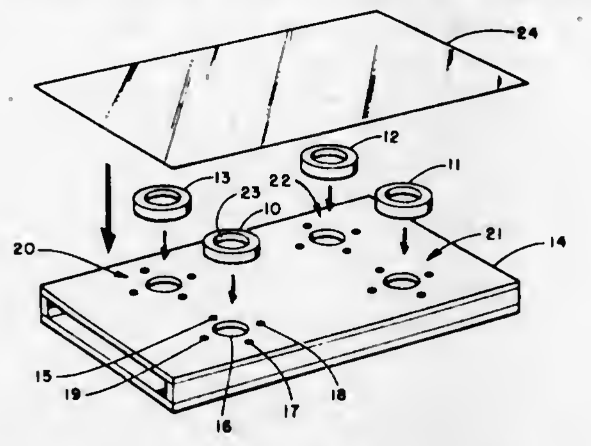


Insulating pads of the type used in the covering of joints are formed by draping a sheet of heat shrinkable plastic material around a template formed of a bundle of rods. Shrinking of the sheet material forms a sheath having the desired pad shape; the sheath thereafter being removed from the template, filled with insulating material and sealed.

3,568,397
METHOD FOR ENCAPSULATING RING-SHAPED OBJECTS

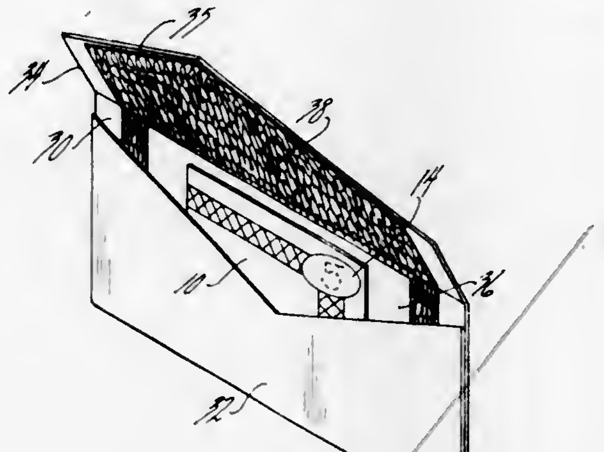
Virgil C. Hammond, Kansas City, Mo., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 27, 1969, Ser. No. 837,071
Int. Cl. B65b *31/00*
U.S. Cl. 53—22 **1 Claim**

Disclosed is a method for encapsulating a ring-shaped object, such as a transformer core or coil, comprising the steps of establishing a vacuum about the ring, heating a first sheet of plastic, allowing the plastic to be drawn about a portion of the ring, trimming the excess plastic, and repeating the process with a second sheet of plastic over the uncovered portions of the ring.



3,568,398
PROCESS USING MATERIAL HAVING ADHESIVE RELEASING PROPERTY FOR MAKING A COUPON CONTAINING ENVELOPE OR THE LIKE

Robert D. Allison, West Hartford, Conn., and Robert E. Lafler, Charlton City, and Joseph M. Murphy, Wilbraham, Mass., assignors to United States Envelope Company, Springfield, Mass.
Filed Mar. 31, 1967, Ser. No. 627,385
Int. Cl. B65d *27/00*
U.S. Cl. 53—31 **4 Claims**

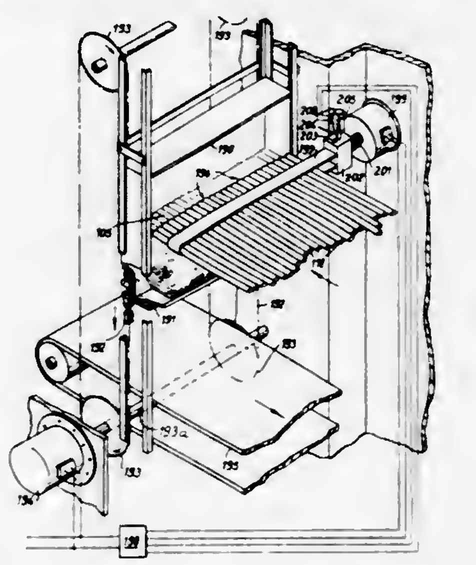


Moist adhesive is used to temporarily attach a coupon to an envelope blank while an envelope is formed therefrom and around the coupon. The adhesive when dry adheres to the coupon and not to the envelope so that the coupon may be readily removed from the envelope. Thereafter, the adhesive may be used to attach the coupon to a suitable surface.

3,568,399
APPARATUS FOR FILLING RECEPTACLES WITH CIGARETTES OR THE LIKE

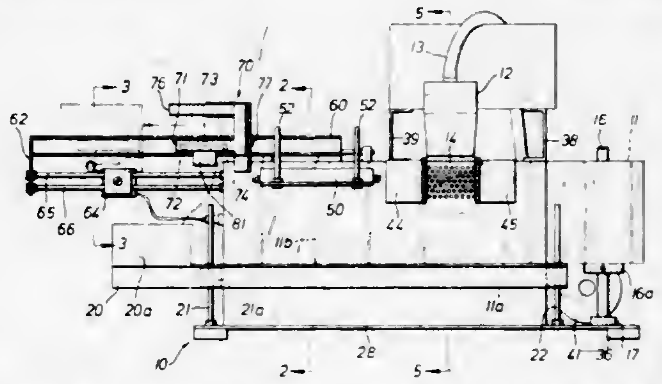
Ulrich Bornfleth and Horst Kochalski, Hamburg, Germany, assignors to Hauni-Werke, Koerber & Co. K.G., Hamburg, Germany
Continuation-in-part of application Ser. No. 653,234, July 13, 1967. This application Oct. 13, 1967, Ser. No. 675,175
Claims priority, application Great Britain, July 18, 1966, 32,267/66; Oct. 12, 1966, 45,669/66; Germany, Oct. 13, 1966, H 60,738
Int. Cl. B65b *19/10*
U.S. Cl. 53—148 **21 Claims**

The magazine of a cigarette packing machine, a cigarette tray or another receptacle for storage of cigarettes receives rows of cigarettes directly from the outlets of pneumatic tubes whose inlets receive cigarettes directly from rod cigarette machines, filter cigarette machines or other makers or through the intermediary of a distributor unit which can operate mechanically, pneumatically or electropneumatically. The distributor may include a rotary drum whose flutes receive cigarettes from a maker and are movable into registry with the inlets of the tubes, a distributor pipe which is in communication with the inlets of pneumatic tubes and accommodates switching devices operating on the basis of Coanda effect to distribute cigarettes from th pipe into the inlets, or a suction head which receives cigarettes from a belt and accumulates them into rows which are thereupon transferred into the inlets. The outlets of the tubes can be moved with reference to the receptacle or vice versa. If the receptacle is the magazine of a packing machine, the outlets are movable up and down in dependency on the level of the topmost layer of cigarettes in the magazine. If the receptacle is a tray, the latter is movable downwardly in stepwise fashion to provide room for entry of fresh rows of cigarettes. The outlets and/or the tray can be shifted sideways to the stagger each row of cigarettes with reference to the adjoining row or rows.



3,568,400
BAGGING MACHINE

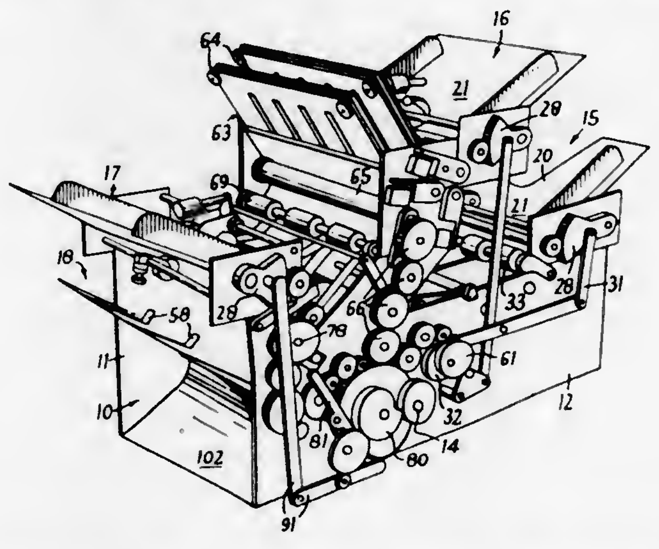
Robert W. Pitts, 7710 Barberton, Houston, Tex. 77036
Filed Jan. 21, 1969, Ser. No. 792,432
Int. Cl. B65b *9/08, 43/30, 43/36*
U.S. Cl. 53—183 **14 Claims**



For use in wrapping merchandise to be sold or goods and piece parts in individual sealed pouches or bags, apparatus which comprises means for transferring the goods to be packaged or bagged through a directed chute with a stream of air blowing against a pouch formed in an elongate, laterally seamed, double-fold of sealing film of any suitable material, said apparatus simultaneously opening the pouch on drawing one side against a plurality of holes on an adjacent surface through which a vacuum flow is drawn, and causing the other side to pucker when the first side is pulled against a pair of bars which contort the bag into the puckered or opened posture for receiving the goods, said apparatus repetitively drawing the strip of bags through the apparatus to form the various seals and to completely seam the open bag at the upper edge and to thereafter serrate or tear the filled bags from the strip as desired.

3,568,401
MACHINES FOR INSERTING PAPER SHEETS INTO ENVELOPES

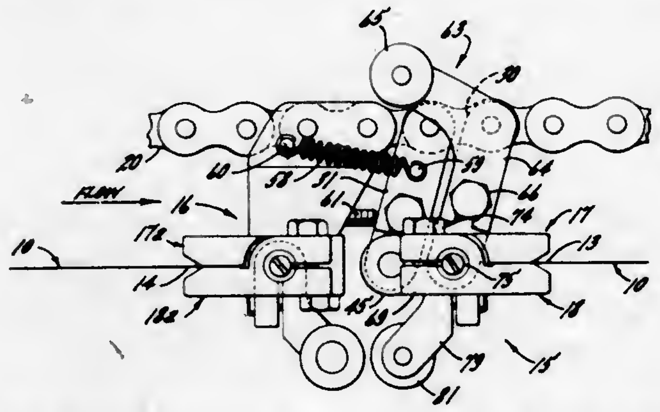
Francois Rodolphe Bonsch, London, England, assignor to Business Aid Inventions Limited, London, England
Filed July 8, 1968, Ser. No. 743,187
Claims priority, application Great Britain, July 7, 1967, 31,510/67
Int. Cl. B65b *5/00, 43/26*
U.S. Cl. 53—186 **29 Claims**



Machine for inserting paper sheets and like enclosures into envelopes in which envelopes are fed singly by a first conveyor system from a bulk supply station to an inserting station past means which open and moisten the gum on the envelope flap, in which one or two separate inserts are likewise fed singly by further conveyor systems from respective bulk supply stations to said inserting station at which they are given a bowed shaping, transverse to the insertion direction by conveyor roller means which not only rotate to propel the inserts but also swing bodily towards the envelope mouth which is opened by mechanical fingers and a jet of compressed air, the inserting station including a tilting table which operates to direct each filled envelope through a pair of flap closing and sealing rollers to a delivery station.

3,568,402
BAG CLAMP FOR USE IN A PACKAGING MACHINE

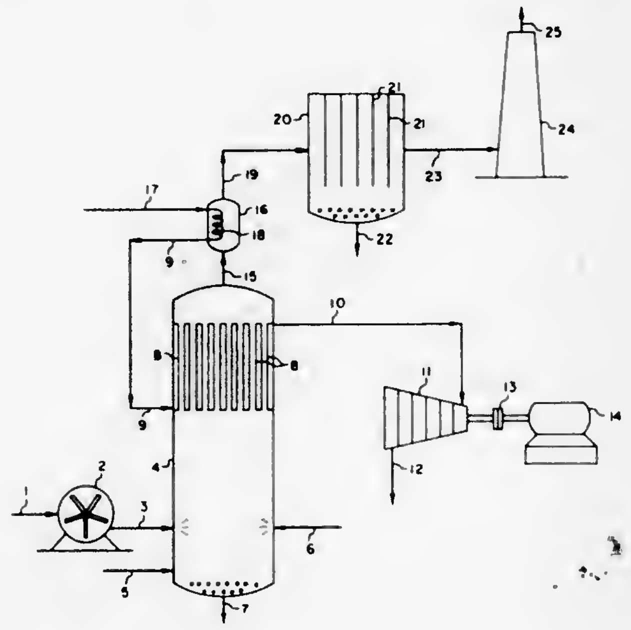
Robert F. Lense and Donald T. Peterson, Rockford, Ill., assignors to Riegel Paper Corporation, New York, N.Y.
Filed Aug. 6, 1969, Ser. No. 847,997
Int. Cl. B65b *43/32*
U.S. Cl. 53—384 **12 Claims**



A packaging machine for opening thin, flexible walled bags as the bags are advanced edgewise along a predetermined path into a filling station in upright positions with the walls of each bag positioned face-to-face. A carrier is mounted on the frame of the machine for movement generally parallel to the path with a pair of bag clamps mounted on the carrier and operable to support one bag with jaws which are operable to grip opposite edge portions of the bag and which are positioned parallel to the carrier. To bow open the bag, the trailing bag clamp is operable to move the jaws in a generally straight line toward the leading bag clamp while maintaining he jaws parallel to the carrier to avoid wrinkling the bag during the bowing. In the first embodiment, the jaws are connected to the carrier by parallel links which can be swung to move the jaws relative to the carrier. In the second embodiment, the jaws are mounted on a slide which is guided on the carrier for sliding movement in a generally straight, horizontal line relative to the carrier.

3,568,403
REMOVAL OF SOLIDS FROM FLUE GAS

Harry L. Richardson, Pittsburgh, Pa., assignor to Chemical Construction Corporation, New York, N.Y.
Filed June 21, 1966, Ser. No. 559,140
The portion of the term of the patent subsequent to Mar. 19, 1987, has been disclaimed
Int. Cl. B03c *3/01*
U.S. Cl. 55—5 **10 Claims**

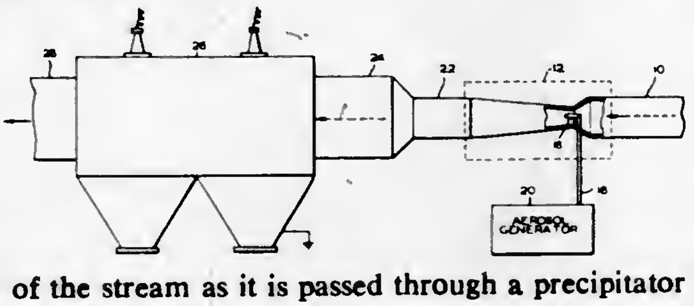


Improved electrostatic precipitation of entrained solids from flue gas, which is generated by burning sulfur-containing solid carbonaceous fuel, is attained by burning a vanadium-containing liquid hydrocarbon such as high vanadium content crude oil or refinery residual oil together with the solid fuel. The vanadium which is thus added to the combustion process is converted to vanadium pentoxide which causes at least partial catalytic oxidation of sulfur dioxide to sulfur trioxide, which provides improved results and greater efficiency during subsequent treatment of the flue gas by electrostatic precipitation, in terms of greater solids removal from the flue gas.

3,568,404
LOW PRESSURE ELECTROSTATIC PRECIPITATOR

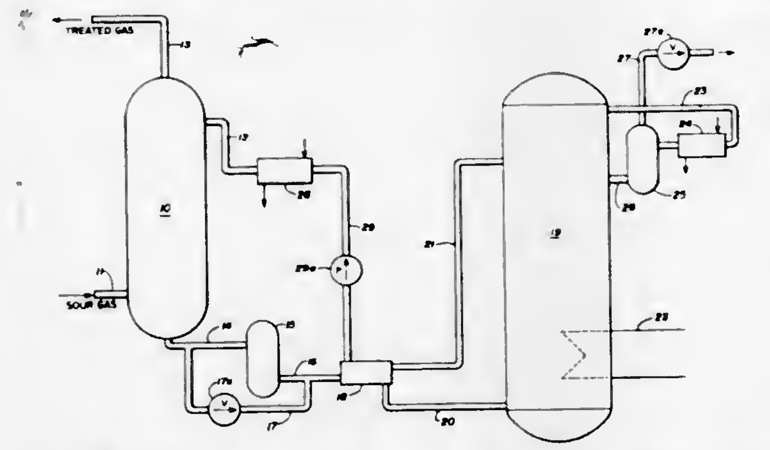
Alan B. Walker, West Allenhurst, N.J., assignor to Research-Cottrell, Inc., Somerset County, N.J.
Filed May 6, 1968, Ser. No. 726,833
Int. Cl. B03c *3/01*
U.S. Cl. 55—5 **3 Claims**

A method of operating an electrostatic precipitator to clean low density gas streams. The sparking potential of the gas stream to be cleaned is determined, a corona quenching aerosol is added to increase the sparking potential of the stream as it is passed through a precipitator for electrostatic cleaning.



3,568,405
FILTRATION METHOD AND APPARATUS

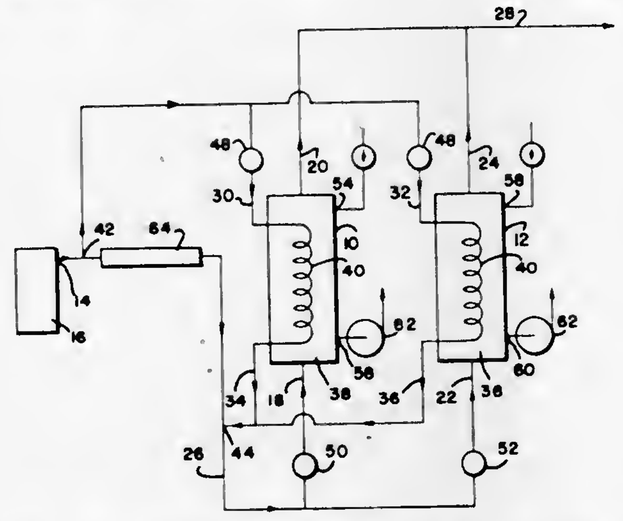
Charles R. Perry, Odessa, Tex., assignor to Portable Treaters Incorporated, Odessa, Tex.
Filed May 7, 1969, Ser. No. 822,359
Int. Cl. B01d *15/06*
U.S. Cl. 55—32 **12 Claims**



Contaminated solutions, such as aqueous amine treating solutions used in the desulfurization of natural gas, are purified by passing the contaminated streams through a filter bed of charcoal particles having sizes generally within the range of No. 2 to No. 12 mesh screen (Tyler), and at a rate of no greater than 4 gallons per minute per cubic foot of filter bed. Preferably, the contaminated stream is passed to the bed at a velocity (relative to the cross sectional area of said bed normal to flow) of no greater than 15 gallons per minute per square foot of filter bed.

3,568,406
DESICCANT AIR DRYER

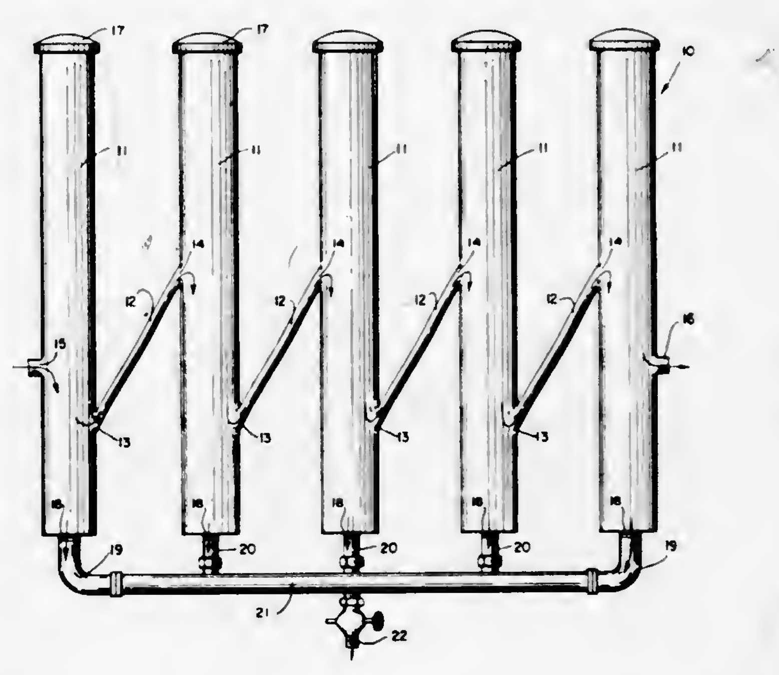
Wesley M. Dynes, Hickling Heights, Corning, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y.
Filed Oct. 28, 1968, Ser. No. 771,112
Int. Cl. B01d *53/04*
U.S. Cl. 55—33 **11 Claims**



Method, and apparatus for the practice thereof, of dehydrating hot, pressured gas, in which a minor portion of the pressured gas to be dehydrated is conducted through one of a pair of dehydrating desiccant chambers, to reactivate the latter, while the major portion of the gas is conducted through the other chamber of the pair, to dehydrate said major portion.

3,568,407
METHOD AND APPARATUS FOR SEPARATING LIQUID FROM GAS

Murray D. Bradley, Jr., Apt. D, 1668 La Vista Road, Atlanta, Ga. 30329
Filed July 23, 1969, Ser. No. 844,144
Int. Cl. B01d *51/06*
U.S. Cl. 55—57 **10 Claims**

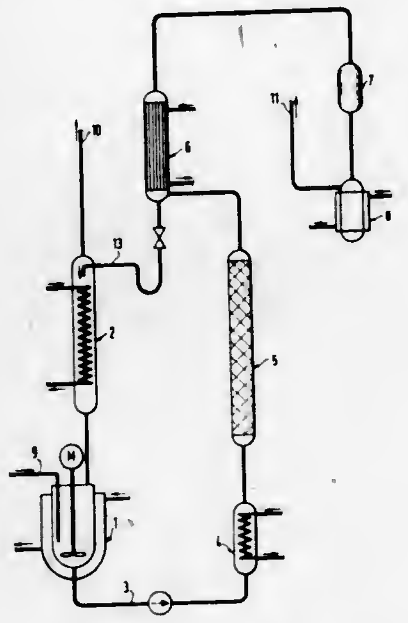


A method and apparatus for separating liquid such as moisture from a gas such as air. The air is passed through an enclosed passageway and is directed through a portion of reduced cross-section to reduce the pressure of the air by increasing its velocity in accordance with the Bernoulli principle, thereby reducing the moisture carrying capacity of the air. The liquid is then condensed and drained off.

3,568,408
CONTINUOUS PROCESS FOR THE RECOVERY OF USEFUL COMPONENTS OF A GASEOUS MIXTURE FORMED IN THE CATALYTIC PRODUCTION OF CYANOGEN CHLORIDE FROM HYDROCYANIC ACID AND CHLORINE OR IN THE SUBSEQUENT TRIMERIZATION OF CYANOGEN CHLORIDE TO CYANURIC CHLORIDE IN THE VAPOR PHASE

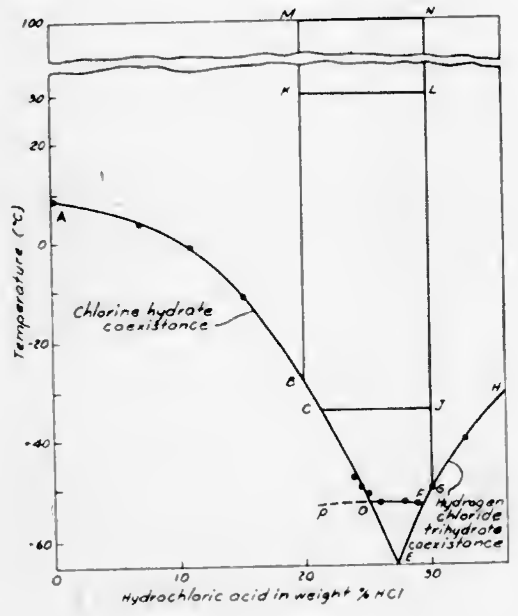
Jean Riethmann, Allschwil, Basel-Land, and Leo Scheck, Benken, Basel-land, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.
Filed July 8, 1969, Ser. No. 839,933
Claims priority, application Switzerland, July 10, 1968, 10,296/68
Int. Cl. B01d *53/00*
U.S. Cl. 55—71 **5 Claims**

A continuous process for the recovery of components of a gaseous mixture formed in the catalytic production of cyanogen chloride or in the subsequent trimerization of the cyanogen chloride to cyanuric chloride in the vapor phase is described which comprises removing from the gaseous mixture consisting substantially exclusively of chlorine, hydrogen chloride and cyanogen chloride the hydrogen chloride by absorption in pentachlorethane; the residual mixture of chlorine and cyanogen chloride can be recycled into the aforesaid process for producing cyanuric chloride.



3,568,409
HYDROCHLORIC ACID TREATMENT FOR CHLORINE

Mac B. Ferguson, Jeffrey F. Gilbert, and David N. Glew, Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.
Filed June 4, 1969, Ser. No. 830,448
Int. Cl. B01d *53/00*
U.S. Cl. 55—71 **7 Claims**

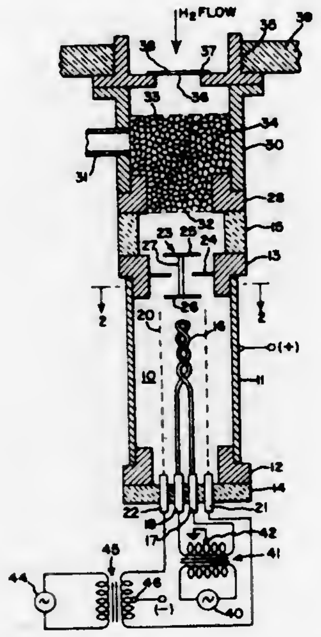


Disclosed herein is a process for removing salt sprays, water and nitrogen trichloride from elemental chlorine, by contacting the chlorine with hydrochloric acid. The acid concentration by weight is from 20 to 30 percent.

3,568,410
HYDROGEN PUMPING APPARATUS

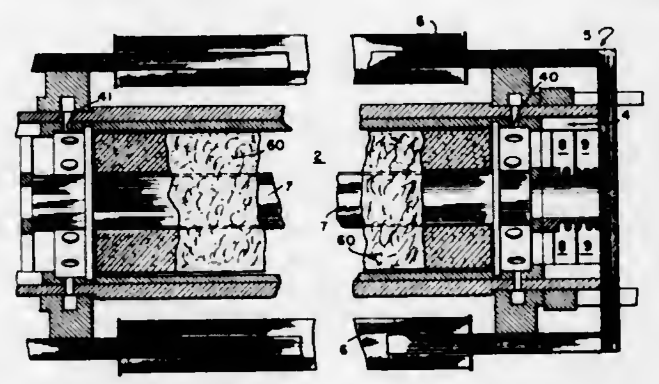
Patrick P. Coppola, Fayetteville, N.Y., assignor to General Electric Company
Filed Feb. 13, 1969, Ser. No. 799,021
Int. Cl. B01d *53/22*
U.S. Cl. 55—158 **16 Claims**

A gas pump of simplified, sturdy construction employs palladium maintained at an elevated temperature to permit efficient evacuation of gas from a region of low pressure to a region where partial pressure of the gas is several orders of magnitude higher. The cylindrical shape of the pump provides increased mechanical strength and improved maintenance of dimensional characteristics, resulting in uniform heating of the pump walls and consequential high ionization efficiency. Titanium rings at either end of the palladium further improve pump efficiency.



3,568,411
CHEMOSENSOR BOMB DETECTION DEVICE

Andrew Dravnieks, Park Forest, Ill., and Jay Fischman, Houston, Tex., assignors to the United States of America as represented by the Secretary of the Army and/or the Administrator of the Federal Aviation Administration
Filed Mar. 18, 1969, Ser. No. 808,119
Int. Cl. B01d *53/04*
U.S. Cl. 55—208 **2 Claims**

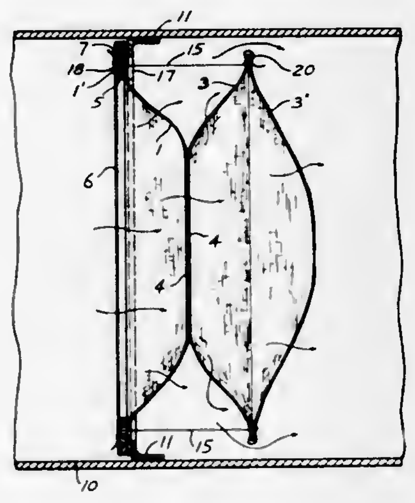


This invention relates to an improved bomb detector for identifying the presence of dynamite, for example, in an airplane. The basic method detects the presence of ethylene glycol dinitrate vapor in air. The essential steps are selective adsorption of the vapor on a surface, desorption of the vapor and a timed passage through a short, chromatographic partition column, followed by passage through a vapor detector which emits an identifying signal. The improvement comprises the use of gold-plated, copper foametal as a primary adsorber surface for ethylene glycol dinitrate vapor.

3,568,412
FILTER ASSEMBLY

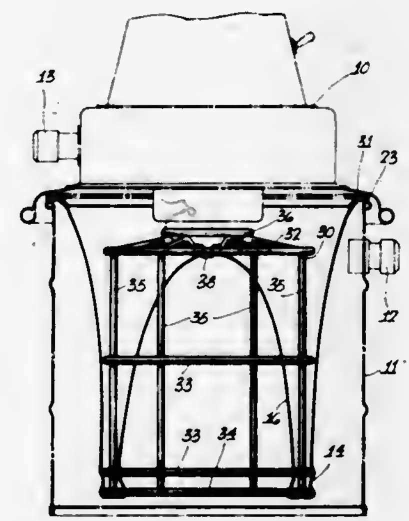
Louis Schwab, P.O. Box 575,
Miami Beach, Fla. 33139
Filed June 6, 1968, Ser. No. 735,126
Int. Cl. B01d *35/14*
U.S. Cl. 55—274 **6 Claims**

A filter assembly for liberating an air or other gaseous flow from discrete solid particles such as dust, the filter material of which is in the form of a bellows including one or several joined folds, the bellows being open at the upstream end and closed at the downstream end either by filter material or by flow-impervious material. The folds assume a substantially contracted state when the filter assembly is inactive, that is, not exposed to impingement by an air flow and are substantially elongated in depth by the pressure of such air flow thereby greatly increasing the effective filter area. The folds return to the substantially contracted state upon cessation of the air flow, either by elasticity of the filter material or by mechanical force.



3,568,413
SUCTION CLEANERS

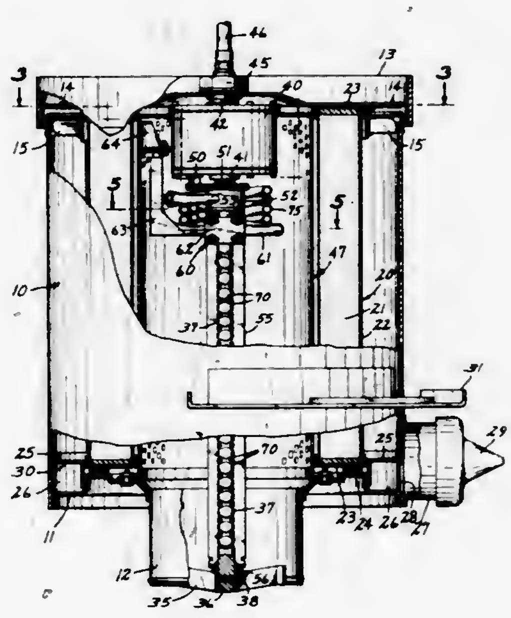
Bohumil Jerabek, Scarborough, Ontario, Canada, assignor to Dustbane Enterprises Limited, Ottawa, Ontario, Canada
Filed July 23, 1969, Ser. No. 844,131
Int. Cl. B01d *46/04*
U.S. Cl. 55—288 **3 Claims**



A filter for gas cleaners, particularly air cleaners for industrial and domestic cleaners, in which the filter has an outer depending tubular part and an inner re-entrant tubular part extending upwards inside of and spaced from the outer part. There is thus a flow reversal into the inner part which slows down the gas flow with improved filtering. As an additional feature to improve self-cleaning of the filter a freely supported frame can be positioned between the inner and outer parts, the frame being lifted during the operation of the apparatus and dropping when the apparatus is shut off. This agitates the filter and causes dust and other material to fall off the filter.

3,568,414
CLEANING APPARATUS FOR FLUID FILTERS

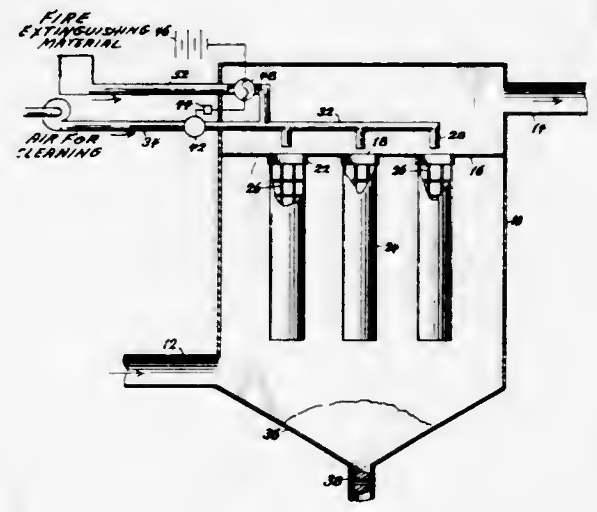
John R. Spriggs, Minneapolis, and Bernard A. Matthys, Rosemount, Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.
Filed June 5, 1969, Ser. No. 830,683
Int. Cl. B01d *46/04*
U.S. Cl. 55—294 **5 Claims**



An elongated shaft adapted to be approximately coaxially mounted within a generally tubular, permeable fluid filter element, said shaft having right and left-hand helical channels formed therein and joined at the ends with guide means engaged therein for axial reciprocal movements along said shaft upon being rotated around said shaft, a fluid motor for rotating said guide means, a nozzle affixed to said guide means for directing a jet of fluid in a reverse direction through said fluid filter and flexible conduit means connecting said nozzle to a source of fluid whereby a jet of fluid is moved in a helical path around the inner surface of the filter element.

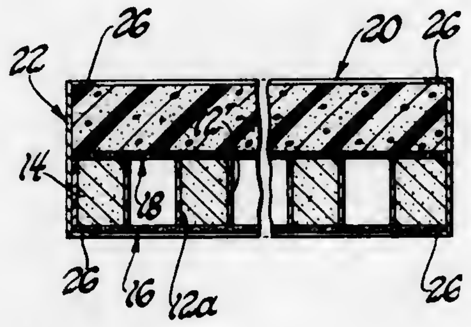
3,568,415
FIRE CONTROL FOR FILTERHOUSE

David J. Wyrough, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Apr. 25, 1969, Ser. No. 819,289
Int. Cl. B01d *46/04*
U.S. Cl. 55—302 **4 Claims**



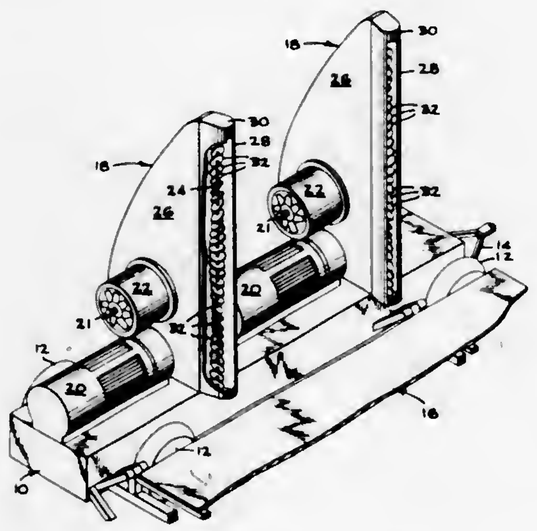
A fire control system for a bag filterhouse which automatically projects a fire extinguishing substance onto a fire burning within the filterhouse. The fire control system is uniquely adapted to utilize an existing air jet system of bag cleaning thereby making available an effective fire control system at very minor additional expense of space and materials.

3,568,416
FILTER ASSEMBLY
Richard T. Staunton, Birmingham, Mich., assignor to G. S. Staunton & Company, Inc., Royal Oak, Mich.
Filed Sept. 9, 1968, Ser. No. 758,532
Int. Cl. B01d *25/06*
U.S. Cl. 55—486 **9 Claims**



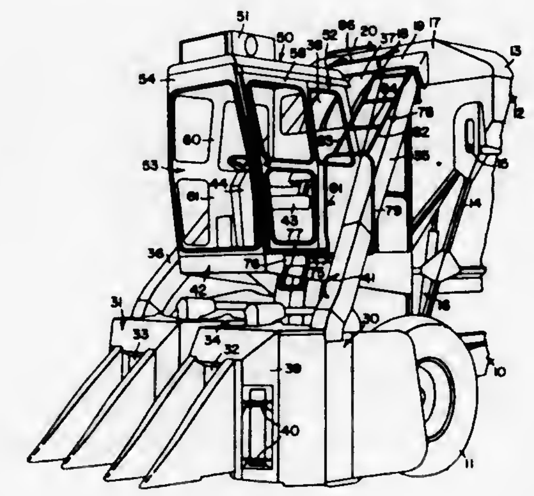
An improvement in filter assemblies for use in air treatment machines, such as air conditioners and the like. The assembly includes a honeycomb structure having a plurality of passages therein and aligned in the direction of air flow. Some of the passages in the honeycomb structure are filled with granular filter material, such as activated carbon, and others of the passages are unfilled. A member adapted to permit air flow therethrough is secured adjacent to the honeycomb structure at each surface thereof to retain the granular material in the passages. An additional layer of open cell filter material may be secured adjacent the downstream member for additional filtering as necessary. The entire assembly is enclosed in a border frame structure, and may be formed of throw-away materials or may be made of permanent materials.

3,568,417
HARVESTING METHOD
Glen E. Rauth, Winter Park, Fla., assignor to FMC Corporation, San Jose, Calif.
Filed Mar. 3, 1969, Ser. No. 803,770
Int. Cl. A01g *19/08*
U.S. Cl. 56—1 **4 Claims**



A fruit harvesting method is provided to direct continuously swerving air at fruit trees in converging currents from two air discharge openings. The air is discharged so that as it gets further away from its source and loses energy, it is superimposed on other swerving air to re-establish the failing energy of the individual air currents and increase the harvesting effectiveness of the apparatus. The swerving air effect is accomplished through the use of wobble air vanes mounted in the air discharged openings of the apparatus, and they serve to deflect the discharged air in a swerving manner, to cause wafting of the limbs in a generally elliptical pattern resulting in the abscission of fruit from the tree.

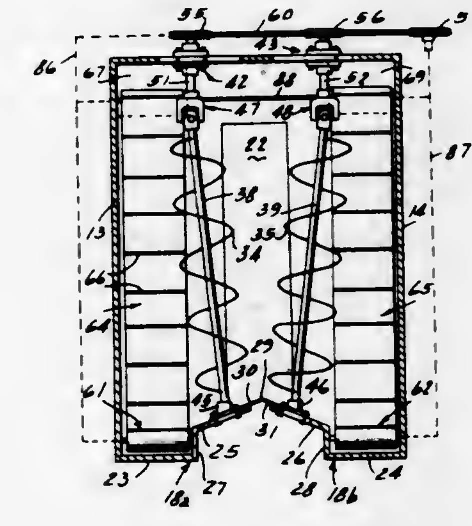
3,568,418
COTTON HARVESTER
Russell Dean Copley, Ankeny, and Ronald Keith Leonard, Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.
Filed May 14, 1969, Ser. No. 824,400
Int. Cl. A01d *45/20*
U.S. Cl. 56—12 **7 Claims**



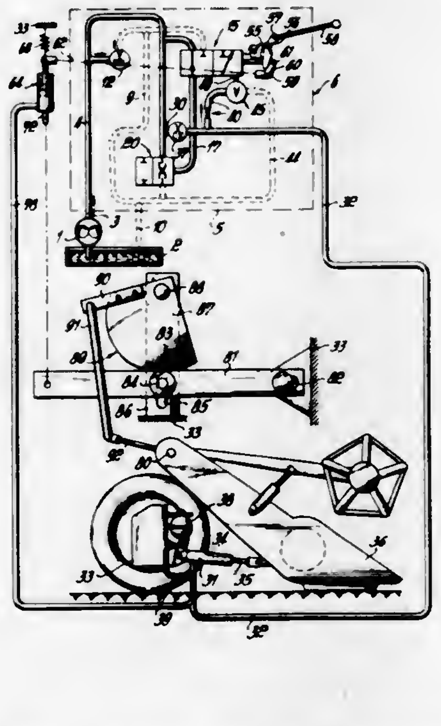
A cab and ladder structure for a cotton harvester in which the cab is positioned between outboard conduits and forward of the inboard conduits of the cotton harvester and in which the upper portions of the sides of the cab are inclined inwardly to accommodate the upper portions of the inclined outboard conduits and the rear wall structure of the cab is recessed to accommodate the descent of the central conduits. The ladder structure includes a platform extension at the exit of the cab and an upwardly inclined ladder that bridges over one of the outboard conduits.

3,568,419
CHILI HARVESTER
Wondel G. Creager, P.O. Box 518, Hatch, N. Mex. 87937
Filed Feb. 25, 1969, Ser. No. 802,100
Int. Cl. A01d *45/22*
U.S. Cl. 56—19 **9 Claims**

A harvesting machine which may be either self-propelled or tractor-mounted employs apparatus for guiding fruit-bearing plants into a picking mechanism wherein the plants are stripped of their produce at a pre-selected elevation by a plurality of elongate rotating flexible coils. Inasmuch as some plants possess a maturing characteristic wherein the lowermost fruit is the earliest to ripen, and as ripening is progressive from the bottom of the plant to the top of the plant, the axes of rotation of the flexible coils are disposed at an angle to the plants undergoing harvesting and are variable from a substantially vertical position to a variety of selectable angular positions in order that the plants may be progressively harvested from bottom or top upon several time-spaced passes through the field. Preselection of the substantially vertical positions of the rotating flexible coils permits harvest of an entire crop at one time.

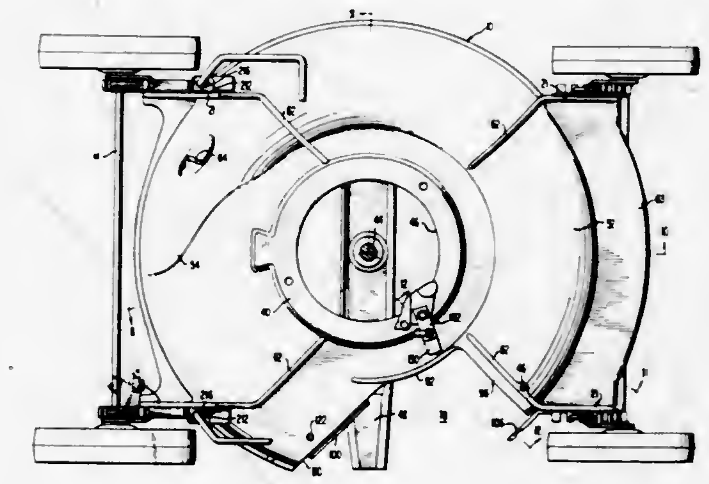


3,568,420
HYDRAULIC LIFTING APPARATUS FOR THE CUTTING PLATFORM OF HARVESTING MACHINERY
Friedrich-Wilheim Höfer, Hofingen, and Gerhard Nonnenmacher, Korntal, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Dec. 23, 1968, Ser. No. 786,074
Claims priority, application Germany, Dec. 28, 1967, P 15 82 161.1
Int. Cl. A01d *67/00*
U.S. Cl. 56—208 **21 Claims**



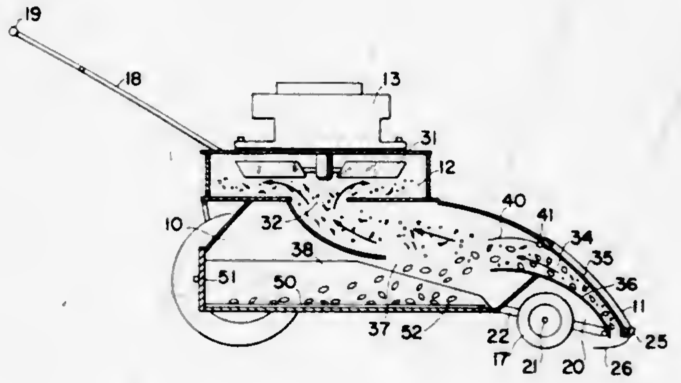
A linkage which interconnects the hydraulic control, the cutting platform, and a manual setting lever, to set cutting platform height over ground level, includes a first variable link element changeable in length in response to pressure changes in the hydraulic lifting cylinder for the cutting platform, and a second link element responsive to the position of the cutting platform with respect to the machine, so that the cutting platform will be at even height above ground level regardless of weight on the cutting platform and undulations in ground level.

3,568,421
LAWN MOWER
William R. Smith and Harold P. Jackson, McDonough, and Wallace A. Hanson, Riverdale, Ga., assignors to McDonough Power Equipment, Inc., McDonough, Ga.
Filed Mar. 12, 1968, Ser. No. 712,407
Int. Cl. A01d *55/18*
U.S. Cl. 56—255 **20 Claims**



A power lawn mower including a housing having a top and a depending peripheral skirt enclosing a rotary cutting blade driven by a motor centrally mounted on the housing. Grass clippings cut by the blade are swept upwardly and annularly in the mower housing in an annular discharge duct which progressively increases in height from the rear to the front of the housing and terminates in an outlet which is connected either to a lateral discharge chute or rear discharge chute. Depending on the type of discharge desired, the discharge chutes are alternately attached to the mower housing in communication with the discharge passage. When the rear discharge chute is employed, it conveys grass clippings rearwardly and upwardly into a collector bag supported at the rear of the mower.

3,568,422
NUT HARVESTER
John A. Thies, Newton, N.C. (675 Merritt Drive, Mobile, Ala. 36609)
Filed July 24, 1968, Ser. No. 747,236
Int. Cl. A01d *51/00*
U.S. Cl. 56—328 **7 Claims**

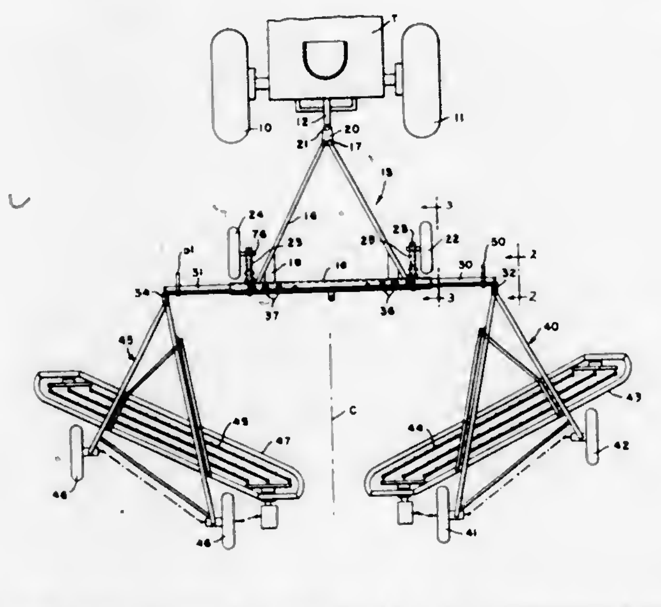


Gathers nuts or the like which are on the surface of the ground, by vacuum action, picks up the nuts along with some debris or other material and separates the nuts from the debris along a relatively short interval flow stream by the combined action of a serpentine flow stream, gravity, inertia and deflector fingers.

3,568,423
DUAL HITCH FRAME

John K. Hale and Charles B. Adams, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 17, 1967, Ser. No. 678,772
Int. Cl. A01d *77/06*
U.S. Cl. 56—377 **2 Claims**

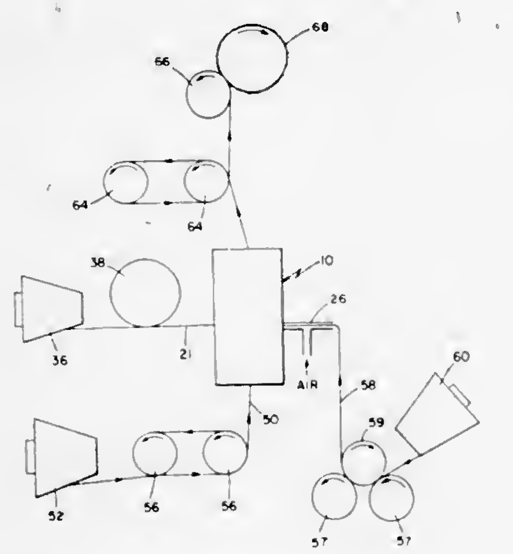


A dual hitch frame connectable to a tractor to be towed thereby over a field having hay to be raked and adapted to have connected to it a pair of side delivery rakes which deliver raked hay toward each other for deposit in a single windrow, said hitch frame comprising a horizontal transverse bar perpendicular to the direction of travel having a pair of laterally spaced hitch members to which the rakes are attached and having a pair of ground wheels.

3,568,424
PROCESS AND APPARATUS FOR PREPARING FLUID-TEXTURED YARN

Preston F. Marshall, 191 Gould St., Walpole, Mass. 02081

Filed Sept. 9, 1968, Ser. No. 758,404
Int. Cl. B65h *81/06;* **D02g** *1/16*
U.S. Cl. 57—6 **9 Claims**

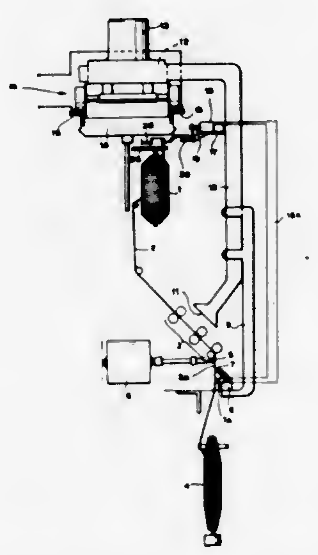


An apparatus and process are described for the fluid-texturing of continuous filament strands. Such a strand is fed through a fluid jet at at least half-sonic velocity into a generally cylindrical chamber containing a whirling body of fluid, causing the strand to erupt turbulently into said chamber. The texturized strand may be false-wrapped around a core strand which simultaneously passes axially through the chamber.

3,568,425
DEVICE FOR REDUCING YARN WASTAGE IN A TEXTILE MACHINE

Giorgio Zegna and Giulio Zegna, Vallemosso, Vercelli, Italy

Filed Oct. 9, 1968, Ser. No. 766,099
Claims priority, application Italy, Nov. 10, 1967, 53,679/67
Int. Cl. D01h *13/14, 13/18*
U.S. Cl. 57—81 **2 Claims**

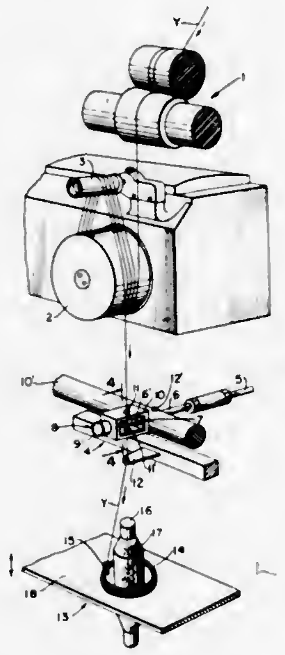


A textile machine such as a spinning frame has a yarn break detector which, upon detecting a broken yarn, causes an electrical actuator to operate so as to break the yarn ahead of a yarn-drawing region, thereby reducing wastage of the yarn upon breakage.

3,568,426
UNIFORMLY ENTANGLED MULTIFILAMENT YARN

Robert F. Whitley, Chester, Va., assignor to Allied Chemical Corporation, New York, N.Y.

Original application Mar. 27, 1968, Ser. No. 716,477, now Patent No. 3,455,096, dated July 15, 1969. Divided and this application Jan. 27, 1969, Ser. No. 822,764
Int. Cl. D02g *1/16, 3/22*
U.S. Cl. 57—140 **3 Claims**

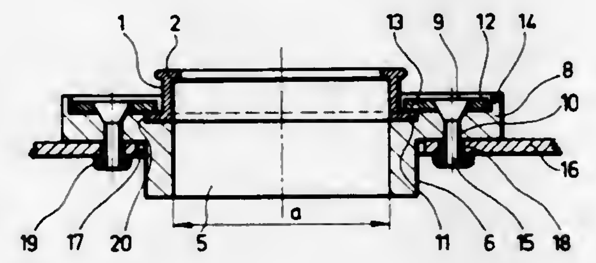


Multifilament yarn is produced containing a series of uniformly spaced regions of entanglement, each of said regions involving a majority of the filaments constituting the yarn, as well as being of generally constant length and having a low variability in the degree of entanglement. The production of such yarn can be coupled directly with other yarn treating operations, e.g., drawtwisting, without impairment of yarn quality due to variations in the tension of the running yarn. Yarns so produced have improved dyeing qualities.

3,568,427
MOUNTING FOR THE RINGS OF A RING RAIL

Arthur Wurmli, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed Dec. 9, 1968, Ser. No. 782,039
Claims priority, application Switzerland, Dec. 13, 1967, 17,504/67
Int. Cl. D10h *7/64*
U.S. Cl. 57—122 **4 Claims**



The holder is formed with a recess of exactly circular shape and the ring fits into the recess with a sliding fit. The clamping plates overlie the ring and hold the ring in place against removal. The holder is adjustably mounted in the ring rail so as to permit centering of the ring.

3,568,428
SHEATH/CORE COMPOSITE YARNS

Richard Stentiford, Pontypool, and Alan Roebuck, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

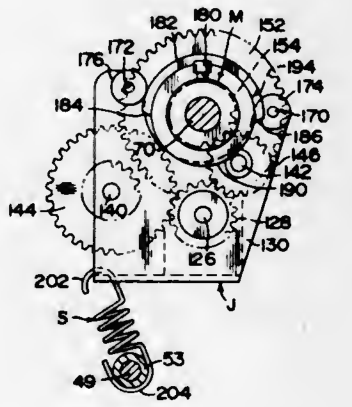
No Drawing. Filed Feb. 6, 1969, Ser. No. 797,224
Claims priority, application Great Britain, Feb. 15, 1968, 7,461/68
Int. Cl. D02g *3/00, 3/02, 3/36*
U.S. Cl. 57—140 **6 Claims**

A bulky tension-stable yarn having stretch broken fibres as the core and crimped staple fibres as sheath is obtained by blending slivers of the said fibres and drafting and spinning on a worsted system.

3,568,429
MULTISPEED TIMING DEVICE

Richard A. De Lille, Moline, Ill., assignor to E. W. Bliss Company, Canton, Ohio

Filed Jan. 3, 1969, Ser. No. 788,717
Int. Cl. G04f *3/02*
U.S. Cl. 58—21.13 **6 Claims**

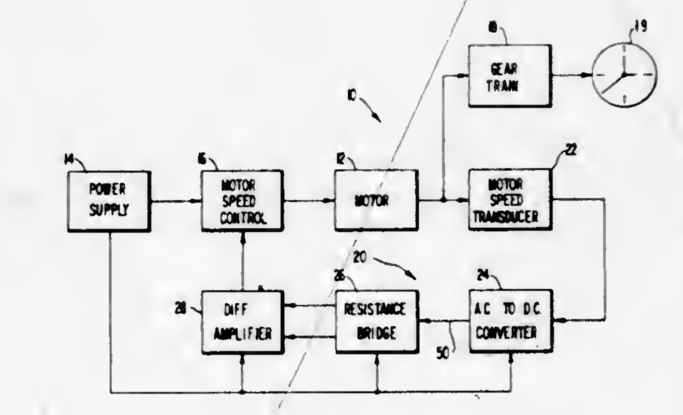


A timer has a manually operable dial for setting the timer to run for a predetermined period of time. The timer includes an electric motor for driving the dial back to a zero setting position. The motor drives the dial through a plurality of selective drive paths. The timer includes a shift means cooperable with the dial and with the drive paths. When the dial is set for short time periods, a high speed drive path is automatically engaged. When the dial is set for long time periods a low speed drive path is engaged. The timer automatically provides more accurate timing of short time periods.

3,568,430
RESISTANCE BRIDGE CONTROLLED TIMEKEEPING DEVICE

Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed July 11, 1968, Ser. No. 744,201
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **18 Claims**



There is disclosed herein an electronic timekeeping device employing a passive circuit element as a master frequency reference, comprising a motor driven gear train and hands and a feedback control circuit for the motor including a speed transducer, and an error detection circuit including a resistance bridge and a differential amplifier. The amplifier output operates a control circuit which provides adjustable excitation for the motor to maintain the desired operating speed. An ultra high precision resistor with an extremely small resistance-temperature coefficient, is employed in the resistance bridge circuit as the master frequency reference.

3,568,431
ELECTRIC TIME PIECE WITH BALANCE WHEEL AND HAIRSPRING

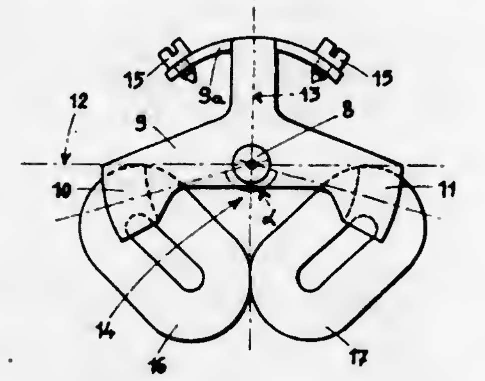
Jean Schaad, Gorgier, Neuchatel, Switzerland, assignor to Voumard Machines Co. S.A., La Chaux-de-Fonds, Neuchatel, Switzerland

Filed July 7, 1969, Ser. No. 839,534
Int. Cl. G04c *3/04*
U.S. Cl. 58—28 **1 Claim**

The present invention has for its object an electric timepiece with a balance wheel and hairspring, in which the balance wheel carries at least two magnets acting on at least one pick-up winding for inducing therein a driving current.

In timepieces of the above mentioned type, the magnets of the balance wheel are generally situated in the immediate neighborhood of a diametral plane thereof, on both sides of this plane. Their center of gravity is situated in this plane at a great distance from the center of the balance wheel.

Such a construction necessitates a relatively heavy counterweight able to counterbalance the disequilibrium produced by the magnets which leads to a balance wheel with a too large moment of inertia. The result is that the magnets must necessarily be of small dimension, or their weight, added to that of the counterweight, would lead to a balance wheel with a too large moment of inertia.



This limitation in the weight of the magnets of the balance wheel evokes a limitation in their section, so that if they move themselves during oscillations of the balance wheel, facing a pick-up winding, they can only induce in this winding a driving pulse of very short duration.

3,568,432
CHRONOGRAPH-WATCH WITH INDEPENDENTLY MOUNTED CHRONOGRAPH MECHANISM

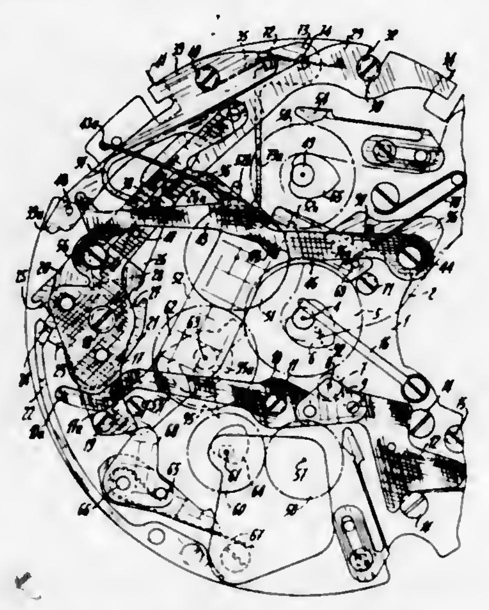
Gerald Dubois and François Berthoud, Le Lieu, Switzerland, assignors to Dubois & Depraz S.A., Le Lieu, Heuer-Leonidas S.A., Bienne, and G. Leon Breitling S.A., Geneva, Switzerland

Filed Sept. 18, 1968, Ser. No. 760,556

Claims priority, application Switzerland, Sept. 22, 1967, 13,386/67

Int. Cl. G04f *7/04*

U.S. Cl. 58—59 **27 Claims**



A chronograph-watch with the elements of the chronograph mechanism carried by a frame independently of the clockwork.

3,568,433
QUICK TIME WIPE-OFF FOR PARKING METERS

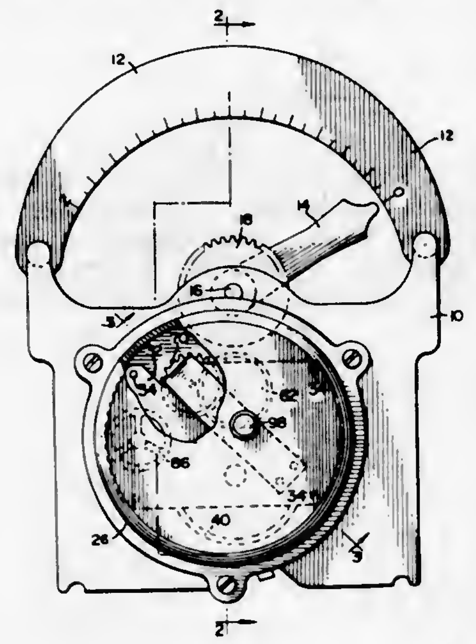
John W. Van Horn and Charles W. Hill, Russellville, and Jimmie Calvin Teague, Dover, Ark., assignors to Rockwell Manufacturing Company, Pittsburgh, Pa.

Filed Oct. 28, 1968, Ser. No. 771,134

Int. Cl. G07c *1/30*

U.S. Cl. 58—141 **4 Claims**

A quick time wipe-off assembly for a coin controlled, parking meter including an escapement wheel axially slidable on a shaft and normally biased into frictional driving engagement with a pinion drive connected to the clockworks for time controlling the rate of unwinding of the clockworks and cancellation of purchased time from the meter. A manually operated wipe-off actuator disengages the wheel from the pinion to render the pinion free-running on the shaft and thereby permit rapid, substantially instantaneous unwinding of the clockworks and cancellation of the purchased time.



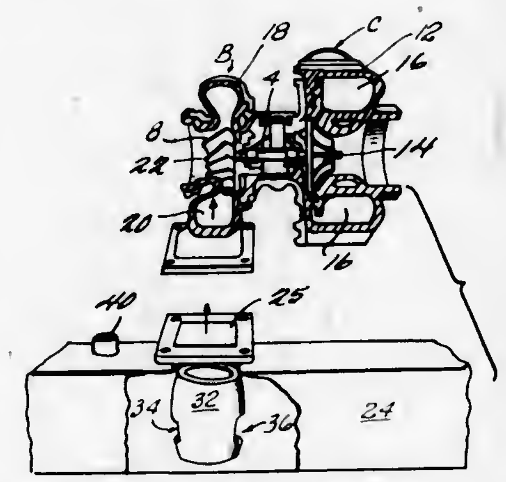
3,568,434
TURBO-CHARGER INITIATOR SYSTEM

William R. Dapprich, P.O. Box 112, Murrysville, Pa. 15668

Filed Nov. 4, 1968, Ser. No. 773,253

Int. Cl. F02b *37/00*

U.S. Cl. 60—13 **2 Claims**



Air and exhaust gas trapped in the exhaust manifold of the internal combustion engine of a turbo-compressor unit is directed through a bypass piping and distribution manifold system against the blades of the turbine, thus accelerating the turbine rotor up to useful speeds prior to the firing of the internal combustion engine; and the compressor side of the turbo-charger builds up and maintains a reserve supply of compressed air in the intake manifold of the engine for acceleration thereof.

3,568,435
METHOD OF AND APPARATUS FOR SUPERCHARGING EXTERNALLY IGNITED INTERNAL COMBUSTION ENGINES

Michael G. May, 15 Obere Strasse, 7 Stuttgart-Berg, Germany

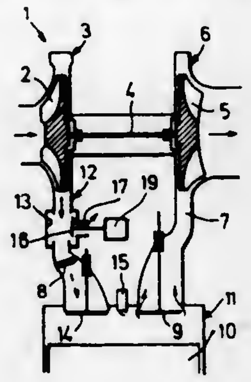
Filed Mar. 27, 1969, Ser. No. 811,110

Claims priority, application Germany, Mar. 27, 1968, P 17 51 061.0

Int. Cl. F02b *37/08;* **F04d** *27/02*

U.S. Cl. 60—13 **13 Claims**

In supercharged internal combustion engines part of the compressed intake air is discharged from the intake conduit by means of a bypass adjusting mechanism which is responsive to pressure conditions in said conduit and which controls bypass openings therein with a varying pressure derived from the difference between at least one static pressure and the total pressure of the compressed intake air.



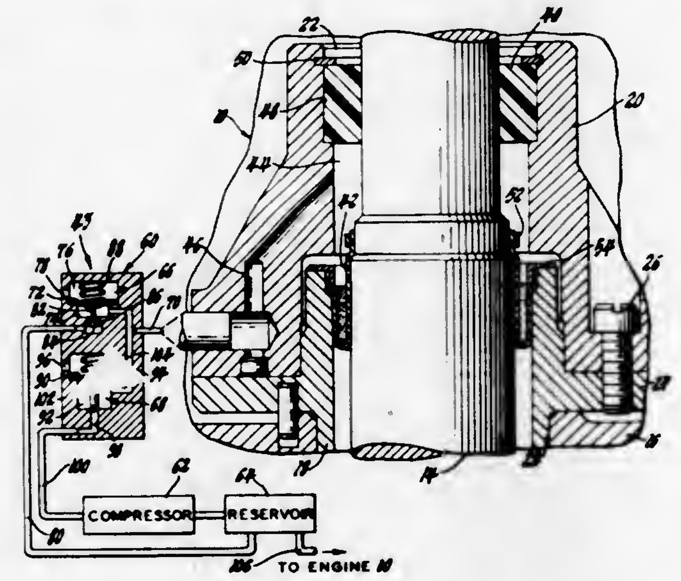
3,568,436
DUAL SEAL SYSTEM

Francis E. Heffner, Troy, and Richard R. Toepel, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 3, 1969, Ser. No. 795,895

Int. Cl. F03g *7/06*

U.S. Cl. 60—24 **1 Claim**



A dual seal system for sealing reciprocating rods in a Stirling engine and preventing an interchange of fluid between a crankcase and a work space containing a highly pressurized working fluid includes a flexible rolling diaphragm which forms a physical barrier to the interchange of fluid and a limited leakage seal which acts as a primary sealing element for the working fluid and controls the maximum pressure differential on the diaphragm. Pressure control means fluidly communicating with a chamber between the diaphragm and the limited leakage seal regulate the pressure differential on opposite sides of the diaphragm within a predetermined operating range.

3,568,437
POLLUTION CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINE

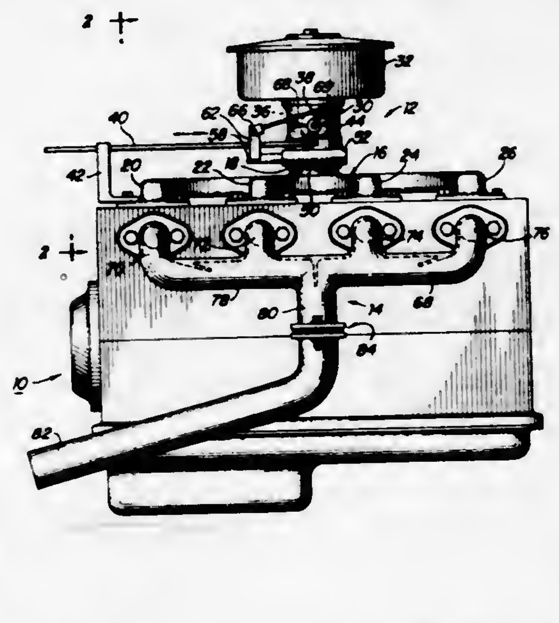
Southwick W. Briggs, 6240 Western Ave., Chevy Chase, Md. 20015

Filed Apr. 4, 1969, Ser. No. 813,675

Int. Cl. F01n *3/10;* **F02m** *23/02*

U.S. Cl. 60—30 **6 Claims**

Air pollution control apparatus for an internal combustion engine of the type including an air intake conduit including a throttle valve therein. The apparatus comprises air valve means for controlling the flow of outside air into said intake conduit downstream of said valve and linkage means for interconnecting the throttle valve and the air valve means to provide for an increase in the flow of outside air into the conduit when the throttle valve is in an engine-idle or substantially closed position and for reducing the percentage of outside airflow into the conduit as the throttle valve is moved from the idle position towards an open or full power position.



3,568,438
SYNTHESIS PLANT

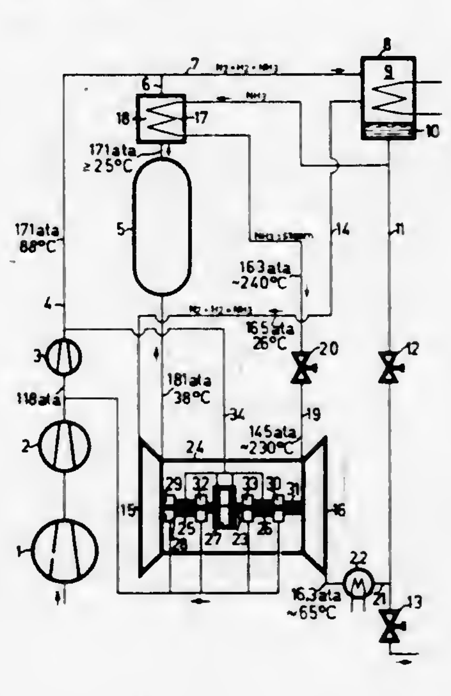
Hans Meienberg, Forch-Scheuren, Switzerland, assignor to Escher Wyss Limited, Zurich, Switzerland

Filed Aug. 4, 1969, Ser. No. 847,055

Claims priority, application Switzerland, Aug. 23, 1968, 12,709/68

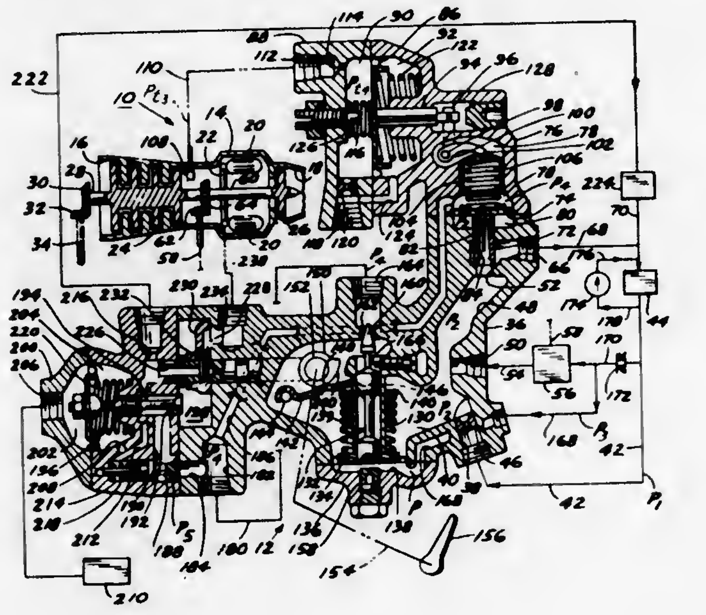
Int. Cl. F01k *25/00*

U.S. Cl. 60—36 **3 Claims**



A synthesis plant having a synthesis gas compressor, a reactor, a condenser and a circulating turbo-compressor connected into the closed circuit formed by said reactor and by the gas section of said condenser. A product steam turbine is provided for driving said circulating turbo-compressor, which is preceded by a heat exchanger for heating the product serving as working medium for said product steam turbine, said heat exchanger being arranged at the outlet side of said reactor, the working medium thus being heated with process heat, said product steam turbine and said circulating turbo-compressor being arranged in a common housing and being directly coupled through a common shaft, and the bearings of said common shaft being lubricated with process medium, i.e. with synthesis gas or with product.

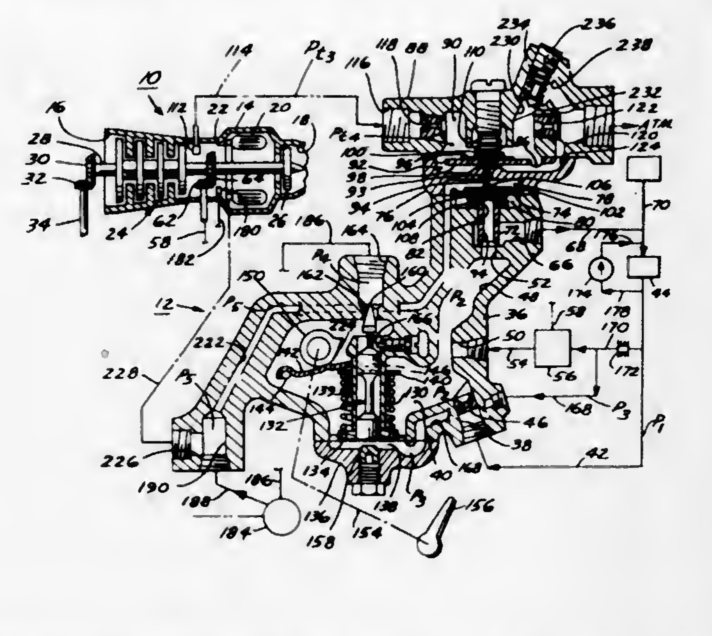
3,568,439
TURBINE ENGINE FUEL CONTROL
Raymond P. Canale, Warren, Mich., assignor to
Holley Carburetor Company, Warren, Mich.
Filed July 24, 1968, Ser. No. 747,366
Int. Cl. F02c *9/10*
U.S. Cl. 60—39.28 **11 Claims**



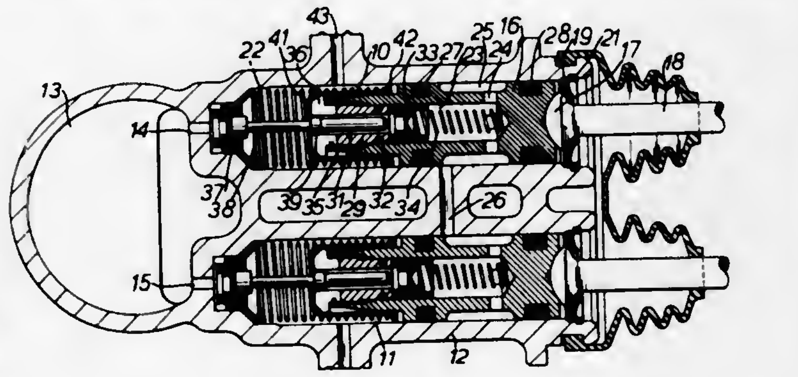
A turbine engine fuel control is provided with a fuel inlet, metering-type governor valve assembly responsive to signals generated in response to engine speed and indicia of operator power request, fuel bypass valving means for returning unmetered fuel from the fuel control to an associated fuel supply system, compressor discharge pressure sensing means for tending to further close the bypass valving means as compressor discharge pressure increases and pressure responsive means responsive to the differential in pressures which meter the fuel for opening said bypass valving means in order to achieve a rate of metered fuel flow corresponding to compressor discharge pressure.

3,568,440
TURBINE ENGINE FUEL CONTROL
Raymond P. Canale, Warren, Mich., assignor to
Holley Carburetor Company, Warren, Mich.
Continuation-in-part of application Ser. No. 747,366,
July 24, 1968. This application Dec. 23, 1968, Ser.
No. 786,321
Int. Cl. F02c *9/10*
U.S. Cl. 60—39.28 **8 Claims**

A turbine engine fuel control is provided with a fuel inlet, metering-type governor valve assembly responsive to signals generated in response to engine speed and indicia of operator power request, fuel bypass valving means for returning unmetered fuel from the fuel control to an associated fuel supply system, compressor discharge pressure sensing means for tending to further close the bypass valving means as compressor discharge pressure increases and pressure responsive means responsive to the differential in pressures which meter the fuel for opening said bypass valving means in order to achieve a rate of metered fuel flow corresponding to compressor discharge pressure.



3,568,441
TWO PEDAL HYDRAULIC BRAKING SYSTEM
Stanley Walker, Birmingham, England, assignor to
Girling Limited, Birmingham, England
Filed May 7, 1969, Ser. No. 824,380
Claims priority, application Great Britain, June 21, 1968,
29,600/68
Int. Cl. F15b *7/08*
U.S. Cl. 60—54.5 **5 Claims**

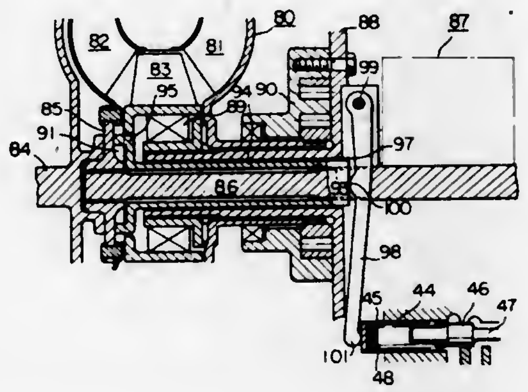


In a two-pedal hydraulic braking system in which brakes on wheels on opposite sides of a vehicle are applied by fluid from the pressure spaces of two master cylinders of which the pistons are actuated by separate pedals, cross compensation between the brakes on opposite sides of the vehicle is provided by a transfer passage communicating with the pressure spaces of the two cylinders through axial passages in the pistons controlled by normally closed transfer valves which are opened by movement of the pistons in the brake-applying direction.

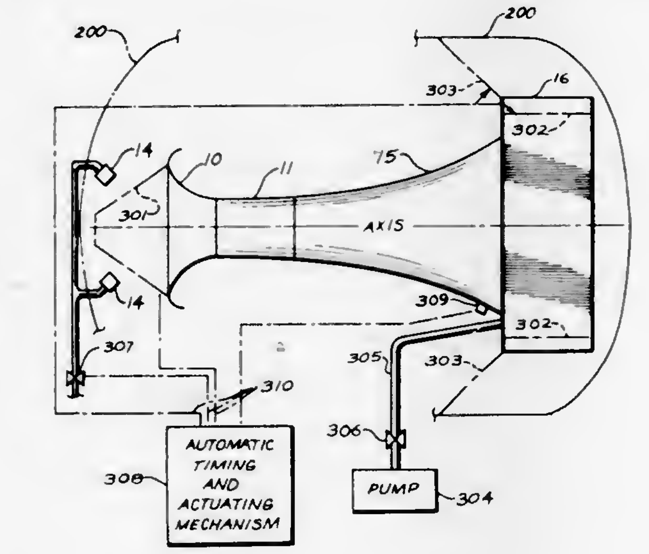
3,568,442
HYDRAULIC PRESSURE TO AN AUTOMATIC TRANSMISSION OF AN AUTOMOTIVE VEHICLE
Keizaburo Usui, Ichikawa, and Kazuyoshi Hiraiwa,
Tachikawa, Japan, assignors to Nissan Motor Company,
Limited, Yokohama, Japan
Filed June 30, 1969, Ser. No. 837,641
Claims priority, application Japan, Sept. 18, 1968,
43/67,090
Int. Cl. F16d *33/10;* **F16b** *47/06*
U.S. Cl. 60—54 **5 Claims**

A device for controlling a hydraulic pressure in a hydraulic control system to an automatic transmission of

an automotive vehicle in response to the changes of the torque of the turbine shaft of the torque converter. This control is performed by converting the twisting torque occurring in a power transmitting shaft within a predetermined distance into an axial displacement which causes a movement of a lever with which a hydraulic control valve is so actuated as to open or close a by-pass passage of an oil pump as a source of hydraulic pressure.

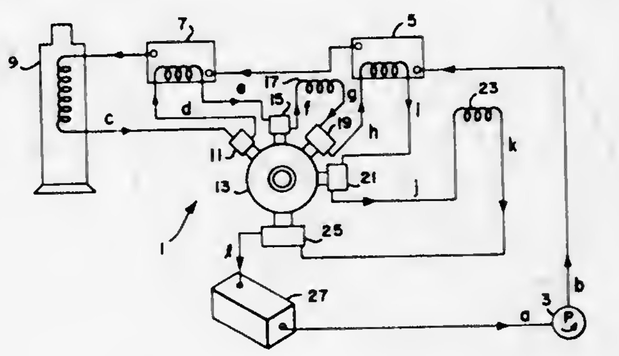


3,568,443
STARTING APPARATUS FOR A FLUID-DYNAMIC ENGINE
Giusto Fonda-Bonardi, Los Angeles, Calif., assignor to
Robert S. Estes, Los Angeles, Edward S. Merrill, Palm
Springs, Jay Kurtz, James Linahan, and Carl Clement,
Los Angeles, and Royal M. Galvin, Pacific Palisades,
Calif., a fractional part interest to each
Filed Aug. 14, 1969, Ser. No. 849,973
Int. Cl. F01k *3/18*
U.S. Cl. 60—59 **10 Claims**



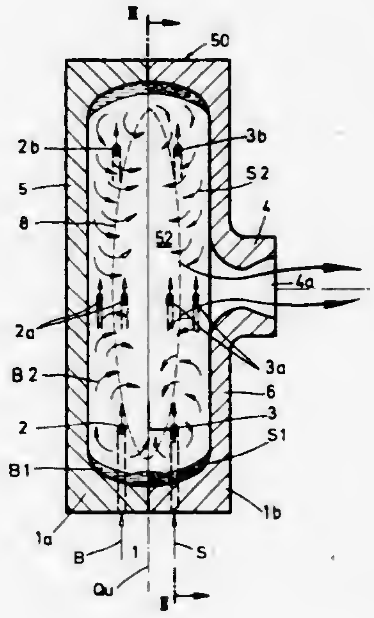
This invention relates to a fluid-dynamic engine wherein a gas is accelerated through the engine at the speed of sound at the sonic speed of the gas and imparting energy to the gas while maintaining it at the sonic speed. The engine may comprise a duct having a sonic duct section interposed between convergent and divergent sections so that it is successively accelerated to the sonic speed through the convergent section and moves through the sonic section at the sonic speed. The engine includes starting means for momentarily imparting a velocity equal to the speed of sound when the gas is quiescent to accelerate it to sonic speed. The starting means may also comprise means for isolating a portion of the generating fluid path while the gas is quiescent and evacuating the isolated path so that the fluid outside the isolated path may be accelerated to sonic speed and then passing it through the isolated path to start the engine.

3,568,444
REGENERATIVE-RECOMPRESSION-REHEAT VAPOR CYCLE METHOD FOR POWER PLANTS
Marion K. Harris, 14737 Charmeran Ave.,
San Jose, Calif. 95124
Filed June 26, 1969, Ser. No. 836,888
Int. Cl. F01k *19/04*
U.S. Cl. 60—65 **13 Claims**



A method of operating a vapor cycle power plant, e.g. a steam power plant, including steps of regeneration, recompression and reheating to increase the net work output and efficiency.

3,568,445
THRUST GAS GENERATOR AND METHOD OF OPERATION
German Munding, Bad Friedrichshall, and Gerrit Lammers, Neuenstadt, Germany, assignors to Bolkow Gesellschaft mit beschrankter Haftung, Munich, Germany
Filed Oct. 29, 1968, Ser. No. 771,565
Claims priority, application Germany, Nov. 20, 1967,
P 16 26 070.1
Int. Cl. F02k *9/02*
U.S. Cl. 60—211 **14 Claims**

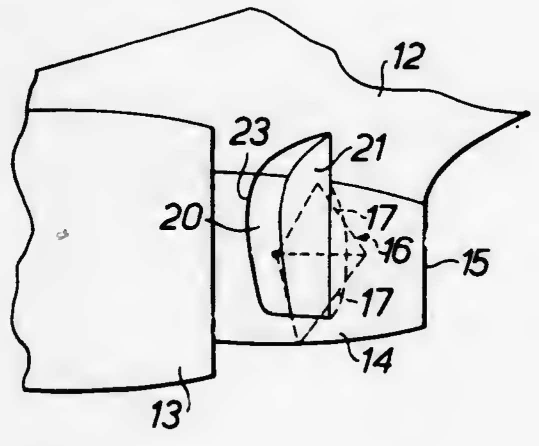


A rocket thrust gas generator or thrust engine includes a relatively shallow depth transversely widened combustion chamber having means for introducing a liquid fuel and an oxygen carrier at separate axially spaced locations tangentially into the combustion chamber in the form of adjacent whirling flows around the combustion chamber wall. The introduction is in a manner to cause axial stratification of the propellant components which is produced by the intermittent or continuous axial juxtaposition of the two components. The shallow depth combustion chamber is provided with a weir in one embodiment which separates the tangentially directed circumferential flows of the two separate propellant components. The combustion chamber advantageously includes a centrally arranged and axially extending thrust nozzle discharge.

In accordance with the method of the invention one propellant component is directed tangentially against the walls of the combustion chamber and deposited on the wall on half the axial length of the combustion chamber periphery, and another propellant component is deposited for flow on the other axially extending peripheral portion of the combustion chamber. The propellant components are advantageously of a type which react hypergolically and they are introduced in a manner such that the reaction takes place in a transverse plane defined by the boundary between two components to form a central hot reaction layer and a substantially lenticular combustion chamber core.

3,568,446
DUCTED FAN GAS TURBINE ENGINE

John Albert Mullins and Peter Arthur Ward, Derby, England, assignors to Rolls-Royce Limited, Derby, England
Filed June 17, 1969, Ser. No. 833,938
Claims priority, application Great Britain, June 26, 1968, 30,530/68
Int. Cl. F02k *1/20*
U.S. Cl. 60—226 **5 Claims**

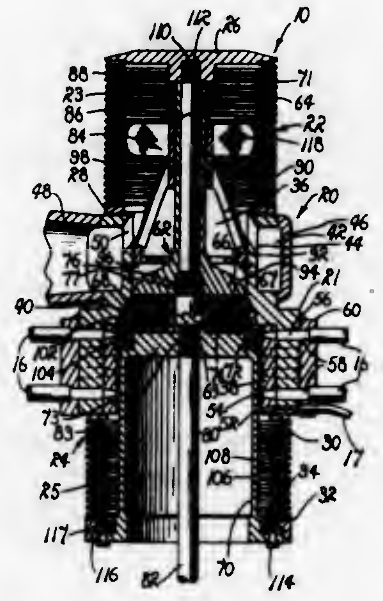


A ducted fan gas turbine engine having a jet pipe, within which a thrust reverser is mounted, the jet pipe having at least one movable portion which is movable between a closed position, in which it closes an opening in the jet pipe, and an open position in which it opens the said opening to a flow of the jet gases from the said thrust reverser, the movable portion, when in the open position, extending into the flow path of the fan air so as to cause reversal of the latter.

3,568,447
FORCE-BALANCED, THROTTLE VALVE

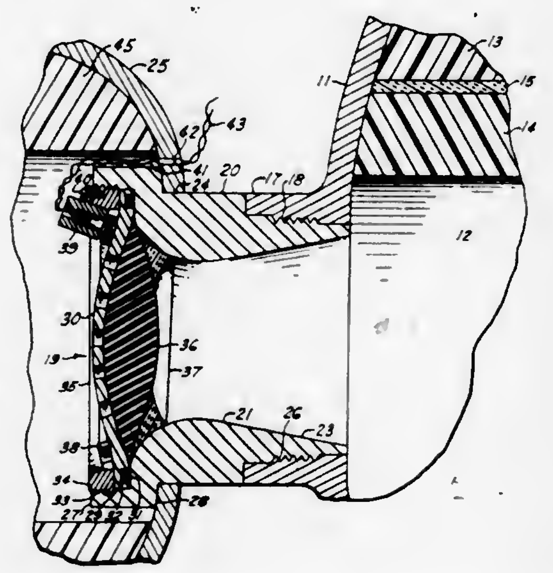
T. O. Paine, Administrator of the National Aeronautics and Space Administration, in respect to an invention of Robert W. Riebling, La Canada, Allan R. McDougal, La Crescenta, and Richard N. Porter, Redondo Beach, Calif.
Filed Mar. 18, 1969, Ser. No. 808,192
Int. Cl. F02k *9/02;* **F16k** *31/12*
U.S. Cl. 60—243 **14 Claims**

A force-balanced, throttle valve adapted to respond to a fixed force for imposing selected changes in the flow rates of a stream of fluid directed therethrough, being particularly suited for use in pressure systems, such as rocket motor fuel systems, wherein increasing flow rates serve to increase pressures within the system, and characterized by a throttle plug adapted to be linearly reciprocated to selected metering positions for establishing variable flow rates for fluid flowing through the valve; a pressure chamber including therein an actuator adapted to apply a variable force to the plug for urging the plug in a first direction with a first force, varied at a rate commensurate with concurrent changes in system pressures; and biasing means operatively associated with the throttle plug adapted to act in opposition to the first force for urging the plug in its opposite direction with a variable second force equal to the first force so that a continuous force-balance is achieved between the opposing forces acting on the plug.



3,568,448
IGNITION SYSTEM FOR IGNITING A GAS GENERATOR BY THE USE OF COMBUSTION GASES FROM A SOLID PROPELLANT ROCKET MOTOR HAVING SELECTIVE ZONING CAPABILITIES

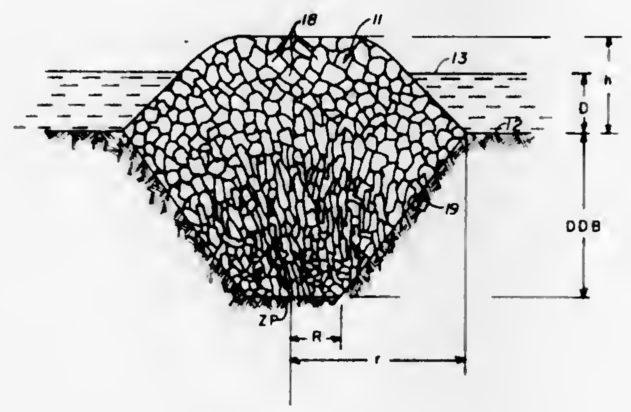
Glenn E. Webb, Jr., Huntsville, Ala., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Filed Apr. 1, 1969, Ser. No. 812,109
Int. Cl. F02k *9/04*
U.S. Cl. 60—250 **2 Claims**



An ignition system positioned between the combustion chamber of a gas generator having a solid propellant grain therein and the combustion chamber of a solid propellant rocket motor having selective zoning capabilities so that when the ignition system is operated the combustion gases from the combustion chamber of the solid propellant rocket motor will enter the combustion chamber in the gas generator and ignite the solid propellant grain therein.

3,568,449
CONSTRUCTION OF LAND MASSES BOUNDED BY WATER

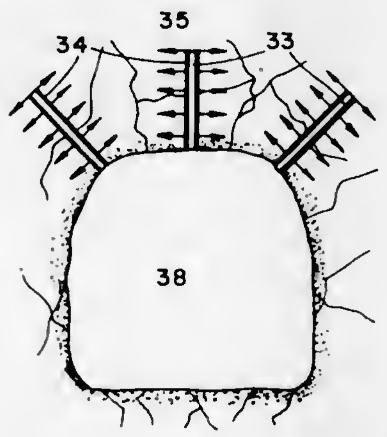
Mitchell A. Lekas, Concord, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 2, 1969, Ser. No. 863,167
Int. Cl. E02d *17/16;* **F42d** *3/04*
U.S. Cl. 61—35 **2 Claims**



A land mass, such as an island, jetty, or the like is constructed in a body of water by explosively mounding the water body floor to form a mass of broken rock, or so-called retarc (invert crater) rising above the water surface.

3,568,450
METHOD FOR COUNTERSTRESSING IN SITU ROCK FOR SUPPORT OF UNDERGROUND OPENINGS

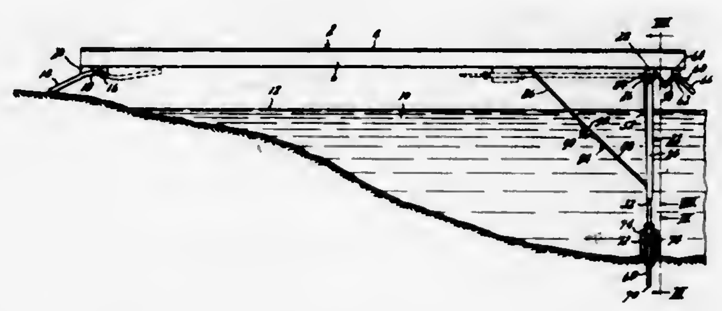
Jerry M. Whiting, Dallas, Tex., assignor to Atlantic Richfield Company, a fractional part interest
Filed May 28, 1969, Ser. No. 828,513
Int. Cl. E21d *21/00*
U.S. Cl. 61—45 **4 Claims**



In rock surrounding an underground excavation which must have a man-made support system to ensure a required degree of structural stability and which is subjected to certain stress conditions, an inflatable device or rock jack is inserted into a drill hole or slot in the rock. The rock jack is inflated slightly by fluid pressure to take up any space between the jack and the in situ rock and is subsequently pressurized to the limit of its capability. High compressive force is transmitted to the rock, thus creating compressive stress in monolithic rock and increasing confinement of and friction between proximal blocks of rock which are separated by narrow fractures, tension cracks, joint planes or similar structural defects. Such action maintains or increases the natural capability of the rock to support itself and to remain stable by utilizing the inherent compressive strength of the rock.

3,568,451
PORTABLE DOCK

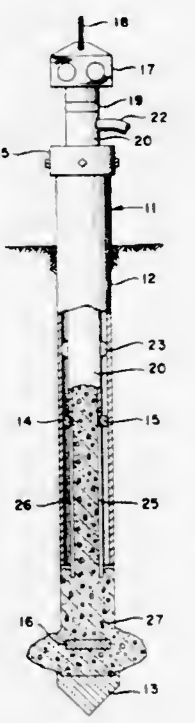
Victor H. Gustin, Kansas City, Mo.
(204 Queens Lane, Blue Spring, Mo. 64015)
Filed Dec. 17, 1968, Ser. No. 784,450
Int. Cl. E02b *3/20*
U.S. Cl. 61—48 **3 Claims**



A portable dock consisting of a gangplank adapted to be carried by a small boat and to be extended between said boat and the shore, said gangplank having legs at both the shore end and boat end thereof, all of said legs being foldable against the gangplank for convenience of storage, and the legs at the boat end being adjustable extensible to engage the bottom to compensate for variable water depths, and for irregular contour of the bottom.

3,568,452
METHOD AND APPARATUS FOR FORMING BULBULAR BASE PILES

Felix Rayston Stifler, Jr., Duxburg, Mass., assignor to Shell Oil Company, New York, N.Y.
Filed Aug. 8, 1968, Ser. No. 751,260
Int. Cl. E02d *5/34, 5/38*
U.S. Cl. 61—53.6 **4 Claims**



A borehole forming tool or drive pipe is provided with an ejection chamber at one end and with means for connecting the tool to a sonic driving head. A sonic driving head is provided with a driving mandrel which is constructed to telescopically receive the tool and adapted to drivingly engage the drive pipe in one position and engage a piston in the ejection chamber of the pipe in a second position. The ejection is filled with a charge of solidifiable material such as cement and then driven sonically to the desired depth in an earth formation, the mandrel is then rotated to engage the piston and the charge of material then sonically ejected from the chamber and into the form of a radially-extensible mass in the formation.

3,568,453

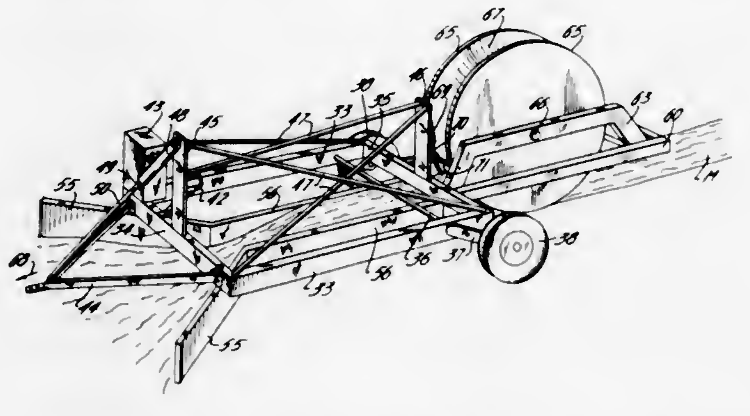
APPARATUS FOR FORMING DIKES

Robert M. Ziegenmeyer, Sutter, Calif., assignor to Dart Industries Inc.

Original application Feb. 2, 1965, Ser. No. 429,738, now Patent No. 3,415,062, dated Dec. 10, 1968. Divided and this application Sept. 23, 1968, Ser. No. 810,406

Int. Cl. A01b *13/07;* **E02b** *7/06;* **E02d** *17/00*

U.S. Cl. 61—63 **9 Claims**



The present invention relates to an apparatus for forming barriers for impounding water for use in diking rice fields or the like comprising a vehicle provided with means for gathering earth for a limited area along both sides of a desired path, forming the gathered earth into a mound of the desired height, width and shape, covering the formed mound with plastic to prevent weed growth and erosion and embedding the film in the earth to prevent accidental removal of the plastic from the mound.

3,568,454

APPARATUS FOR WORKING UNDER WATER

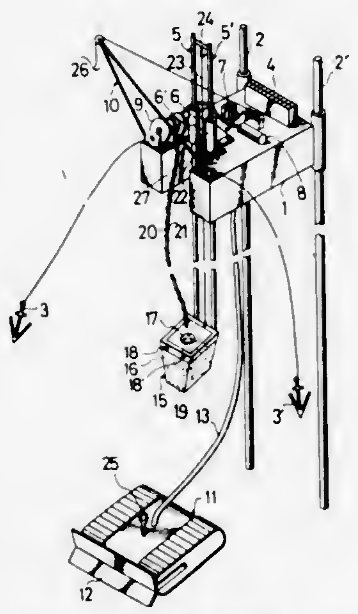
Yasuo Itami, Tokyo, Japan, assignor to Japan Development and Construction Co., Ltd., Tokyo, Japan

Filed Mar. 13, 1969, Ser. No. 806,902

Claims priority, application Japan, Oct. 18, 1968, 43/91,343

Int. Cl. B63c *11/40, 11/42*

U.S. Cl. 61—69 **6 Claims**



Apparatus for working under water comprising a combination of a submergible working machine such as a bulldozer and a floating body equipped with various devices necessary for operating the working machine. A submergible control chamber accommodating an operator is suspended into water from the floating body to enable the operator to control the operation of the working machine.

3,568,455

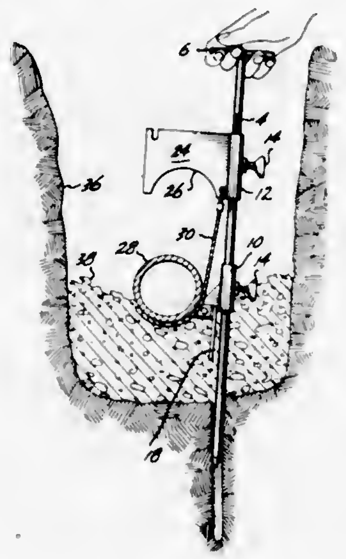
METHOD OF LAYING PIPE IN OR ON A BED OF PARTICLE MATERIAL OR IN A TRENCH

Robert E. McLaughlin, Rte. 1, Box 52, Sedro Woolley, Wash. 98284, and Lloyd J. Charbonneau, 321 316th NE., Stanwood, Wash. 98292

Filed Dec. 23, 1968, Ser. No. 785,941

Int. Cl. B63b *35/04*

U.S. Cl. 61—72.1 **5 Claims**



A method and apparatus are disclosed for laying pipe, and particularly sectional pipe such as sewer and drain tile, in or on a bed of particle material such as gravel or crushed rock. According to the method, a series of posts are removably mounted at spaced positions on the ground along the course of the pipe, and the pipe is releasably supported on the posts in a raised condition above the ground, while the particle material is deposited under the pipe to at least a depth at which the deposit can sustain the pipe in its raised condition. Then the pipe is released from the support of the posts, and the posts are removed from the deposit while the deposit sustains the condition of the pipe. Where the pipe is divided into sections, as in the case of sewer and drain tile, each section is supported on a single post so that the sections can be quickly aligned with one another along the desired slope.

3,568,456

METHOD FOR MANUFACTURING LONG PIPE LINES ON THE BOTTOM OF A DEEP WATER

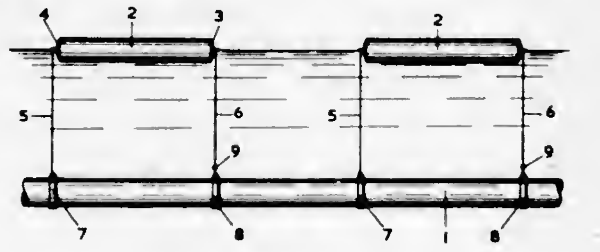
Jan Hendrik van Loenen, Beverwyk, Netherlands, assignor to Netherlands Offshore Company N.V., The Hague, Netherlands

Filed Dec. 23, 1968, Ser. No. 786,164

Claims priority, application Great Britain, Dec. 29, 1967, 59,136/67

Int. Cl. F16l *1/00;* **B63b** *35/42*

U.S. Cl. 61—72.6 **2 Claims**



The present invention relates to a method of manufacturing long pipe lines on the bottom of a deep water, such as the sea bottom, according to this method the pipe line sections are prefabricated in a length of half a mile or more and subsequently transported towards the destination by supporting the sections deep below water level by means of a number of vertical floats spaced at regular intervals over the length of the sections. When in place the floats will intersect the water level with a relatively small cross section.

3,568,457

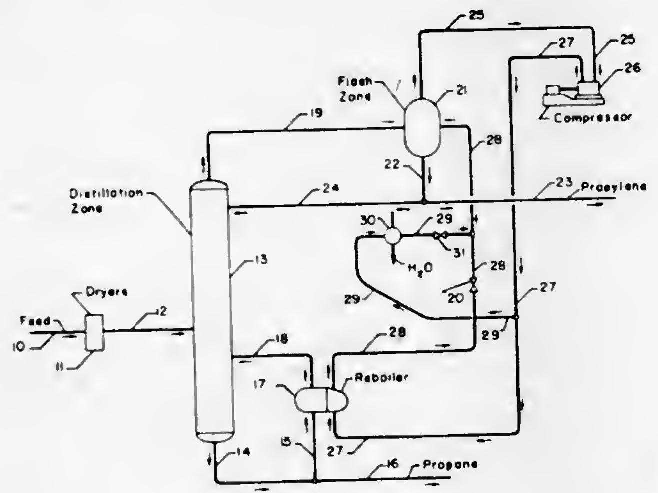
SEPARATION OF PROPANE AND PROPYLENE BY DISTILLATION

Terrence M. Briggs and Valentin H. Segers, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 5, 1969, Ser. No. 804,549

Int. Cl. F25j *3/02,* **C07c** *9/00*

U.S. Cl. 62—28 **4 Claims**



Process for separating propane from propylene via fractionation means including the use of a heat pump to supply heat to the fractionator reboiler.

3,568,458

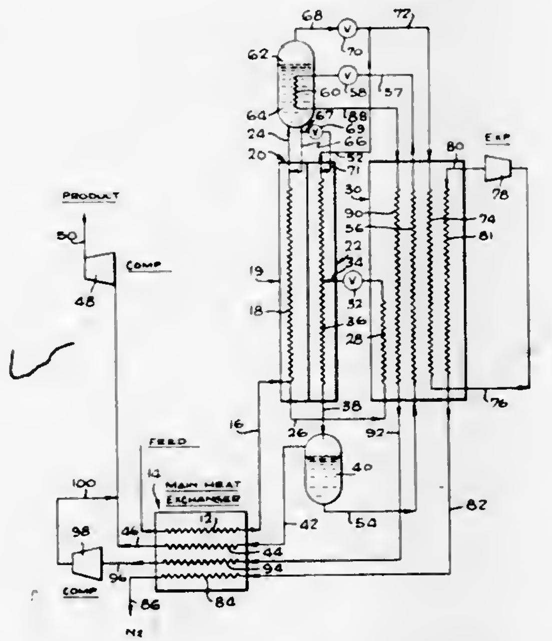
GAS SEPARATION BY PLURAL FRACTIONATION WITH INDIRECT HEAT EXCHANGE

Michael L. Hoffman, Beverly Hills, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Nov. 7, 1967, Ser. No. 681,284

Int. Cl. F25j *3/02*

U.S. Cl. 62—31 **14 Claims**



Method and system particularly designed for separating methane from mixtures of nitrogen and methane, which involves, according to one embodiment, separating a mixture of methane and nitrogen in an initial separation stage to produce said nitrogen vapor and a methane-rich liquid of methane and nitrogen, feeding the methane-rich liquid to a fractionating column in heat exchange relation with the initial separation stage, withdrawing methane in substantially pure form from the bottom of the fractionating column, separating a portion of the last-mentioned liquid methane, subcooling the separated portion of liquid methane, throttling the subcooled liquid methane and passing it through a condenser in heat exchange relation with nitrogen withdrawn as overhead from the initial separation zone, to condense such nitrogen and vaporize the methane, supplying condensed liquid nitrogen as reflux to the top of both the initial separation zone and fractionating column, and passing nitrogen vapor and vaporized methane from the condenser into heat exchange relation with liquid methane refrigerant for subcooling same before the liquid methane is throttled and passed to the nitrogen condenser. The nitrogen and methane vapor streams from the condenser are also passed in heat exchange relation with the methane-rich liquid containing nitrogen, from the bottom of the initial separation zone, prior to its being throttled and introduced as feed into the fractionating column. Also, preferably the vaporized nitrogen from the condenser is brought in several passes in series, in heat exchange relation with the liquid methane refrigerant for subcooling same, employing work expansion after one or more of such passes for greater efficiency. The associated initial separation zone and main fractionating column in the system are operated under conditions to effect a "differential distillation in the column.

3,568,459

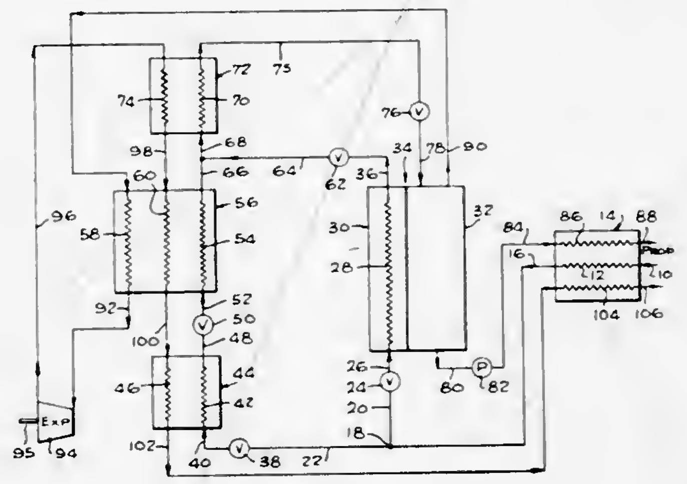
SEPARATION OF MIXTURES OF NITROGEN AND HYDROCARBONS

Michael L. Hoffman, Beverly Hills, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Dec. 1, 1967, Ser. No. 687,358

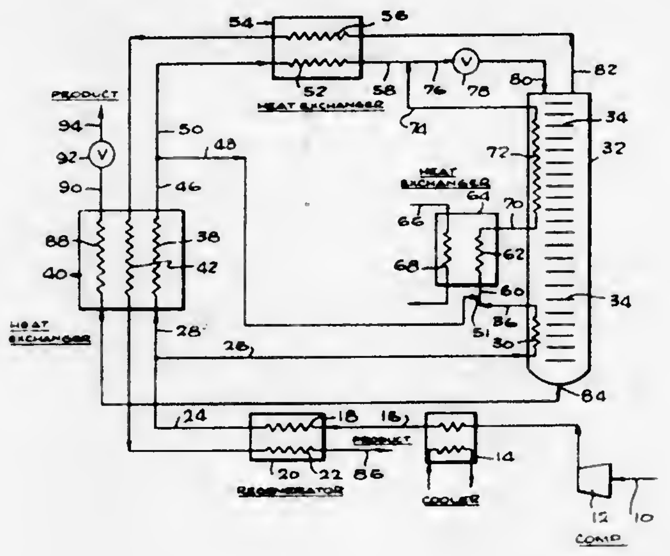
Int. Cl. E25j *5/00*

U.S. Cl. 62—34 **15 Claims**



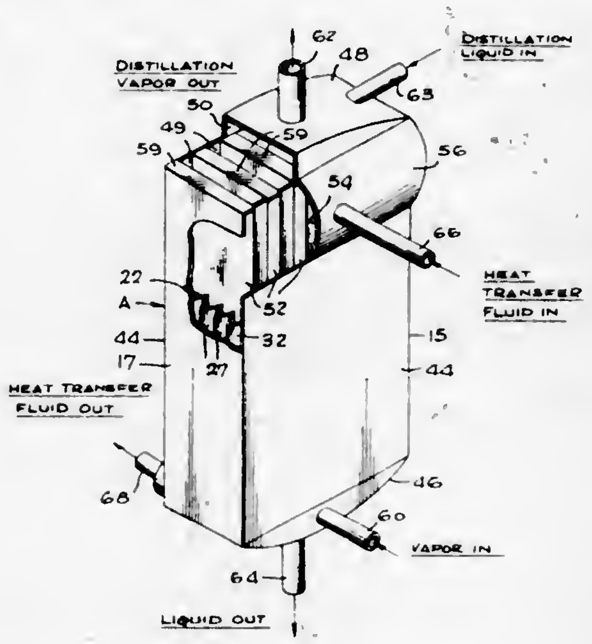
Method and system particularly designed for separating methane from mixtures of nitrogen and methane, and which generally contain a major proportion of nitrogen, which involves, according to one embodiment, cooling a compressed feed mixture, e.g., one containing 60% nitrogen and 40% methane, passing a major portion, e.g., 90%, of the cooled compressed feed mixture into indirect heat exchange relation with a fractionating column to supply heat to the column, further cooling the remaining minor portion, e.g., 10%, of the cooled compressed feed mixture, withdrawing the resulting cooled major portion of the compressed feed mixture from heat exchange relation with the column, combining the last-mentioned major portion of the compressed feed mixture with the further cooled minor portion of the compressed feed mixture, further cooling the resulting combined compressed mixture, reducing the pressure of such combined compressed mixture, introducing the last-mentioned mixture as feed into the fractionating column, effecting a separation of the last-mentioned mixture in the column, withdrawing hydrocarbon in substantially pure liquid form from the bottom of the fractionating column, withdrawing nitrogen containing a minor portion of hydrocarbon, as overhead vapor from the fractionating column, and passing such overhead vapor into heat exchange relation with the minor portion of the compressed feed mixture and with the combined compressed mixture for further cooling same as aforesaid. Preferably, the overhead vapor from the fractionating column is brought in several passes in series, in heat exchange relation with the minor portion of the compressed feed mixture and with the combined compressed mixture, employing work expansion following at least one of such passes for greater efficiency. There is recovered substantially pure hydrocarbon product at a pressure close to that of the feed pressure, and by allowing some of the hydrocarbon to be taken off with the overhead nitrogen from the column and which is discarded as waste, substantially no net external power is required.

3,568,460
SEPARATION OF GAS MIXTURES BY FRACTIONATION WITH INDIRECT HEAT EXCHANGE
Michael L. Hoffman, Los Angeles, and Henry Huang, Inglewood, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Nov. 4, 1968, Ser. No. 772,898
Int. Cl. F25j *3/02*
U.S. Cl. 62—34 **19 Claims**



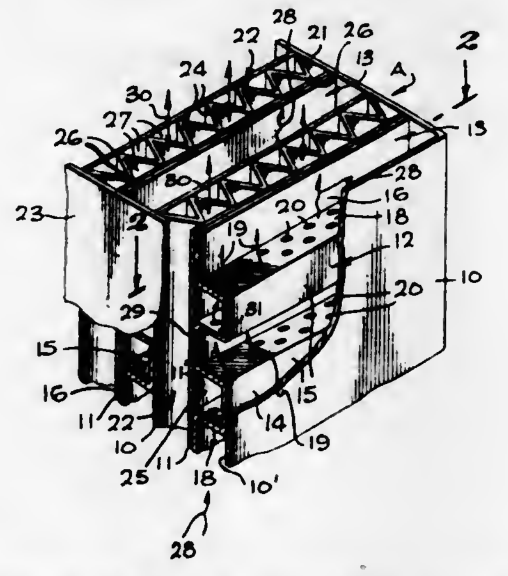
Method and system for separating components of gas mixtures such as mixtures of hydrocarbons containing from 1 to about 4 carbon atoms, and particularly designed for recovery of hydrocarbons heavier, i.e., of higher molecular weight, than methane from natural gas containing a major proportion of methane and a minor proportion of ethane and which may also contain small amounts of propane, and other heavier hydrocarbons, which involves, according to one embodiment, cooling a compressed feed mixture of such natural gas, dividing the cooled compressed feed mixture into a first portion and a remaining portion, and passing the first portion of such cooled compressed feed mixture in heat exchange relation along the lower portion of a distillation column to further cool the first portion of the feed mixture and supply reboil heat to the lower portion of the column. Such further cooled first portion of the feed mixture is withdrawn from heat exchange relation with the column, is additionally cooled by external refrigeration and such additionally cooled first portion of the feed mixture is passed in heat exchange relation along the upper portion of the distillation column to further cool the last-mentioned portion of the feed mixture and providing reboil heat in the upper portion of the column. The remaining portion of the cooled compressed feed mixture is further cooled and combined with the cooled portion of feed mixture in liquid form withdrawn from heat exchange relation with the upper portion of the column, and the resulting combined cooled feed mixture is introduced into the top of the column as feed for the column. A separation of the feed mixture in the column is effected by a non-adiabatic distillation in the column, and a liquid bottoms product is withdrawn consisting essentially of substantially pure ethane and an overhead product consisting essentially of methane is obtained, which is used to cool the above-noted remaining portion of the feed mixture. This process and system are designed to effect an efficient separation for high recovery of ethane from the above-noted natural gas by removing refrigeration from the column along the length of the column in an efficient substantially thermodynamically reversible manner, that is, non-adiabatically, resulting in a substantial reduction in power requirement.

3,568,461
FRACTIONATION APPARATUS
Michael L. Hoffman, Beverly Hills, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Nov. 22, 1967, Ser. No. 685,012
Int. Cl. B01d *3/16;* **F25j** *3/00*
U.S. Cl. 62—42 **5 Claims**



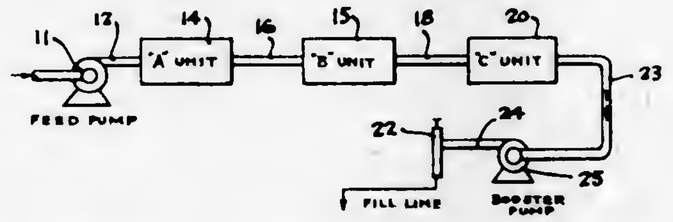
Fractionating apparatus comprising two series of corrugated vertically spaced sheets, each of the two series of sheets extending horizontally, one series of such sheets being offset from the other series, and forming a plurality of vertical channels or paths so that a vapor or vapor mixture to be separated and passing upwardly through such channels impinges on the vertical surfaces of the alternate offset walls of the corrugations of the respective offset series of corrugated sheets, and in contact with a liquid film flowing downwardly on such vertical surfaces, providing an efficient fractionation. In a preferred embodiment, a plurality of such fractionating units are positioned parallel to each other, with a passage or passages for an external heat transfer fluid provided between adjacent units to supply heat to or to remove heat from the adjacent fractionating units.

3,568,462
FRACTIONATING DEVICE
Michael L. Hoffman, Beverly Hills, and Robert L. Hoskinson, Pacific Palisades, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Nov. 22, 1967, Ser. No. 685,013
Int. Cl. B01d *3/16;* **F25j** *3/00*
U.S. Cl. 62—42 **9 Claims**



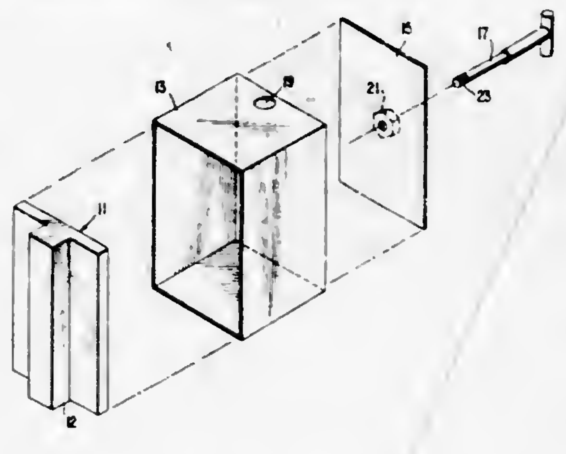
Fractionating apparatus comprising vertically spaced partitions, each partition being substantially in a horizontal plane and extending across the column from one side wall to the opposite side wall, such partitions being apertured, and forming a series of enclosed spaces, such partitions preferably formed from a corrugated metal sheet, a vapor or vapor mixture to be separated passing upwardly through the holes in the partitions and in contact with a condensed liquid film flowing downwardly along the surface of the horizontal partitions and the vertical intermediate walls, providing an efficient fractionation. In a preferred embodiment, a plurality of such fractionating units are positioned parallel to each other, with a passage or passages for an external heat transfer fluid provided between adjacent units to supply heat to or to remove heat from the adjacent fractionating units.

3,568,463
APPARATUS FOR FATTY MATERIALS
Charles E. McMichael, Louisville, Ky., and William A. Singleton, Pittsburgh, Pa., assignors to Chemetron Corporation, Chicago, Ill.
Original application Apr. 20, 1966, Ser. No. 543,832, now Patent No. 3,455,700. Divided and this application Dec. 30, 1968, Ser. No. 798,849
Int. Cl. A23d *5/02*
U.S. Cl. 62—343 **4 Claims**



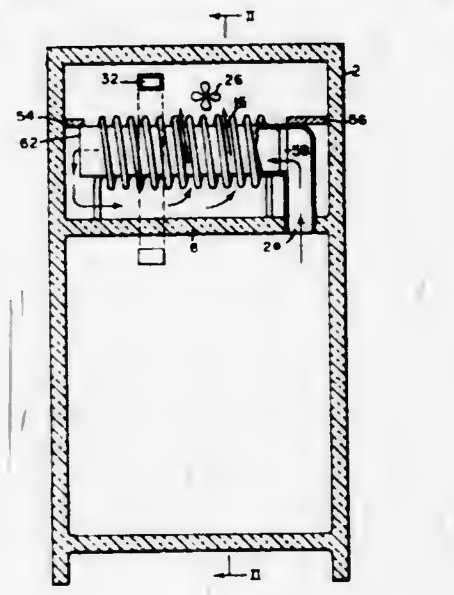
An apparatus for preparing a plasticized fatty material which substantially reduces tempering times. A molten fat is cooled and partially crystallized at a first temperature range at a first stage, then worked by agitation to effect partial crystallization at a second temperature higher than the first temperature in a second stage. Subsequently, the material is cooled and worked in a third stage at a temperature lower than the second temperature and at about the same or a lower temperature than in the first stage to form small and well distributed crystal nuclei in the beta prime form.

3,568,464
FREEZE BRANDING IRON
James E. Drayson, Longmont, Colo.
(1144 Harvard Ave., Billings, Mont. 59102)
Filed Mar. 10, 1969, Ser. No. 805,440
Int. Cl. F25d *3/00*
U.S. Cl. 62—293 **7 Claims**



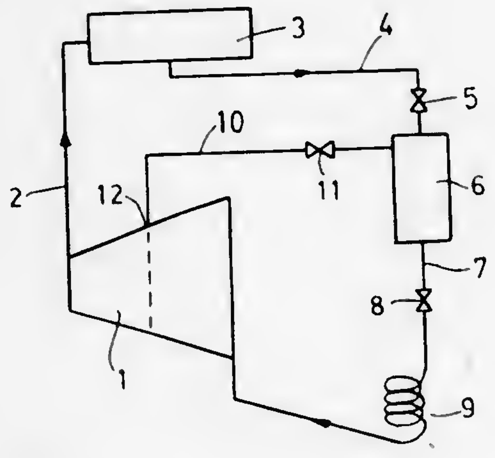
This disclosure describes a freeze branding iron comprising a coolant reservoir having a brand configuration projecting outwardly from one side of the reservoir. A handle projects outwardly from the reservoir on the side opposite to the brand configuration side. The coolant reservoir holds a suitable refrigerant, such as a mixture of Dry-Ice and alcohol, for example.

3,568,465
SINGLE EVAPORATOR FOR COMBINATION REFRIGERATION APPARATUS
Robert C. Jung, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed June 5, 1969, Ser. No. 830,755
Int. Cl. F25d *17/06*
U.S. Cl. 62—419 **10 Claims**



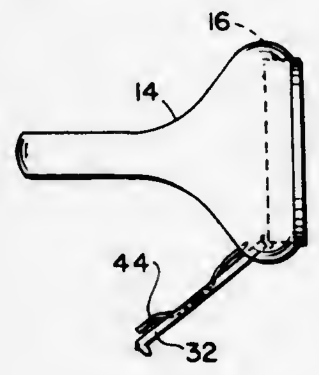
In evaporator is disclosed for use in a refrigerator of the type having both a frozen food compartment and a fresh food compartment in air flow communication with an evaporator chamber enclosing a single evaporator. The refrigerant tubing of the evaporator is flattened and spirally wound about, and in contact with, a metal cylinder through which the moisture laden return air from the fresh food compartment is initially directed for entry into the evaporator chamber. The moisture in the return air is deposited as frost on the internal walls of the cylinder, refrigerated by conductance through the tubing so that substantially dry, cool air exits from the cylinder to mix with the relatively dry return air of the frozen food compartment directed to the evaporator chamber. The mixed air is drawn over the exterior walls of the cylinder and in contact with the flattened walls of the closely spaced coils of the refrigerant tube, further cooling the air for return to the respective compartments. A defroster is also provided in the cylinder for periodic defrost of the frost accumulation.

3,568,466
REFRIGERATION SYSTEM WITH MULTI-STAGE THROTTLING
Tore Brandin and Knut Anders Lennart Lundberg, Norrkoping, Sweden, assignors to Stal Refrigeration Aktiebolag, Norrkoping, Sweden
Filed Apr. 28, 1969, Ser. No. 819,685
Claims priority, application Sweden, May 6, 1968, 6,054/68
Int. Cl. F25b *1/10*
U.S. Cl. 62—510 **2 Claims**



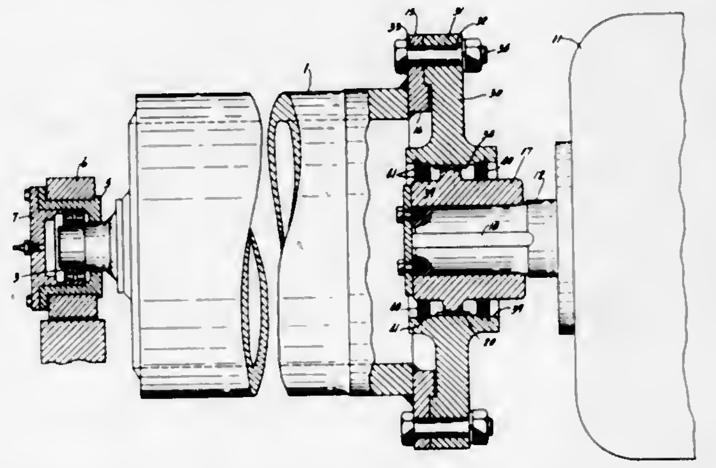
A refrigerating system provided with multi-stage throttling and with a positive displacement compressor of the rotary type, the casing of the compressor being provided between its low pressure and high pressure ports with one or more admission ports for intermediate pressure gas from liquid separators located between throttling points. The gas formed during throttling is supplied through these admission ports to the working compartment of the compressor. The opening and closing of the admission ports is achieved by the action of the compressor which has its rotor lobes operative as valves for the admission ports.

3,568,467
ARTICLE OF JEWELRY HAVING CHANGEABLE ORNAMENTAL STONE
Bernice F. Ellison, 11 Aspen Road, New Rochelle, N.Y. 10804
Filed Aug. 21, 1968, Ser. No. 766,014
Int. Cl. A44c *17/02*
U.S. Cl. 63—29 **3 Claims**



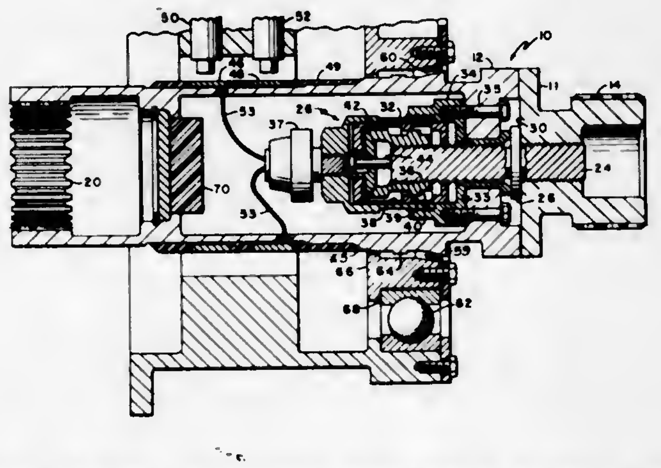
An article of jewelry having a mounting in which is fastened an oval member to hold a removable ornamental stone. The stone is held in place by a second oval member fitted within said first oval member and including a hinged connection to maintain the members associated while the stone is being changed.

3,568,468
CABLE DRUM MOUNTING FOR A CRANE
Max J. Dechantsreiter, Milwaukee, and Wilbur E. Bartley, West Bend, Wis., assignors to Harnischfeger Corporation, Milwaukee, Wis.
Filed June 17, 1969, Ser. No. 834,110
Int. Cl. F16d *3/18*
U.S. Cl. 64—9 **5 Claims**



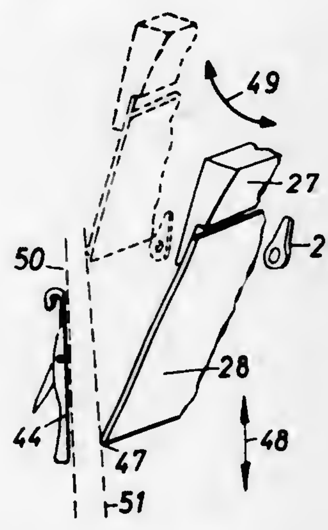
A spherical bearing for mounting one end of a crane cable drum to a power transmission whereby connection between the drum and its driving member can be easily made and which provides for misalignment between the parts.

3,568,469
SYSTEM FOR INSTANTANEOUSLY DISCONNECTING A ROTATING LOAD
James Wade, Stratford, and Gordon L. Andrews, New Haven, Conn., assignors to Avco Corporation, Stratford, Conn.
Filed June 27, 1969, Ser. No. 837,015
Int. Cl. F16d *9/00*
U.S. Cl. 64—28 **6 Claims**



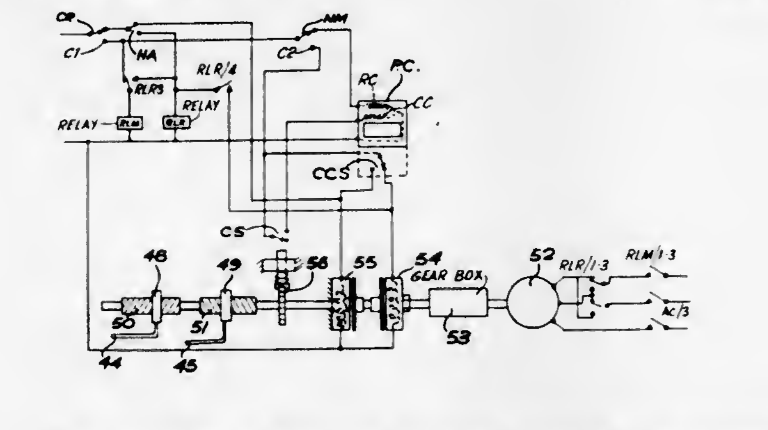
The disclosed equipment provides a system for instantaneously disconnecting a load from the output shaft of a gas turbine engine while the engine is operating at full power and speed. The equipment utilizes a connecting shaft constructed in two separable halves, the junction being in the form of a face spline held together by a single, axially positioned stud and an explosive nut. The shape of the face spline is such that the forces of rotation tend to instantaneously separate the two halves of the shaft when the explosive nut is released. The system includes means for preventing bounce-back, and a secondary bearing system for supporting the shaft after separation.

3,568,470
FALL-PLATE ARRANGEMENT FOR A RASCHEL KNITTING MACHINE
Karl Kohl, Offenbacher Landstr. 20, Hainstadt (Main), Germany
Filed Oct. 31, 1968, Ser. No. 772,139
Claims priority, application Germany, Nov. 3, 1967, P 16 35 874.0
Int. Cl. D04b *23/00*
U.S. Cl. 66—86 **2 Claims**



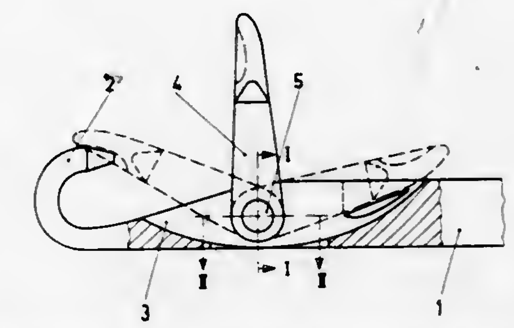
The fall-plate of a raschel knitting machine is mounted on the guide bar hangers in such a position that the plate is obliquely inclined to the common plane of the knitting needles when the hanger is in the median position of its oscillating movement. The movement of the fall-plate toward and away from the needles is guided in such a manner that the lower operating edge of the plate moves in a path substantially parallel to the common needle plane.

3,568,471
STRAIGHT BAR KNITTING MACHINES
Raymond Blood, Shepshed, England, assignor to William Cotton Limited
Filed Dec. 9, 1968, Ser. No. 782,054
Claims priority, application Great Britain, Dec. 23, 1967, 58,558/67
Int. Cl. D04b *11/06*
U.S. Cl. 66—89 **7 Claims**



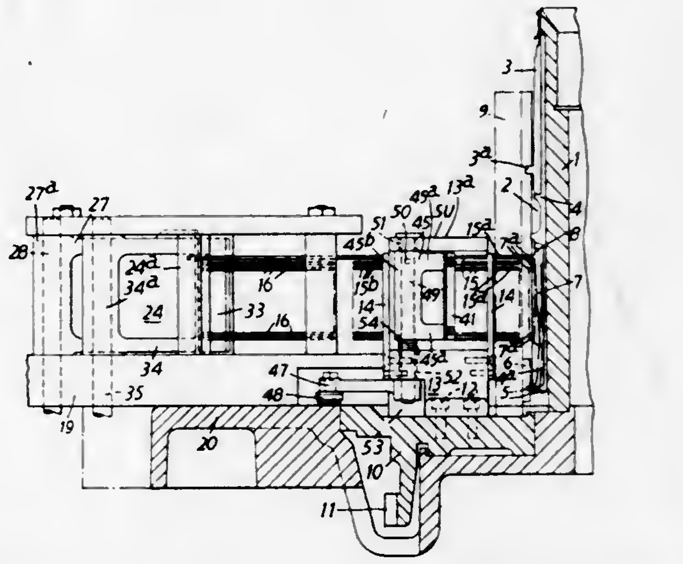
In a straight bar knitting machine, means for forming loop doublings at infinitely variable locations in a last knitted course of rib fabric to reduce the course length to that required for non-rib fabric to follow on, wherein the usually operable narrowing head has selector elements corresponding to the needles and selectively operable each time the narrowing head is operated to render groups of loop transfer points effective on their corresponding needles, to form loop doublings, and wherein varied group selection is obtained by oppositely adjusted control bars under control of lead screws, and the lead screws infinitely adjusted by electric means including a motor and counter means under control of a punched chart programming means.

3,568,472
LATCH NEEDLE FOR KNITTING MACHINES
Hardo Berentzen, Ebingen, Wurttemberg, Germany, assignor to Theodor Groz & Sohne & Ernst Beckert Nadelfabrik Commandit-Gesellschaft, Ebingen, Germany
Filed Dec. 3, 1968, Ser. No. 780,640
Claims priority, application Germany, Dec. 18, 1967, P 16 35 810.4
Int. Cl. D04b *35/04*
U.S. Cl. 66—122 **4 Claims**



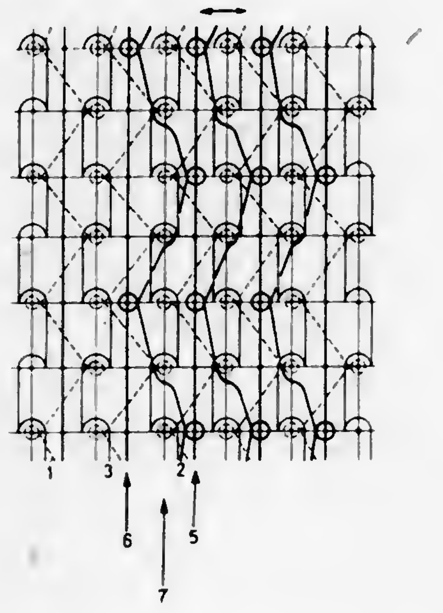
A latch needle for knitting machines having a latch which is pivotally mounted on a bearing pin between two shaft faces. The pin is mounted in two holes located in the shaft faces and is welded to the bearing pin. The welding regions connecting the pin with the shaft faces are located only or principally on the outside surfaces of the shaft faces. The pin is positively pre-located in the holes of the shaft faces.

3,568,473
PATTERNING MECHANISM FOR CIRCULAR KNITTING MACHINES
Ernest L. Farmer, Leicester, England, assignor to Wildt Mellor Bromley Limited, Leicester, England
Filed Dec. 12, 1968, Ser. No. 783,268
Claims priority, application Great Britain, Jan. 24, 1968, 3,800/68
Int. Cl. D04b *15/68*
U.S. Cl. 66—154 **8 Claims**



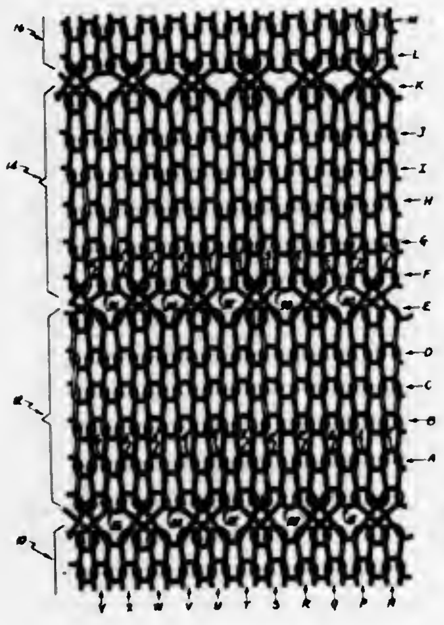
Multi-feed circular knitting machine with individually operable needles controlled by instruments having patterning butts. Butts are in superimposed planes and oblique lines around needle cylinder. Associated with each feed is a selector unit including a bank of selector slides for action on the butts. Slides are actuated selectively at dictates of programmed control media. A cam on the needle cylinder acts on previously selected slides to return same to inoperative positions preparatory to re-selection. To prevent over-propelling of the slides in either direction, they are so frictionally engaged in combs as to be lightly held in positions to which they are moved.

3,568,474
METHOD OF WARP KNITTING A PILE FABRIC
Otto Paul Gottfried Berthold, Bieberstrasse 17, Obertshausen, near Offenbach am Main, Germany
Filed Aug. 19, 1968, Ser. No. 753,481
Claims priority, application Germany, Aug. 17, 1967, P 16 35 862.2
Int. Cl. D04b *23/08*
U.S. Cl. 66—193 **5 Claims**



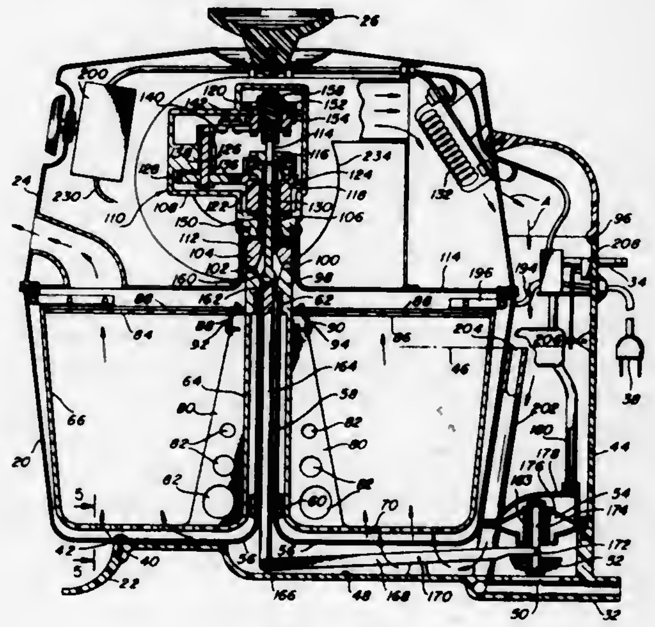
A warp knitted pile fabric is formed on a single set of spring or bearded needles with two or more yarn guides by leaving some of the needles empty and using them for forming loops, but not stitches of the pile yarn. The pile yarn crosses one or more wales of ground fabric stitches between loops and is bound to at least one of the crossed wales by being laid into the stitches of the same without itself forming any stitches.

3,568,475
INSULATING FABRIC
Morris Philip, 2519 Grand Ave., Bronx, N.Y. 10468
Filed Nov. 25, 1966, Ser. No. 597,120
Int. Cl. D04b *9/06*
U.S. Cl. 66—199 **11 Claims**



This invention is directed to an insulating weft knit fabric comprising a plurality of longitudinally extending sections, each of said sections comprising a plurality of courses defining laterally alternating obverse portions and reverse portions, each portion comprising a plurality of wales, the loops of the obverse portion facing one side of the fabric and the loops of the reverse portion facing the other side of the fabric, the obverse portions and the reverse portions of each section being substantially aligned with the reverse portions and the obverse portions, respectively, of the section on either side thereof so as to form insulating cells in said fabric.

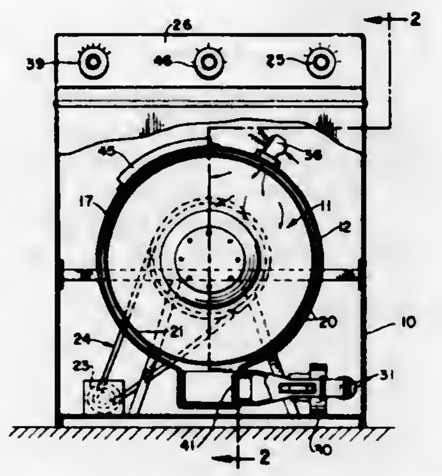
3,568,476
CLOTHES WASHING AND DRYING MACHINE
Emery L. Seyler, 100 Edward St., Del Rio Hedges, Del Rio, Tex. 78840
Filed May 19, 1969, Ser. No. 825,773
Int. Cl. D06f *25/00, 33/02*
U.S. Cl. 68—12 **17 Claims**



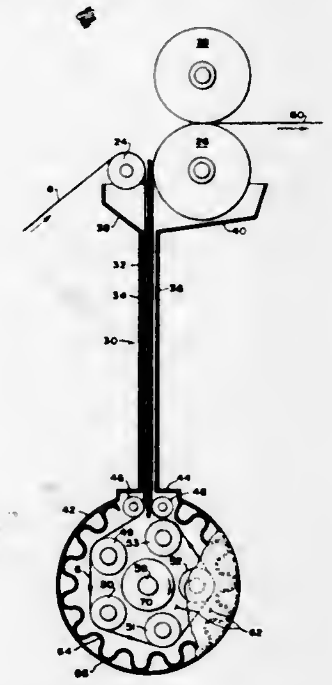
A clothes washing and drying machine particularly adapted for use in washing delicate fabric items, such as ladies' under clothes; said washing machine being small and capable of use or installation in a bathroom area, and comprising novel features including a cover hingedly connected to a tub, wherein an agitator basket is located; said cover housing having drive mechnism for the basket and all located above the water level of the tub, and hydraulic pressure responsive actuating mechanism extending upwardly through a central hollow cylindrical bearing support of the tub and adapted to shift the drive mechanism of the machine which is carried in the cover housing thereof.

3,568,477
DRYCLEANING APPARATUS
Peter R. Dixon, Whittier, and Alden D. Coppock, Hacienda Heights, Calif. (both of 617 W. Olympic Blvd., Montebello, Calif. 90640)
Application Feb. 17, 1969, Ser. No. 799,764, which is a continuation-in-part of application Ser. No. 545,544, Apr. 27, 1966. Divided and this application Oct. 2, 1969, Ser. No. 863,174
Int. Cl. D06l *1/20*
U.S. Cl. 68—18 **1 Claim**

Apparatus for practicing a drycleaning process wherein soiled articles are placed in an air-impermeable chamber together with a quantity of a substantially drycleaning agent, are agitated together with the cleaning agent for a period of time sufficient for cleaning, and, thereafter, the cleaning agent is separated from the cleaned articles; includes a circumferentially perforated cylindrical drum, open at one end and rotatable about a substantially horizontal axis, mounted within a vacuum chamber; means for maintaining the drycleaning agent within the drum during the cleaning step; a fan having an inlet into the vacuum chamber for evacuating the drycleaning agent from the drum during the separation step; and, a filter for collecting the evacuated drycleaning agent.



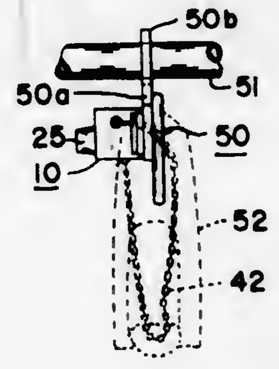
3,568,478
TEXTILE WEB LIQUID TREATMENT APPARATUS
Herman H. Bailey, Belmont, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Filed Sept. 24, 1968, Ser. No. 771,378
Int. Cl. D06f *17/00*
U.S. Cl. 68—43 **6 Claims**



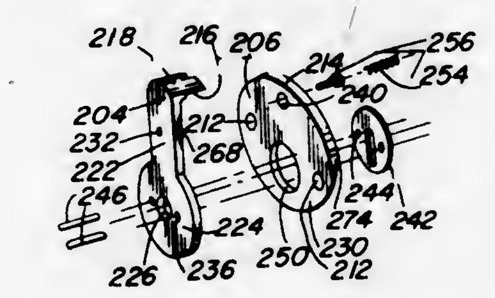
An orbiting polygonal array of rollers carries a moving textile web as it rotates in a liquid dye-filled pressurized cylindrical chamber. The chamber is lined with axial corrugations, in one embodiment, so that the rollers move alternately close to the near point and then the far point of the corrugations which creates dynamically variant pressure zones of alternatively high and low pressures in the region of the roller, resulting in the dye being forced alternately through the web in accordance with the pressure variation.

3,568,479
PIN AND TAB LOCKING DEVICE FOR CLOTHING AND THE LIKE
Louis S. Fleck, 136 Lee St., and Thomas H. Spratt, 418 5th Ave., both of Carnegie, Pa. 15106
Filed Nov. 5, 1969, Ser. No. 874,110
Int. Cl. E05b *69/00, 73/02*
U.S. Cl. 70—59 **17 Claims**

A compact locking unit is provided whose housing is adapted to removably-receive a latch pin or key plug and a key tab. The key tab is retained in a locked relation within the housing as long as the key plug is in a removed or outer position, and the latch plug is retained in a locked and coat or other article-retaining position through the agency of a chain connection to the unit as long as the key tab is removed and until it is again inserted in the housing. When the key tab and the key plug are in position in the housing, the key plug may be removed therefrom by pushing-in a spring-pressed manual button. The key tab may be removed when the key plug is in position by merely lifting it out of the housing. It is necessary to use a key tab having requisite aligned openings therethrough corresponding to those in a back operating plate member for the housing. The latching of the plug is accomplished by means of a reduced diameter portion thereof being engaged by a projecting wing portion of a centrally-disposed operating partition member within the housing. To release the plug, it is necessary to move the wing portion backwardly out of engagement within the reduced diameter portion, and this cannot be accomplished without introducing the key tab in a position such that it, in effect, serves as a position support backing for the partition member, while permitting backwardly-extending pins carried by such operating member to move in alignment with holes in the key tab and the back operating plate member.

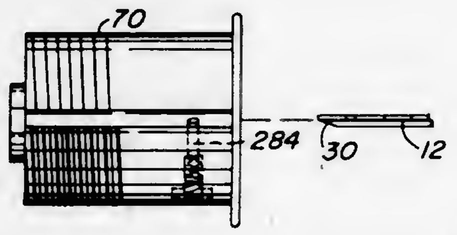


3,568,480
SAFETY KEY AND LOCK
Oliver C. Halfyard, 432 Belmont Ave., Chicago, Ill. 60657
Original application Feb. 21, 1968, Ser. No. 707,189, now Patent No. 3,486,355, dated Dec. 30, 1969. Divided and this application June 2, 1969, Ser. No. 847,764
Int. Cl. E05b *17/04, 27/04*
U.S. Cl. 70—364 **4 Claims**



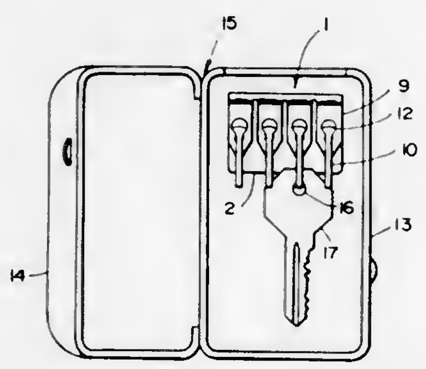
The disclosure describes a key for use in a cylinder-type lock wherein the key has independent means for actuating a tumbler pin to its unlocked position including a hidden push rod which is manually or automatically moved axially from within the base of the key to accomplish the final disengagement of the cylinder. In one embodiment the auxiliary pin-actuating means is actuated by manual movement through a cammed slot within the handle of the key or a pressure actuated lever moves the push rod into engagement with a locking pin of the tumbler. In another embodiment the inner tip of the key provides the means for engaging and rotating the locking lug and a separate circumferentially spaced tumbler is provided in the lock cylinder for actuation by the side of the key or for registry with an aperture through the side of the key for positioning to unlocked position. Key and lock combinations including all of the foregoing improvements are described.

3,568,481
SAFETY KEY AND LOCK
Oliver C. Halfyard, 432 Belmont Ave.,
Chicago, Ill. 60657
Original application Feb. 21, 1968, Ser. No. 707,189, now Patent No. 3,486,355, dated Dec. 30, 1969. Divided and this application June 2, 1969, Ser. No. 847,763
Int. Cl. E05b *15/14*
U.S. Cl. 70—421 **1 Claim**



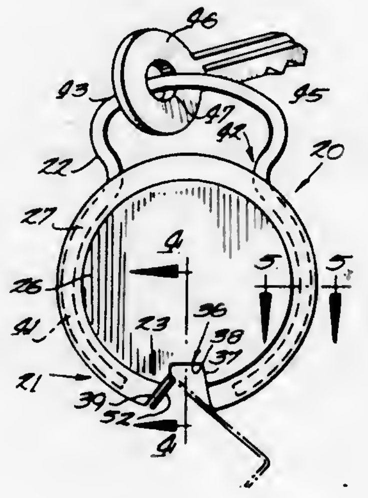
The disclosure describes a key for use in a cylinder-type lock wherein the key has independent means for actuating a tumbler pin to its unlocked position including a hidden push rod which is manually or automatically moved axially from within the base of the key to accomplish the final disengagement of the cylinder. In one embodiment the auxiliary pin-actuating means is actuated by manual movement through a cammed slot within the handle of the key or a pressure actuated lever moves the push rod into engagement with a locking pin of the tumbler. In another embodiment the inner tip of key provides the means for engaging and rotating the locking lug and a separate circumferentially spaced tumbler is provided in the lock cylinder for actuation by the side of the key or for registry with an aperture through the side of the key for positioning to unlock position. Key and lock combinations including all of the foregoing improvements are described.

3,568,482
KEY RETAINER
Stuart T. Shears, Belmont, Mass., assignor to United-Carr Incorporated, Boston, Mass.
Filed Jan. 23, 1969, Ser. No. 793,380
Int. Cl. A45c *11/32*
U.S. Cl. 70—456 **2 Claims**



A one-piece, synthetic plastic key retainer has a base section and a plurality of key holding loops hinged to the base section. The key holding loops are rotatable both individually and simultaneously about the hinge for movement of one or more keys into and out of a key case housing the retainer.

3,568,483
COMBINATION KEYHOLDING AND RETRACTABLE MEMBER DEVICE
Cecil B. Woofter, Newton, Iowa, assignor to The Vernon Company
Filed Dec. 8, 1969, Ser. No. 882,931
Int. Cl. A44b *15/00*
U.S. Cl. 70—459 **6 Claims**

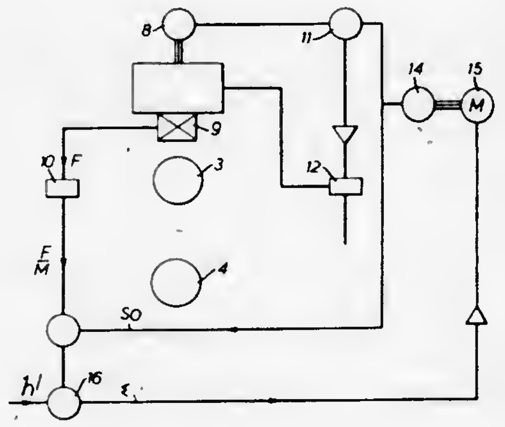


A device for securing keys thereon including a retractable member, such as a measuring tape wherein the key retaining member cooperates for coaction with the tape.

ERRATUM

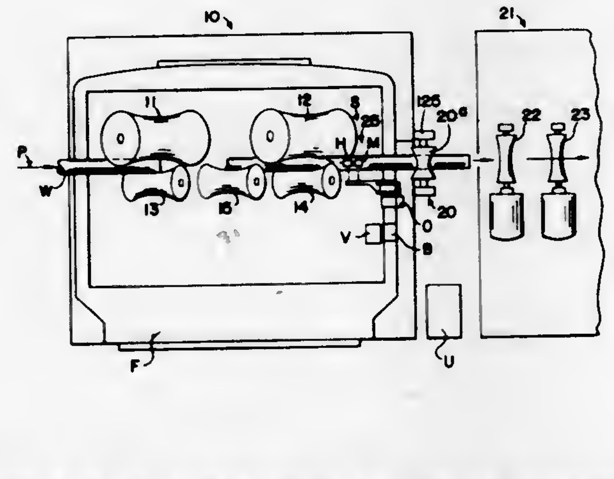
For Class 72—8 see:
Patent No. 3,568,637

3,568,484
ROLLING MILLS
Harry Laurence Fred Bond, Hathersage, near Sheffield, Dennis Stubbs, Sheffield, and Bela Istvan Bathory, Wales, near Sheffield, England, assignors to Davy and United Engineering Company Limited, Sheffield, England
Filed Mar. 1, 1968, Ser. No. 709,607
Claims priority, application Great Britain, Mar. 2, 1967, 9,977/67
Int. Cl. B21b *37/12*
U.S. Cl. 72—8 **4 Claims**



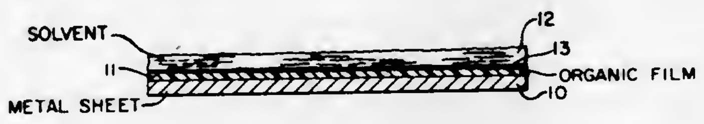
To adjust the roll gap of a rolling mill hydraulic piston and cylinder assemblies act between the housings of the mill and the rolls, and each assembly has its own positional control system which is arranged to maintain the piston at a datum position relative to its cylinder and an automatic control system such as a gaugemeter detects departure of the strip gauge from a required value and adjusts the datum position of at least one of the piston and cylinder assemblies to compensate for the variation in gauge. The piston and cylinder assemblies may replace the conventional screwdown screws of the mill or alternatively they may act in series with the screws.

3,568,485
METHOD AND APPARATUS FOR STRAIGHTENING AND TESTING WORKPIECES
Joseph M. Mandula, Jr., Seven Hills, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio
Filed Aug. 9, 1968, Ser. No. 751,465
Int. Cl. B21d *3/04*
U.S. Cl. 72—10 **22 Claims**



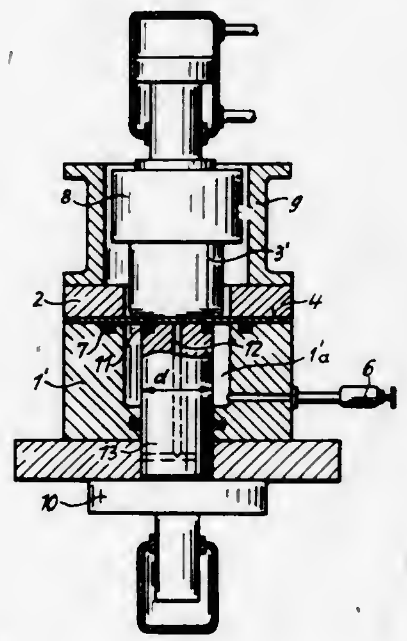
Apparatus for straightening and testing workpieces includes a machine frame supporting straightening rollers. The apparatus also includes a workpiece testing assembly which is removably supported by the frame. The testing assembly includes a flaw detecting element and a marker which marks locations of flaws detected by the sensing element. In the disclosed embodiment a guide roll engages the workpiece as it passes from the apparatus.

3,568,486
PREPARATION OF METAL FOR DEFORMING OPERATIONS
Frederick Rosenberg, Livonia, and Wesley J. Wojtowicz, Detroit, Mich., assignors to H. A. Montgomery Company
Continuation-in-part of application Ser. No. 453,756, May 6, 1965. This application Jan. 31, 1969, Ser. No. 796,944
Int. Cl. B21b *45/02*
U.S. Cl. 72—42 **10 Claims**



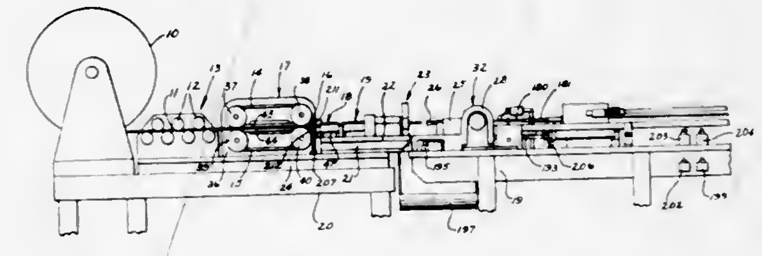
There is provided an improved process and system for the lubrication of the interface between a metal deforming tool and metal being deformed as by cold working, and characterized by a two-coat system including an organic film adhered to a metallic surface and an overlay coating containing a solvent or softening agent capable of developing at the interface between the overlay composition and the resin a mobile system of the resin in the solvent or softening agent.

3,568,487
APPARATUS FOR HYDROMECHANICAL DEEP-DRAWING
Heinrich Riesener, Bruchsal, Germany, assignor to SMG Suddeutsche Maschinenbau-Gesellschaft m.b.H., Wiesental, Bruchsal, Germany
Filed July 12, 1968, Ser. No. 744,554
Claims priority, application Germany, July 15, 1967, P 16 02 556.2
Int. Cl. B21d *26/04*
U.S. Cl. 72—60 **3 Claims**



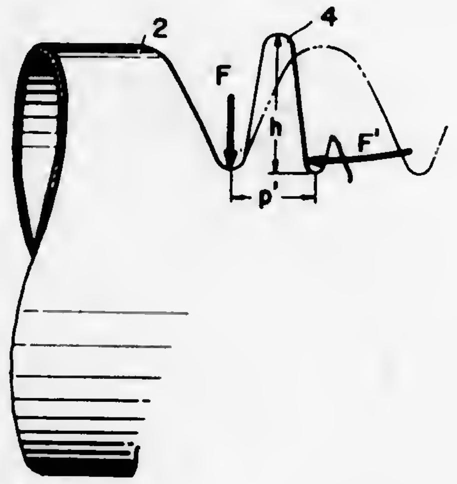
In a deep-drawing apparatus wherein a metal sheet is forced into a die against water pressure, there is provided a supporting piston the terminal face of which is in contact with an area of said sheet on the underside thereof during the drawing process preventing said area from being exposed to said water pressure for the ultimate purpose of reducing the required ramming force.

3,568,488
METHOD OF CUTTING AN ELONGATED TUBE AND APPARATUS THEREFOR
Newell A. Franks, Fawn River Township, St. Joseph County, Mich., assignor to Burr Oak Tool & Gauge Company, Sturgis, Mich.
Filed Nov. 25, 1968, Ser. No. 778,611
Int. Cl. B21b *21/00;* **B21d** *28/00;* **B26f** *3/00*
U.S. Cl. 72—68 **8 Claims**



A machine having means for guiding and intermittently advancing an elongated, tubular element a predetermined distance along a path, and for gripping two spaced portions of said element and separating them following each advancement thereof. A cutting device on the machine includes an annular cutting member with a radially inner cutting edge through which the element is slideably received during said advancement thereof. Actuating means effects movement of the cutting member in an eccentric path around the tubular element whereby the cutting operation is performed, after which the severed portion of the tube is bent and ejected from the machine.

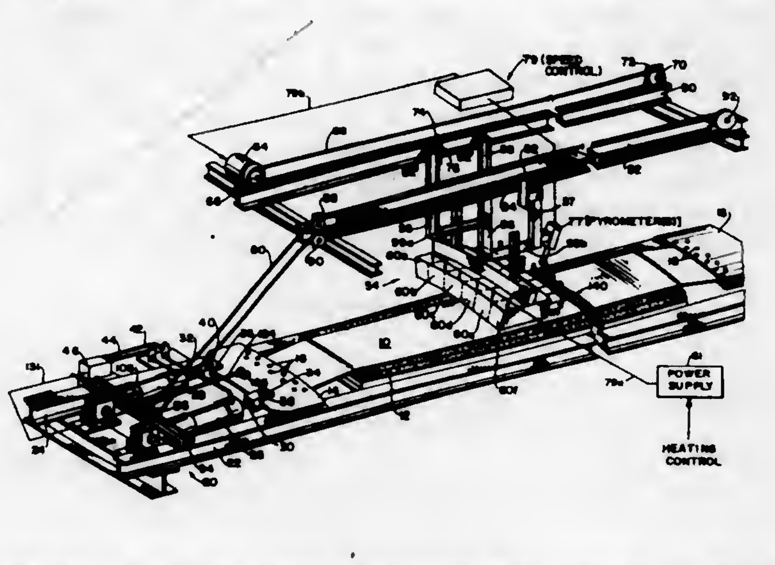
3,568,489
METHODS AND APPARATUS FOR PRODUCING CORRUGATED METAL TUBES
Susumu Tobita, 136 Mitsusawa, Nishi-machi, Japan
Filed Aug. 12, 1968, Ser. No. 752,044
Claims priority, application Japan, Aug. 14, 1967, 42/52,099
Int. Cl. B21d *13/20*
U.S. Cl. 72—77 **8 Claims**



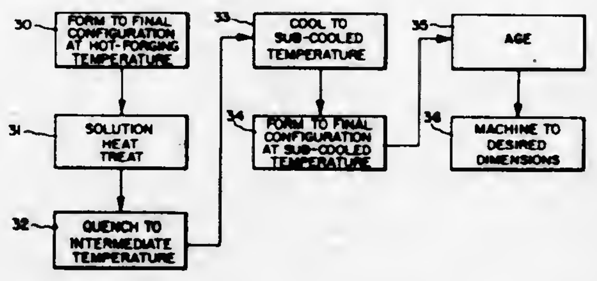
The present invention relates to methods and apparatus for producing corrugations in metallic tubes and is characterized by the fact that it is possible to produce corrugations of various shapes by utilizing at least two corrugating rings or two sets of corrugating rolls. In particular the invention relates to methods and apparatus capable of producing easily corrugations of greater depth as compared with pitch, corrugations of a small pitch whose trough is wider than the crest (tubes with such corrugations have good bending characteristics and other mechanical properties and permit a cable to be pulled into them more easily), and furthermore corrugations conformable to the shapes of apexes of corrugating rings or rolls, without employing any core (corrugating tool to be applied inside the tube) as in the conventional apparatus.

3,568,490
METHOD AND APPARATUS FOR HEAT FORMING ELONGATED METAL PANELS
George A. Bohmann, New Hyde Park, N.Y., assignor to Fairchild Hiller Corporation, Farmingdale, N.Y.
Filed Sept. 27, 1968, Ser. No. 763,163
Int. Cl. B21d *11/02*
U.S. Cl. 72—302 **23 Claims**

A method of stretch forming metal parts by the passage of a heat zone along a part held in tension against a die surface. The ends of the part to be formed are held and a tensile load is applied holding the part in contact with a die surface while a movable heat source traverses the part, locally yielding aid forming it to the die configuration. Elongation of the part is controlled as a function of the position of the heat zone permitting the forming of parts of both uniform and nonuniform cross section.



3,568,491
LOW-TEMPERATURE STRESS-RELIEVING PROCESS
Ralph C. Bruner and James W. Ramsey, Tulsa, Okla., assignors to North American Rockwell Corporation
Filed May 23, 1969, Ser. No. 827,270
Int. Cl. C22f *1/04;* **B21j** *1/06*
U.S. Cl. 72—364 **4 Claims**


30
FORM TO FINAL CONFIGURATION AT HOT-FORGING TEMPERATURE
31
SOLUTION HEAT TREAT
32
QUENCH TO INTERMEDIATE TEMPERATURE
33
COOL TO SUB-COOLED TEMPERATURE
34
FORM TO FINAL CONFIGURATION AT SUB-COOLED TEMPERATURE
35
AGE
36
MACHINE TO DESIRED DIMENSIONS

A method of manufacturing a stress-relieved aluminum alloy forging using the finish impression cavity of closed die apparatus for both hot-forming and stress-relieving operations and with intermediate processing steps also being involved.

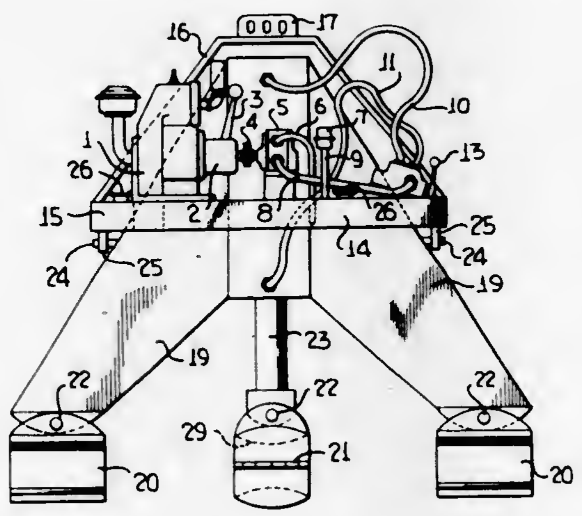
3,568,492
MANUFACTURE OF PRESSURE RESISTANT ARTICLES WITH INTEGRAL HUBS OR FLANGES
Charles H. Moore, R.D. 4, West Chester, Pa. 19380
Filed Nov. 7, 1968, Ser. No. 774,158
Int. Cl. B21j *5/00;* **B21k** *21/00*
U.S. Cl. 72—374 **6 Claims**

Tube-sheets with integral hubs, channel forgings for heat-exchangers, pressure vessels with flat heads and similar articles which are subjected to high-pressure etc. are formed by a series of forging steps which result in greatly improved grain orientation and, accordingly, greater resistance to pressures.

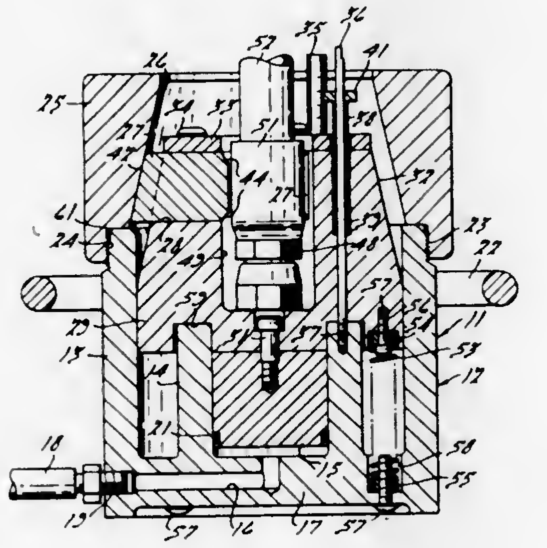
3,568,493
PIPE BENDING APPARATUS
Paul E. Wirt, R.D. 4, Wooster, Ohio 44691; Paul W. Wirt, deceased, late of Wooster, Ohio, by Waneta Maxine Wirt, administratrix
Filed Feb. 5, 1968, Ser. No. 704,213
Int. Cl. B21d *7/00*
U.S. Cl. 72—389 **3 Claims**

Apparatus for precisely bending pipe, ranging from short lengths to substantial lengths in a complete welded

line, in accordance with a desired curvature and in any selected plane from the vertical to the horizontal, wherein a pair of shoes normally lying along the same longitudinal axis and fixedly spaced therealong are pivotally secured to a support member, for holding the pipe while permitting sufficient angular freedom thereof that forces exerted in a direction substantially normal to the pipe axis will produce the desired bend. The forces are exerted by the movement of a fluid-actuated piston, either hydraulic or pneumatic, interposed between the pair of shoes and having a third shoe pivotally secured to the free end thereof for at least partially encompassing the pipe and transmitting the forces to the wall of the pipe over a sufficiently large area to prevent rupture or buckling.

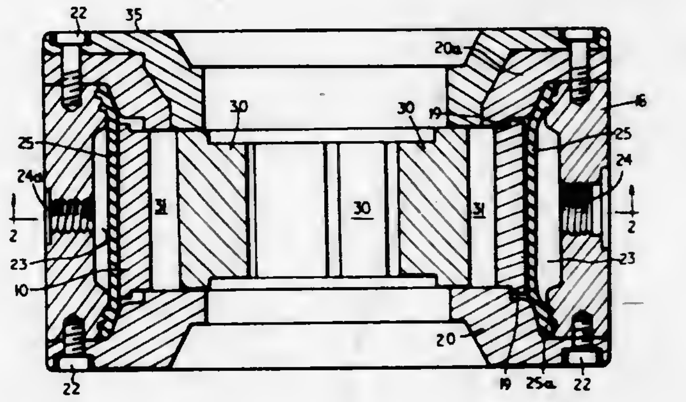


3,568,494
CRIMP MACHINE
James L. Geisman, Van Wert, Ohio, assignor to Aeroquip Corporation, Jackson, Mich.
Filed Aug. 29, 1968, Ser. No. 756,332
Int. Cl. B21d *41/00*
U.S. Cl. 72—402 **4 Claims**



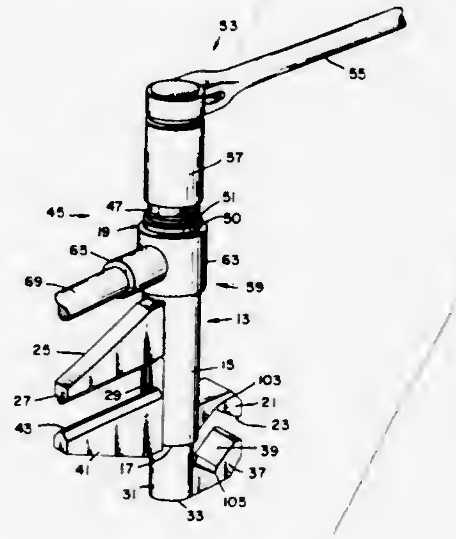
A portable device has radially movable jaws for crimping a hose fitting sleeve to permanently attach a hose end fitting onto an end of a flexible hose.

3,568,495
CRIMPING OR COMPRESSION DEVICE
Frederick Russell Duffield and Claude Harcourt Harvey, both of 355 Pacific Highway, Artarmon, New South Wales, Australia
Filed Feb. 12, 1969, Ser. No. 798,727
Claims priority, application Australia, Feb. 19, 1968, 33,826/68
Int. Cl. B21j *9/12*
U.S. Cl. 72—402 **13 Claims**



A fluid operated crimping or swaging press which is adapted for exerting a radial pressure on an article, such as a hose end fitting, positioned in the centre of the press. The radial pressure is exerted through a series of primary collet members upon injection into the press of a pressurized fluid medium and, to permit interchangeability of the primary collet members—for various applications, the primary collet members are surrounded by and are removably fitted to captive secondary collet members.

3,568,496
DEFORMABLE TUBE CRIMPING AND REFORMING TOOL
Wallace C. Burke, 911 Melissa St. 90502, and Don P. Thrane, 21009 Ann Rita Ave. 90503, both of Torrance, Calif.
Filed May 1, 1969, Ser. No. 820,857
Int. Cl. B21j *11/00*
U.S. Cl. 72—404 **7 Claims**

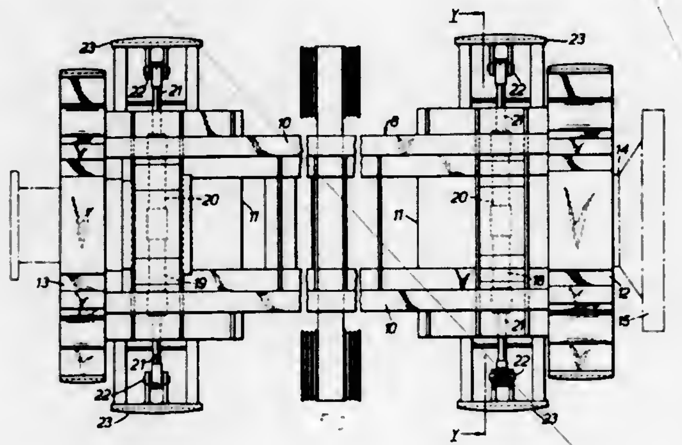


This tool includes a barrel member and a shaft member slidably mounted therein. Each such member has a tube reforming die and a tube crimping jaw extending radially outward, with the dies extending in a different direction than the jaws. Associated dies and jaws are held in slidable alignment with each other, while being forced together by commonly coupled closing means, by providing that the shaft carried crimping jaw slidably extends through and is guided by a longitudinal slot in the barrel member wall in the plane of the barrel carried crimping jaw.

3,568,497

MANIPULATORS

William Gordon Wilson, Ecclesall, Sheffield, England, assignor to Davy and United Engineering Company, Limited, Sheffield, England
Filed Feb. 6, 1969, Ser. No. 797,027
Claims priority, application Great Britain, Feb. 9, 1968, 6,507/68
Int. Cl. B21j *13/10, 3/00*
U.S. Cl. 72—420 **6 Claims**

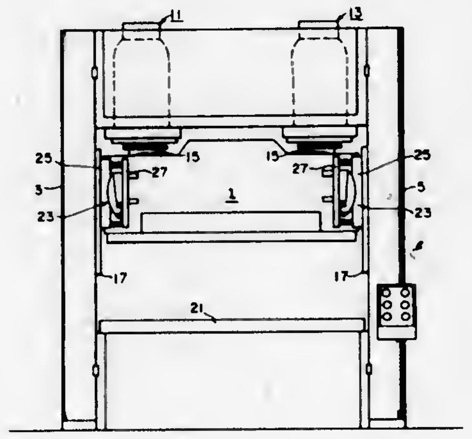


A forging manipulator including a carriage and a peel mounted in a frame which is suspended by links from the carriage so as to permit the frame and the peel to be displaced in a direction transverse to the longitudinal axis of the peel. A piston and cylinder assembly is mounted on the frame and is arranged to act on one side wall of the carriage thereby displacing the frame towards a second side wall of the carriage.

3,568,498

GUIDE SYSTEM FOR RAMS IN PRESS BRAKES AND THE LIKE

Eugene W. Pearson, Orinda, Calif., assignor to Pacific Press & Shear Corp.
Filed Jan. 24, 1969, Ser. No. 793,801
Int. Cl. B21d *11/00*
U.S. Cl. 72—456 **5 Claims**



In a machine of the press brake type, particularly one having a platen type ram, guide means are provided for the ram, which will permit of heavy end forces against the ram slideways without galling, while permitting of hydraulic level control of the ram and limiting permissible longitudinal displacement of the ram to within the mating ability of dies in the machine.

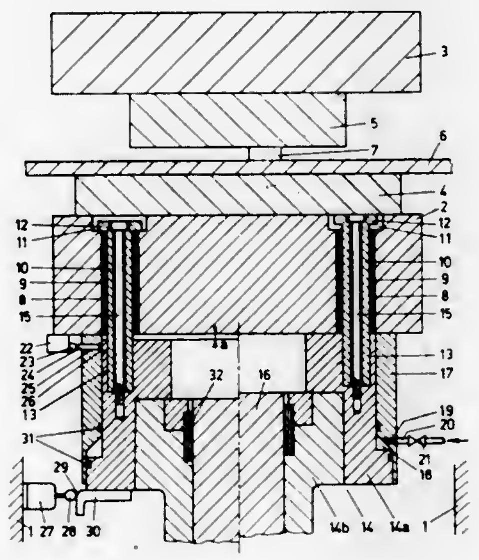
3,568,499 thru 3,568,552

VOID

3,568,553

TOOL SAFETY DEVICE FOR PRESSES

Walter Wanner, and Martin Maurer, Romanshorn, Switzerland, assignors to Hydrel A.G., Romanshorn, Switzerland
Filed Apr. 30, 1969, Ser. No. 820,411
Claims priority, application Switzerland, May 2, 1968, 6529/68
Int. Cl. B26d *7/24*
U.S. Cl. 83—58 **3 Claims**

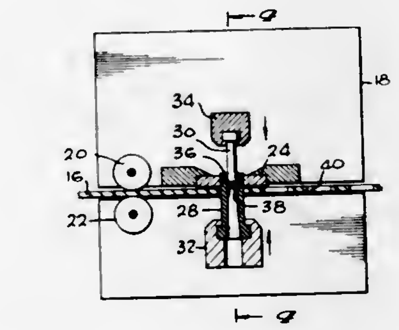


A first limit switch on the press frame and a second on the bottom toolholding table are respectively actuated by a member on the main piston and by one on a sleeve that supports this table. The sleeve and piston together form a compressed air chamber that elastically supports the table above the piston during the earlier part of the working stroke. Excessively thick sheet metal or a foreign object on the sheet forces the table downwards against the air cushion to close the second limit switch prematurely with respect to the first, bringing the piston to an immediate stop.

3,568,554

MAGNETIC CORE FORMING SYSTEM

Walter Wiechec, Dublin, Ireland, assignor to Core Memories Ltd., Dublin, Ireland
Filed Nov. 13, 1967, Ser. No. 682,366
Int. Cl. B26d *7/18*
U.S. Cl. 83—98 **14 Claims**

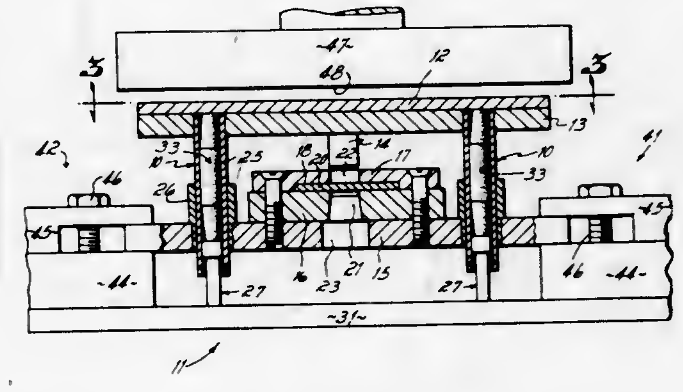


Apparatus and method for producing magnetic cores comprising forming a mixture of magnetic particles and a binder into a sheet, punching a ring-shaped die through the sheet to form a disc, punching a coring die through the disc and into the hole of the ring-shaped die to form a toroid, heating the toroid to remove the binder, and heat-treating the toroid to give it its final magnetic properties.

3,568,555

GUIDEPOST CONSTRUCTION FOR DIE SETS

Werner H. Stroh, Cincinnati, Ohio, assignor to Porter Precision Products Co., Cincinnati, Ohio
Filed Sept. 11, 1968, Ser. No. 758,981
Int. Cl. B26d *7/06*
U.S. Cl. 83—146 **11 Claims**



A die set including upper and lower die shoes respectively mounting a punch and die and a plurality of guideposts interconnecting the upper and lower shoes. The lower die shoe is adapted to be mounted upon a press platen. The upper die shoe carries a backup plate which is adapted to be engaged by the press ram, but is not connected thereto. The upper and lower die shoes are interconnected by a plurality of guidepost assemblies.

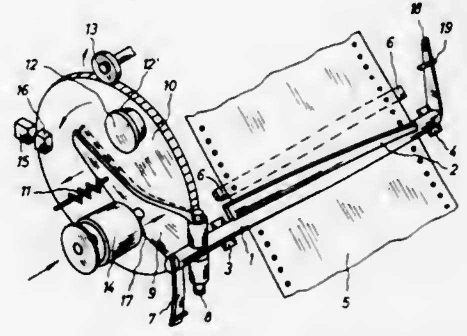
The guidepost assemblies perform three functions, i.e. they maintain the upper and lower die shoes in alignment, they provide a spring force for opening the die, and they provide a stripping force for stripping the work from the punch member. Each guidepost assembly includes a hollow tube mounted on the upper shoe and a bushing mounted on the lower guide shoe which telescopically receives the tube.

A stationary pin extends into the tube and abuts the lower end of a spring, such as a urethane spring member. The urethane spring member is of a configuration smaller than the space in which it is confined when the die is open. Upon closure of the die, the urethane spring member is deformed. When the ram is raised, the urethane member returns to its original shape, forcing the die open and stripping the work from the punch.

3,568,556

SHEARING DEVICE FOR WEB STRIPS

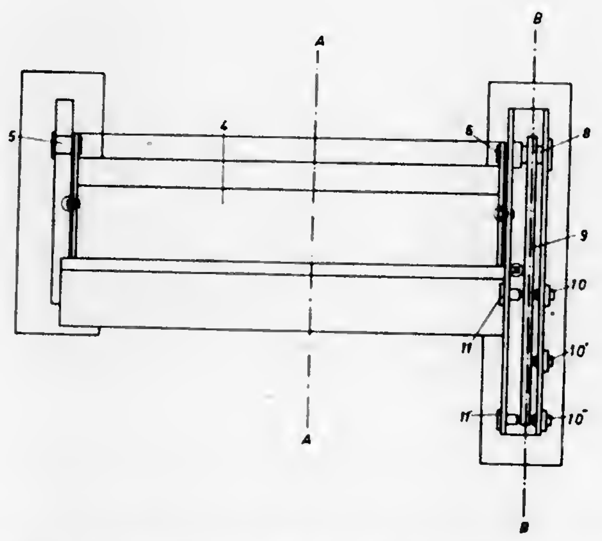
Reinhard Gesell, Schonkirchen Ueber Kiel; Wolfgang Dinse, Altenholz, near Kiel; Klaus Clement, and Manfred Peters, Kiel, Germany, assignors to Dr. Ing. Rudolf Hell, Kommanditgesellschaft, Kiel, Germany
Filed June 2, 1969, Ser. No. 829,507
Claims priority, application Germany, June 4, 1968, P 17 61 538
Int. Cl. B26d *5/16*
U.S. Cl. 83—355 **9 Claims**



A web cutting device and particularly a device for cutting photographic film strips at predetermined intervals as the strip moves through the cutting device. The apparatus includes a stationary shear blade and a rotatable shear blade which is mounted on a torsion bar. An actuation lever is fixed to the torsion bar and deployed perpendicularly thereof adjacent to the surface of a rotating inertial disk. The actuation lever is pivotable about an axis perpendicular to the axis of the torsion bar, and a solenoid device is used to pivot the actuation lever toward and away from the moving disk. A cam member is mounted on the disk so that it contacts the actuation lever and twists the torsion bar when the actuation lever is moved toward the disk. Switch means are provided to assure that the actuation lever is moved toward the disk at the proper time interval with respect to the position of the cam on the rotating disk and means are provided to release the actuation lever once during every cycle of the disk. The torsion bar has an alarm control cam mounted at one end thereof, and a pair of switches are operated by movement of the alarm control cam to trigger an alarm when either the cam does not reach its terminal position or when the cam does not return to its starting position prior to the lapse of a given time interval. This assures that an alarm will be triggered if the web of material is not properly cut or if the device becomes jammed.

3,568,557
SHEET METAL CUTTING DEVICE

Eduard Hanni, Zofingen, Switzerland, assignor to Haemmerle A. G., Maschinenfabrik, Zofingen, Switzerland
Filed Sept. 26, 1969, Ser. No. 762,777
Claims priority, application Austria, Oct. 4, 1967, A9018/67
Int. Cl. B26d *11/00*
U.S. Cl. 83—519 **2 Claims**



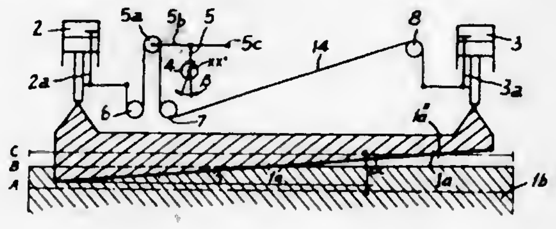
A sheet metal cutting device incorporating a sheet feed table on which a bottom blade and bottom transverse blade are mounted integrally, a top blade borne in a pivotable beam and a transverse top blade mounted perpendicularly to the latter, said transverse blade being mounted about the axis of said beam in a vertical plane perpendicular to the cutting plane of the top blade and being guided at the sides by adjustable guide elements. The transverse top blade is mounted to pivot on a lateral prolongation of the axis of rotation of the beam and the two top blades are pivoted independently of one another and can be individually operated each by its own separate actuating element.

3,568,558
ARRANGEMENT CONTROLLING THE ANGLE OF INCLINATION BETWEEN THE MOVABLE BLADE AND THE FIXED BLADE OF SHEARS

Rene Passa, Livry-Gargan, and Achille Romoli, Saint-Denis, France, assignors to B.R.G., Deuil-La-Barre, France
Filed Apr. 11, 1969, Ser. No. 815,408
Claims priority, application France, Mar. 25, 1969, 6908762
Int. Cl. B26d *5/12*
U.S. Cl. 83—530 **3 Claims**

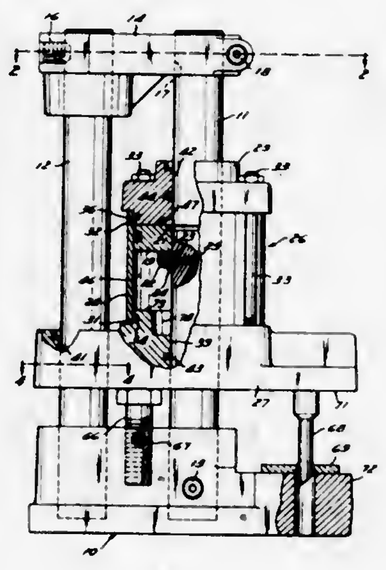
Arrangement controlling the angle of inclination between the movable blade and the fixed blade of shears.

An arrangement controlling the angle of inclination or the rake angle between the movable blade and the fixed blade of hydraulically operated shears in accordance with an indicator defining said angle of inclination for predetermined thicknesses and resistances to shearing of the sheets to be cut. Said knob-controlled indicator controls through a cam and a flexible tape the vertical movements in opposite directions of the pilot valves governing the jacks operating the ends of the movable blade of the shears. Further means define the location of the crossing point between the blades of the shears in accordance with the length of the sheet material to be cut.



3,568,559
PRESS UNIT

Frank J. Fink, Chardon, Ohio, assignor to Imperial Manufacturing & Engineering Co., Middlefield, Ohio
Filed Feb. 13, 1969, Ser. No. 798,945
Int. Cl. B26d *5/12*
U.S. Cl. 83—639 **6 Claims**

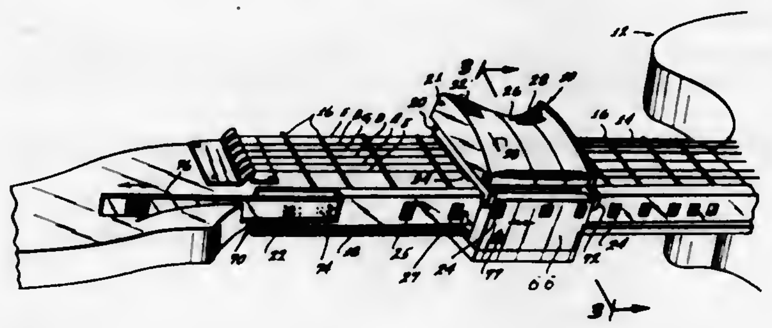


A fluid operated press is disclosed providing two parallel support columns mounted at one end on a base and connected at their other ends by a tie element. A piston is mounted on one support column and a cooperating cylinder assembly is guided by the column for reciprocating movement. Fluid passage means extend through the tie member and axially along one support column to provide separate flow passages communicating with each of the cylinder chambers.

3,568,560
AUTO CHORD DEVICE

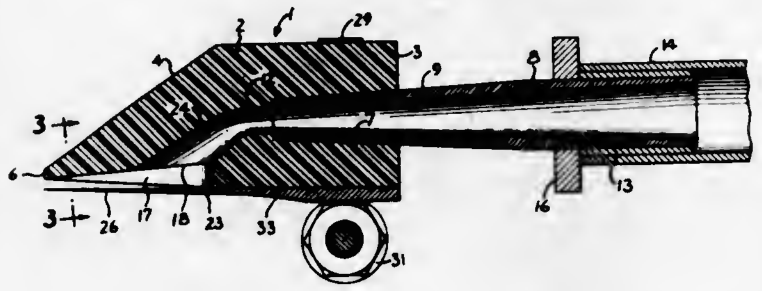
Richard S. Chang, Gardena; Marshall B. Pearlman, Los Angeles; John W. Ryan, Los Angeles, and George W. Sioles, Palos Verdes Estates, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 18, 1968, Ser. No. 784,832
Int. Cl. G10d *3/00;* **G09b** *15/02*
U.S. Cl. 84—317 **11 Claims**

Apparatus for playing chords on a guitar which enables a rapid change between chord positions, including the major, minor, and dominant seventh chords of two keys separated by five half-tones. The apparatus comprises a chording device with levers for changing between the major, minor and dominant seventh chords of one key. The chording device is shiftable laterally, and it includes cams which alter the positions at which the guitar strings are depressed when a lateral shift occurs to establish the corresponding chord in the other key.



3,568,561
MOUTHPIECE FOR MUSICAL INSTRUMENT

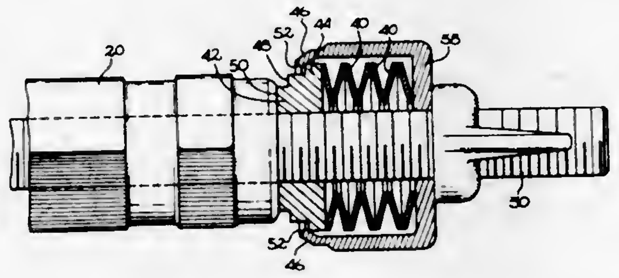
Herbert Gutstein, Chicago, Ill., assignor to Eddie Harris, Chicago, Ill.
Filed Apr. 29, 1969, Ser. No. 820,346
Int. Cl. G10d *9/02*
U.S. Cl. 84—383 **1 Claim**



A reed mouthpiece comprises a body with a mouthpipe imbedded therein and projecting from one end thereof and terminating in a fitting for airtight connection to the mouthpiece receiver of a wind instrument. The mouthpipe tapers internally to an air outlet within the body. The body has a shallow tapered tone chamber and a reed is disposed across the lay facing at the vent side of the tone chamber. A throat in the body angles from the chamber and connects at an angle to the air outlet.

3,568,562
CLAMP WITH PREDETERMINED CLAMPING FORCE

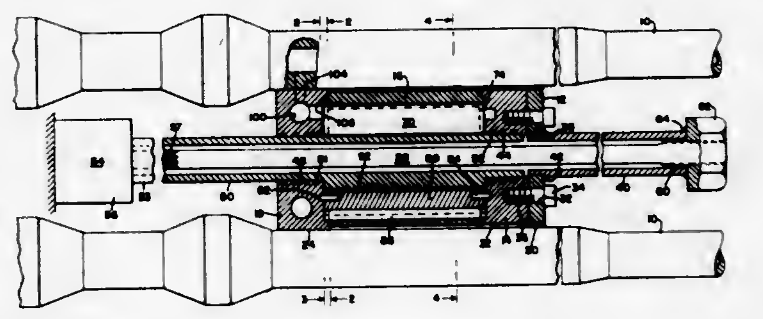
Malcolm P. Harwood, Reseda, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.
Filed Jan. 10, 1969, Ser. No. 790,414
Int. Cl. B23q *3/06*
U.S. Cl. 85—81 **7 Claims**



The clamp with predetermined clamping force disclosed herein is provided with first and second opposed wires having hooks thereon for engagement through aligned holes in sheet material intended to be clamped. A tee is extendable relatively to the wires between the wires to engage the hooks at the edges of the holes. The clamp body engages the sheets opposite to the hooks so that the force by which the hooks are pulled into the body is the sheet clamping force. This force is created by stressing springs, and the amount of spring stress or deflection is indicated by the position of the spring housing body with respect to the main clamp body so that when they are moved to a predetermined position, a predetermined amount of clamping force is obtained.

3,568,563
GAS DRIVE FOR A WEAPON HAVING A ROTATING CLUSTER OF BARRELS

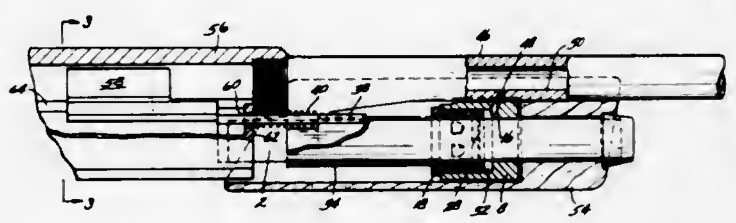
Lawrence R. Folson, Charlotte, Vt., assignor to General Electric Company
Filed Jan. 2, 1969, Ser. No. 788,404
Int. Cl. F41d *7/04*
U.S. Cl. 89—126 **7 Claims**



A Gatling-type weapon utilizes gun gas from the barrels to reciprocate a vane motor, which motor biases a spring, and which spring incrementally rotates the cluster of barrels.

3,568,564
SHOTGUN SHORT STROKE GAS SYSTEM

Joseph A. Badali, Branford, Conn., assignor to Olin Corporation
Filed Sept. 30, 1968, Ser. No. 763,566
Int. Cl. F41d *5/04*
U.S. Cl. 89—191 **5 Claims**

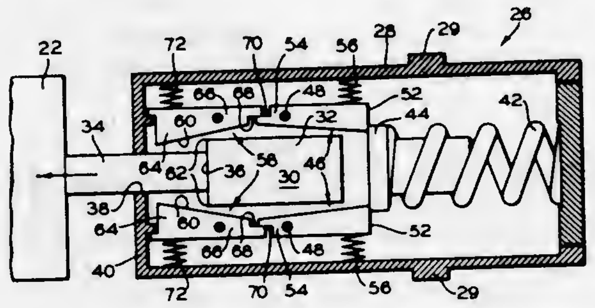


A bolt-actuating gas system comprising an annular gas chamber, and annular piston, and an annular piston sleeve mounted on a tubular magazine wherein the piston sleeve includes a push rod for contacting the bolt assembly. The push rod contacts the bolt assembly but is not connected thereto so that when the piston is moved through its work stroke, the push rod drives against the bolt assembly to propel the latter toward its retired position. Furthermore, the bolt assembly can be manually retracted to its retired position without causing concurrent movement of the piston, sleeve and rod.

3,568,565
BUFFER DEVICE WITH ENERGY DISCHARGE MEANS

Henry P. Swieskowski, Bettendorf, Iowa, Administration the United States of America, as represented by the Secretary of the Army
Filed Nov. 25, 1968, Ser. No. 778,490
Int. Cl. F41d *11/12*
U.S. Cl. 89—198 **8 Claims**

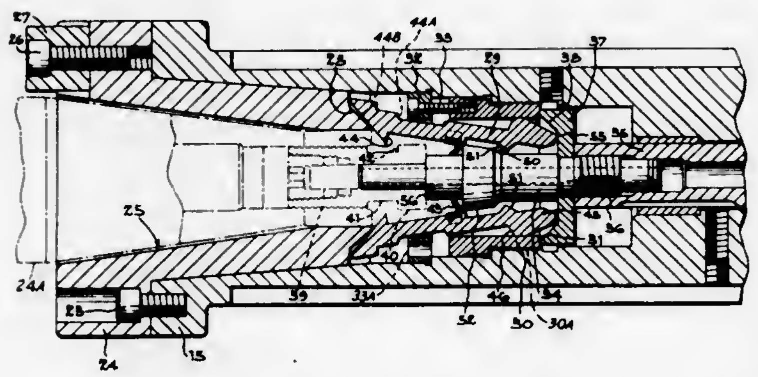
A buffer device for automatic guns resiliently stops a reciprocating bolt in the recoil position, returns a sufficient portion of the stored energy back to the bolt for return thereof to battery position at a velocity that effects a desired



rate of fire, and then discharges the remaining stored energy by mechanical means.

3,568,566
TOOL SPINDLE MECHANISM

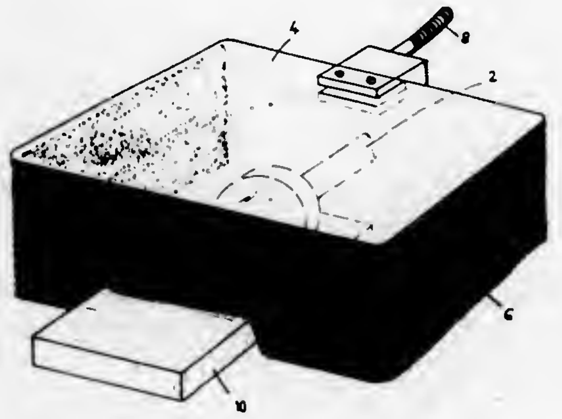
Miles Weidig, Kenwood, Ohio, assignor to The Carlton Machine Tool Company, Cincinnati, Ohio
Filed Aug. 12, 1968, Ser. No. 752,050
Int. Cl. B23c *1/00*
U.S. Cl. 90—11 **2 Claims**



An axially adjustable tool-locking mechanism for automatic machine tools utilizing a draw tube with a locking bar and an ejector collar and a plurality of locking fingers for moving said tool holder into locking or released position.

3,568,567
PROTECTIVE SHIELD

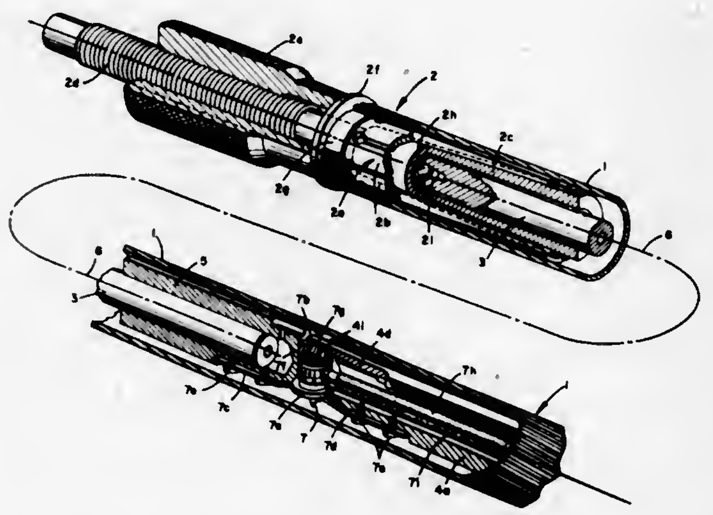
Walter Seck, and Johann Kohler, Munich, Germany, assignors to Friedrich Deckel Prazisionsmechanik und Maschinenbau, Munich, Germany
Filed Oct. 30, 1968, Ser. No. 771,819
Claims priority, application Germany, Nov. 9, 1967, P 16 27 069
Int. Cl. B23c *9/00;* **B24b** *55/00*
U.S. Cl. 90—11 **12 Claims**



A protective shield for a machine tool is comprised of a curtain made of chain mesh and which hangs downwardly to at least partially surround the machining zone to confine movement of the shavings.

3,568,568
APPARATUS FOR MILLING AND DRILLING GROOVES OR RADIAL HOLES INTO THE INTERNAL WALLS OF TUBES

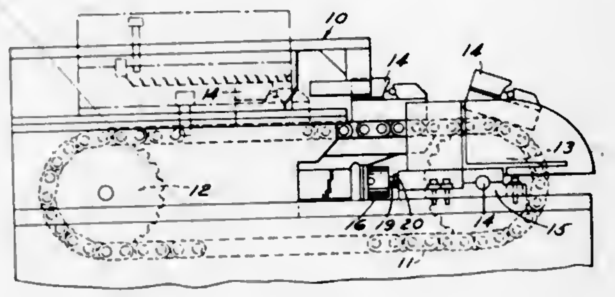
Heinz Mahler, Brebbia, Italy, assignor to European Atomic Energy Community (Euratom), Brussels, Belgium
Filed Aug. 7, 1967, Ser. No. 658,815
Claims priority, application Germany, Aug. 15, 1966, E32288
Int. Cl. B23c *1/16*
U.S. Cl. 90—13 **7 Claims**



An apparatus for forming grooves or holes in the internal walls of tubes comprising a means for clamping the tube, means for supporting a gauge in a predetermined relation to the tube to determine the position and configuration of the machining to be accomplished, a guide member for insertion into the tube from one end to extend lengthwise of the tube, clamping means for holding the guide member fixed within the tube, and a cutter unit insertable into the tube from the other end thereof. The cutter unit includes a guide follower for cooperation with the guide member to locate the unit radially within the tube. A radially movable cutter having means for rotating the cutter and means operable from outside of the tube to control the radial movement and hence the depth of the cut are also included in the cutter unit. A template follower, engageable with the gauge or template, determines the longitudinal and circumferential position of the cutter within the tube.

3,568,569
DRIVES FOR BROACHING MACHINES AND THE LIKE

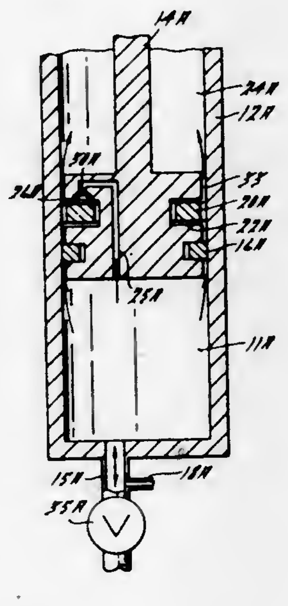
Wilburn K. Haley, Warren, Mich., assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Mar. 5, 1969, Ser. No. 804,571
Int. Cl. B23d *37/06;* **B65g** *43/02*
U.S. Cl. 90—78 **11 Claims**



A broaching machine having a chain drive in which the chain is trained over idler sprockets that are yieldingly mounted to tension the chain by means of grease filled cylinders.

3,568,570
ANTICREEP HYDRAULIC POSITIONING SYSTEM

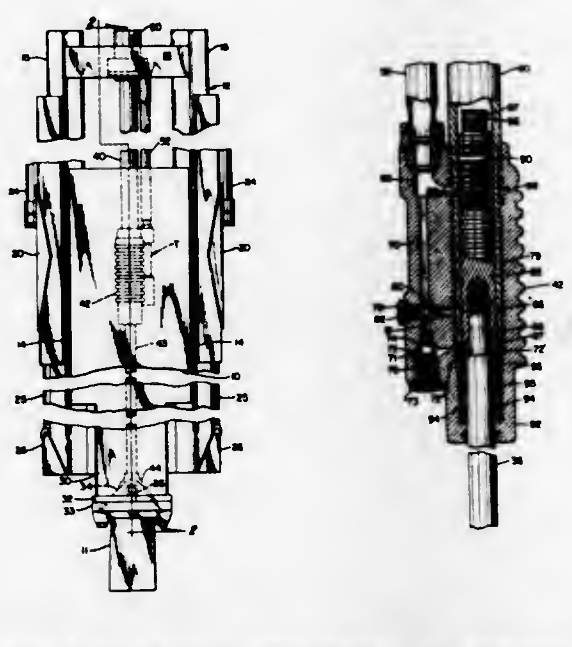
Gordon R. Winders, Lancaster, Ohio, assignor to Diamond Power Specialty Corporation
Filed Mar. 5, 1969, Ser. No. 804,562
Int. Cl. F15b *13/04;* **F01b** *25/04*
U.S. Cl. 91—20 **8 Claims**



A hydraulically actuatable piston which is subjected to a constant bias (e.g. gravity) in a direction opposite to that in which it is movable under hydraulic pressure is provided with means for accurately maintaining a stationary piston positioning under hydrostatic pressure despite leakage past the piston by a metering valve actuatable by differential movement between the piston and cylinder, fluid being constantly supplied to the underside of the piston and metered past the valve.

3,568,571
POWER HAMMER

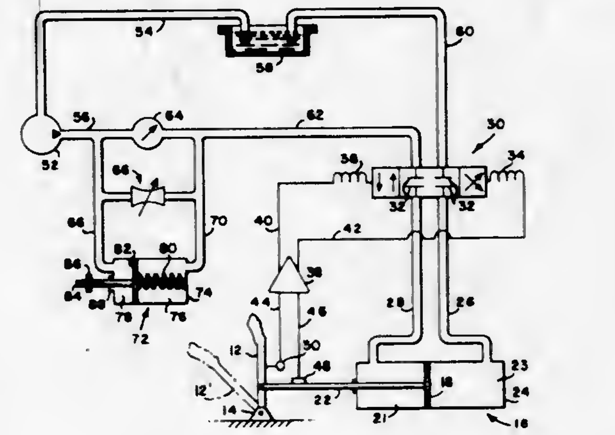
Kenneth H. Hoen, Littleton; Walter J. Chapman, Denver, and Robert W. Jones, Englewood, Colo., assignors to Champion Manufacturing, Inc., Denver, Colo.
Original application Nov. 18, 1964, Ser. No. 411,978, now Patent No. 3,408,897. Divided and this application Aug. 5, 1968, Ser. No. 810,857
Int. Cl. F15b *15/22;* **F01** *31/00*
U.S. Cl. 91—26 **12 Claims**



In a hydraulic hammer mechanism, the hammer weight is reciprocated through its working and return strokes by a ram cylinder circuit, the latter being controlled for automatic or manual operation by a hydraulic control circuit. In either automatic or manual position, the length of stroke, speed, power and balance of the ram cylinder may be independently regulated. Moreover the ram cylinder is self-regulating with the necessary built-in safety features to avoid shock or damage to the mechanism or circuitry. Still further, the ram cylinder may be actuated through a power or gravity stroke as desired, and is characterized in that considerably more power and acceleration can be developed in the ram cylinder through each working and return stroke while isolating the cylinder circuit from the hydraulic control circuit.

3,568,572
ENERGY LIMITER FOR HYDRAULIC ACTUATORS

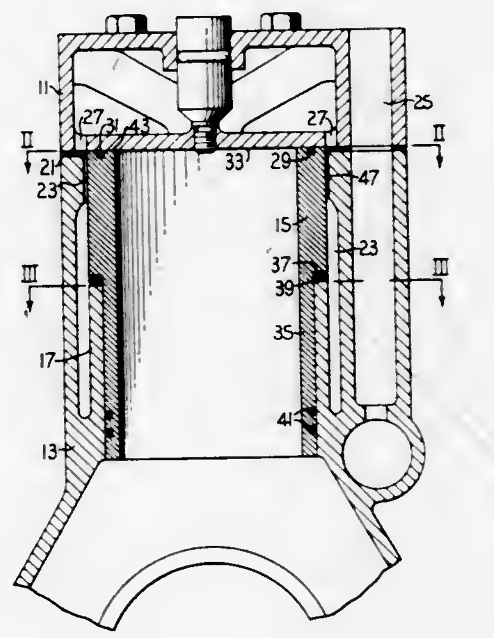
Charles P. Steinmetz, Palo Alto, Calif. Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 19, 1969, Ser. No. 808,576
Int. Cl. F15b *13/044, 13/16*
U.S. Cl. 91—31 **4 Claims**



The speed imparted to a movable member being hydraulically returned to a null or neutral position is controlled by limiting fluid flow in the hydraulic system by providing at least two parallel fluid flow paths in series with a source of fluid pressure and the hydraulic means that returns the movable member to its null or neutral position. One such parallel fluid flow path provides a constant impedance to fluid flow and another parallel fluid flow path will temporarily provide an additional fluid flow of a low impedance response to fluid pressure exceeding a predetermined level.

3,568,573
CYLINDER LINER SUPPORT

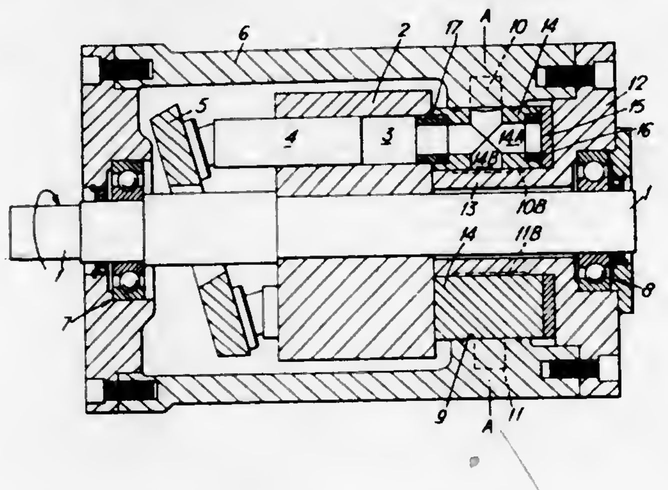
John M. Bailey, Dunlap, and Michael K. Stratton, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed June 25, 1969, Ser. No. 836,513
Int. Cl. F01j *11/04*
U.S. Cl. 92—171 **3 Claims**



A cylinder liner support utilizing a yieldable or selectively fitted spacer for the liner seat, and a conformable seal ring as the combustion seal.

3,568,574
PUMPS OR MOTORS WITH CIRCULARLY DISPOSED CYLINDERS

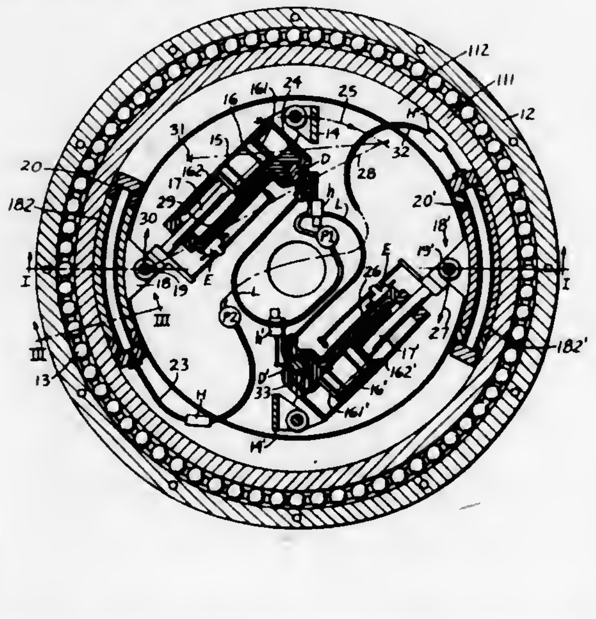
Peter John Dupen, Hutton, Essex, England, assignor to Hydrostatic Transmissions Limited, Brentwood, Essex, England
Filed Mar. 21, 1969, Ser. No. 809,152
Claims priority, application Great Britain, Mar. 22, 1968, 14025/68
Int. Cl. F04b *1/02*
U.S. Cl. 91—499 **11 Claims**



The described invention relates to fluid pressure machines in the nature of pumps or motors in which the working fluid pressure causes radial loads on the bearings of a rotary part. The invention resides in the provision of balancing pressure space to which the working pressure is communicated and of which the effective pressure-exposed areas substantially balance the radial loads otherwise imposed: it is particularly directed to the pressure balancing of a rotary valve.

3,568,575
PRESSURE FLUID OPERABLE EXCAVATING MACHINE

Albert Hagen, Dortmund, Germany, assignor to Eisenwerk Rothe Erde GmbH, Dortmund, Germany
Filed Mar. 19, 1969, Ser. No. 808,550
Claims priority, application Germany, Apr. 8, 1968, P 17 59 191.2
Int. Cl. F01b *15/04*
U.S. Cl. 92—56 **7 Claims**



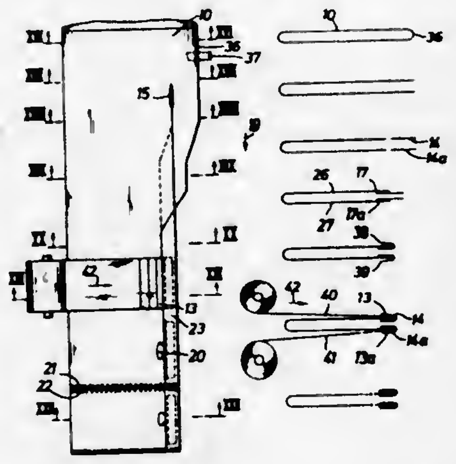
For use in connection with an implement, especially of the excavating and earth-working type, which has a rotatable part and a part normally held stationary during the working of the implement, a turntable which includes: a supporting member connectable to a stationary part, a plurality of antifriction bearing means supported by said supporting member along a circular path, a rotatable member forming a platform and being connectable to a rotatable part, fluid operable cylinder piston means having one element thereof pivotally connected to one of said members, rotatable brake or braking means operatively connected to another element of said cylinder piston means and operable selectively to establish a coupling connection of said other element with the other one of said members and to interrupt said brake connection to permit movement of said other element relative to said other member.

ERRATUM

For Class 92—171 see:
Patent No. 3,568,573

3,568,576
METHOD OF PRODUCING CARRIER BAGS

Michael Lehmacher, Unterdorf Str., and Hans Lehmacher, Beckergasse, Mondorf U Troisdorf, Germany
Filed June 24, 1968, Ser. No. 739,559
Claims priority, application Germany, July 1, 1967, July 28, 1967, 56890; 57096
Int. Cl. B31b *49/04, 1/86, 1/18*
U.S. Cl. 93—35 **6 Claims**

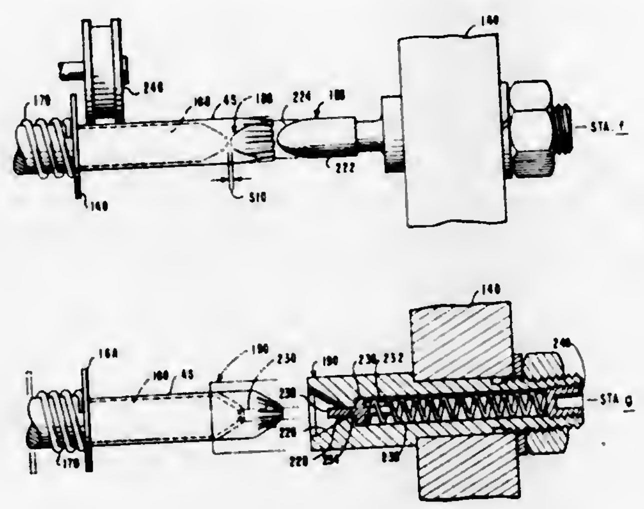


A method of producing a carrier bag from synthetic thermoplastic foil having a reinforcement at the upper edge of the carrier bag and punched grip apertures passing through both walls of the carrier bag. The foil can either be a flat band or in tubular form which is longitudinally slit. Furthermore, reinforcing inserts may be intermittently spaced along the longitudinal edges of the foil. The edges of the foil may then be longitudinally slit so as to form longitudinal strips, which in turn are bent around the cut edge of the foil and welded to the foil. If the foil has not been doubled onto itself, it is then folded along its longitudinal medium line, and the folded edges are welded and transverse welds and cuts are made along the foil to form the carrier bags.

3,568,577
APPLICATORS FOR CATAMENIAL DEVICES

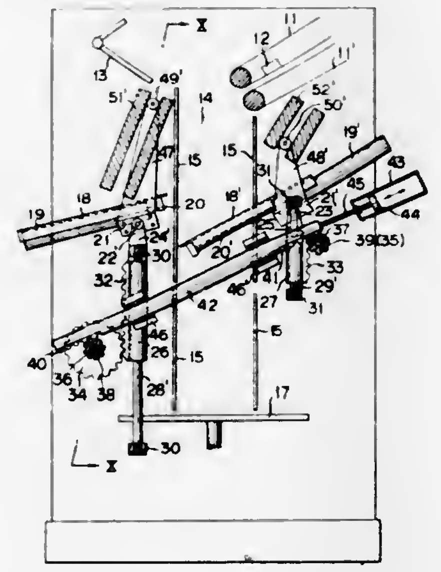
Joseph A. Voss, Denver, Colo., and Carl W. Johnson, Neenah, Wis., Assignor to Said Johnson to said Voss
Continuation-in-part of application Ser. No. 464,127, June 15, 1965, now Patent No. 3,358,354, dated Dec. 19, 1967, which is a division of application Ser. No. 266,914, Mar. 21, 1963, now Patent No. 3,204,635, dated Sept. 7, 1965. This application Dec. 12, 1967, Ser. No. 690,001
Int. Cl. B31b *1/32, 1/52, 43/00*
U.S. Cl. 93—77 **17 Claims**

A method and an apparatus are disclosed for the fabrication of tampon applicator tubes in which thin-walled tube blanks are supplied, without damage, by a feeder mechanism to a tube forming unit which shapes the forward end of each tube, in a sequence of operations including crimping, folding inwardly, exercising to weaken the folds to facilitate ejection of the tampon, and refolding. The tubes are resiliently carried by tube supports mounted on a first, intermittently rotatable turret and are positioned to be acted upon substantially simultaneously by a set of dies carried by a second turret reciprocably mounted to advance and retract to and from tube engaging positions. Both outer and inner tampon applicator tubes may be formed in this manner by utilizing appropriately shaped tube supports and dies. After shaping the forward ends, the tubes are transported to a machine which applies and bonds a ring to the outer tube near the rear end thereof. Bonding is accomplished by gluing the ring to the outer surface of the tube with a suitable adhesive deposited in drops by an extrusion means.



3,568,578
COUNTER STACKER OF THE ROLLING PRESS

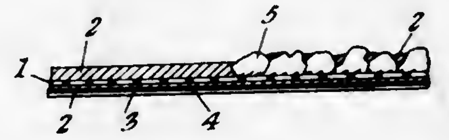
Yuji Fujishiro, 6 of No. 3 Fukazawa 1-chome, Setagaya-ku, Tokyo, Japan
Filed July 10, 1969, Ser. No. 840,738
Int. Cl. B68h *33/00*
U.S. Cl. 93—93 **2 Claims**



In combination with a rolling press having a passage into which the printed sheets are delivered passing by a counter head, and a turn table which can be turned 180° according to a signal from the counter head whenever a definite number of the printed sheets has delivered and a bundle has been finished an improvement comprising a counter stacker having a bar plate provided at the upper part of the passage to shut the passage temporarily, a pair of receiving plates provided at the middle part of the passage and made alternately to be inserted into the passage at the uppermost position and then lowered down and drawn out from the passage at the lowest position and then raised along the outside of the passage to the uppermost position where it is inserted again into the passage, and means for controlling the motion of the bar plate to shut the passage according to a signal from the counter head whenever a definite number of the printed sheets has been delivered and at the same time for alternating the stacking motion of the receiving plates.

3,568,579
PORTABLE AND FLEXIBLE PAVING STRIPS

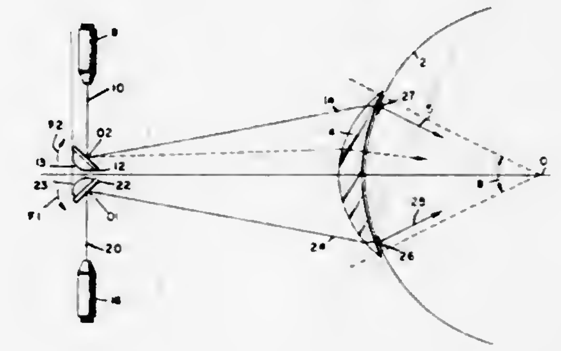
Leslie Hoad, 1 Manor Close, Totton, Hampshire, and Stewart C. Cronan, The Homestead, Ashurst Bridge Road, Totton, Southampton, Hampshire, England
Continuation-in-part of application Ser. No. 479,586, Aug. 13, 1965, now abandoned. This application Aug. 11, 1967, Ser. No. 663,194
Int. Cl. E01c *7/00*
U.S. Cl. 94—7 **3 Claims**



The invention relates to a flexible paving strip which provides a good load-bearing paving surface but which is also particularly well adapted for transportation in the form of rolls which are readily manually laid, either as a temporary or permanent paving surface. The portable and flexible paving strip of the present invention comprises a layer of a bituminous-base binder carried and reinforced by a flexible backing and having adhered to one side of the layer an abrasion-resistant surfacing, e.g., an aggregate, and to the other side of the layer a flexible under cover bearing a layer of release agent in contact with the binder so that the undercover, when required on laying the paving strip, can be clearly separated from binder layer.

3,568,580
PHOTOTYPESETTING MACHINES

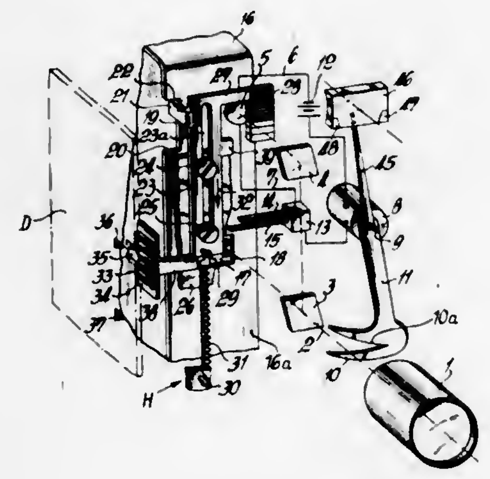
Louis M. Moyroud, Medford, Mass. (c/o Photon, Inc., 355 Middlesex Ave., Wilmington, Mass.01887)
Filed Jan. 11, 1968, Ser. No. 697,203
Claims priority, application Great Britain, Jan. 13, 1967, 2065/67
Int. Cl. B41b *21/24*
U.S. Cl. 95—4.5 **4 Claims**



This invention pertains to a character projection system in a photographic type composing machine. It comprises a moving character matrix which causes characters to pass serially through a projection field. As each character reaches its assigned projection position within the projection field it is illuminated by means of a novel illumination system. The illumination system consists more than one illuminating modules which are controlled by an electronic control circuit. Each illuminating module is comprised basically of a flash lamp and a mirror whose deflection is precisely controlled by the electronic control circuit to direct the light from the flash tube to illuminate a character precisely in its assigned projection position.

3,568,581
PHOTOGRAPHIC APPARATUS WITH BUILT-IN EXPOSURE METER

Rolf Heinzmann, Stuttgart-bad, Cannstatt, and Albert Stieringer, Calmbach, Germany, assignors to Robert Bosch Elektrenik Und Photokino GmbH, Stuttgart-Unterturkheim, Germany
Filed Sept. 5, 1968, Ser. No. 757,673
Claims priority, application Germany, Sept. 8, 1967, P 15 97 120.7
Int. Cl. G03b *19/04, 19/18*
U.S. Cl. 95—10 **11 Claims**

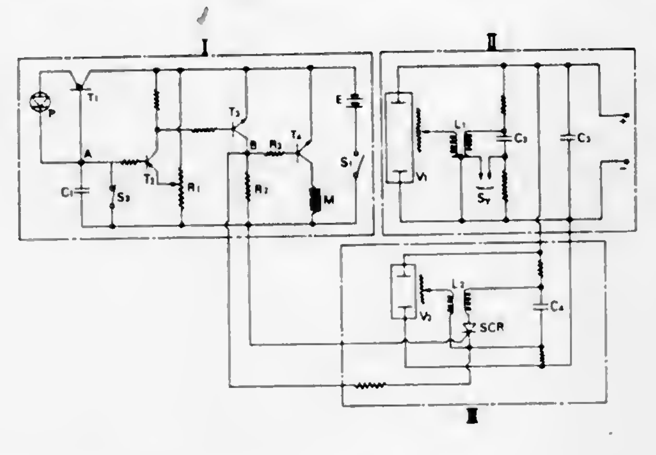


A photographic camera, which utilizes film-containing magazines having coding markers indicative of the film sensitivity, is provided with a built-in exposure meter which is adjusted by a detector serving to scan the coding marker of a magazine in the camera housing and to thereby adjust the exposure meter as a function of sensitivity of the respective film. The circuit of the exposure meter contains a normally operative variable resistor or a normally closed control switch which is opened by the detector when the detector assumes an end position while the magazine chamber of the camera housing is empty. The circuit of the exposure meter can be completed while the magazine chamber is empty by a locking member which can lock or unlock the door of the film chamber when the door is closed. When the door is closed and the locking member is moved to inoperative position to permit opening of the door, the locking member automatically causes the detector to leave its end position and to thus permit closing of the control switch or return movement of the slider in the variable resistor into engagement with the fixed portion of such resistor. This enables the operator to test the exposure meter while the magazine chamber is empty.

3,568,582
ELECTRONIC SHUTTER

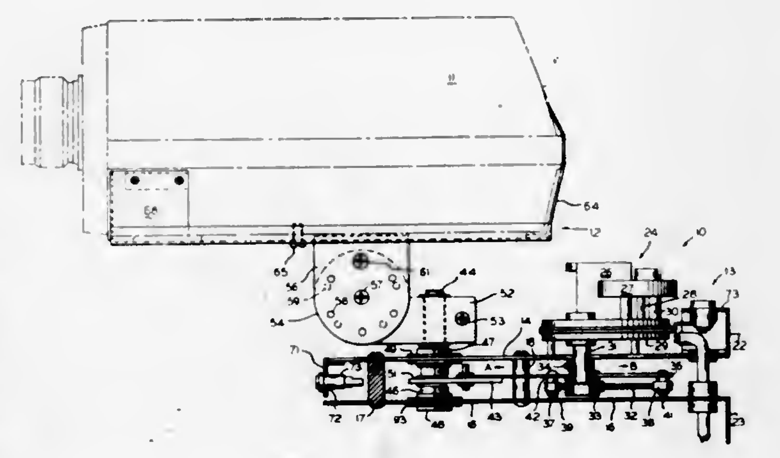
Yasuo Uchida, and Hideo Akimoto, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed Sept. 10, 1968, Ser. No. 758,920
Claims priority, application Japan, Sept. 27, 1967, 42/62101
Int. Cl. G03b *9/62, 9/70*
U.S. Cl. 95—11.5 **6 Claims**

An electronic shutter comprising a time control circuit for maintaining the shutter open for a variable period of time inversely related to the intensity of the light reflected from the subject and sensed at the camera, a flash discharge circuit which initiates illumination upon opening of the shutter, and a flash control circuit operative to cause said flash discharge circuit to cease illumination when the timing control circuit generates a shutter-closing signal.



3,568,583
SURVEILLANCE CAMERA DEVICE AND CONTROLS THEREFOR

Charles Horberg, Jr., 2980 Lake Placid Lane, Northbrook; Jere J. Willing, and Abe Shulman, 2139 W. Farewell Ave., Chicago, Ill.
Filed May 13, 1968, Ser. No. 728,405
Int. Cl. G03b *37/02*
U.S. Cl. 95—15 **14 Claims**

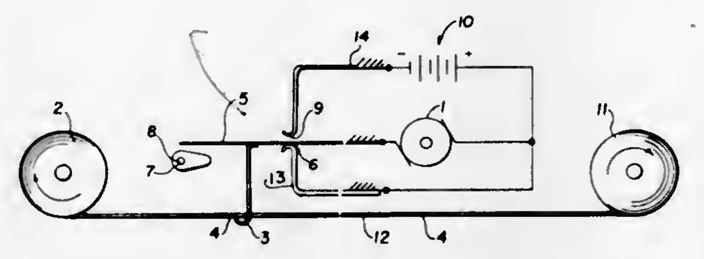


Antitheft surveillance camera arrangement for reciprocatingly scanning a given area. The camera is able to automatically expose film therein. The antitheft surveillance camera arrangement includes a motorized scanning mechanism mounted on the outside of the camera case. The motor continuously operates in one direction. The outside mounting enables the motor mechanism to be more readily accessible for servicing and reduces the inertia of the reciprocating camera case.

3,568,584
FILM ADVANCE BRAKING SYSTEM

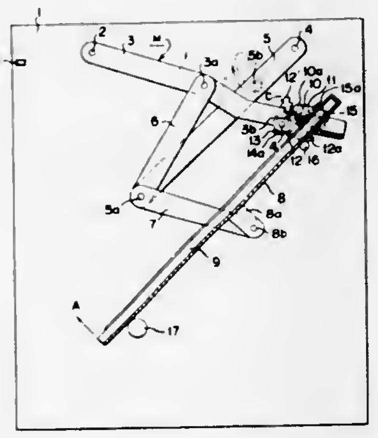
Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 23, 1968, Ser. No. 754,794
Int. Cl. G03b *1/14, 19/04;* **B65h** *25/00*
U.S. Cl. 95—31 **8 Claims**

In a camera provided with an electric motor for advancing film; switching means for sequentially connecting the motor first with a source of potential to advance the film, and then with a shunt to dynamically brake the film-advancing mechanism in response to detection of a code indicia on the film. The switching means can comprise a two-way switch with a common terminal actuatable from one switching position to the other by a sensor that detects perforations in the film. According to an alternative embodiment, the switch means comprises three sliding contacts adapted to engage a conductive strip on the film to electrically connect one of the terminals alternately with the other two terminals.



3,568,585
SHOCK-ABSORBING MECHANISM FOR THE VIEWING MIRROR OF A SINGLE LENS REFLEX CAMERA

Sunao Ishizaka, Tokyo, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan
Filed July 10, 1968, Ser. No. 743,884
Claims priority, application Japan, July 18, 1967, 42/45813
Int. Cl. G03b *19/12*
U.S. Cl. 95—42 **5 Claims**

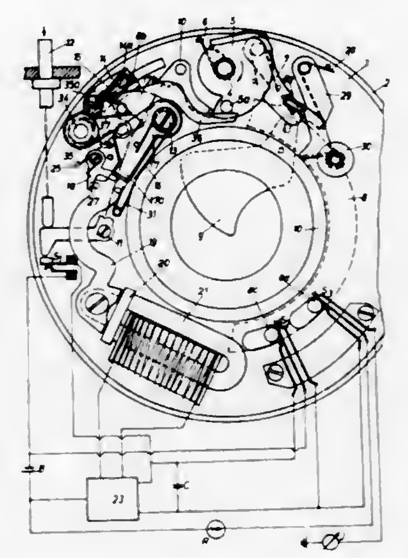


A shock-absorbing mechanism is provided for the viewing mirror of a single lens reflex camera. A spring-biased shock-absorbing lever having a pin or protuberance in the path of the mirror absorbs the impact forces. A spring-biased latch cooperation with the shock-absorbing lever latching the lever immediately before the mirror is moved into its raised position. The viewing mirror is thus moved to its raised position without impact.

3,568,586
PHOTOGRAPHIC SHUTTER WITH RECIPROCATING SECTORS AND ELECTRONIC EXPOSURE TIMING DEVICE

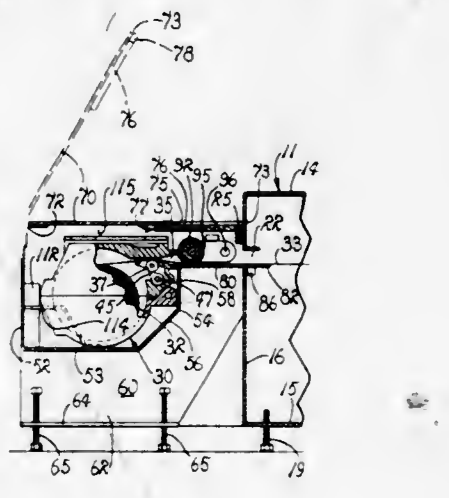
Waldemar T. Rentschler, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach/Black Forest, Germany
Filed July 16, 1968, Ser. No. 745,229
Claims priority, application Germany, July 21, 1967, P 42645
Int. Cl. G03b *9/58, 9/62*
U.S. Cl. 95—53 **6 Claims**

A device for obtaining constancy in the movement of a photographic shutter at even the shortest exposure time having a spring mechanism located between the magnet armature and the member locking the blade driving part. The spring mechanism is releasable by the magnet armature to actuate the member locking the blade driving part. The spring mechanism is so formed that the time interval from the beginning of the actuation of the member locking the blade driving part to its disengagement from the blade driving part is substantially independent of the member locking the blade driving part, and approaches a zero value.



3,568,587
PHOTOGRAPHIC PAPER FEEDING ATTACHMENT FOR PROCESSOR

Jerome D. Laval, 491 W. Escalon, Fresno, Calif.
Filed July 26, 1968, Ser. No. 748,003
Int. Cl. G03d *1/14*
U.S. Cl. 95—90.5 **5 Claims**

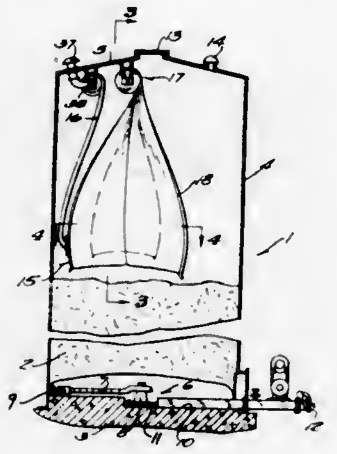


An attachment for feeding exposed photographic paper from a cassette loaded with such paper to an automatic processor providing a light-impervious housing adapted to receive such a cassette and precisely to locate it in paper-feeding position with respect to the processor and paper drive components within the housing manipulatable externally thereof initially to feed the paper into the processor without further exposing the paper during such travel.

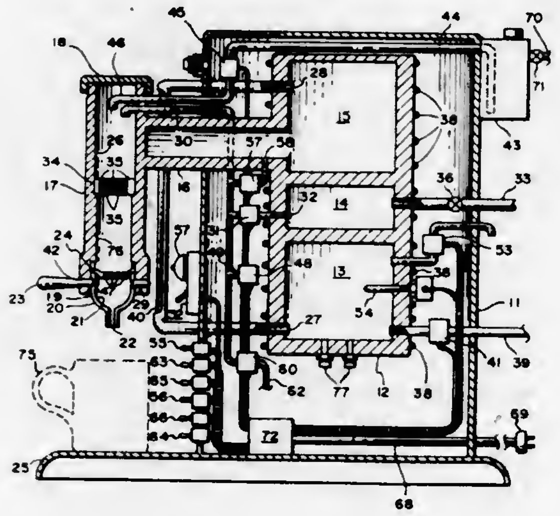
3,568,588
RETRACTABLE VARIABLE CAPACITY BREATHER SYSTEM

Allen A. Kudeck, Oconomowoc, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.
Filed Mar. 20, 1969, Ser. No. 808,733
Int. Cl. A01f *25/08*
U.S. Cl. 99—235 **12 Claims**

An upright sealed storage structure has within it a breather system including an expandible-contractible, bag which is internally exposed to the ambient pressure. The system also includes a reel upon which the bag can be coiled. The bag folds to a flattened shape when contracted and can then be raised to the top of the structure by winding over the reel.



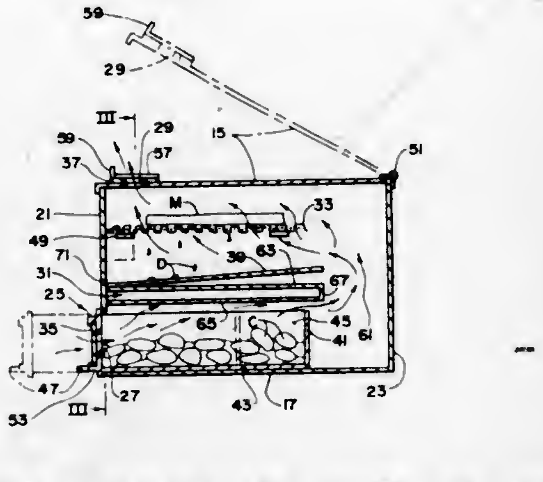
3,568,589
COFFEE BREWING APPARATUS
Romarico Robau, 4378 W. Flagler St., Miami, Fla.
Filed July 24, 1969, Ser. No. 844,485
Int. Cl. A47j *31/00*
U.S. Cl. 99—283 **3 Claims**



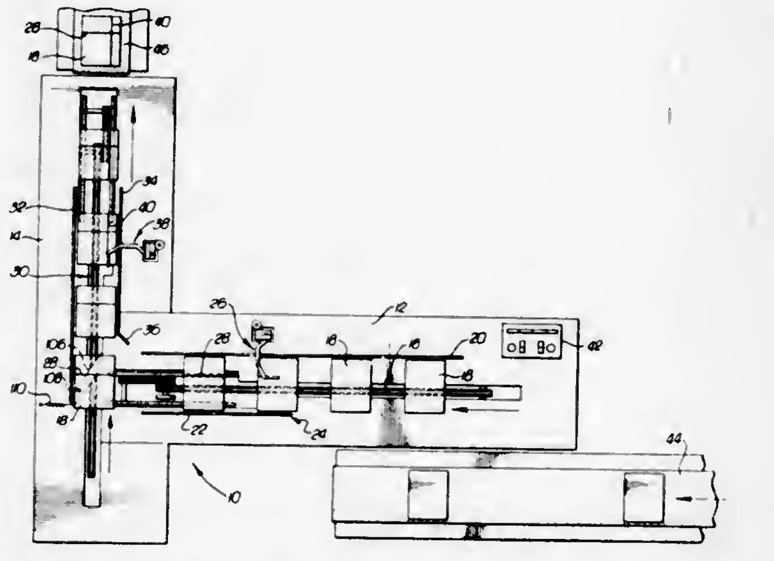
An improved coffee brewing apparatus having a three compartmented tank with the middle compartment containing coffee brewing water while the outer compartments contain hot water to maintain the coffee brewing water heated with heating elements utilized for heating all of the water. A brewing chamber connected to the coffee brewing water compartment and to a liquid sugar container having a homogenizing member at its midportion to spray sweetened water under pressure onto granules of coffee contained in a coffee retaining member whereby Cuban coffee of uniform quality and consistency is produced automatically.

3,568,590
COOKING STOVE
James L. Grice, 825 Parkrose Ave., Memphis, Tenn.
Filed Mar. 6, 1969, Ser. No. 804,787
Int. Cl. A47j *27/00*
U.S. Cl. 99—446 **11 Claims**

A cooking stove including firebox structure adapted to contain charcoal or like fuel and including horizontal baffle means arranged directly over the firebox and including horizontal grill-like food rack structure arranged directly over the baffle structure. The arrangement being operative for causing combustion heat and gases of the burning charcoal fuel to flow rearwardly underneath the baffle structure and then forwardly and upwardly superjacently of the baffle structure and through the grill-like food rack. The food supported on the rack is arranged in the flow of combustion gases and is not subjected to radiant heat from the fuel.



3,568,591
AUTOMATIC TYING APPARATUS
Clifford E. Dunlap, Pasadena, Calif., assignor to Ambassador College, Pasadena, Calif.
Continuation-in-part of applicatiou Ser. No. 766,875, Oct. 11, 1968, now abandoned. This application Jan. 10, 1969, Ser. No. 790,286
Int. Cl. B65b *13/18*
U.S. Cl. 100—4 **19 Claims**

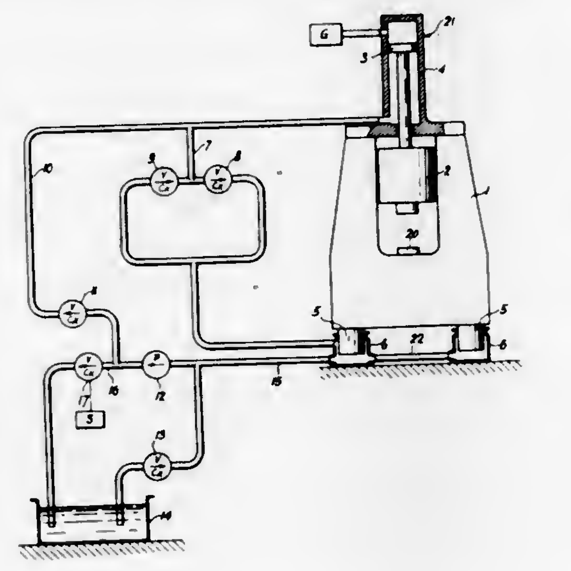


A conveyor system for automatically tying a series of bundles, such as stacks of magazines, while they are in continuous, uninterrupted movement. Movement of each bundle causes its leading edge to engage string suspended across its path and double the string back above and below the bundle to its trailing edge, where knotting mechanism knots and cuts the string while the bundle continues to move. Actuation of the knotting mechanism is accurately synchronized to each bundle for tight tying by actuation of the knotting mechanism through rapid-acting drive means energized by microswitch means actuated according to bundle position on the conveyor.

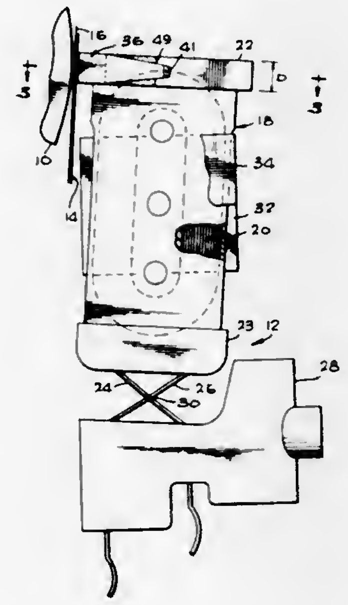
3,568,592
POWER HAMMER
Pavel Harvanek, Zdar nad Sazavou, Czechoslovakia, assignor to Vyzkumny ustav tvarecich stroju a technologie tvareni, Brno, Czechoslovakia
Filed Mar. 17, 1969, Ser. No. 807,624
Claims priority, application Czechoslovakia, Mar. 18, 1968, 2063/68
Int. Cl. B30b *1/32*
U.S. Cl. 100—269 **5 Claims**

In a power hammer wherein work located on an anvil is acted upon by a ram located over the anvil an upper piston-

and-cylinder means coacts with the ram to lower the latter along a driving stroke by way of a gaseous fluid under pressure and to raise the ram back to its starting position along its return stroke by way of a hydraulic fluid under pressure. A frame means which carries the anvil also carries part of this upper piston-and-cylinder means, while another part thereof is operatively connected with the ram. Beneath the frame means the foundation carries part of a lower piston-and-cylinder means which is operatively connected with the frame means for raising and lowering the latter. A conduit provides communication between the hydraulic fluid of the upper piston-and-cylinder means and the lower piston-and-cylinder means. A control valve is provided in the conduit to open the latter so that when the gas drives the ram downwardly the hydraulic fluid under pressure will flow through the conduit from the upper piston-and-cylinder means into the lower piston-and-cylinder means to raise the frame means, and the anvil therewith, simultaneously with the downward movement of the ram.

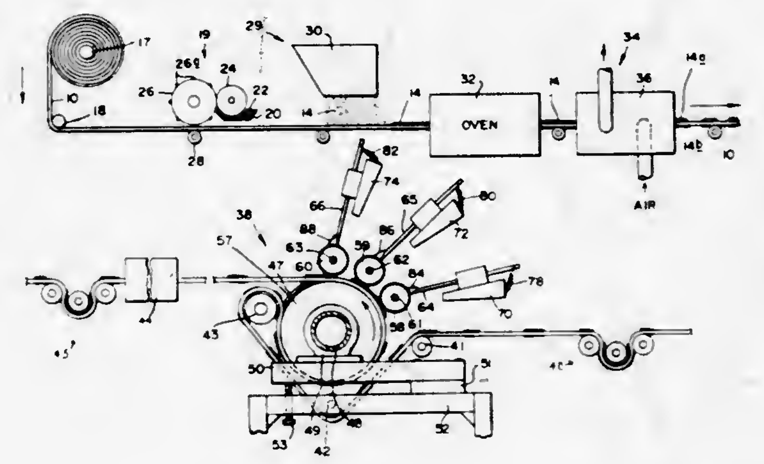


3,568,593
HAMMER FOR IMPACT PRINTING DEVICE
Stelios B. Papadopoulos, Los Angeles, Calif., assignor to Data Products Corporation, Culver City, Calif.
Filed Nov. 6, 1968, Ser. No. 773,911
Int. Cl. B41j *9/00*
U.S. Cl. 101—93 **8 Claims**



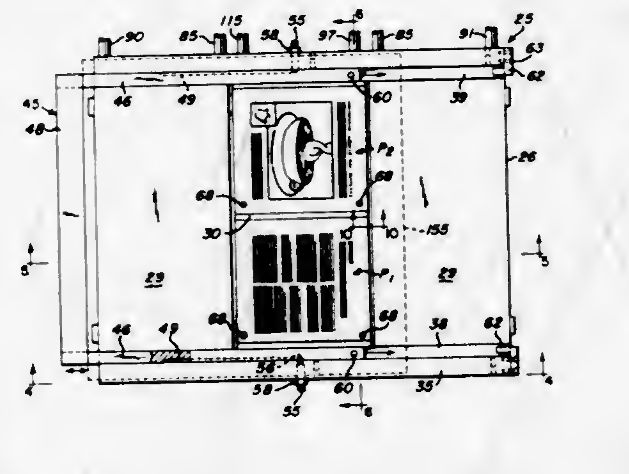
A hammer assembly useful in printing apparatus, for impacting against a character drum. The hammer is constructed to withstand abusive operation as for example, when no paper or ribbon covers the drum. The assembly comprises a hammer tip which is joined to the rest of the hammer assembly by an easily compressed buffer material such as an elastomer.

3,568,594
ROTARY PRINTER FOR APPLYING A PATTERN TO A FLOCKED SHEET
John H. Johnston, and John H. Johnston, Jr., Somerset, Mass., assignors to Dabit Inc., Fall River, Mass.
Filed Jan. 24, 1968, Ser. No. 700,243
Int. Cl. B41f *9/02*
U.S. Cl. 101—152 **11 Claims**



A colored pattern is applied exclusively to the raised nap of a flocked sheet by feeding the sheet over a drum roll spaced from one or more engraved rolls. Takeup and letoff units maintain the sheet in a highly tensioned condition on the drum, yet the units are balanced so that they impart no net motion to the sheet. The drum roll is then rotated independently of the units to advance the sheet under substantially constant tension at all speeds from very slow to very fast. The pattern to be applied to the nap is in the form of dye-filled recesses etched into the surfaces of the engraved rolls. The drum roll is critically spaced from the engraved rolls so that the nap fibers in register with these recesses extend into them and are thereby immersed in the dye contained therein. Substantially no pressure is applied to these fibers to be colored so that they are uniformly colored by a combined dipping and wicking action at all sheet speeds.

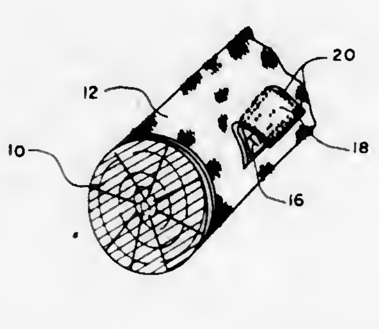
3,568,595
APPARATUS FOR MAKING LETTERPRESS PLATES
Charles W. Bunting; David P. Groeber, Dayton, and Louis W. Pettlo, Springboro, Ohio, assignors to McCall Corporation, New York, N.Y.
Filed Aug. 28, 1967, Ser. No. 663,858
Int. Cl. B41n *1/10*
U.S. Cl. 101—401.1 **6 Claims**



A hydraulic press supporting a lower press member including a center and end sections each having an internal passageway and with an engraved master plate mounted on the center section, an automatically controlled system for circulating cooling fluid through the passageways in the end sections and alternately circulating cooling and heating fluid through the passageway in the center section for preheating and cooling the plates, a thermoplastic sheet of material pressed against the preheated plate by an upper press member having a resilient blanket and held until the plate and sheet are cooled, and a frame slidably mounted on the lower press member for shifting the sheet a predetermined distance to form a flexible mat having a pair of identical impressions in precise registration for use in producing a two-on plate for a letterpress.

3,568,596
RELEASABLE ATTACHING MEANS FOR PRINTING PLATES AND OTHER DIES

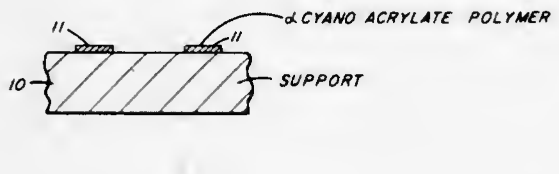
Jimmie N. Mashburn, Rte. 1, Jamestown, N.C.
Filed Mar. 6, 1969, Ser. No. 804,952
Int. Cl. B41f *27/06*
U.S. Cl. 101—415.1 **3 Claims**



This invention relates to the printing, scoring, perforating and creasing of corrugated cardboard boxes and other flat sheet material in presses, and more particularly to a means for releasably holding the printing and other types of dies formed of rubber, synthetics, wood and metal to the upper, revolving cylinder, wherein the interface between the cylinder and a die comprises minute hooks on one surface and minute loops on the other, preferably of the material commonly known as Velcro or a similar material. Such an arrangement permits the die to be more easily positioned and pressed onto the cylinder and removed.

3,568,597
LITHOGRAPHIC PRINTING PLATE AND PROCESS

Henry C. Staehle, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 3, 1967, Ser. No. 651,003
Int. Cl. B41m *1/005/00;* **B41n** *3/00*
U.S. Cl. 101—450 **13 Claims**



A printing plate is prepared by the imagewise application of a polymerizable monomer such as alpha-cyano acrylate to a surface such as aluminum oxide on a support such as aluminum to form an image in polymer.

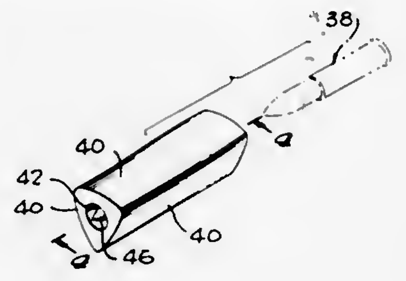
3,568,598
PROCESS OF AND COMPOSITION FOR RENDERING HYDROPHILIC AN IMAGE AREA ON A LITHOGRAPHIC PRINTING PLATE

Thomas I. Abbott, and Donald A. Smith, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 24, 1966, Ser. No. 588,707
Int. Cl. B41n *1/00, 3/00;* **G03f** *7/02*
U.S. Cl. 101—465 **19 Claims**

The image areas of a lithographic printing plate are rendered hydrophilic by being coated with a solution comprising a specified basic organic polymer, a cationic surfactant and an organic gelatin solvent.

3,568,599
AMMUNITION IMPROVEMENTS TO PERMIT FIRING OF A CONVENTIONAL CLOSED CHAMBER CARTRIDGE IN AN OPEN CHAMBER BREECH MECHANISM

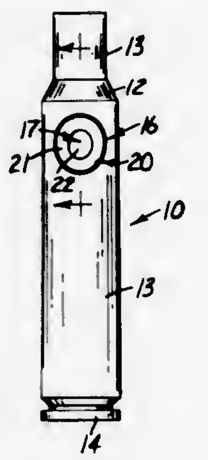
David Dardick, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Sept. 1, 1967, Ser. No. 665,160
Int. Cl. F42b *9/00, 5/26*
U.S. Cl. 102—38 **2 Claims**



Ammunition for open chamber guns having a yieldable noncombustible jacket of generally triangular round shape in transverse cross section containing a conventional closed chamber cartridge frictionally fitted within a central bore within the jacket in such a way as to permit the cartridge to be fired in an open chamber gun.

3,568,600
METHOD AND APPARATUS FOR CHECKING FIRING PRESSURE OF AMMUNITION

John A. Nosler, Bend, Oreg., assignor to Robert Amos Nosler, Gales Ferry, Conn.
Filed Aug. 8, 1968, Ser. No. 751,286
Int. Cl. F42b *9/28*
U.S. Cl. 102—43 **9 Claims**

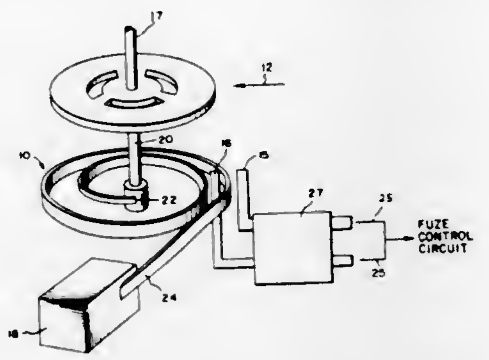


A method and an apparatus are described for enabling a sportsman to determine the correct amount of powder that he should add to firearm cartridges to produce maximum safe working pressures. A shallow cavity is formed in the sidewall of the cartridge. A calibrated thin metal disc is seated in the cavity with the outer surface of the disc flush with the cartridge wall. The disc has a recessed center section with reduced thickness that is calibrated to deform or bulge outward to make contact with the firing chamber wall when the maximum safe working pressure is exerted on the interior of the cartridge.

3,568,601
MINE FUSE SAFING SYSTEM

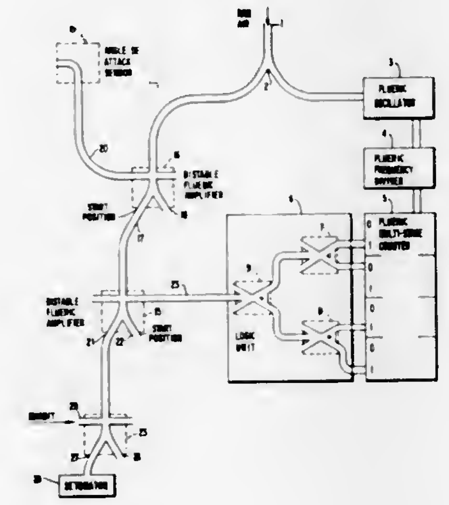
Warren P. Morrow, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed July 26, 1968, Ser. No. 747,881
Int. Cl. F42c *15/10*
U.S. Cl. 102—70.2 **4 Claims**

The regulator of a fuze timing clock includes an electrical switch, which utilizes the breathing action of a balance wheel hairspring and a single or double stator contact. The switch produces a series of timing pulses which are dependent upon the number of stator contacts used and the period of the breathing action of the hairspring. In a fuze, the pulses can operate a self-sterilization circuit which will place the fuze in an unarmed or nonfiring condition. In such a fuze, power is fed to the output section of the fuze only when there is a continuous series of sustaining pulses from the electrical switch. Cessation of these pulses causes the sterilization circuit to turn off the output section gate thus removing power from the output of the fuze.



3,568,602
FLUERIC ARMING DEVICE

Raymond W. Warren, McLean, Va., Assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 24, 1968, Ser. No. 770,185
Int. Cl. F42c *15/28*
U.S. Cl. 102—81 **6 Claims**

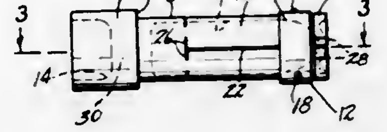


A device for arming an explosive missile. Fluid pressure for operation of the device is provided by ram air, which drives a flueric oscillator. A count of the output cycles of the oscillator determines the distance through the air that the missile has travelled. When the count reaches a predetermined point, unless other conditions inhibit arming, a detonator is armed.

3,568,603
AIR RIFLE SHOT SHELL

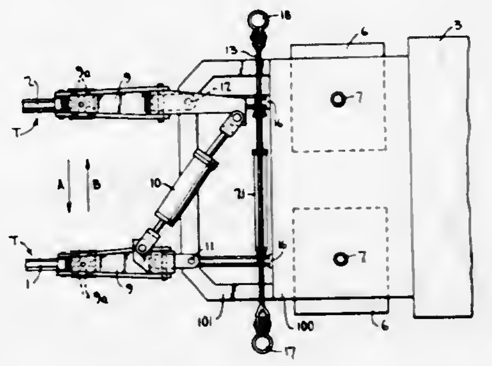
Edwin S. Vartanian, North Haven, Conn., assignor to Olin Mathieson Chemical Corporation
Filed May 7, 1969, Ser. No. 822,458
Int. Cl. F42b *7/06*
U.S. Cl. 102—91 **14 Claims**

A caseless plastic shot shell having a shot-receiving pocket formed on the forward end thereof, the sidewall of the pocket being interrupted by spaced apart slits defining laterally deflectable petals. A collar is slidably mounted on the shell and operative in a first position to prevent the petals from deflecting laterally. The collar can be moved to a second position wherein the petals are free to deflect. A gas obturating cup is disposed on the rearward end of the shell.



3,568,604
RAILROAD TRACK ALIGNMENT METHOD AND APPARATUS

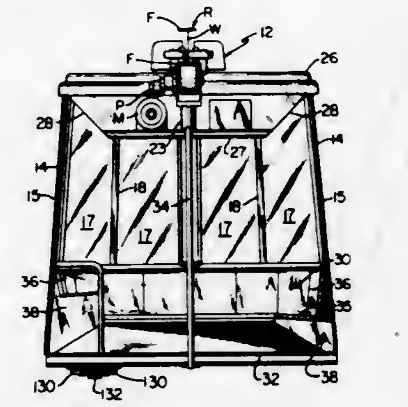
Gerard Sauterel, Pully, Switzerland, assignor to MATISA Material Industriel S.A., Crissier pres Lausanne, Switzerland
Filed Jan. 15, 1968, Ser. No. 697,978
Claims priority, application Switzerland, Jan. 20, 1967, 885/67
Int. Cl. E01b *33/02, 35/08*
U.S. Cl. 104—8 **7 Claims**



A method and apparatus for the alignment of a railroad track wherein there is carried out a leveling operation and a slewing operation which is incorporated in the tamping cycles for the tamping of the ballast. Upon completion of a tamping cycle the leveling operation is terminated, but the lateral track position is fixedly maintained for a predetermined period of time after completion of such leveling operation.

3,568,605
SUSPENDED MONORAIL SYSTEM

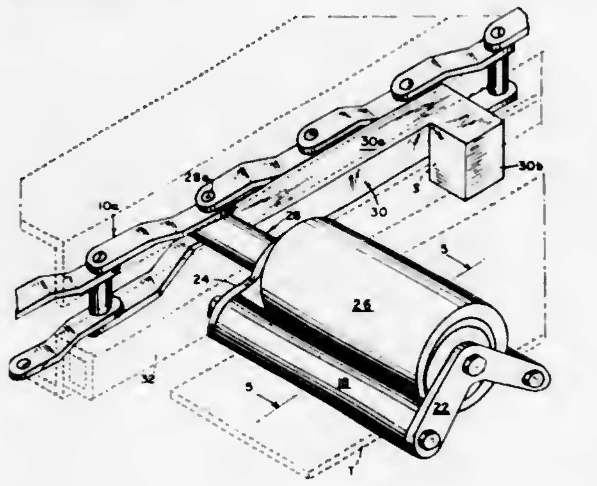
Frank P. Pettit, Arvada, Colo., assignor to Projects General of America, Denver, Colo.
Filed Jan. 24, 1968, Ser. No. 700,211
Int. Cl. B61b *3/02;* **B61c** *13/04;* **B61d** *17/04*
U.S. Cl. 104—95 **25 Claims**



In a monorail system a lightweight vehicle is designed for suspension from an overhead rail by drive units extending upwardly from a longitudinal beam which defines the main support for the entire vehicle structure, and the drive units are characterized in particular by having drive wheels pivotally mounted to swing upwardly under running engagement with the rail from a line normal to the running surface of the rail, to increase the urging and pressure of the drive wheel against the running surface.

3,568,606
AUTOMOBILE-WASHING UNIT CONVEYOR

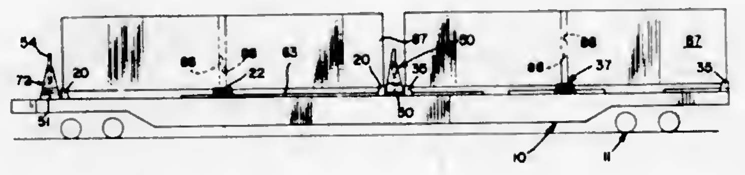
Howard E. Grant, c/o Trans World Car Wash Systems, Inc 65 Marine St, Farmingdale, N.Y.
Filed Dec. 23, 1968, Ser. No. 786,276
Int. Cl. B65g *17/42*
U.S. Cl. 104—172 **8 Claims**



For use in a car or automobile-washing unit in the operation of which an automobile is moved along a prescribed path in association with various apparatus for cleaning different parts of the automobile, a conveyor for urging the automobile along such path of movement including chain-driven roller arrangements which each have a freely rotatable idler roller in pushing contact with the automobile wheel and thus permits unimpeded rotation of the automobile wheel during movement of the automobile along the path of movement.

3,568,607
RAILROAD FLAT CAR FOR TRANSPORTING CONTAINERS AND HIGHWAY TRAILERS

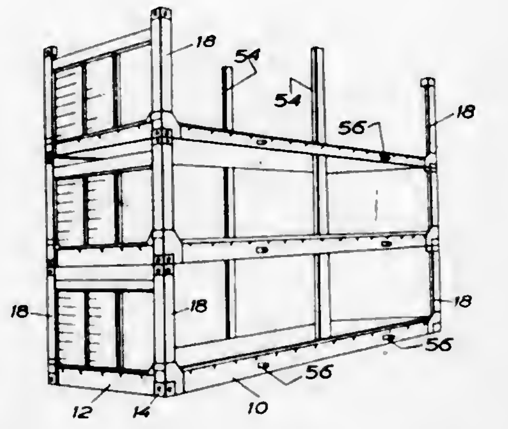
Jack E. Gutridge, Dyer, Ind., assignor to Pullman Incorporated, Chicago, Ill.
Filed Aug. 6, 1968, Ser. No. 750,735
Int. Cl. B61d *45/00;* **B65j** *1/22*
U.S. Cl. 105—368 **4 Claims**



A railroad flat deck car for transporting both containers and highway trailers, including a plurality of sets of container brackets positioned to support a pair of relatively large containers on said car, said brackets also being movable into position to support a greater number of containers of lesser size. The flat deck also includes at least three trailer hitches, one of said hitches being stationary, another being movable lengthwise on the deck to a plurality of positions whereby both said trailer hitches anchor to the deck a pair of relatively long trailers, and the third trailer hitch being of the conventional collapsible type which, in the erect position, and with the other two hitches, supports a plurality of trailers of lesser length on said deck.

3,568,608
APPARATUS FOR TRANSPORT OF GOODS

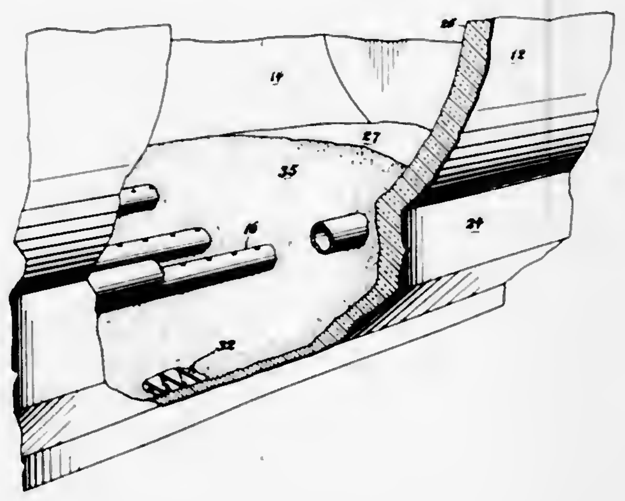
Cyril Taylor, 12, Tristan Ave., Walmer Bridge, Lancashire, and Theodore Howe, 17, Hey Houses Lane, St. Annes, Lancashire, England
Filed Aug. 12, 1968, Ser. No. 751,820
Int. Cl. B65d *19/18*
U.S. Cl. 108—53 **3 Claims**



A goods stacking platform comprises a base frame having a post upstanding from each corner, and a laterally projecting foot rigid with the lower end of each post having a fixed axis pivot connection to the base frame located to one side of the post providing for movement of the post between an erect upstanding position to a collapsed folded position substantially flatly overlying said base frame. Axially slidable offset locking pins distinct from the pivots are mounted on said base frame for displacement into corresponding apertures in the lower ends of said posts when the posts are erect.

3,568,609
INCINERATION SYSTEM

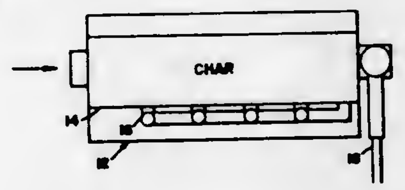
Richard F. Stockman, Friendship, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed June 16, 1969, Ser. No. 833,514
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 **4 Claims**



An incinerator having an arrangement of ash removal that permits continuous operation without the necessity of opening the combustion chamber thereof directly to the atmosphere so as to provide an uncontrolled supply of air for combustion thereto. A layer of sand is placed on the bottom of a combustion chamber to cover the ash removal door to a depth that provides a labyrinth-type seal to preclude the flow of air from the atmosphere into the combustion chamber. As combustion within the combustion chamber occurs, ash resulting therefrom accumulates at the top of the sand, and an amount of sand is withdrawn from the bottom of said chamber so that the amount of particulate matter at the bottom thereof remains substantially unchanged.

3,568,610
METHOD AND APPARATUS FOR CONVERTING GRAIN HULLS TO ASH

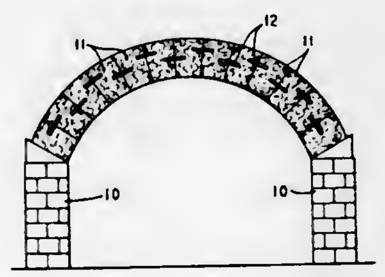
Dwight Hughes, 301 Elliot St. Apt 21, Woodland, Calif.
Filed June 5, 1969, Ser. No. 830,764
Int. Cl. F23g *7/00*
U.S. Cl. 110—18 **7 Claims**



A method for converting dried grain hulls to an essentially carbonless ash material by first removing moisture and volatile gases to form char in an enclosed converter using heat and then burning the char at a controlled rate in an enclosure to remove carbon and form the ash.

3,568,611
FURNACE CONSTRUCTION

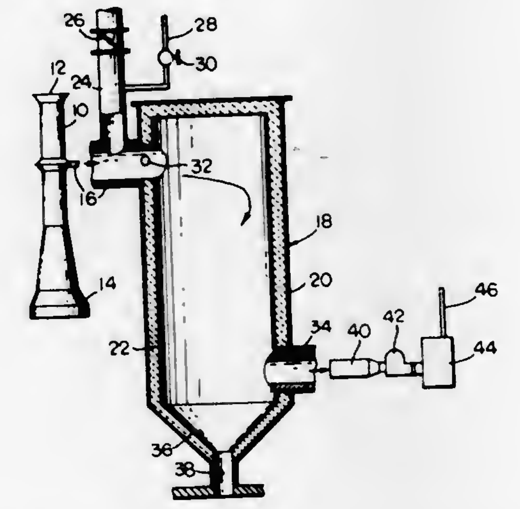
Howard E. Konrad, Somerville, N.J., and August Pocius, Westport, Conn., assignors to Johns-Manville Corporation, New York, N.Y.
Filed Nov. 12, 1968, Ser. No. 774,977
Int. Cl. F23m *5/06*
U.S. Cl. 110—99 **13 Claims**



Improved furnace construction for furnace tops, arches or crowns and furnace wall sections in areas of the furnace not subject to weight and pressure of the structure itself or abrasion and impact from the charge or burden and washing action of melts, and a resilient lightweight insulating and refractory composite material therefor.

3,568,612
COMBUSTION CHAMBER

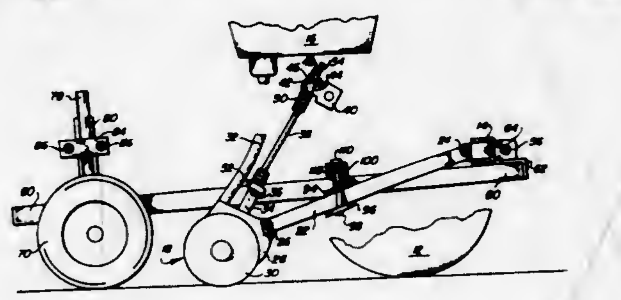
Kenneth W. Stookey, Markle, Ind., assignor to Torrax Systems, Inc., North Tonawanda, N.Y.
Filed Feb. 19, 1969, Ser. No. 800,684, Continuation-in-part of Ser. No. 719,300, March 25, 1968, Patent No. 3,511,194.
Int. Cl. F23b *5/04*
U.S. Cl. 110—28 **19 Claims**



Apparatus for the complete and controlled combustion of combustible materials, particularly gases and combustible distillates produced by incomplete combustion and distillation products of various classes of carbonaceous fuels, waste materials, and the like. The apparatus comprises a generally vertical chamber into which the material is introduced at the top and is admixed with air. The material moves downwardly during combustion thereof and the products of combustion which are gaseous are discharged from the side of the chamber near the bottom while solid products of combustion are withdrawn from the bottom of the chamber. There may, advantageously, be provided a vessel at the bottom of the chamber to receive the solid products of combustion and this vessel includes valves for controlling the passage of material therethrough so that the chamber can be operated at subatmospheric pressure. At the top, the chamber is always at subatmospheric pressure, and the material to be burned is drawn into the chamber by suction.

3,568,613
PRESS AND GAUGE WHEEL ATTACHMENT FOR GRAIN DRILL

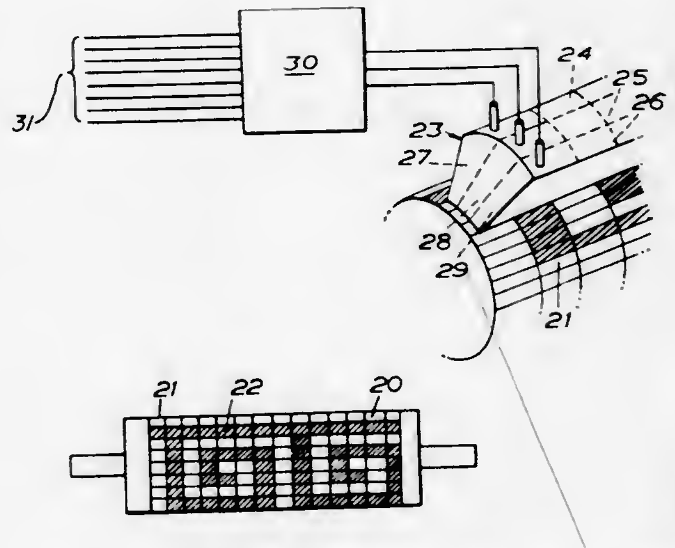
Gerald W. Lange, Lamberton, Minn.
Filed May 31, 1968, Ser. No. 733,625
Int. Cl. A01c *5/06;* **A01b** *63/16, 63/24*
U.S. Cl. 111—86 **4 Claims**



A gauge wheel attachment is provided for a wheel-type grain drill thus permitting the use of the grain drill as a seed planter for crops such as soybeans which require planting to a controlled depth.

3,568,614
MACHINE PATTERN FOR A TEXTILE TUFTING MACHINE

Stanley Shorrock, and Norman Ian Buckley, Blackburn, England, Said Buckley assignor to said Sharrock
Filed Sept. 26, 1968, Ser. No. 762,961
Claims priority, application Great Britain, Sept. 26, 1967, 47876/67
Int. Cl. D05c *15/26*
U.S. Cl. 112—79 **12 Claims**



A textile tufting machine is controlled by a pattern produced by applying a grid to an artist's pattern equal to the number of tufts in the pattern then making a binary coded machine pattern gridded corresponding to the colors of the artist's pattern when gridded, sensing and decoding the machine pattern and thereby controlling the tufting machine needles accordingly. The pattern itself has a number of unit areas consisting of a number of rows and columns of binary coded information with the columns equal to the number of needles in the tufting machine and the rows equal to the number of needle strokes in a pattern.

3,568,615
METHOD AND APPARATUS FOR APPLYING FABRIC LUBRICANT IN A SEWING MACHINE

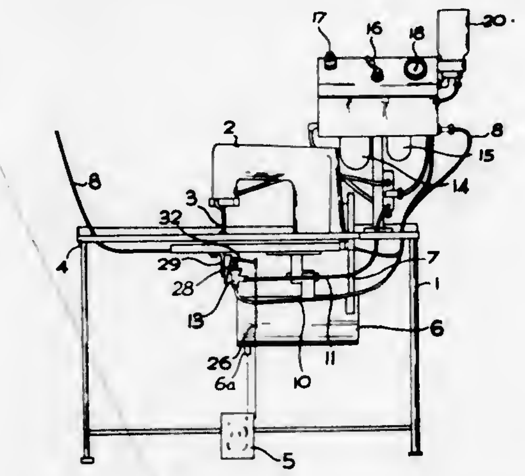
Kenneth W. Stretton, Kirkby-in-Ashfield, England, assignor to Wood, Bastow & Company Limited

Filed Dec. 26, 1968, Ser. No. 786,961

Claims priority, application Great Britain, Dec. 30, 1967, 59287/67

Int. Cl. D05b *67/00, 71/04*

U.S. Cl. 112—218 **15 Claims**



In a sewing machine, a method and an apparatus wherein an atomized stream of a fabric lubricant is continuously supplied under pressure to either a nozzle to spray a jet of lubricant onto the fabric or a separate reservoir. A valve device switches the stream between the nozzle and the reservoir such that a pressurized stream is readily available as a jet at the nozzle when needed.

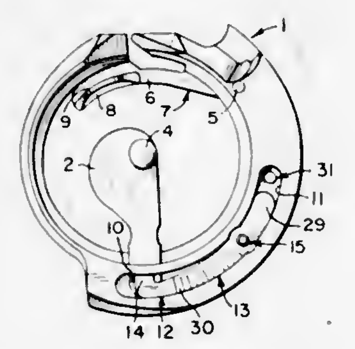
3,568,616
BOBBIN CASE FOR SEWING MACHINES

Lionel J. Coulombe, Matawan, N.J., assignor to The Singer Company, New York, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,103

Int. Cl. D05b *57/14*

U.S. Cl. 112—229 **8 Claims**



A bobbin case for a lockstitch sewing machine having a double screw to provide a tension which is adjustable within a predetermined range in order to obtain a proper bobbin thread tension for a desired stitch. The double screw comprises a sealed inner member which is factory adjusted to exert the highest tension of the range, and an outer member which is adjusted by a sewing machine operator to relieve the pressure applied by the inner screw member. A stop rivet engages the outer screw member at a particular position to establish the lowest tension of the range. The double screw acts upon a leaf spring which bears against the bobbin hold-down arm to provide a tension resisting withdrawal of the thread wrapped on the bobbin. A double tension leaf spring is used to eliminate overstressing. A screw used to position the spring on the bobbin case has a ball-type head to permit a rocking motion which reduces the amount of deflecting or bending of the spring when the tension is applied.

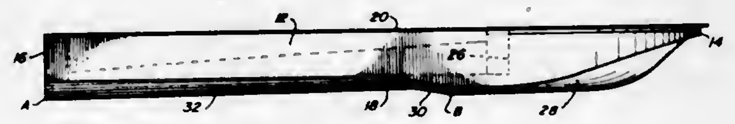
3,568,617
STEP-RAMP V-HULL

John V. Yost, 2233 Riverside Drive, Trenton, Mich.

Filed Mar. 11, 1969, Ser. No. 806,146

Int. Cl. B63b *1/20*

U.S. Cl. 114—66.5 **7 Claims**



A boat hull construction provided with longitudinally extending bottom surfaces including (1) a forward section extending generally horizontally forward from generally amidships and curving forwardly and upwardly at its forward end, (2) a generally horizontally disposed rear section spaced rearwardly of the forward section and above a horizontal plane containing the rearmost portions of the forward section, and (3) an intermediate section inclined rearwardly and upwardly and extending between the rear and front ends of the front and rear sections, respectively, a step of low vertical height joining the front and rear ends of the intermediate and forward sections.

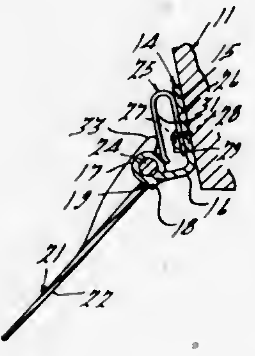
3,568,618
TRIM TAB

William A. Bedford, Jr., Sarasota, Fla., assignor to Graham P. Olson, Sarasota, Fla.

Filed Apr. 29, 1969, Ser. No. 820,240

Int. Cl. B63b *1/22*

U.S. Cl. 114—66.5 **7 Claims**



A pair of spaced trim tabs are supported at the bottom of the transom of a boat to extend therebelow when the boat is at rest and when operating at a low speed. Each tab is pivotally supported by a bracket and is urged by a spring to a lowered position below the boat bottom limited to an angular position by a stop engagement between the tabs and the brackets.

3,568,619
BALLAST FLUID

John P. Sloan, Jr., Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 26, 1969, Ser. No. 802,666

Int. Cl. B63b *43/06*

U.S. Cl. 114—125 **4 Claims**

Waterborne vessels are ballasted using water containing dissolved metal salts such as potassium carbonate.

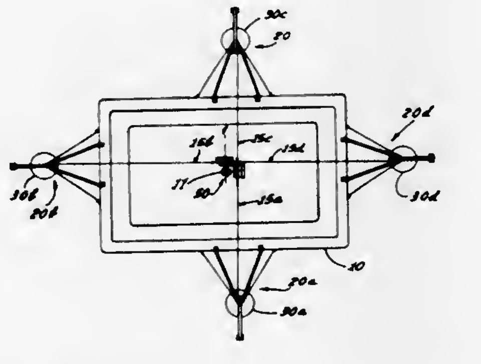
3,568,620
ROLL AND PITCH SUPPRESSOR FOR FLOATING MARINE STRUCTURES

Donald W. Douglas, 4 Crest Road East, Rolling Hills, Calif.

Continuation-in-part of application Ser. No. 693,238, Dec. 26, 1967, now abandoned. This application Feb. 26, 1969, Ser. No. 807,479

Int. Cl. B63b *43/06*

U.S. Cl. 114—125 **24 Claims**



A roll and/or pitch suppressor for floating marine structures is disclosed in which pairs of buckets are suspended from outriggers symmetrically arranged in relation to a roll or pitch axis. The buckets of a pair fill during down stroke and empty during up stroke in phase opposition to provide roll or pitch suppressing or damping momentum.

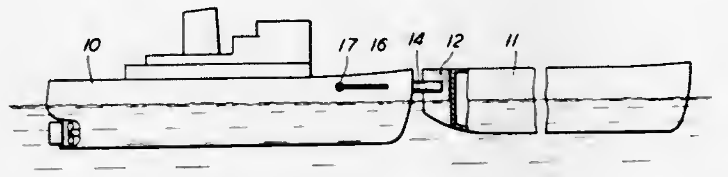
3,568,621
COUPLING ARRANGEMENT FOR VESSELS

Masasuke Kawasaki, 714 Florida Ave, Slidell, La.

Continuation-in-part of application Ser. No. 784,511, Nov. 19, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 714,558, Mar. 20, 1968, now abandoned. This application May 6, 1970, Ser. No. 34,271

Int. Cl. B63b *21/00*

U.S. Cl. 114—235 **36 Claims**



A tugboat engages the stern of a barge using a linkage which permits freedom of movement between the two vessels for pitching, rolling, and/or heaving motions, but yet permits the tug to push and steer the barge. A large pin protruding from the bow of the tug extends into a vertical slot in the stern of the barge, the pin and slot being along or parallel to the centerlines of the vessels. Rigid struts connect the tug to the barge, these being positioned at angles with respect to the vessels. Swivel or hinge joints are used for connecting the struts to the vessels to permit relative movement of the struts and vessels. The pin may be cylindrical, or curved at its sides, to permit rolling motion. The length of the pin and the depth of the slot may be such that slight fore-and-aft movement is permitted as would occur in pitch or roll. A wide recess in the stern of the barge may be provided to accommodate the bow of the tug.

3,568,622
EXPLOSIVE ANCHOR FIRING DEVICE

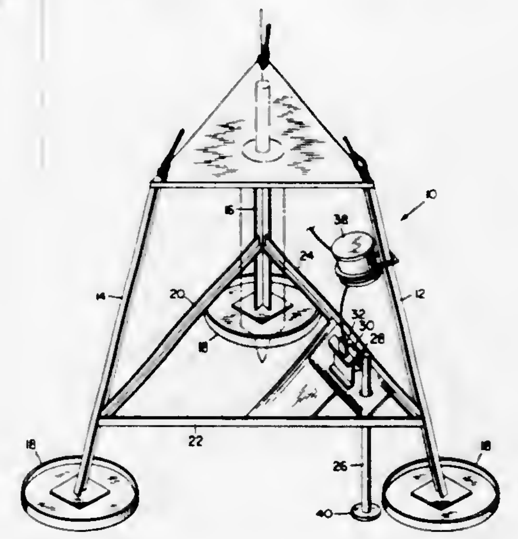
John R. Thompson, Camarillo, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 14, 1969, Ser. No. 824,532

Int. Cl. B63b *21/28*

U.S. Cl. 114—206 **5 Claims**

An anchor construction wherein an explosive charge propels anchor members into the ocean floor. It includes means for firing the charges a predetermined period of time after the device has reached the ocean floor, such means operating without the use of any command link between the anchor and the surface and being capable of postponement if the anchor construction is lifted from the floor before the charge is ignited.



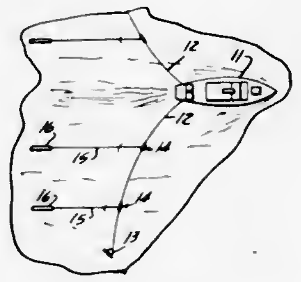
3,568,623
TOWING TACKLE

Robert H. Gustavson, Lynn Haven, and Bernard Deleman, Panama City, Fla., assignors to the United States of America as represented by the Secretary of the Navy

Filed July 25, 1969, Ser. No. 844,819

Int. Cl. B63b *21/00*

U.S. Cl. 114—235 **11 Claims**



This invention provides an improved piece of towing tackle especially useful in marine towing applications. A slotted skirt device is fitted over the tow line and a hinged wedge stop is clamped about the line and inserted in a recess in the slotted skirt to secure the latter to the tow line. The skirt carries a rotating bearing collar with a towing bail attached thereto.

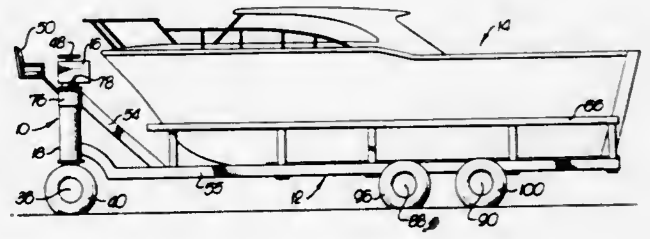
3,568,624
VEHICLE FOR TRANSPORTING AND LAUNCHING A BOAT

Floyd E. Bjorklund, 2218 Corona Ave., Norco, Calif.

Filed Dec. 9, 1968, Ser. No. 782,117

Int. Cl. B63f *3/00;* **B63c** *15/00*

U.S. Cl. 115—1 **14 Claims**

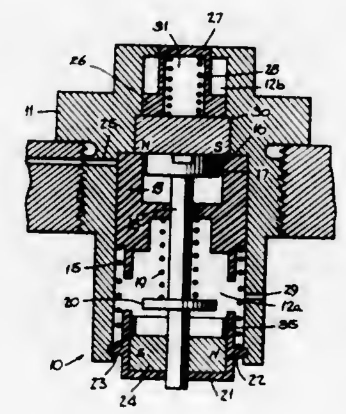


A vehicle for transporting, launching and recovering a boat which said vehicle comprises a power-steering unit attached to a boat trailer having variable buoyancy. The power-steering unit includes a power source which is coupled to driven wheels in such a manner that the driven wheels are steerable by rotation of the power source housing. A fixed level of buoyancy is obtained by the incorporation of hollow structural members into the power-steering unit and the trailer frame. Variable buoyancy is provided by ballast tanks in association with a ballast control system so that the pressure between the boat and the launch vehicle may be varied to expedite the launch and recovery operations. Propulsion and steering control of the launch vehicle during water borne operations are provided by bladed propulsion discs attached to the driven wheels.

3,568,625
DIFFERENTIAL PRESSURE INDICATOR

Guido D. Cilento, Southington, Conn., assignor to Fairfield Facility Commercial Filters, Division of the Carborumdum Co., Lebanon, Ind.

Filed Nov. 5, 1968, Ser. No. 773,436
Int. Cl. G01l *19/12*
U.S. Cl. 116—70 **7 Claims**

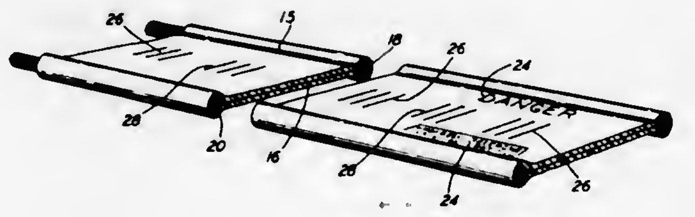


A differential pressure-indicating device has an indicating chamber and a pressure sensitive chamber separated by a fixed magnet of variable strength. While a rod in the pressure sensitive chamber abuts the fixed magnet, the indicator cannot be triggered. Movement of the rod away from the magnet triggers the indicator. Means are provided to prevent return of the rod to abut the fixed magnet until the filter is replaced.

3,568,626
IDENTIFYING MEANS FOR BURIED UTILITIES

Hamilton Southworth, Jr., New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 8, 1967, Ser. No. 681,355
Int. Cl. G01d *21/00*
U.S. Cl. 116—114 **3 Claims**

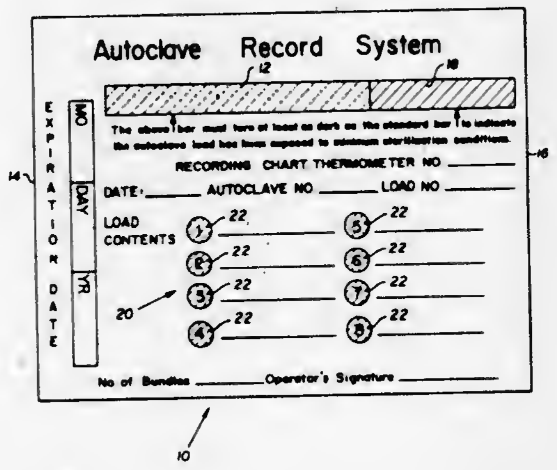


Excavators are warned of the proximity of buried cables or other buried utilities by burying above the utilities lengths of extensible and stretchable nonfrangible wires or tapes located to be moved by excavating instruments and marked to indicate the existence of the utilities. Preferably, the wires or tapes include magnetic or radioactive portions which can be sensed above ground prior to excavation to locate and identify utilities.

3,568,627
COMBINED RECORD CARD AND STERILIZATION INDICATOR

Irwin Selinger, Flushing, and Michael Feingold, Bronx, N.Y. (c/o Surgicot, Inc. 12 N. Cottage St., Valley Stream, N.Y. 11586)

Filed Dec. 24, 1969, Ser. No. 887,937
Int. Cl. G01d *21/00*
U.S. Cl. 116—114 **6 Claims**

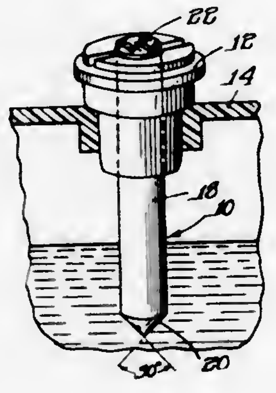


A combined record card and sterilization indicator for use in a sterilizer or autoclave having a sterilization indicator device thereon. A comparison standard may be positioned on the card which is of a material that is unaffected by heat to which the indicator changes in color for comparison with the standard. The card is of such size and shape as to enable its placement strategically within a sterilizer or autoclave and has indices to identify the articles subject to sterilization conditions.

3,568,628
LIQUID LEVEL INDICATOR

Lloyd Arthur Erickson, Niles, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 9, 1968, Ser. No. 782,217
Int. Cl. G01f *23/00*
U.S. Cl. 116—118 **6 Claims**

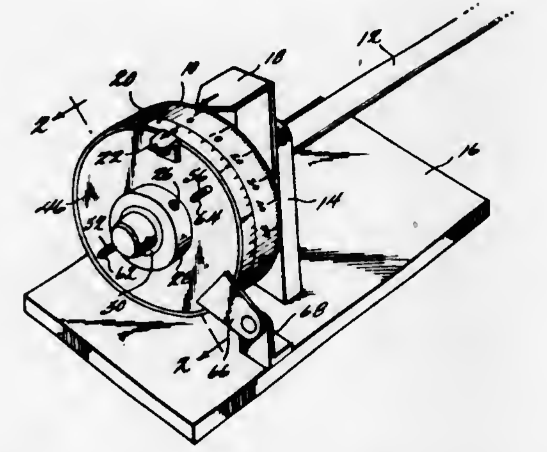


This invention relates generally to level indicators for indicating levels of liquid subject to fluctuation and more particularly to level indicators of the type comprising a light transmitting member having an upper section provided with a light receiving surface. The embodiment of the invention disclosed herein contemplates a section depending from the above-mentioned upper section into a body of liquid subject to fluctuation within a container, as for example a storage battery. Indicia means of fractional thickness are associated with the above-mentioned light receiving surface and are of a color which is compatible with the shading to which the depending section or portion of the indicator may be subjected when immersed within the liquid of a complementary container. Also, this fractional thickness of indicia material is covered by a thin layer of protective material which is optically compatible with the material from which the indicator is produced.

3,568,629
ECCENTRIC GEARING MEANS

Herbert B. Porter, Montgomery County, Md. (6618 Westmoreland Ave., Takoma Park, Md., 20012)

Filed July 24, 1968, Ser. No. 747,299
Int. Cl. B23q *17/00*
U.S. Cl. 116—124 **6 Claims**

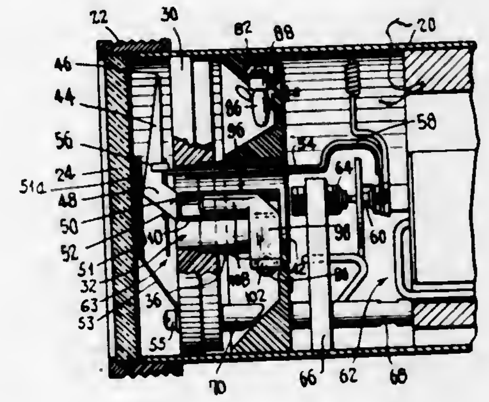


A coarse dial for use with a milling machine or the like is disclosed, said dial indicating the distance the table is moved on the machine. In the preferred embodiment, a special gearing arrangement is provided for disposing the coarse dial immediately adjacent a vernier dial which typically is already incorporated in the machine. The special gearing arrangement includes an eccentrically mounted internal gear, at least one tooth of which engages at least one slot of a plurality of slots disposed on an inner peripheral surface provided on the coarse dial. A universal joint is provided to prevent the internal gear from rotating while at the same time permitting it to follow an eccentric motion.

3,568,630
ILLUMINATED INDICATOR MEANS AND INSTRUMENT

Dana J. Blackwell, Naugatuck, Conn., assignor to The Lewis Engineering Company, Naugatuck, Conn.

Filed Feb. 26, 1969, Ser. No. 802,485
Int. Cl. G09f *9/00*
U.S. Cl. 116—129 **10 Claims**



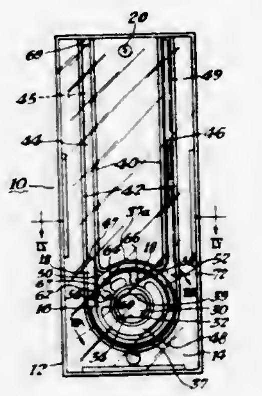
An electrical instrument movement having miniature incandescent lamps which illuminate the instrument dial and pointer, the lamps being removable and replaceable without requiring removal of the dial, mask or pointer. The lamps are carried in clearance openings in a reflector ring disposed behind the dial, and are mounted for removal in lateral directions away from the axis of the instrument.

3,568,631
INDICATOR MECHANISM

Harvey G. Skinner, Ligonier, Pa., assignor to Westmoreland Plastics Inc., Latrobe, Pa.

Filed May 2, 1969, Ser. No. 827,465
Int. Cl. G09f *5/00*
U.S. Cl. 116—135 **16 Claims**

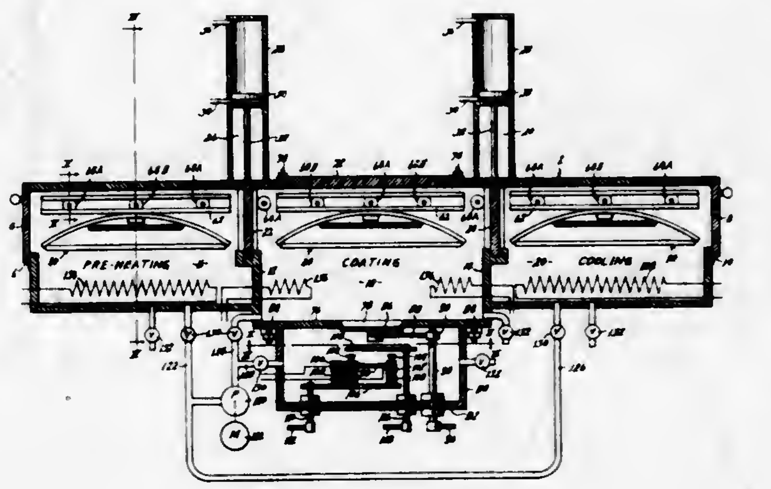
I disclose an indicating mechanism comprising a support means on said support for defining an indicator path means and a drive member recess, said path means communicating with said recess, a drive member rotatably mounted within said recess, and an elongated flexible indicator joined to said drive member and at least partially wrapped thereabout, said indicator extending from said recess into and along said path means.



3,568,632
LENS COATING APPARATUS

Gary F. Cawthon, 1033 Billard St., Topeka, Kans.

Filed Mar. 24, 1969, Ser. No. 809,576
Int. Cl. C23c *13/08*
U.S. Cl. 118—49 **8 Claims**



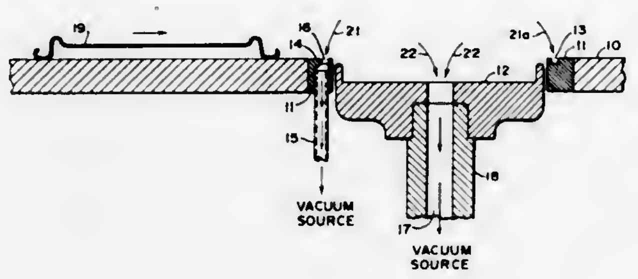
A lens coating apparatus consisting of a housing and means for producing a vacuum therein, said housing being divided into three chambers through which a lens-carrying holder may be passed in sequence, first a chamber in which the lenses are preheated and a vacuum formed to drive off occluded gases therefrom, second a coating chamber in which the lenses are coated by metallic vapors emanating from an incandescent source, and third a cooling chamber in which the lenses are gradually cooled, and a system of valves whereby lenses may be inserted in or removed from the preheating or cooling chambers, or advanced from one chamber to the next, without disturbing the vacuum in any other chamber.

3,568,633
DEVICE FOR ARRESTING CONTAINER CLOSURES ON LINING MACHINES

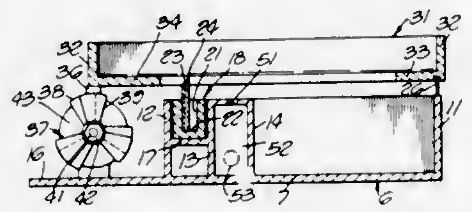
William B. Harrison, 8 Ridley Road, Dedham, Mass.; Clifford F. Tirrell, 2 Mac Dongall Court, Weymouth, Mass., and James J. Rosati, 10 Walker Road, North Andover, Mass.

Filed Nov. 18, 1968, Ser. No. 776,721
Int. Cl. G07c *13/00*
U.S. Cl. 118—50 **2 Claims**

Closures and small parts being fed to a rotary chuck where a gasketing compound is applied are arrested from overrunning the chuck by a curtain of air which closely surrounds the chuck periphery. Forward momentum is checked as the closure is pushed through the air wall onto the chuck. Full arrest occurs as the leading edge of the closure meets the opposite air wall. Closures are then held on the chuck by differential air pressure.

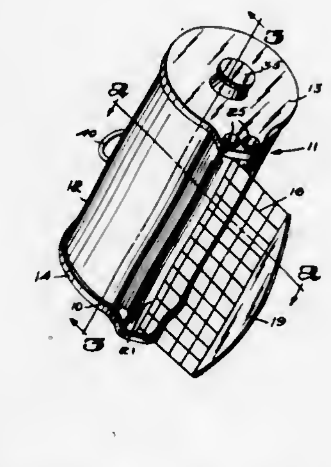


3,568,634
MACHINE FOR SPOTTING A CHROMATOGRAPHIC ELEMENT
Carl B. Mankinen, 803 Linden Lane, Davis, Calif.
Filed July 7, 1969, Ser. No. 839,552
Int. Cl. B05c *1/00*
U.S. Cl. 118—58 **9 Claims**



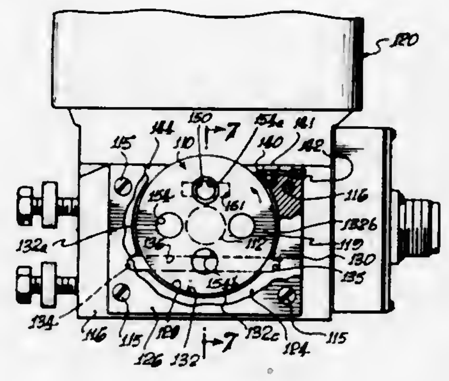
A machine for spotting a chromatographic element has a base containing a reservoir with an upstanding wick. A chromatographic element holding frame is mounted at one end to pivot on the frame and extend over the frame to engage a variable rotary cam driven by a motor on the base. A chromatographic element on the frame repeatedly contacts the upper ends of the wick as the frame rocks. Spots made by the wick may be subjected to a blast of drying air.

3,568,635
TREATED MATERIAL DISPENSER
Edward J. Poitras, Holliston, Mass., and Edwin W. Wlodyka, Ashland, Mass., assignors to Highland Labortories, Ashland, Mass.
Filed Sept. 29, 1967, Ser. No. 671,846
Int. Cl. B05c *11/02*
U.S. Cl. 118—122 **10 Claims**



A portable container for dispensing a fluid-saturated web material between engaging compressible rollers and through an elongated exit slit. The rollers remove excess fluid from the web interstices to provide a withdrawn fluid-saturated web of high porosity.

3,568,636
HOT MELT APPLICATOR SYSTEM
Glynn H. Lockwood, Carmel Valley, Calif., assignor to Lockwood Technical, Inc., Sand City (Seaside), Monterey County, Calif.
Filed May 15, 1968, Ser. No. 729,309
Int. Cl. B05c *1/08*
U.S. Cl. 118—259 **10 Claims**



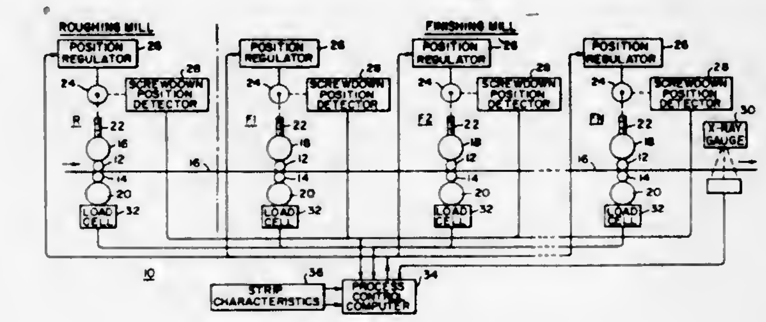
A liquid such as hot melt adhesive is supplied at a controlled superatmospheric pressure to the wheel chamber of a wheel-type applicator. The wheel chamber is so formed that liquid can overflow only by passing through a narrow annular channel between the working face of the wheel where it enters the chamber and an opposing chamber wall. Wheel rotation produces shearing action in the liquid in that channel, raising the pressure in the main body of the chamber. As the channel fills, that shear pressure exceeds the controlled supply pressure, positively preventing overflow during wheel rotation.

The controlled supply pressure may be obtained by passing the liquid through an accumulator in which a controlled pressure is maintained by a pressure regulating valve, that pressure being automatically relieved when the wheel stops.

Alternatively, liquid may be supplied to the wheel chamber via two valves that are driven with the wheel to open alternately, thus terminating supply in absence of wheel rotation.

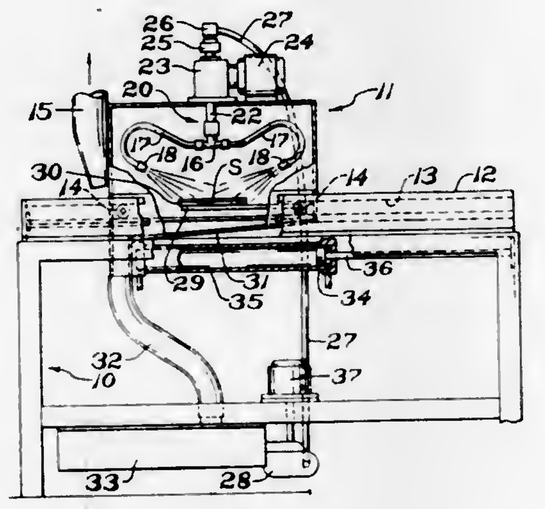
Another aspect of the invention provides a narrow annular channel at the wheel surface between the liquid inlet to the wheel chamber and the doctor blade or equivalent. Wheel rotation then produces at the doctor device a pressure that is higher than the supply pressure. Such enhanced pressure is especially useful with a wheel of intaglio type.

3,568,637
TANDEM MILL FORCE FEED FORWARD ADAPTIVE SYSTEM
Andrew W. Smith, Jr., Mount Lebanon, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 13, 1968, Ser. No. 728,469
Int. Cl. B21b *37/02, 37/12*
U.S. Cl. 72—8 **18 Claims**



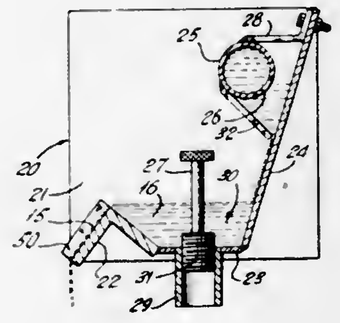
A feed forward screwdown control system is provided for use in a computer-controlled rolling mill to improve mill setup for subsequent workpieces as well as for the piece being rolled. Ratio comparisons are made between the measured force and the predicted force in each stand while a piece is being rolled which together with the ratios determined from the previous rolled workpiece will provide information for causing an on-gauge product for the present workpiece.

3,568,638
APPARATUS FOR APPLYING ADHESIVE TO SHOE SOLES
George L. Isaac, West Peabody, Mass., assignor to The B. F. Goodrich Company, New York, N.Y.
Filed Feb. 24, 1969, Ser. No. 801,281
Int. Cl. B05c *5/00, 11/16*
U.S. Cl. 118—323 **5 Claims**



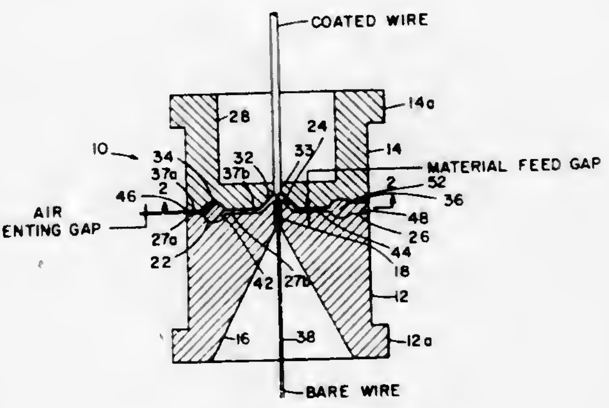
A spray apparatus which applies liquid adhesive onto a molded outsole by a pair of spaced rotating nozzles that are supported on a common reciprocable carriage. The carriage reciprocates to a position over the outsole as the nozzle rotates to spray the adhesive to the upper surface and the sides of the outsole.

3,568,639
NONCLOGGING STAIN FEED HEAD
Keith E. Burk, Kalamazoo, Mich., assignor to U.S. Plywood-Champion Papers Inc., New York, N.Y.
Filed Aug. 5, 1969, Ser. No. 847,679
Int. Cl. B05c *5/00*
U.S. Cl. 118—324 **12 Claims**



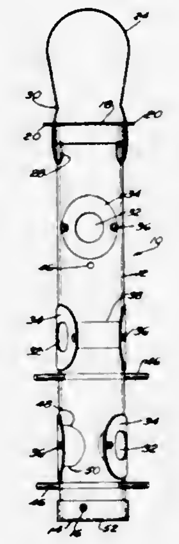
The present invention is broadly concerned with a staining machine for wood panels and the like, such as plywood panels. The invention is more particularly concerned with a staining apparatus which is equipped with a particular design of a nonclogging feed head for applying the stain to the panels. The stain flows through apertures in a feed pipe onto a spreader plate, thence downwardly on a backplate into a reservoir, and then over a lip of the feed head onto the panel being processed.

3,568,640
WIRE COATING TOOL
Horst Kuettner, Huntington, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed July 18, 1969, Ser. No. 842,851
Int. Cl. B05c *3/02*
U.S. Cl. 118—405 **3 Claims**



A tool for coating a wire with a pasty material consisting of a pair of elements with a central passageway for the wire forming an annular ring containing the material, a feed gap for carrying the material to the central passageway, and a smaller venting gap extending out from said ring for releasing entrapped gases.

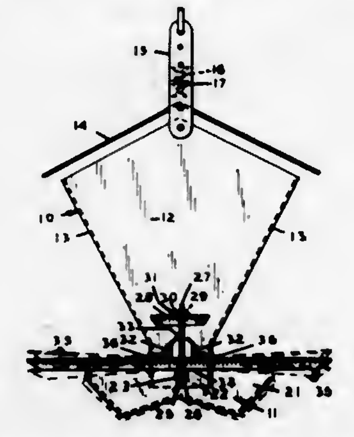
3,568,641
BIRD FEEDER
Peter Kilham, 20 Pleasant St., West Barrington, R.I.
Filed Mar. 3, 1969, Ser. No. 803,583
Int. Cl. A01k *39/00*
U.S. Cl. 119—51 **5 Claims**



A bird feeder comprising a vertically disposed hollow housing having an opening in a sidewall thereof of a size just sufficient to receive the head or beak of a bird, perch means extending outwardly from the housing just below said opening, and baffle means inside the housing adjacent the top said aperture whereby when the housing is filled with bird seed, the baffle will deflect the seed away from the aperture and at the same time automatically maintain a level of bird seed adjacent the bottom of the aperture for ready access of a bird positioned on the aforesaid perch.

3,568,642
FEED HOPPER WITH DEPENDING TILTABLE FEED PAN
Jack T. Hanby, 902 N. Springfield, Berryville, Ark.
Filed Aug. 29, 1969, Ser. No. 854,234
Int. Cl. A01k *05/00*
U.S. Cl. 119—53.5 **3 Claims**

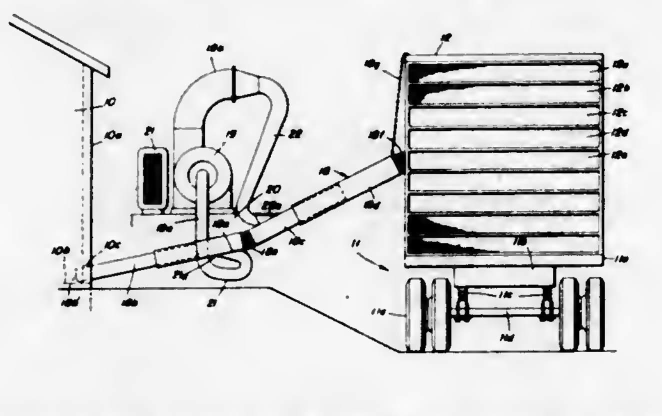
A feed pan end wall pivoted to an eyebolt depended from a nut locking flanged lug on a hopper end wall. Arms on end of feed pan with spaced gap about the shank of the eyebolt.



Upright slot in hopper mating end wall registering with pivot of feed pan.

3,568,643
POULTRY-HANDLING SYSTEM

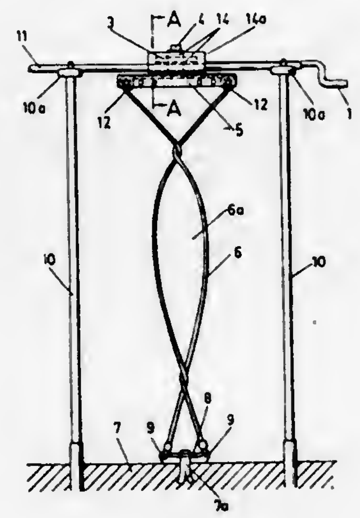
Lon H. Wessinger, 439 Longview St., Carrollton, Ga.
Filed Feb. 24, 1969, Ser. No. 801,507
Int. Cl. A10k *29/00*
U.S. Cl. 119—82 **7 Claims**



Method and apparatus for handling poultry by transferring the same from poultry house to processor by way of bins into which the poultry is urged for transport by a combination of suction and then air under pressure, from which bins the poultry is unloaded at the processor.

3,568,644
STABLING ARRANGEMENT FOR LARGE ANIMALS

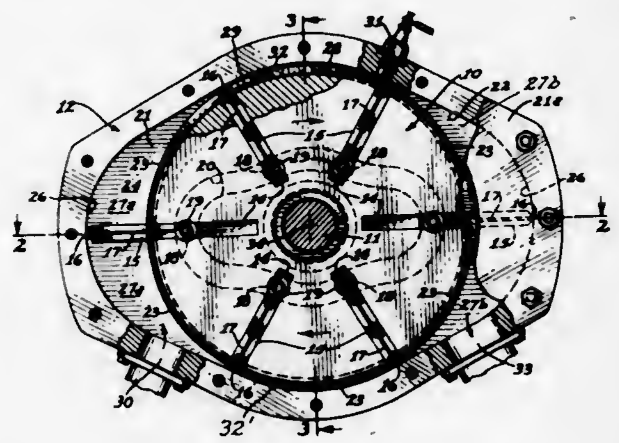
Georg Schultes, Waldmichelbach, Germany (8752 Kleinosheim near Aschaffenburg, Hirschpfad 3, Germany)
Filed Apr. 22, 1969, Ser. No. 818,220
Claims priority, application Germany, Apr. 27, 1968, P 17 57 344.3
Int. Cl. A01k *1/00*
U.S. Cl. 119—147 **8 Claims**



A stabling device for large animals such as cattle that includes a rope having its midportion carried by an overhead support and its opposite ends secured to the floor of a barn. The intermediate length of the rope is crossed above the animal's neck and below its neck. This arrangement permits the animal freedom of movement although it is restrained within its stall.

3,568,645
ROTARY COMBUSTION ENGINE

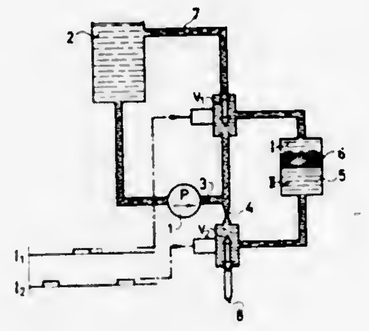
Clarence H. Grimm, 2734 E. Brill St., Phoenix, Ariz.
Filed Mar. 6, 1969, Ser. No. 804,923
Int. Cl. F02b *53/00*
'J.S. Cl. 123—8.45 **3 Claims**



A rotary vane type internal combustion engine in which the radial positioning of the vane during the rotation of the engine rotor shaft is positively positioned relative to the outer shell of the engine, independent of the contact of the outer end of the vane and the inner surface of the outer shell.

3,568,646
FUEL INJECTION APPARATUS FOR INTERNAL COMBUSTION ENGINES

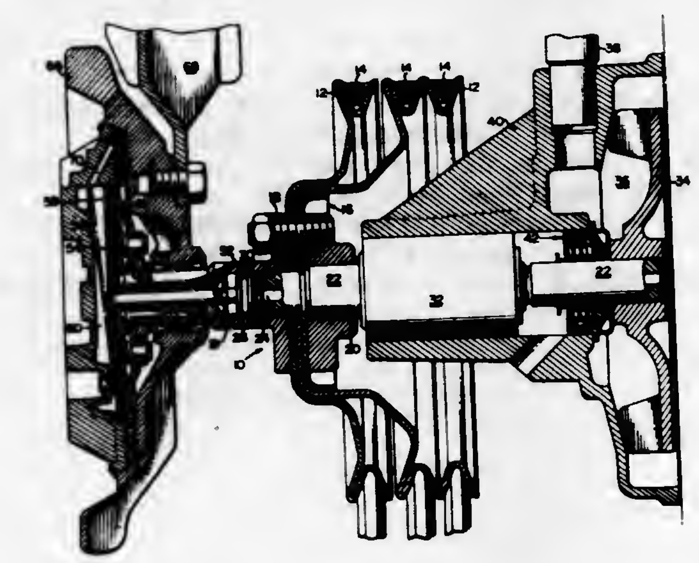
Heinz Wehde, Heidelberg, and Horst Brendes, Sandhausen, Germany, assignors to Teldix GmbH, Heidelberg, Germany
Filed Apr. 8, 1969, Ser. No. 814,310
Claims priority, application Germany, Apr. 8, 1968, P 17 51 128.3
Int. Cl. F02d *5/02*
U.S. Cl. 123—32 **13 Claims**



Fuel injection apparatus for use with internal combustion engines having an intermediate reservoir which stores and makes available the quantity of fuel to be injected before each fuel injection operation. The intermediate reservoir is provided with two chambers separated from each other by a moveable dividing wall. One of the chambers is selectively connected by a first three-way valve either with the outlet or high-pressure line of a fuel pump or with a low-pressure return line leading to a fuel supply reservoir. The second chamber is selectively joined by a second three-way valve either with the outlet line of the fuel pump or with at least one fuel injection nozzle.

3,568,647
ENGINE COOLING CONTROL DEVICE

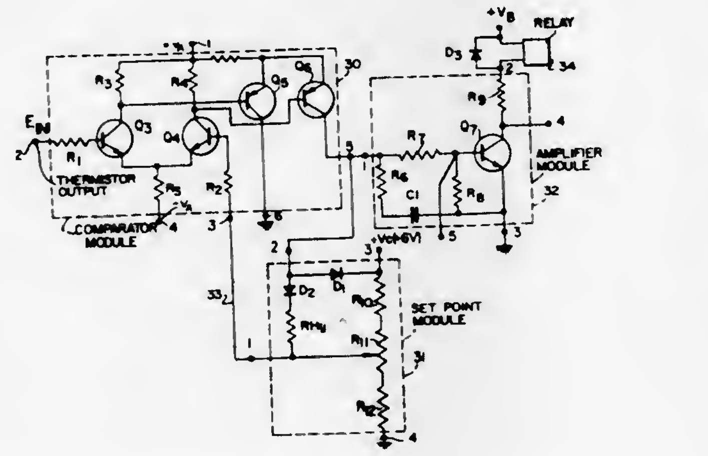
Larry L Adams, Indianapolis, Ind., assignor to Wallace-Murray Corporation, New York, N.Y.
Filed Sept. 9, 1968, Ser. No. 758,499
Int. Cl. F01p *7/02;* **F16d** *31/00, 11/04*
U.S. Cl. 123—41.12 **3 Claims**



A pressure-responsive fluid-shear coupling for an automobile engine fan. The pressure increase with increasing temperature of a circulating liquid coolant in the cooling system acts directly against a bellows. The bellows in turn controls the flow of a silicone fluid and the degree of coupling between the engine and the fan.

3,568,648
WATER TEMPERATURE CONTROL FOR DIESEL ENGINES

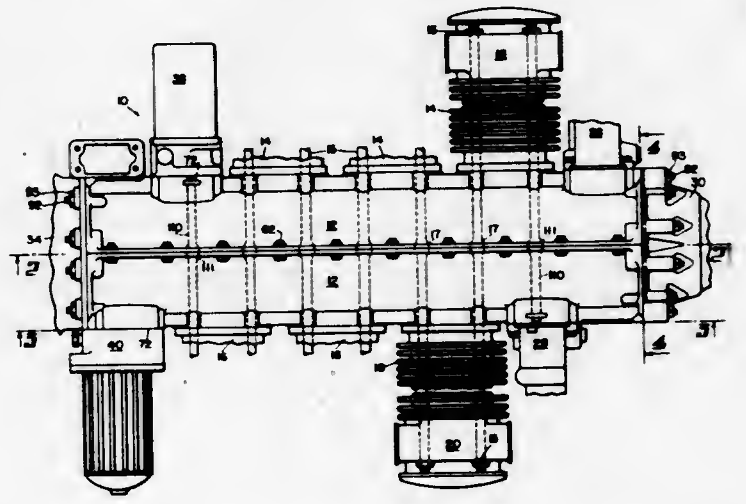
George Robert Cass, Montreal, Quebec, Canada, assignor to Canadian National Railway Company, Montreal, Quebec, Canada
Filed June 20, 1968, Ser. No. 738,699
Claims priority, application Canada, May 22, 1968, 020,647
Int. Cl. F01p *11/14*
U.S. Cl. 123—41.15 **24 Claims**



Apparatus for controlling the temperature of a coolant in a circulating coolant system for an engine. The temperature of the coolant is sensed at various points in the system by probes which produce an output voltage proportional to temperature. The probe voltages are compared with predetermined "set" voltages so that if a probe's voltage exceeds its associated "set" voltage, cooling means, warning means, engine shut down means or other suitable means is actuated.

3,568,649
INTERNAL COMBUSTION ENGINE STRUCTURE

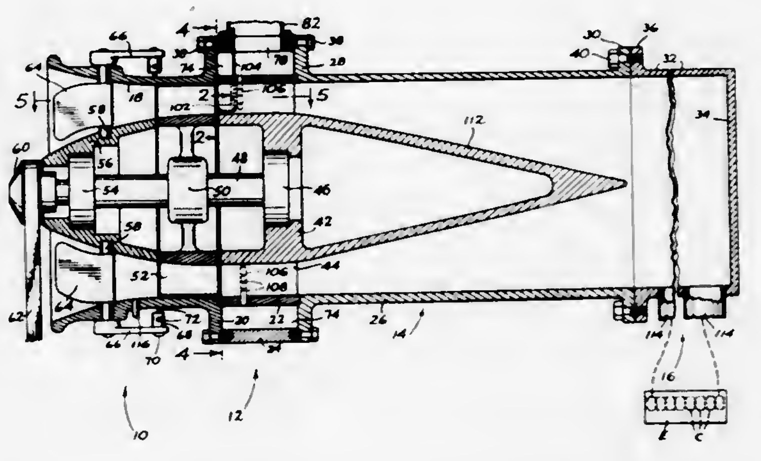
Richard H. Syson, Cogan Station, Pa., and John W. Eckert, King, Ontario, Canada, assignors to Arco Corporation, Williamsport, Pa.
Filed Oct. 15, 1968, Ser. No. 767,780
Int. Cl. F02b *75/24;* **F02f** *7/00;* **F01m** *11/02*
U.S. Cl. 123—56(A) **8 Claims**



The disclosure illustrates an opposed multicylinder internal combustion engine suitable for aircraft use. The engine is fabricated from a pair of matched crankcase halves which enable die casting for limited production. The matched crankcase halves and rows of cylinder barrels and cylinder heads on opposed sides are secured by bolts which extend the width of the engine. The crankcase halves are mounted together at a series of ribs symmetrically positioned with respect to the midpoint of the crankcase halves. The cylinder barrels are mounted on pads offset from the midpoint so that the opposed barrels are in a staggered relationship on the assembled engine.

3,568,650
SUPERCHARGER AND FUEL INJECTOR ASSEMBLY FOR INTERNAL COMBUSTION ENGINES

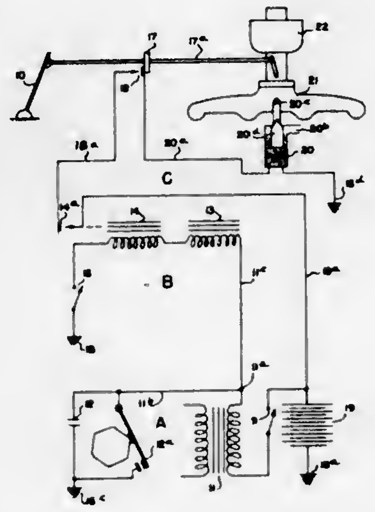
James R. Albrich, Portland, Oreg., assignor to Sonic-Air, Inc., Lake Oswego, Oreg.
Filed Dec. 5, 1968, Ser. No. 781,361
Int. Cl. F02b *33/40*
U.S. Cl. 123—119 **9 Claims**



The open air intake end of a hollow housing has adjustable air control shutters to regulate intake air to the transonic rotary vane component of an air compressor. The high velocity air output from the rotor is straightened to axial flow by passage through a stator vane component of the compressor at which combustion fuel is metered to the high velocity air. The fuel-air mixture then is expanded into a collector chamber from whence it is delivered to the intake valve system of an internal combustion engine.

3,568,651
AN INTAKE MANIFOLD ELECTRICAL VACUUM CONTROL FOR AN INTERNAL COMBUSTION ENGINE EQUIPMENT

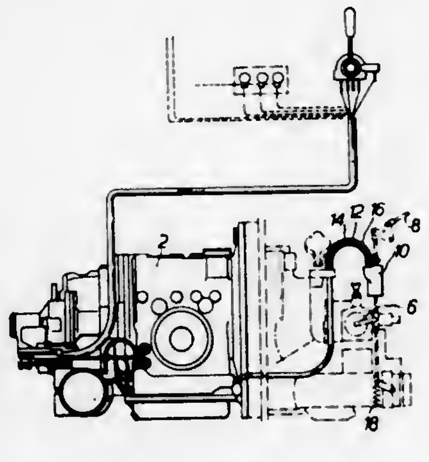
Norman E. Waag, 3110 Broadview Road, Cleveland, Ohio
Filed Apr. 21, 1969, Ser. No. 827,445
Int. Cl. F02m *23/04*; **F02d** *11/10, 9/00*
U.S. Cl. 123—124 **3 Claims**



An automatic intake manifold electrical vacuum control device for an internal combustion engine comprising, a primary ignition circuit, an actuating circuit featuring a switching relay whose coil is in series with a filter choke, said actuating circuit energized by an electrical pulse beat from the grounded primary side of the ignition coil and an operational circuit comprising said switching relay actuating contacts in series with a throttle micro switch also in series with an electric air solenoid valve and the series circuit completed and powered by the automotive battery.

3,568,652
VALVE MECHANISMS

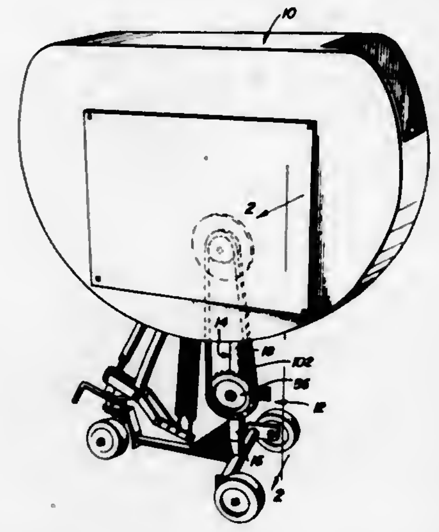
Karl Gustav Ahlen, Stockholm, Sweden, assignor to S.R.M. Hydromekanik AB, Stockholm-Vallingby, Sweden
Filed Feb. 3, 1969, Ser. No. 795,947
Claims priority, application Great Britain, Feb. 7, 1968, 6062/68
Int. Cl. F02m *39/00;* **F17d** *1/10;* **F02d** *1/00*
U.S. Cl. 123—139 **26 Claims**



An apparatus for regulating fuel consumption of an internal combustion engine. A valve mechanism forms a part of the connecting linkage between the throttle pedal and a fuel consumption regulating mechanism. Fluid impulses are provided by opening and closing passages through the valve mechanism in response to movement of the throttle pedal and the throttle linkage. Such a valve mechanism may include first and second valve passages, a valve means for placing each of these passages in an open condition or closed condition wherein a biasing force is exerted on the valve means for placing the passages in one of said conditions and an actuating member is provided for displacing the valve means against the biasing force such that in a first position of the actuating member, the first passage is open and the second passage is closed and in a second position of the actuating member the first and second passages are closed and in a third position of the actuating member the second passage is open and the first passage is closed. The elements are arranged such that the force required to displace the actuating member from the second position to the third position is greater than the force required to displace the actuating member from the first position to the second position.

3,568,653
OSCILLATING MECHANISM FOR TENNIS BALL THROWING MACHINE

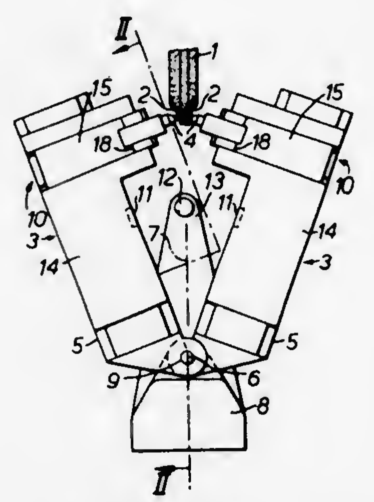
Fred A. Earle, Jr., 314 Norwegian Ave., and Carl S. Pound, 2900 E. Hatch Road, Modesto, Calif.
Filed Sept. 5, 1968, Ser. No. 757,671
Int. Cl. F41b *7/00, 11/00*
U.S. Cl. 124—1 **17 Claims**



A ball throwing machine having a two-section support including a fixed lower section and a movable upper section which carries the ball throwing mechanism. A motor-driven cam follower assembly is provided on the upper movable section and cooperates with a cam assembly on the fixed lower section so as to bias the rotatable upper section with respect to the fixed section and cause the ball throwing mechanism to move angularly.

3,568,654
GRINDING WHEEL DRESSING APPARATUS

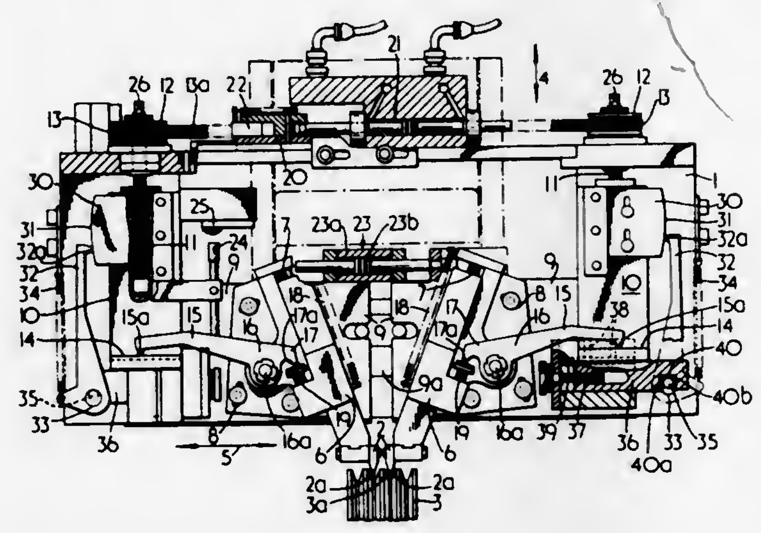
Raymond Leslie Palmer, Solihull, and Norman Darlington, Coventry, England, assignors to Coventry Gauge & Tool Company Limited, Coventry, England
Filed May 15, 1968, Ser. No. 729,268
Int. Cl. B24b *53/00*
U.S. Cl. 125—11 **3 Claims**



Grinding wheel dressing apparatus is disclosed in which the dressing tool is actuated by cam-operated compound motion slide means in order to describe an involute or similar curve e.g. for gear or splined shaft grinding purposes and in which a slide carrier for the compound slide means is arranged for angular setting in relation to the plane and corresponding flank profile of the grinding wheel and also in which the dressing tool is carried by the compound slide means for presentation to the flank profile with its axis substantially parallel to the average normal to the required flank profile curve while adjustable variable movement means is interposed between each slide of the compound motion slide means and cam mechanism thereto for obtaining variation in the extent of slide and tool movement according to the magnitude of the required curve.

3,568,655
APPARATUS FOR DRESSING A HELICALLY RIBBED GRINDING WHEEL

Thomas Meyrick Deakin, Kenilworth, and Victor A. G. Cooper, Coventry, England, assignors to Coventry Gauge & Tool Company Limited, Coventry, England
Filed July 2, 1968, Ser. No. 742,048
Int. Cl. B24b *53/00*
U.S. Cl. 125—11 **5 Claims**

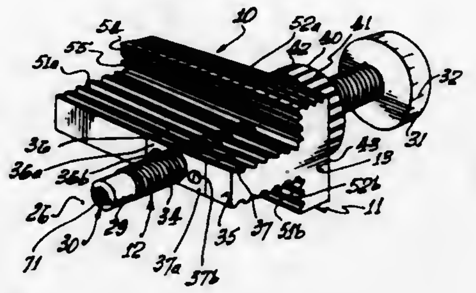


Apparatus for dressing a helically ribbed grinding wheel is disclosed in which head is provided for traversing movement parallel with the grinding wheel axis for traversing a pair of dressing tools across the rib form of the grinding wheel, the dressing tools being carried by corresponding mutually inclined tool slides in turn carried by carrier slides which latter are slidable relative to one another on the head in a direction parallel with the grinding wheel axis whilst the head carries actuating means or slides operable or indexible in conjunction with traverse of the head for imparting incremental feeding movement to the tool slides prior to an operative traverse and through a coacting member or rocker to each tool slide, the actuating means or slides having a sliding cooperation with the coacting members or rockers in a direction parallel with the grinding wheel axis in order to permit relative movement of the carrier slides independently of the dressing tool feeding movement i.e. for the purpose of enabling the dressing tools to be moved towards one another for return traverse or for imparting fine movement to the dressing tools in effecting variation in the grinding wheel rib flank form dressed thereby.

3,568,656
GRINDING-WHEEL DRESSER

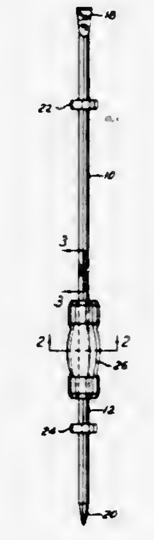
Bedrich V. Bliznak, 177 Mutval St., Toronto 2, Ontario, Canada
Filed Mar. 19, 1969, Ser. No. 808,495
Int. Cl. B24b *53/00*
U.S. Cl. 125—11 **7 Claims**

A dressing tool for manually correcting a grinding-wheel surface; the tool is comprised of a positioning block which is formed with right-angle locating surfaces seating on the tool rest table, and a feed screw with cutting diamonds mounted in its end; the latter passes through a smooth bore in the block, extending from its inboard and outboard surfaces; the screw is clamped in position by means of a pair of nuts, an inboard but integral with the block, and an outboard nut threadably received on the screw and releasably movable into clamping position against the outboard surfaces of the positioning block.



3,568,657
ROCK-BREAKING TOOL

Leonard L. Gue, 4014 N. Massachusetts Ave., Portland, Oreg.
Filed Mar. 8, 1968, Ser. No. 711,708
Int. Cl. B28d *1/26;* **B25d** *11/00*
U.S. Cl. 125—40 **3 Claims**

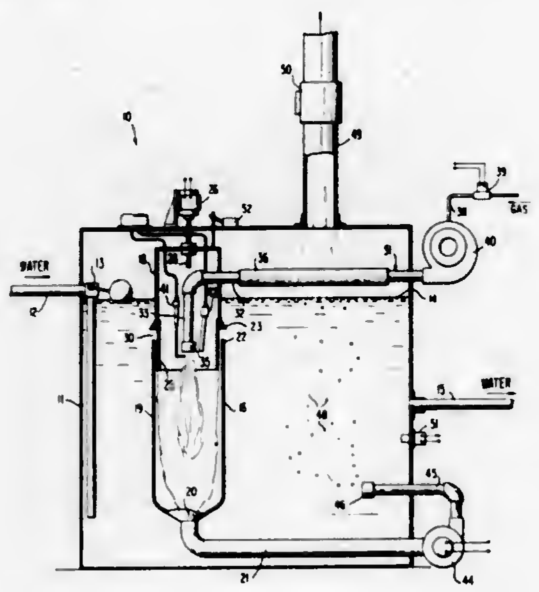


An elongated rock-breaking bar is provided at one end with a chisel point and at the opposite end with a chisel edge. Intermediate these ends are a pair of longitudinally spaced collars between which a hammer member is mounted slidably on the bar. In one embodiment the bar is made in two detachable longitudinal sections and the hammer member is made in one piece. In another embodiment the bar is made in one piece and the hammer member is made in two detachable lateral sections.

3,568,658
SUBMERSIBLE WATER HEATER

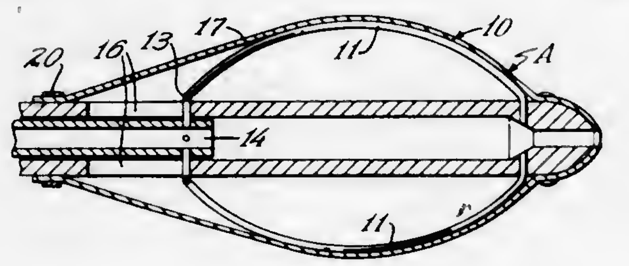
James D. Brock, Chattanooga, Tenn., assignor to CMI Corporation, Oklahoma City, Okla.
Filed Mar. 20, 1969, Ser. No. 808,889
Int. Cl. F24h *1/20*
U.S. Cl. 126—360 **7 Claims**

A water heater comprising a tank, a generally cylindrical burner can positioned in the tank with its long axis extending in an upward direction, water inlet means at the upper portion of the burner can for flowing water from the tank into the burner can, gas injection means communicating with the upper portion of the burner can for introducing a combustion fluid and air mixture to the burner can, and fluid extraction means communicating with the lower portion of the burner can for evacuating gases and water from the burner can. The gases and water extracted from the burner can are injected back into the water of the tank, and the gases bubble up through the water.



3,568,659
DISPOSABLE PERCUTANEOUS INTRACARDIAC PUMP AND METHOD OF PUMPING BLOOD

James N. Karnegis, 5604 W. 65th St., Minneapolis, Minn.
Filed Sept. 24, 1968, Ser. No. 762,017
Int. Cl. A61b *19/00, 5/02*
U S. Cl. 128—1 **5 Claims**

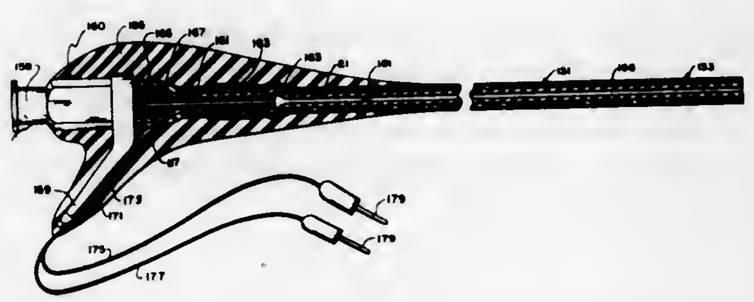


A heart pump is provided including a catheter and catheter tube having at its extremity a series of longitudinally extending ribs extending in angularly spaced relation about the catheter. The ribs are enclosed within a resilient tube which is expanded and contracted by said ribs to more or less fill the left ventricle of the heart. The ribs are flexed from a position generally parallel to the catheter axis to an outwardly bowed position by a flexible member extending into said catheter and through said catheter tube.

3,568,660
PACEMAKER CATHETER

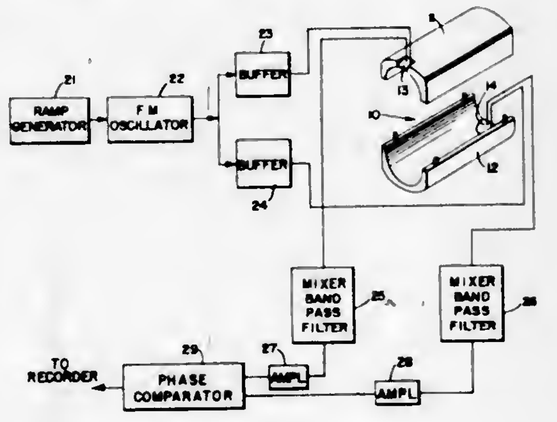
Nelson A. Crites, and Samuel P. Chambers, Columbus, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Nov. 20, 1967, Ser. No. 684,460
Int. Cl. A61b *5/10*
U.S. Cl. 128—2 **5 Claims**

A multipurpose catheter and method of producing the same which involves applying a thin, first layer of rubber over the external surface of a selected length of flexible tubing, with the rubber being dissolved in a solvent and applied to the tubing in an atmosphere of the solvent, partially drying the first layer of rubber, helically winding at least two electrical conducting wires over the surface of the tubing and embedding the wires in the first layer of rubber, drying the first layer of rubber, extracting an end portion of each conductor from beneath the first coating near one end of the tubing and flat winding each end portion to form spaced electrode bases, providing a metal contact sleeve over each base to form electrodes, applying a thin second layer of rubber over the first layer in an atmosphere of the rubber solvent, drying the second layer of rubber, and connecting the opposite ends of the conductors to electrical jacks. A split needle is provided for use in inserting the catheter, the needle being thereafter withdrawn. For facilitating such withdrawal, the needle is constructed in two halves with a slidable cylindrical lock ring.



3,568,661
FREQUENCY MODULATED ULTRASOUND TECHNIQUE FOR MEASUREMENT OF FLUID VELOCITY

Dean L. Franklin, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Department of Health Education and Welfare
Filed Oct. 2, 1968, Ser. No. 764,515
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 **6 Claims**

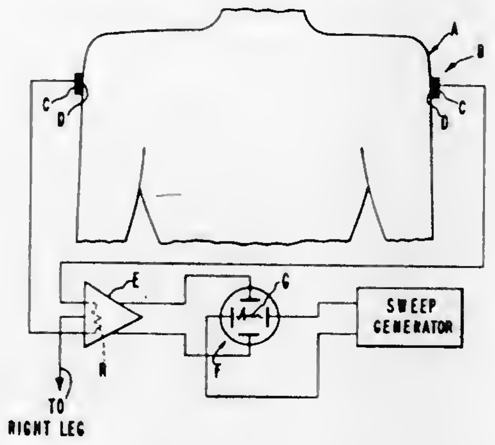


A device for measuring fluid velocity of the blood stream utilizing frequency modulated ultrasound transmitted through the moving blood with a composite signal detected, difference frequency signal extracted, phases across each of a pair of transducers compared, and the difference in phase being a measure of blood stream velocity.

3,568,662
METHOD AND APPARATUS FOR SENSING BIOELECTRIC POTENTIALS

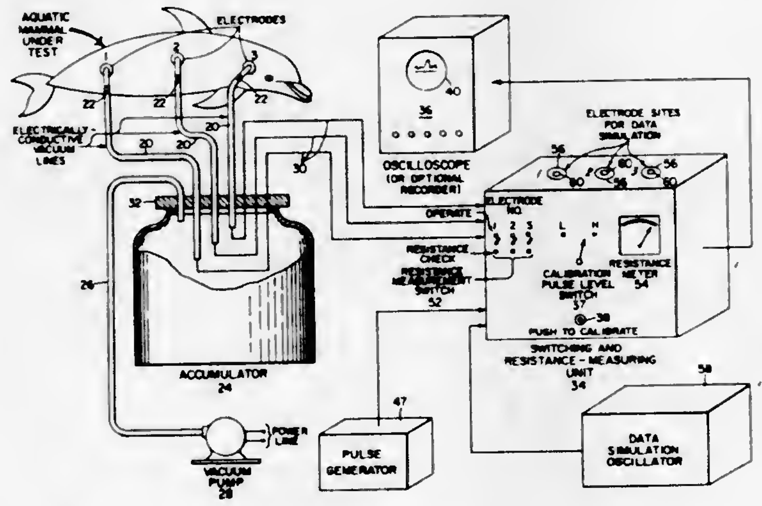
Donald B. Everett, Belmont (931, Commercial St., Palo Alto, Calif. 94303), and Louis W. Schlenz, Sunnyvale, Calif. (931, Commercial St., Palo Alto, Calif. 94303)
Filed July 7, 1967, Ser. No. 651,737
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **15 Claims**

A method and apparatus for sensing bioelectric potentials utilizing a passive, capacitive coupling to the body and establishment by such capacitive coupling of an electrical signal representative of the body potential at the site of such capacitive coupling. The capacitive coupling includes an electrode member and a solid dielectric between the member and a body. In one example, a semiconductor device can serve the function of electrode member and its dielectric and include provision for changing the bias of the device to change the thickness of the dielectric or the effective area of the electrode member. A pair of passive capacitive electrode couplings to the body are provided with the respective outputs connected to a differential amplifier. The electrode can be formed in the configuration of a needle for measuring intercellular potentials.



3,568,663
PHYSIOLOGICAL DATA ACQUISITION SYSTEM

Clifford G. Phipps, Newbury Park, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Dec. 23, 1968, Ser. No. 786,130
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **2 Claims**

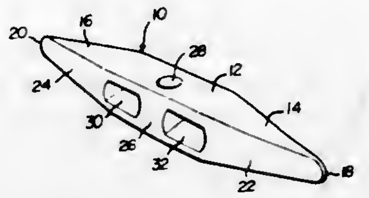

AQUATIC MAMMAL UNDER TEST
ELECTRODES
OSCILLOSCOPE
ELECTRODE SITES FOR DATA SIMULATION
ACCUMULATOR 24
VACUUM PUMP 28
POWER LINE
PULSE GENERATOR
47
DATA SIMULATION OSCILLATOR

Apparatus for facilitating the rapid acquisition of bioelectric physiological data from aquatic mammals without requiring the use of engirdling straps or time consuming preparational procedures. A feature of the disclosure is the employment of a plurality of electrodes respectively disposed within flexible cups connected to a vacuum system, the action of the latter serving to establish and maintain tight physical engagement between each of the electrodes and the tissue of the mammal being tested. Inaccuracies in the derived data due to slight electrode displacements, common with conventional apparatus, are thus prevented.

3,568,664
STOMACH TUBE SPECULUM

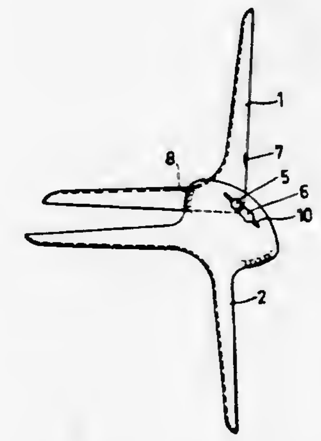
William F. Meriwether, 1201 S. W. 21st Court, Fort Lauderdale, Fla.
Filed Feb. 12, 1969, Ser. No. 798,589
Int. Cl. A61d *3/00, 15/00*
U.S. Cl. 128—14 **5 Claims**

A feline stomach tube speculum in the form of a double-tapered wedge bar having an elongated central portion dimensioned to fit in and extend transversely across a cat's mouth, and two tip portions extending axially outwardly from the central portion and each tapering down to a narrow terminal edge. The central portion has one hole extending transversely through it for receiving a stomach tube and a pair of holes respectively on opposite sides of the tube hole and in substantially perpendicular relation to the tube hole for receiving the fangs of a cat. The tube hole is preferably parallel to the tip edges. The wedge bar also serves as a jaw opener.



3,568,665
SPECULUM FOR EXAMINATION OF CAVITY

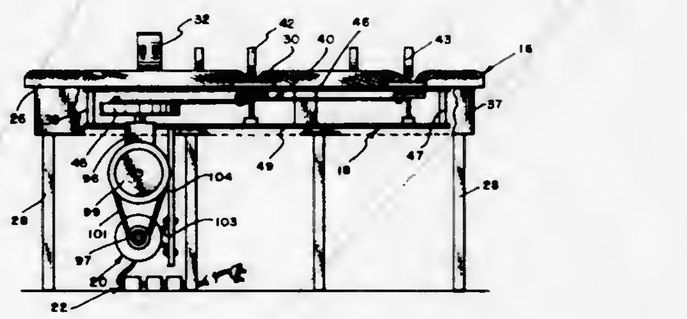
Sture Lindgren, 6, Karlaplen, and Ove Gustav Littorin, 27, Gavlegatan, Stockholm, Sweden
Filed Oct. 21, 1968, Ser. No. 769,301
Claims priority, application Sweden, Oct. 20, 1967, 14407/67
Int. Cl. A61b *1/32*
U.S. Cl. 128—17 **9 Claims**



A speculum comprising a first grooved angle portion of approximately 270° and a second similar portion detachably coupled with a locking mechanism so that an angle leg of each of the two angle portions can be locked in approximately parallel position with adjustable separation to form the speculum probe.

3,568,666
PATTERNING APPARATUS

Colon H. Dunn, 2522 Gentry Drive, Wichita, Kans.
Filed Nov. 12, 1968, Ser. No. 774,634
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 **6 Claims**

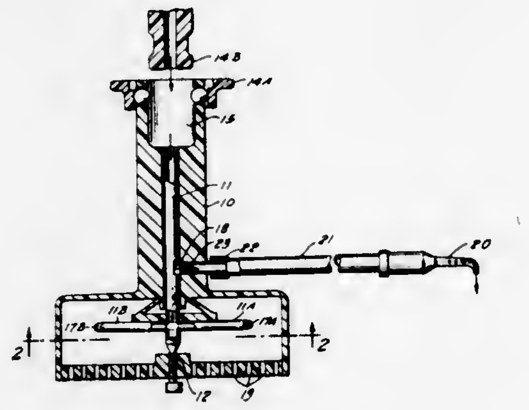


A patterning apparatus for patients having some form of interruption of the function of the central nervous system and involving the passive movements of legs the patterning apparatus having a support table; a patterning structure mounted upon the support table; a power means connected to the patterning structure; and means for connecting portions of the patterning structure to the legs of a patient for moving of the same in a predetermined pattern for treatment purposes.

3,568,667

HYDRAULIC TEETH CLEANER AND GUM MASSAGER

Stanley Krieger, Singer Island, and Harwell L. Holmes, Lake Park, Fla., assignors to Products Design and Development Company, W. Palm Beach, Fla.
Filed Aug. 14, 1967, Ser. No. 660,314
Claims priority, application Great Britain, Mar. 22, 1967, 13536/67
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **2 Claims**

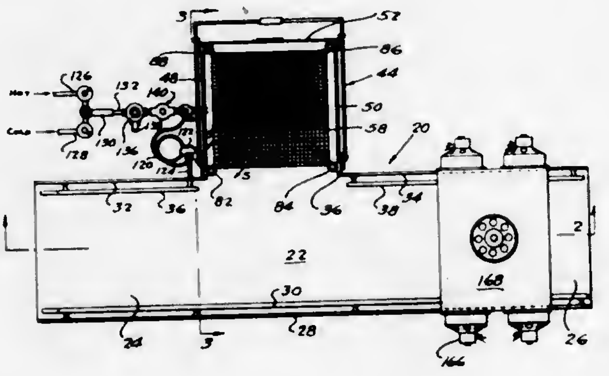


Oral hygiene apparatus connectable to and energizable by a pressurized water supply line to produce a pulsating stream of water, or water mixed with a secondary fluid, through a nozzle which is held in the mouth and directed at the gingivi and dental crevices for massaging and cleansing.

3,568,668

AUTOMATIC SHOWER ASSEMBLY

Harry B. Neis, P.O. Box 738, Parsons, Kans.
Filed June 4, 1969, Ser. No. 830,356
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **10 Claims**



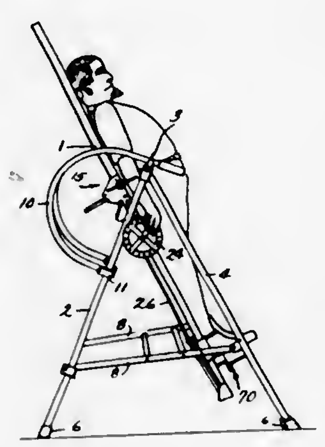
An automatic shower for partially disabled persons has an enclosed ramp with a side mounted shower stall. The water supply for the stall comprises a series of pipes with special outlets arranged such that water spray is directed to all body areas except the head, and in pulsating streams to eliminate the need for scrubbing and to improve circulation. The water supply also has means for the introduction of cleansing and/or disinfectant solutions into the spray.

A drying chamber is incorporated in the apparatus at some convenient location.

3,568,669

TILTING HEALTH TABLE

Joseph D. Stites, Sarasota, Fla., assignor to Physicare Inc., Sarasota, Fla.
Filed Mar. 27, 1969, Ser. No. 811,157
Int. Cl. A61f *5/00*
U.S. Cl. 128—71 **4 Claims**

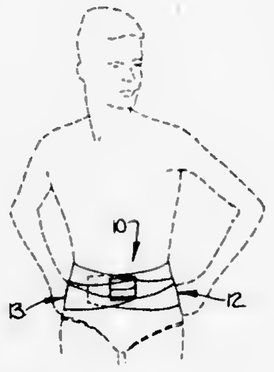


A tiltable health table apparatus having a table which is rotatively mounted on a framework, with the table being connected to the framework at a point on the table which will produce an axis of rotation extending across the width of the table. The table has means for adjustably positioning an individual on the table surface, means for adjustably positioning the table and individual in a perpendicular direction from the plane of the table to the pivotal axis, and means for automatically supporting the ankles of an individual when said individual's feet are raised above his head.

3,568,670

SURGICAL LUMBO-SACRAL SUPPORT

John F. Gaylord, Jr., Matthews, N.C., assignor to Medical Specialties, Inc., Charlotte, N.C.
Filed Jan. 2, 1969, Ser. No. 788,510
Int. Cl. A61f *5/02*
U.S. Cl. 128—78 **9 Claims**



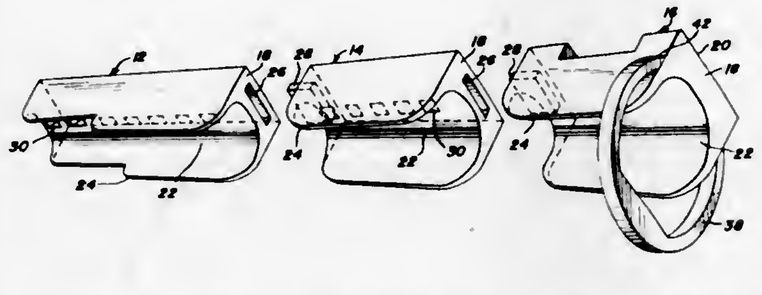
A relatively narrow, lumbosacral surgical support having a semirigid, but flexible intermediate panel and a pair of porous elastic end panels stretchable longitudinally and transversely.

3,568,671

SPLINT CONSTRUCTION

James F. Graham, 10039 St. Louis Ave, Evergreen Park, Ill.
Filed June 27, 1969, Ser. No. 837,035
Int. Cl. A61f *5/04*
U.S. Cl. 128—87 **9 Claims**

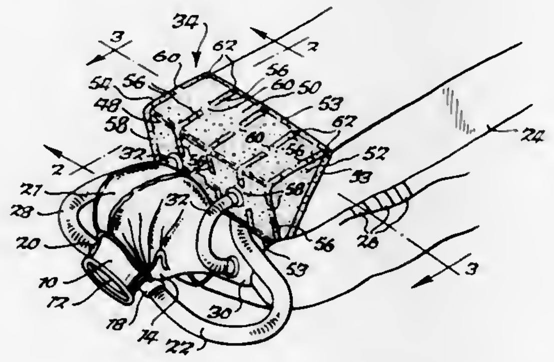
A splint formed of three tapered segments joined end-to-end. Each segment has a flat-bottomed base and a concave limb-receiving portion. The distal and medial segments have a row of spaced apertures capable of selectively receiving an upright foot or hand piece for adjustable longitudinal positioning. The proximal ends of each segment are apertured to receive the free ends of a split ring which serves to bear against the axillary or perineal area of the patient during traction. The segments may be used singly or in combination.



3,568,672

BUBBLE DISPERSION DEVICE FOR UNDERWATER BREATHING APPARATUS

Charles D. Cupp, Lancaster, N.Y., assignor to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio
Filed July 3, 1969, Ser. No. 838,864
Int. Cl. A62b *7/00;* **F01n** *7/12*
U.S. Cl. 128—142 **7 Claims**

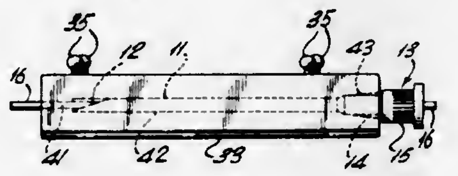


An exhalation dispersing apparatus for use in a water medium comprising a bag adapted to fit and be secured to one end of a container pack which houses cylinders of breathing gas and accessory equipment. The bag comprises substantially coextensive inner and outer liners sealed together along their marginal edges and also along transverse portions thereof to form a plurality of longitudinally spaced dispersing chambers. Cross flow passages are provided between adjacent chambers. A pair of exhalation conduits are connected from a breathing apparatus to the dispersing bag and a plurality of closely spaced, self-sealing apertures are formed over substantially the entire outer liner for dispersing the exhaled gas from the chambers into the ambient water in the form of minute bubbles.

3,568,673

NEEDLE BEVEL GUARD FOR INTRAVENOUS CATHETER

Calvin C. Cowley, Los Angeles, Calif., assignor to C. R. Bard, Inc., Murray Hill, N.J.
Filed Nov. 4, 1968, Ser. No. 772,923
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **6 Claims**



A hinged and closeable guard for maintaining the sterility of an intravenous needle prior to use and for maintaining the catheter in axial alignment with the needle during use.

3,568,674

METHOD OF DEFENSE AGAINST ATTACK

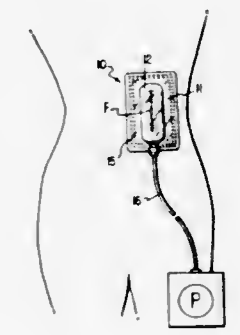
Harold C. Palmer, Rte. 4, King Drive, Douglasville, Ga.
Continuation-in-part of application Ser. No. 388,911, Aug. 11, 1964, now abandoned. This application May 3, 1968, Ser. No. 726,528
Int. Cl. A61m *5/00*
U.S. Cl. 128—215 **8 Claims**

A method of defense for use by a human defender against attack by an assailant comprising the steps of puncturing the skin of the assailant, and injecting a sublethal dose of an initially liquid chemical pain producing substance into the body of the assailant so as to cause him to break off the attack. The pain producing substance is the type that will become ineffective within the body of the assailant after a discreet period of time without causing any permanent ill effects to the assailant.

3,568,675

FISTULA AND PENETRATING WOUND DRESSING

Clyde B. Harvey, Baltimore, Md. (400 Groveland Ave. Minneapolis, Minn. 55403)
Filed Aug. 30, 1968, Ser. No. 756,498
Int. Cl. A61f *5/44*
U.S. Cl. 128—275 **7 Claims**

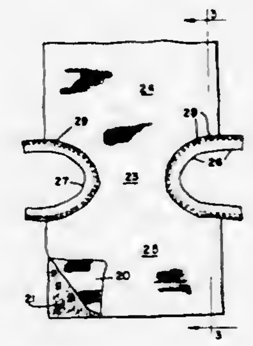


A fistula and penetrating wound dressing including a planar flexible sheet of material and having a plurality of small openings spaced from the edges to permit an adhesive substance such as collodion to be applied thereover to secure the sheet to the body. The central portion of the dressing includes a domed transparent fluid collection chamber having an outlet nipple adapted for connection to an external receptacle.

3,568,676

PANTY-DESIGNED DIAPER COVER

Victor R. Del Guercio, 11 Normandy Road, Larchmont, N.Y.
Filed Jan. 8, 1969, Ser. No. 789,862
Int. Cl. A61f *13/16*
U.S. Cl. 128—287 **3 Claims**

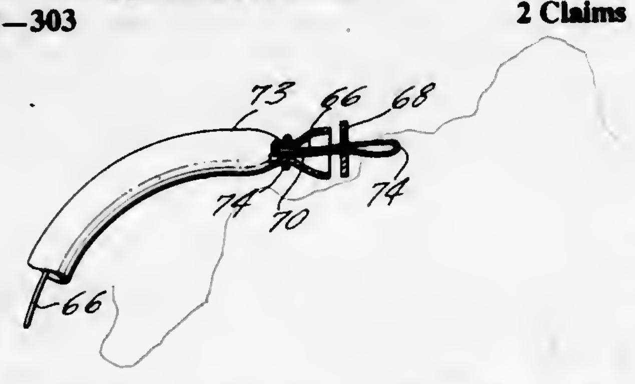


The disclosure of this invention pertains to a panty-designed diaper cover having an inner and an outer water repellent layer with an intermediate layer therebetween of nonstretchable, nonshrinkable fast drying material, such as a spun-bonded polyester fiber, of the same size and shape as the inner and outer layers and in contact therewith throughout their entire surface areas and substantially free of stitching in the crotch area.

3,568,677

SURGICAL VEIN STRIPPER

John O'L Nolan, Hartford, and Michael D. Bryne, Vernon, Conn., assignors to Brymill Corporation, Vernon, Conn.
Filed Nov. 19, 1968, Ser. No. 777,112
Int. Cl. A61b *17/00*
U.S. Cl. 128—303 **2 Claims**

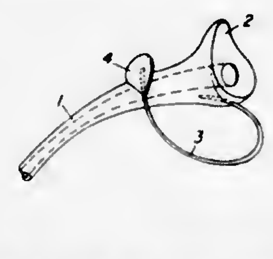


A surgical vein stripper comprises a rod of semirigid plastic material, such as nylon or Teflon, with means provided at the end thereof so as to permit nonslipping engagement with a vein, which is to be stripped, tied the end of the rod with a suture. The means may comprise a molded or forged enlargement, a transverse pin, suitable indentations or serrations, or a transverse annular ring which engages a loop in the rod of material.

3,568,678

SELF-ATTACHING NASAL TUBE OF ACCEPTABLE APPEARANCE

Henri Pourquier, 24, Bd Berthelot a Montpellier, and Michel Combres, 4, Rue D'Alger a Montpellier, Herault, France
Filed July 25, 1968, Ser. No. 747,542
Claims priority, application France, July 25, 1967, Nov. 23, 1967, 1780;1785
Int. Cl. A61m *25/00*
U.S. Cl. 128—348 **11 Claims**



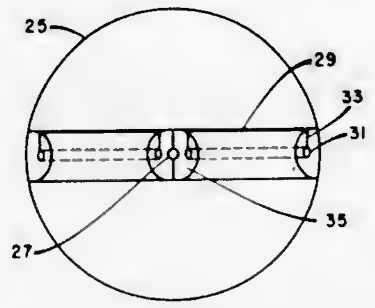
A nasal tube attaching device comprising a body portion having an opening extending axially therethrough. The body is in the configuration of a truncated cone having a tapered end and a substantially triangular end having a configuration substantially conforming to the natural configuration of a human nostril. The tapered end of the body portion extends inwardly of the nostril and the base portion includes a flat surface which is in substantially the same plane as the nostril opening when the device is in position within the nostril. The tapered end is adapted to receive a medical tube which extends inwardly of the patient and which is in communication with the opening extending through the body portion. The area of the base of the body portion is less than that of the area of the nostril opening, thereby providing breathing area through the nostril opening when the device is in position.

3,568,679

CATHETER PLACEMENT UNIT

James R. Reif, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
Filed Nov. 12, 1968, Ser. No. 774,662
Int. Cl. A61m *25/02*
U.S. Cl. 128—349 **2 Claims**

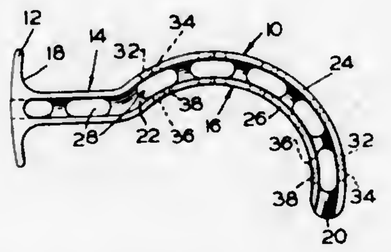
A unit for retaining a catheter in a desired place within a body is disclosed. A thin disk of flexible material, preferably silicone rubber, is adhesively secured to any desired external surface of a body. If the surface has already been punctured, a desirable catheter is then introduced into the body through an aperture in the disk, otherwise a trocar can be used to puncture the surface and introduce the catheter into the body. When the catheter has been placed in the desired position, it is then locked in place by a locking device affixed to the disk.



3,568,680

OROPHARYNGEAL AIRWAY

Victor H. Raimo, 214 Ballentine Parkway, Newark, N.J.
Filed Oct. 4, 1968, Ser. No. 765,215
Int. Cl. A61m *25/00*
U.S. Cl. 128—351 **1 Claim**

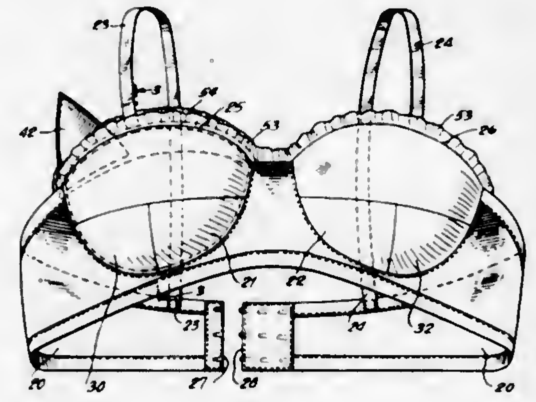


An oropharyngeal airway for use during surgery comprises a contoured portion in the shape of the pharyngeal contour, and includes a pair of passageways formed by a pair of curved substantially planar members connected in spaced substantially parallel relation by an internal generally central web portion. The planar members are each provided with a plurality of spaced holes distributed along their contoured portions and providing communication between the outer surfaces of the airway and the passageways to aid in preventing clogging or blockage of the airway due to the accumulation of fluids in the mouth and pharynx.

3,568,681

PROSTHETIC BRASSIERE AND METHOD OF MAKING SAME

June M. Comollo, 60 West 57th St., New York, N.Y.
Filed Dec. 9, 1968, Ser. No. 782,369
Int. Cl. A41c *3/10*
U.S. Cl. 128—478 **15 Claims**

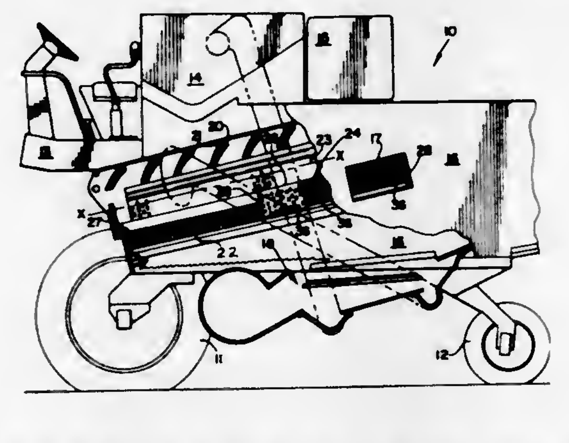


Prosthetic articles, for use after breast surgery, are constituted by assembly, with a basic brassiere casing, of selectable pad elements of three types, namely a basic simulative element, an extension element for upward oblique disposition, and an arcuate element mountable at the upper rear of the basic element, whereby completed, well-fitting structures are obtainable with standardized parts, but suited to individual needs of body shape and postsurgical condition.

3,568,682

GRATE FOR AXIAL FLOW COMBINE

William H. Knapp, Davenport, Iowa, and Richard E. Benson, East Moline, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Sept. 17, 1969, Ser. No. 858,694
Int. Cl. A01f *12/26*
U.S. Cl. 130—27 **7 Claims**

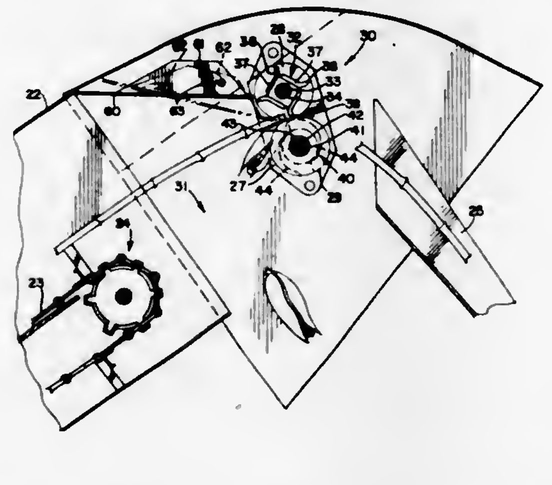


A removable grate for an axial flow combine made up of a plurality of independent sections each of which are of a weight and size that can be readily handled by the combine operator. An access opening is formed in the combine sidewall through which sections of the grate can pass and be slid into a shelflike retainer. The last section is secured into place by locking means and serves to hold the other sections in place.

3,568,683

TRASH ROLLS FOR CORN HARVESTER

Ralph L. Sutton, Rock Island, and Lawrence L. Cornelius, Moline, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed July 10, 1969, Ser. No. 840,646
Int. Cl. A01d *45/02*
U.S. Cl. 130—30 **10 Claims**

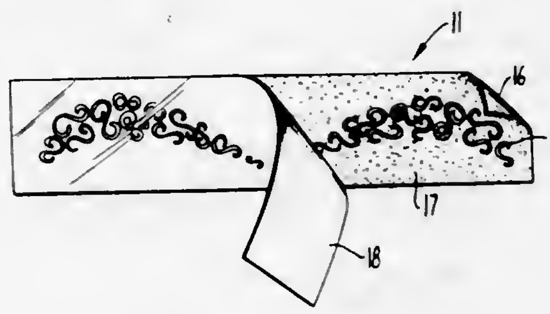


A trash removal apparatus, for mounting on the upper end of a corn harvester elevator, having an upper knife roll and a lower contoured roll. The lower contoured roll has pads that cooperate with the knife roll for shearing the stalks and pockets that control the ears to prevent damage.

3,568,684

MAKEUP DEVICE

Jeanne F. Reece, Santa Cruz, Calif. (1126 McIntyre, Ann Arbor, Mich. 48104)
Filed Apr. 28, 1969, Ser. No. 819,825
Int. Cl. A45d *44/00*
U.S. Cl. 132—1 **3 Claims**



A transfer for providing an eye shadow on an eyelid comprising a paper sheet having an shadow print of water resistant pigmented make up composition paint carried thereon in the desired design configuration, a water washable adhesive on said shadow print and said sheet, and a protective cover fitting over said makeup composition and adhesive, a method of providing the eye shadow which comprises the steps of preparing the eyelid for receipt of makeup, pressing the above defined transfer against the eyelid in desired orientation, adding water to wet the paper and separate the paper from the transfer, removing the paper while leaving the paint on the eyelid, washing off the excess adhesive and covering the paint with a thin layer of powder prior to closing the eyelid.

3,568,685

TREATING HUMAN, ANIMAL AND SYNTHETIC HAIR WITH A WATER-PROOFING COMPOSITION

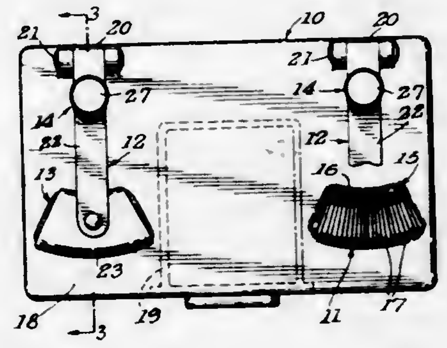
Howard L. Scott, 1831 N 57th St., Philadelphia, Pa.
Continuation-in-part of application Ser. No. 386,730, July 31, 1964, now abandoned. This application Apr. 15, 1968, Ser. No. 721,158
Int. Cl. A61k *7/10;* **D06m** *3/10, 3/40*
U.S. Cl. 132—7 **6 Claims**

A method for treating fibers such as synthetic or natural hair, whereby synthetic fibers can be made to have the appearance of human hair and whereby human hair can be straightened, which comprises applying to the hair a composition containing about 1—50 percent by volume of a substantive water-repellent agent, and about 10—80 percent by volume of a substantive hardening and adhesive agent. A slipping agent, such as a fluoro resin, and en emollient, such as lanolin, is also preferably included.

3,568,686

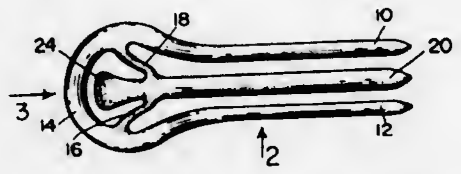
EYELASH DRYING AND CURLING DEVICE

Belestera B. Navrozides, 247 S. Kenmore Ave #2, Los Angeles, Calif.
Filed Dec. 3, 1969, Ser. No. 881,696
Int. Cl. A45d *2/48*
U.S. Cl. 132—31 **6 Claims**



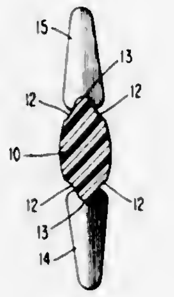
A device for drying, curling and storing false eyelashes, comprising a base having a flat top provided with a pair of similar, transversely concave, depressions in which false eyelashes, after they are cleaned, are adapted to be placed, and two pads of porous, compressible material, each removably carried by an end of a normally raised resilient arm, the opposite ends of which are connected to said base top so that, upon depression of the pad-carrying ends of the arms, said pads are resiliently pressed against the eyelashes in the cavities to dry and conform them to the transverse curvature of the cavities. The device includes releasable means for retaining the arms depressed and the pads thereon in eyelash-curling contact.

3,568,687
HAIR CLIP FOR HAIR HOLDERS
Michael J. Ciccone, P.O. Box 333-337 Main St., Stoneham, Mass.
Filed July 18, 1969, Ser. No. 842,897
Int. Cl. A45d *8/14*
U.S. Cl. 132—46 **4 Claims**



An integral onepiece plastic hair clip having a finger-grip construction at one end thereof and having an opposite free end portion comprising a pair of elongated fingers adapted to grip the hair on the outside of the roller and a single interconnected resilient finger intermediate the first two fingers for insertion in the hair roller, all of said fingers being interconnected by a resilient portion which allows the finger-grip area to separate the pair of fingers from the single finger for applying to hair wound on a roller.

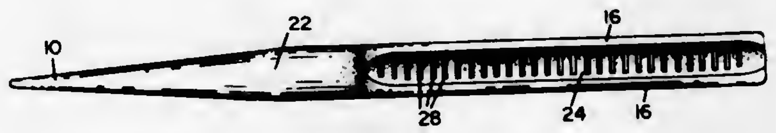
3,568,688
COMB
Robert J. Dobuski, Yardley, Pa., assignor to Vulcanized Rubber and Plastics Company, Morrisville, Pa.
Filed Nov. 8, 1968, Ser. No. 774,336
Int. Cl. A45d *24/04*
U.S. Cl. 132—139 **7 Claims**



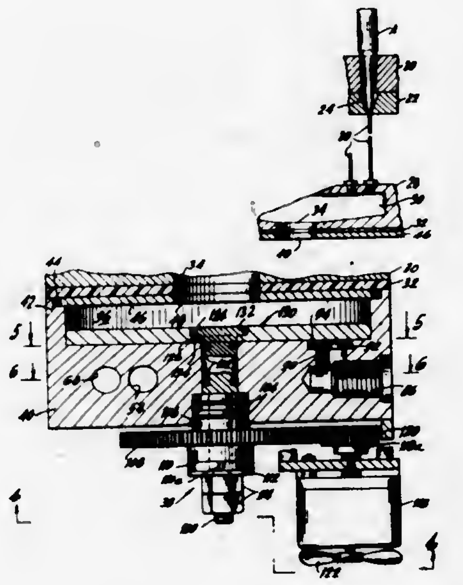
A very light and very strong comb provided with oppositely directed teeth of different spacing is constructed with alternate, longitudinally extending parts in relief and intaglio, which provides exceptional strength, and with teeth which compress and release the locks of hair as they are drawn through them.

3,568,689
SANITARY COMB
Gino J. Piermarini, 443 Pleasant St., and Norman C. Burnap, 319 Pierce St., Leominster, Mass.
Filed Apr. 25, 1968, Ser. No. 724,005
Int. Cl. A45d *24/00*
U.S. Cl. 132—147 **1 Claim**

A hairdressing comb comprising teeth merging into a relatively wide back which has a longitudinal depression therein communicating with spaces between the teeth, the depression extending down into the mid range of the length of the teeth. The depression is wider at the back of the comb than at its bottom where it intersects the spaces between the teeth, and the sides are curved at least in the area of the bottom of the depression at the tooth intersection.

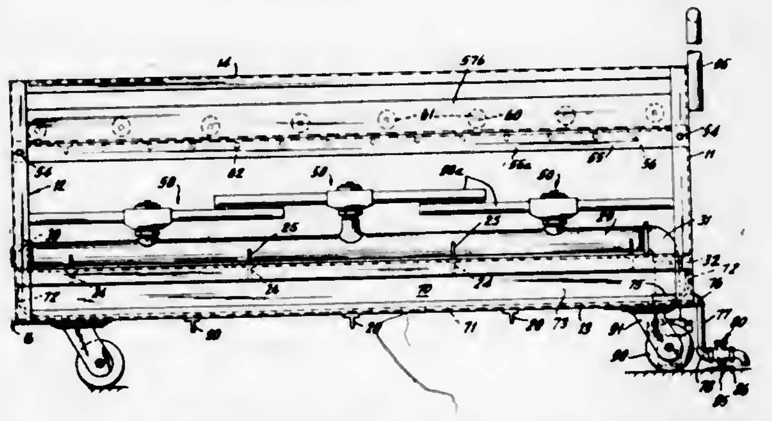


3,568,690
WASHING MACHINE AND VALVE THEREFOR
Rudolph N. Price, 59 Mill Spring Road, Manhasset, N.Y.
Filed Oct. 9, 1968, Ser. No. 766,074
Int. Cl. B67c *1/00*
U.S. Cl. 134—98 **6 Claims**



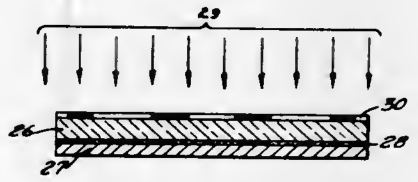
An improved machine for washing vials, ampules and the like is provided with a series of critically located apertures in a rotatable valve plate that sequentially registers with accurately located ports for water, steam or air, rinse fluids and for drainage.

3,568,691
WASHING CART AND MEANS FOR CONTROL THEREOF
Richard B. Kennedy, Ridgefield, Conn.; Alfred B. Huston, Homewood, Ill., and Owen H. Griswold, Westwood, N.J., assignors to Better Built Machinery Corporation, New York, N.Y.
Filed May 7, 1968, Ser. No. 727,289
Int. Cl. B08b *3/02, 9/00*
U.S. Cl. 134—144 **16 Claims**



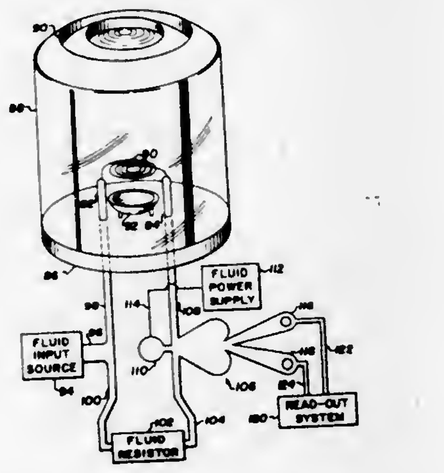
The cart or transport vehicle is moved across the floor or along other means of transport, such as conveyors or overhead monorail, into a washer chamber, and has means for attachment to a fluid connection in the chamber, through which washing and/or rinsing fluid is coupled to spray devices on the cart for washing a load of items placed on the cart. The cart is equipped with a drip pan that drains while the cart is within the washing chamber but which retains drippage from the washed load when the cart is removed from the washing chamber, to minimize wetting hazards of the floor over which the cart is to be moved when removed from the chamber. A fluid connection between the cart and a fluid supply within the chamber is so designed that no thrust is transmitted to the cart and the connection is automatically sealed by the fluid pressure.

3,568,692
OPTICAL MACHINING PROCESS
Eric E. Metzger, Silver Spring, Md., and George D. Hinschelwood, Washington, D.C., assignors to Bowles Engineering Corporation, Silver Spring, Md.
Original application Aug. 24, 1962, Ser. No. 219,168. Divided and this application Nov. 27, 1967, Ser. No. 708,456
Int. Cl. F15c *5/00*
U.S. Cl. 137—81.5 **7 Claims**



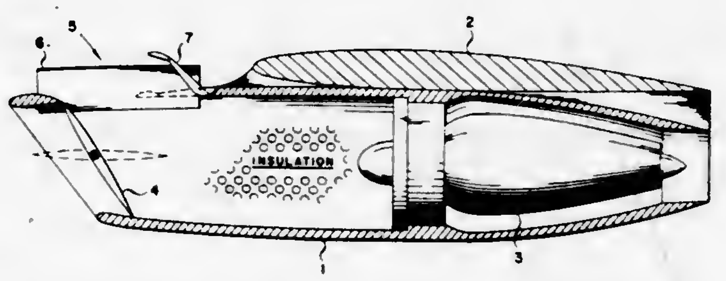
A fluid amplifier includes a rigid base, a layer of light-absorptive adhesive overlying a surface of the base and a layer of light-polymerizable plastic bonded to the base by the adhesive; the light-polymerizable material being solid in the unpolymerized state and in the polymerized state having a plurality of channels and nozzles formed therein to define a fluidic element. A cover plate seals the channels and nozzles to complete the element.

3,568,693
FLUIDIC SENSING DEVICE AND METHOD
Julius Friedrich Vandrey, Perry Hall, Md., assignor to Martin-Marietta Corporation, New York, N.Y.
Filed Apr. 28, 1967, Ser. No. 634,538
Int. Cl. G01k *11/00;* **F15c** *4/00*
U.S. Cl. 137—1 **13 Claims**



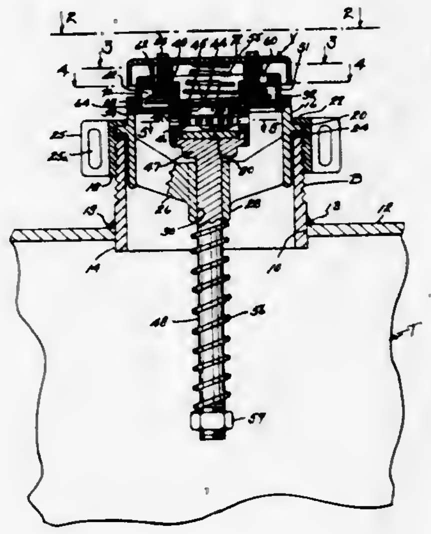
A sensing element for use with fluidic circuitry. The element is formed of a length of capillary tubing having a pressure detecting tap at both ends. By imposing an electric current along the tube, the viscosity of fluid within the tube is altered by heating and a fluidic transducer is obtained. Also, by subjecting the capillary tube to external radiation, it will function as the sensing element of a radiation sensing bolometer.

3,568,694
JET ENGINE INSTALLATION FOR NOISE CONTROL
Clarence L. Johnson, Encino, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed May 8, 1968, Ser. No. 727,523
Int. Cl. F02k *11/00*
U.S. Cl. 137—15.1 **1 Claim**



A jet or fan-jet engine installation wherein inlet noise is reduced on takeoff and landing by changing the direction of the noise radiated from the inlet and by using an inlet duct having soundproofing. Exhaust noise is reduced by use of tertiary air bleed (or quaternary bleed) to reduce the shearing velocity of the final jet.

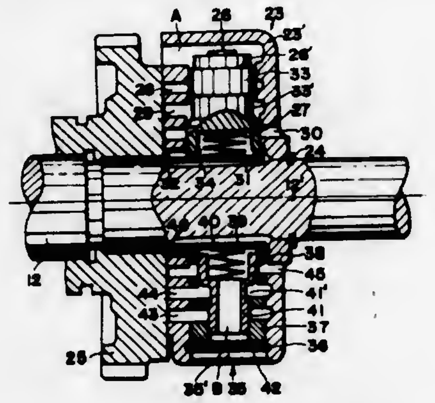
3,568,695
FLUID PRESSURE RELIEF VACUUM RELIEF, AND OVERTURN CHECK VALVE
Joseph H. DeFrees, Warren, Pa., assignor to Raymond Vincent Heelan, Jr., Moorestown, N.J.
Filed Apr. 7, 1969, Ser. No. 813,961
Int. Cl. F16k *17/18*
U.S. Cl. 137—43 **9 Claims**



A fluid pressure relief valve for a top vent opening in a fluid storage tank including an exhaust safety valve poppet biased to a normally closed position against the vent opening, such poppet being displaceable to an open position when fluids interiorly of the tank exceed a relatively substantial predetermined pressure. The poppet has vacuum vent apertures leading from the tank interior to the tank exterior with a reciprocable vacuum disc disposed on the underside of the poppet and held in a normally closed position against the apertures, such vacuum disc being displaceable inwardly of the tank to open position when fluid pressure interiorly of the tank falls below a predetermined amount. The poppet contains a vertically disposed poppet bore connecting the tank interior with the tank exterior and including a restricted bore portion which forms, at the upper end of the bore, and annular small pressure valve seat. A small pressure valve disc is biased to a normally closed position against such seat, such that the disc is displaceable to an open position when fluids interiorly of the tank exceed a relatively slight predetermined pressure. the restricted bore portion also forms an annular check valve seat disposed within the poppet bore and spaced from the upper end thereof. The valve further includes a free-floating check valve disc disposed within the poppet bore below the check valve seat and of lesser diameter than the poppet bore and is displaceable by gravity within the poppet bore to seat against the check valve to prevent inadvertent escape of fluids from the tank when the tank is at least partially overturned.

3,568,696
GOVERNOR CONTROL FOR AUTOMATIC TRANSMISSION

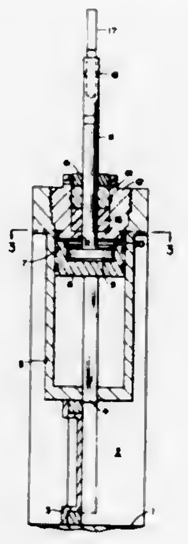
Seitoku Kubo, Aichi-ken, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan
Filed Mar. 11, 1969, Ser. No. 806,262
Claims priority, application Japan, Mar. 13, 1968, 43/16695
Int. Cl. G05d *13/10;* **F16h** *5/42*
U.S. Cl. 137—54 **2 Claims**



A governor assembly for the control system of an automatic transmission is composed of two governors, a primary governor and a secondary governor, each mounted on the output shaft of the transmission in a symmetrical arrangement with respect to the axis of the output shaft. Modulator pressure produced by the primary governor is applied to the secondary governor, by which governor pressure as a pressure signal for actuating shift valves for controlling the transmission is established. The modulator pressure is obtained from line pressure and is related to the output shaft speed by controlling communication with the line pressure in accordance with centrifugal force applied to the movable valve member of the primary governor. The governor pressure of the secondary governor is obtained from the modulator pressure and is related to the output shaft speed in a similar manner to the primary governor. The resulting governor pressure rises rapidly at low speeds and slowly at higher speeds.

3,568,697
ANTIPROPULSION DEVICE

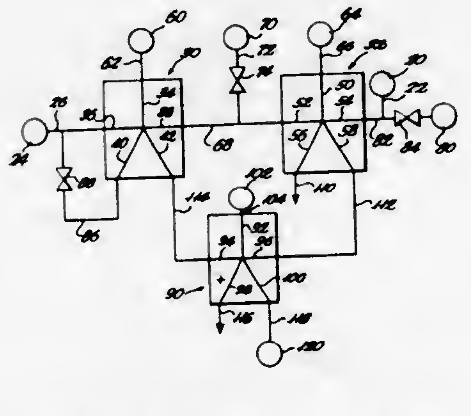
Angela G. Tasca, Woodland Hills, Calif., assignor to the United States of America as represented by the Secretary of the Army
U.S. Cl. 137—68 **5 Claims**



An antipropulsion or safety device to prevent the inadvertent firing of a missile by supporting an oxidizer burst diaphragm to keep it from bursting if a propellant gas generator is accidentally ignited. The device includes a beam to support the burst diaphragm located at the end of the propellant gas generator, a rod secured to the beam, a keyhole stop for sliding engagement with the rod, torque producing means in the stop encircling the rod and an operating handle secured to the rod.

3,568,698
LIQUID LEVEL CONTROL SYSTEM EMPLOYING FLUIDIC DEVICES

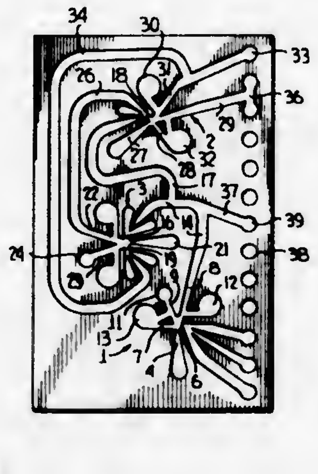
William R. Bodwell, Norfolk, Va., assignor to Newport News Shipbuilding and Dry Dock Company, Newport News, Va.
Filed Dec. 9, 1966, Ser. No. 600,620
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 **11 Claims**



A control system is provided for maintaining the liquid level in a container within an upper and a lower limit. Upper and lower sensing devices are connected in the system for controlling the pressure applied to certain fluidic devices in the system. In the first modification, a pair of proportional amplifier fluidic devices are provided, one of the sensing means being operatively connected with each of these devices. The outputs of the two fluidic devices are connected with a bistable fluidic device, the output of which is connected with a liquid level control mechanism such as a pump or valve for adjusting the liquid level in the tank. In a second modification, a proportional amplifier fluidic device is provided which is connected with both of said sensing means. The output of this fluidic device is in turn connected with a bistable fluidic device the output of which is connected with a suitable liquid level control mechanism.

3,568,699
LEADING AND/OR TRAILING EDGE PULSE SHAPER

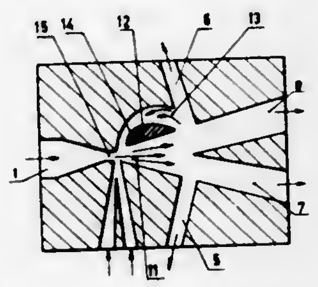
Peter Bauer, Germantown, and William R. Mentzer, Jr., Silver Spring, Md., assignors to Bowles Engineering Corporation, Silver Spring, Md.
Continuation-in-part of application Ser. No. 771,758, Oct. 30, 1968. This application Nov. 21, 1968, Ser. No. 777,695
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 **14 Claims**



A simple three element fluidic leading edge and/or trailing edge pulse shaper is supplied which in response to an input signal pulse of predetermined duration produces a sharp pressure pulse at the leading edge of the input signal pulse but does not produce a pulse at the trailing edge of the input pressure pulse.

3,568,700
FLUID AMPLIFIER

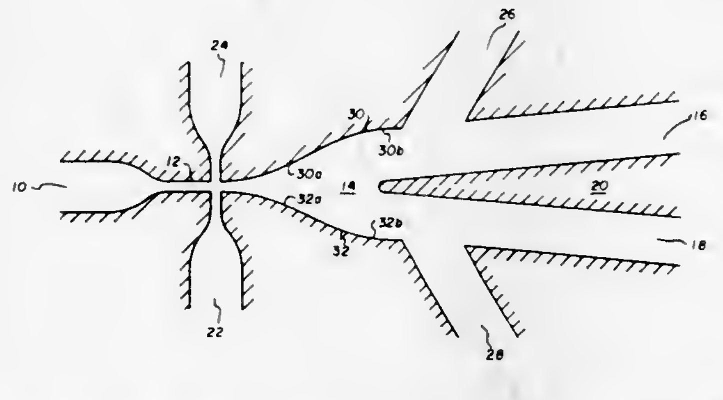
Henk A. M. Verhelst, Velp, and Cornelis J. Van Gorp, Dieren, Netherlandsdel en Verkeer
Claims priority, application Netherlands, Dec. 20, 1967, 67/7363
Int. Cl. F15c *1/04*
U.S. Cl. 137—81.5 **3 Claims**



The invention relates to a fluid amplifier provided with a jet cavity connected to the atmosphere, exclusively by blow openings. Said cavity containing stream conductors, separating recirculating fluid, necessary for the addition of fluid to be entrained by the jet, from the main stream.

3,568,701
FLUID AMPLIFIER WITH IMPROVED INTERACTION REGION

George Mon, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 3, 1969, Ser. No. 803,707
Int. Cl. F15c *1/06*
U.S. Cl. 137—81.5 **8 Claims**

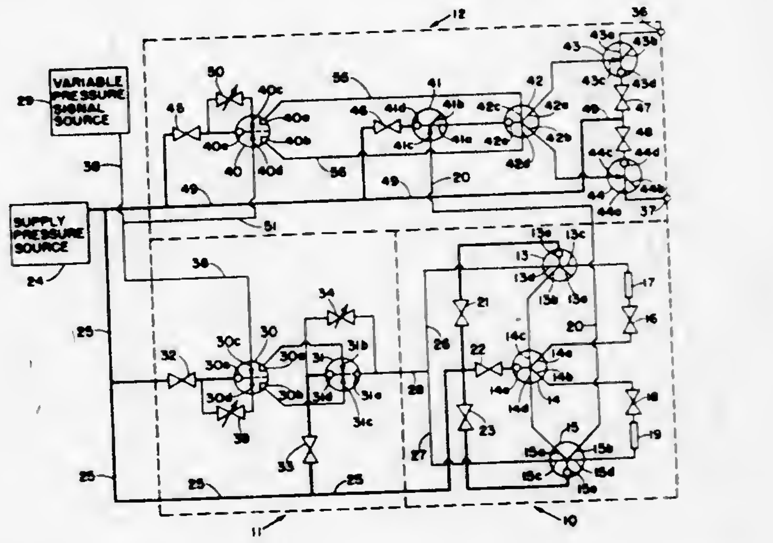


A fluid amplifier having a power nozzle for supplying fluid into an interaction chamber, and a pair of control nozzles adapted to control the flow of the fluid into a pair of output receivers. At least one of the sidewalls of the interaction chamber has a configuration that is effectively defined by a curve having a logarithmic configuration.

3,568,702
PNEUMATIC OSCILLATOR

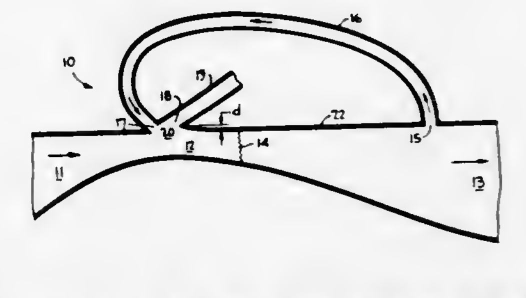
Miles O. Dustin, Mentor, Ohio Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 7, 1969, Ser. No. 805,298
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 **7 Claims**

A pneumatic oscillator or analogue-to-digital converter includes a fluid oscillator circuit, a conditioning circuit and an output selector circuit. Three bistable fluid amplifiers with interconnecting pneumatic R-C circuits make up the oscillator which has a frequency range down to 0 pulses per second. Control signal pressure is supplied to the oscillator through the conditioning circuit which controls the frequency range of the oscillator. Output pulses from the oscillator are directed to one or the other of a pair of output ports through an output selecting circuit.



3,568,703
SUPERSONIC JET ENGINE INLET FLUERIC BYPASS CONTROL

Raymond W. Warren, Mc Lean, Va., and Allen B. Holmes, Rockville, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed Apr. 7, 1969, Ser. No. 814,024
Int. Cl. F15c *4/00, 1/04*
U.S. Cl. 137—81.5 **8 Claims**

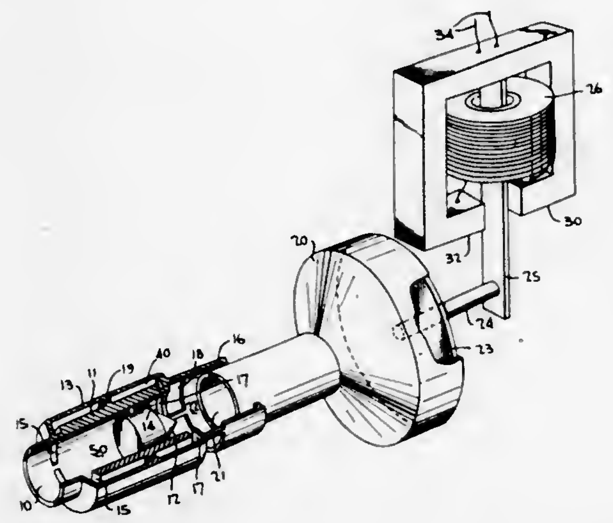


A flueric system for controlling the position of the normal shock wave in a turbojet diffuser is disclosed. Control is accomplished without the use of mechanically moving parts by providing an exhaust tube for reducing the pressure downstream of the normal shock. A fluid feedback path which is responsive to a pressure differential on opposing sides of the shock wave produces a fluid control signal which is capable of deflecting fluid away from the exhaust tube and thereby effectively closing off the exhaust tube whenever the shock wave has relocated itself in a stable position.

3,568,704
FLUIDIC GENERATOR WITH VELOCITY DISCRIMINATION

Carl J. Campagnuolo, Potomac, and Henry C. Lee, Crofton, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Aug. 27, 1969, Ser. No. 853,411
Int. Cl. F15c *1/08, 4/00*
U.S. Cl. 137—81.5 **3 Claims**

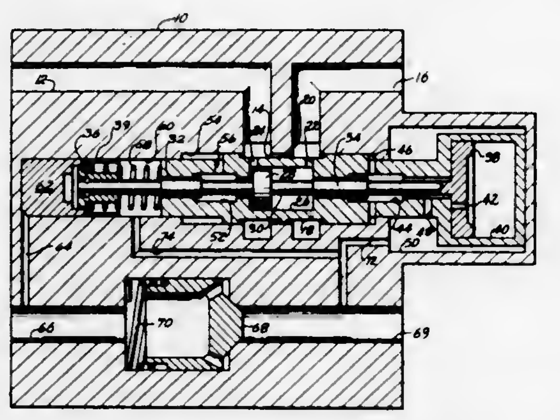
Air is caused to simultaneously enter an inner nozzle in which a cylindrical plug is centrally located to form an annular orifice, and an outer nozzle in which fluid resistors are located to limit the maximum fluid pressure therein. The air discharging from the outer nozzle interferes with the air emanating from the annular orifice until such time as the fluid pressure from the latter is greater than that from the former. After that time, the air discharging from the annular orifice impinges directly on the edge of a resonating cavity producing a multiple frequency edgetone. The column of air in the resonating cavity is thereby caused to vibrate at a frequency determined by the depth of the cavity. The changes in pressure within the resonating cavity cause a diaphragm forming an end of the cavity to pulsate inwardly and outwardly. A rod is attached to the diaphragm, and this rod transmits the vibrations of the diaphragm to a metallic



reed which will then oscillate between a pair of magnetic pole pieces. The oscillations of the reed will induce an electromotive force in a coil. The electromotive force induced in the coil may be made available to provide energy to operate an external electrical circuit.

3,568,705
HYDRAULIC SYSTEM CIRCUIT BREAKER

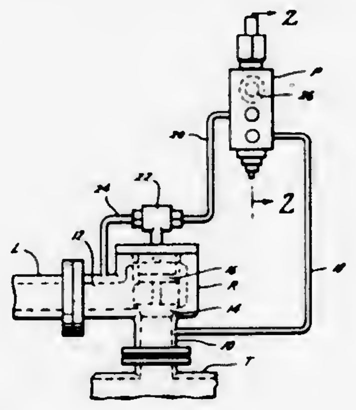
George I. Boyadjieff, Woodland Hills; Robert K. Van Ausdal, La Crescenta, and Ralph L. Vick, Granada Hills, Calif., assignors to The Bendix Corporation
Filed Aug. 19, 1969, Ser. No. 851,288
Int. Cl. F16k *17/22*
U.S. Cl. 137—87 **9 Claims**



A hydraulic circuit breaker or fail-safe device is disclosed for sensing leaks in lines to and from hydraulic actuators or the like. Flow through the line is sensed across a restriction on a piston valve member movable to close the line, the size of the restriction being such that flow in excess of normal requirements causes a significantly increased pressure drop, which drop is sensed across a quantity measuring piston movable in a chamber within the piston-valve, and causing the latter piston to move within its chamber at a rate controlled by the area of a control orifice. As this latter piston moves, it carries a shaft which is spring biased to resist movement until the pressure drop across the restriction reaches a value indicative of a leak. Two spool valve members are carried on the shaft whose function in the two embodiments shown is to direct either supply pressure or lower pressure against operating areas of the piston-valve to control its movement to open or close the line. A check valve is placed in a return line and an additional piston in contact with the biasing spring senses a leak in the return line as indicated by a changed pressure drop across the check valve and moves to either remove the effective spring bias on the shaft or to move the shaft directly such that the spool valve members direct flow to cause the piston-valve to close the line.

3,568,706
PRESSURE RELIEVING SYSTEM

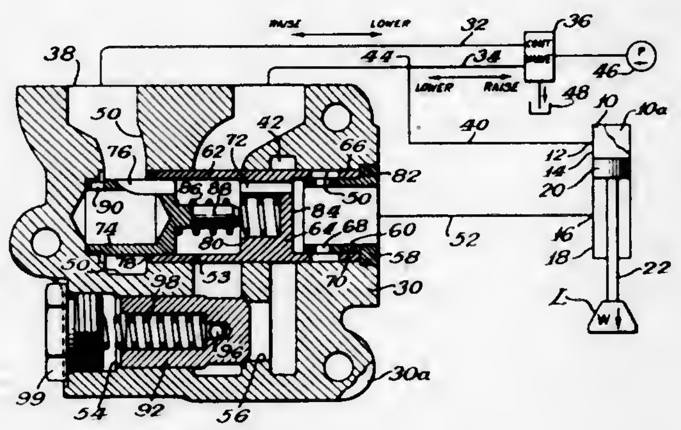
Irvin B. Weise, Bellaire, Tex., assignor to Anderson Greenwood & Co., Houston, Tex.
Filed Feb. 6, 1969, Ser. No. 796,961
Int. Cl. F16k *17/10*
U.S. Cl. 137—112 **4 Claims**



A pressure-relieving system including a main relief valve, a pilot valve which controls the pressure setting for relief and blowdown through the main valve and a back flow preventer which prevents reverse flow through the main valve. The pilot valve assures that there is no reverse flow through the fluid pressure supply line and thereby allows field testing of the valve to determine if it is functioning properly while the pilot valve is installed in the system controlling the operation of the main valve.

3,568,707
QUICK DROP VALVE

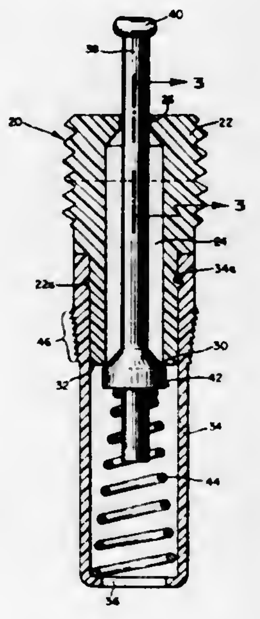
Daniel B. Shore, Niles, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed Dec. 16, 1968, Ser. No. 784,053
Int. Cl. F15b *11/08*
U.S. Cl. 137—117 **17 Claims**



Quick drop valve and circuit employing same for hydraulically positioning and supporting a dozer blade. The circuit includes a double acting positioning cylinder supporting the blade, a raise-lower valve connected to hoses which lead to the cylinder, and the quick drop valve which valve is interposed between the hoses and cylinder and which valve increases dropping speed of the blade by passing fluid between opposite ends of the cylinder in a direct path without the fluid passing through the control valve and cylinder hoses. The valve has a conventional check valve therein, and the only other movable valve part therein consists of a novel single valve sleeve.

3,568,708
TIRE VALVE CORE

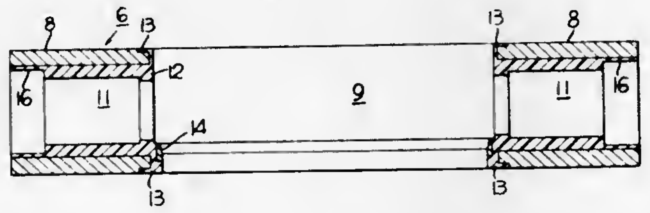
Robert B. Ashman, St. Louis, Mo., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed July 15, 1969, Ser. No. 841,945
Int. Cl. F16k *15/20*
U.S. Cl. 137—234.5 **5 Claims**



A tire valve core which has a two-piece plastic body wherein the parts interfit in snap engagement. Seal in tire stem is assured as the tapered plastic side of the body wedges against the stem shoulder.

3,568,709
CORROSION RESISTANT BODY LINING AND SEAT FOR BUTTERFLY VALVE

Paul E. Fitting, Camp Hill, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 14, 1968, Ser. No. 775,844
Int. Cl. F16k *27/12, 1/226*
U.S. Cl. 137—375 **2 Claims**

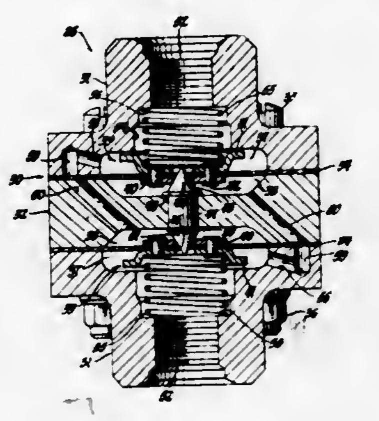


A butterfly valve wherein all of the surfaces of the valve body which are exposed to the fluid being controlled by the valve is covered with a one piece corrosion-resistant lining. The valve also includes a corrosion-resistant seat which is supported and retained by the lining.

3,568,710
BIDIRECTIONAL RESISTANCE VALVE

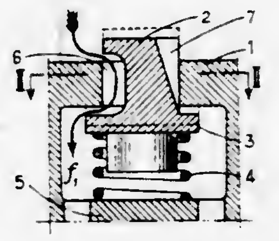
Floyd J. Boyer, and Eugene E. Ervin, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 10, 1969, Ser. No. 856,775
Int. Cl. F16k *17/26*
U.S. Cl. 137—493.9 **2 Claims**

A bidirectional resistance valve to be employed in a control line allows fluid pressure to be transmitted in either direction only when the difference in pressure from one side of the valve to the other is above a predetermined amount. The valve thus prevents minor oscillations in control pressure from being transmitted. The valve has two spring-biased diaphragms each of which has an opening which acts as a movable valve seat and cooperates with a fixed cone or needle to provide a valve which positively seats to restrain flow in one direction but which opens against a weak spring to allow flow in the other direction. The two valves are connected so that flow in either direction is possible above the small pressure determined by the respective spring.



3,568,711
VEHICLE SHOCK ABSORBERS

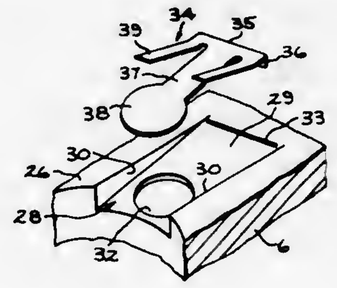
Maurice Katz, 71, rue Raynouard, Paris 16 eme, France
Filed June 27, 1968, Ser. No. 740,638
Claims priority, application France, June 29, 1967, 112,434
Int. Cl. F16k *15/02*
U.S. Cl. 137—516.11 **4 Claims**



This invention relates to hydraulic valves having a double flow control of particular use for vehicles' shock absorbers. The valve is arranged between two spaces separated by a piston of the shock absorber and comprises at least one movable obturating member subjected to the pressure of the operating fluid. In accordance with the invention, the valve comprises at least two separate channels for the passage of the fluid and these channels are of different section and mutually displaced. The channels are closed in the rest position by a support for the closure member, the larger being opened by displacements of small amplitude of the closure member and the smaller channel being substituted for the larger one by larger amplitude displacements of the closure member.

3,568,712
SUCTION VALVE FOR ROTARY COMPRESSOR

Dean C. Rinehart, Louisville, Ky., assignor to General Electric Company
Filed Apr. 1, 1969, Ser. No. 811,816
Int. Cl. F16k *15/00, 21/04*
U.S. Cl. 137—525.3 **3 Claims**



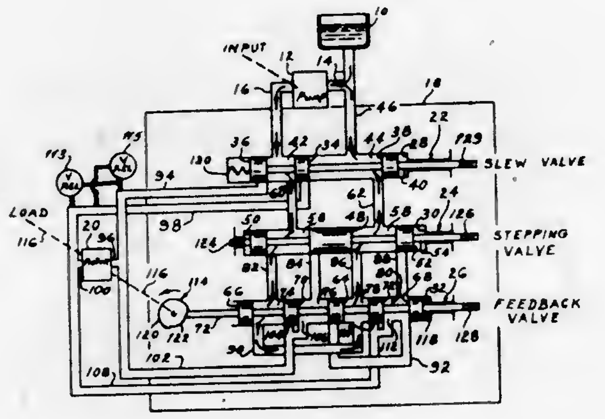
A rotary compressor comprising a cylindrical wall member and an end plate forming a compression chamber has a channel in one end of the cylindrical member which with the end plate forms a V-shaped inlet chamber or recess opening into the compression chamber. The cylindrical member includes a suction port opening into this recess. A flexible V-shaped valve means for the port is anchored in the recess and includes one arm valving the port and another arm engaging the end plate to bias the valving arm into operative position relative to the port.

3,568,713
HYDRAULIC DRIVE CONTROL APPARATUS

Werner G. Holzbock, Bloomfield Hills, and Wade R. Brown, Southfield, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed July 5, 1968, Ser. No. 742,674
Int. Cl. F16k *11/10*

U.S. Cl. 137—596 **17 Claims**



Disclosed herein is control apparatus for a hydraulic drive arrangement providing the drive arrangement with standby, intermittent, and continuous modes of operation. A fluid pressure source, hydraulic motor, and control apparatus for regulating fluid flow between the fluid source and the motor form the drive arrangement. The control apparatus includes a plurality of flow paths through the apparatus, a plurality of valves disposed in the flow paths with each valve having a plurality of operating positions, and structure for operating the valves to move the valves between the various operating positions to regulate fluid flow through the control apparatus. A mechanical feedback loop operable in response to a predetermined angular incremental advance of the motor controls the operating position of one of the valves whereby the motor may be utilized for the positioning of a driven member or load accurately and rapidly either in a series of predetermined increments or in a single continuous operation.

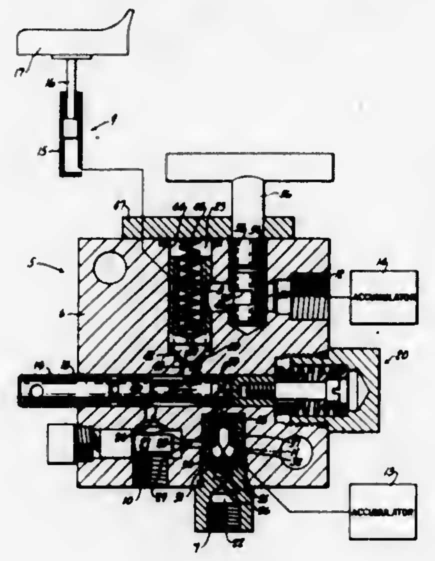
3,568,714
CONTROL APPARATUS FOR AUXILIARY HYDRAULIC SYSTEM

Verne P. Donner, Palatine, Ill., assignor to Deltrol Corp., Bellwood, Ill.

Filed Aug. 7, 1968, Ser. No. 750,896
Int. Cl. F16k *11/10*

U.S. Cl. 137—596.12 **7 Claims**

A valve body has supply, service and exhaust passages leading to spaced zones of a bore in which a closed-center spool is slidable. There is a restriction near the inlet of the supply passage. An accumulator passage and a passage controlled by a relief valve communicate with the supply passage at a zone thereof between said restriction and the bore. Accumulator pressure is therefore lower than pressure in a main hydraulic system to which the supply passage inlet is connected. A check valve in the supply passage, between said zone and the restriction, maintains accumulator pressure when the main system is unpressurized.

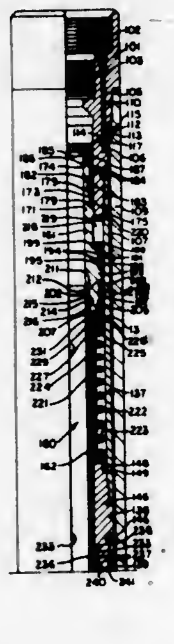


3,568,715
WELL TOOLS

Donald F. Taylor, Jr., Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Original application Feb. 8, 1968, Ser. No. 469,978. Divided and this application Feb. 8, 1968, Ser. No. 724,304
Int. Cl. E21b *23/00*

U.S. Cl. 137—613 **15 Claims**



This invention relates to well tools and more particularly to a flow conductor assembly for use in a well installation employed during the drilling of a well and to well tools usable in such flow conductor assembly.

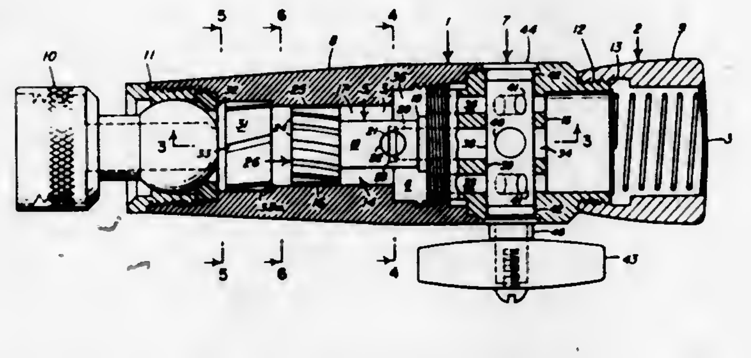
3,568,716
TURBINE DRIVEN PULSATING DEVICE

Charles J. Heitzman, Honolulu, Hawaii, assignor to R & H Molding, Inc., Honolulu, Hawaii

Filed Mar. 4, 1969, Ser. No. 804,249
Int. Cl. B05b *1/08, 1/34, 7/02*

U.S. Cl. 137—624.14 **13 Claims**

A device for attachment to a pressurized fluid line combining a turbine driven rotary pulsating valve and a bypass for delivering respectively a pulsating and a steady flow to an outlet, with a control valve in the deliveries of the pulsating valve and bypass for selectively controlling the flows therefrom.

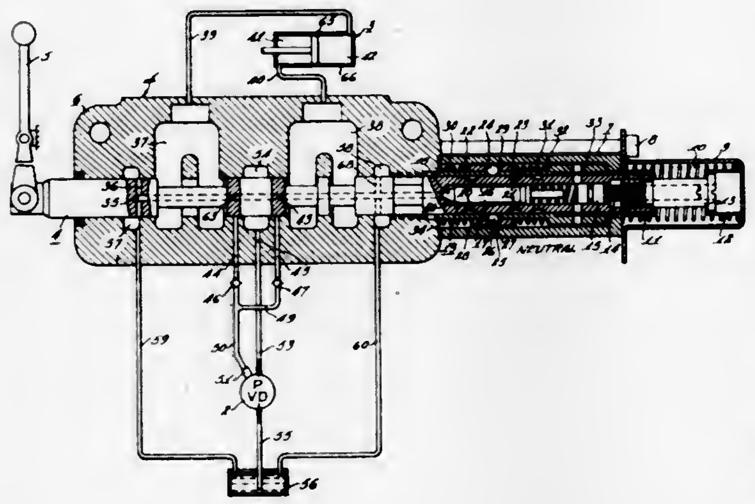


3,568,717
HYDRAULIC VALVE DETENT MECHANISM

John R. Plate; George A. Van Den Heuvel, Milwaukee, Wis., and James R. McBurnett, Still Water, Okla., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Sept. 15, 1969, Ser. No. 858,035
Int. Cl. F15b *15/26;* **F16k** *35/00*

U.S. Cl. 137—624.27 **10 Claims**



A hydraulic valve having a detent mechanism engaging the valve to releasably retain the valve in an open position and hydraulically release the valve to automatically return to a normally neutral position in response to a predetermined pressure in the system.

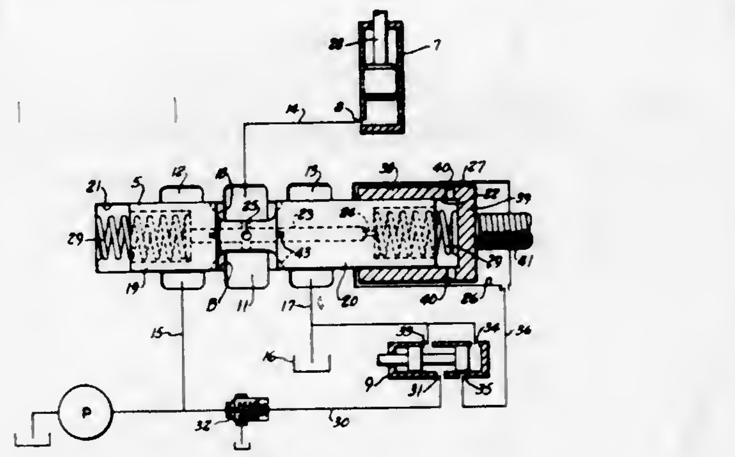
3,568,718
PILOT OPERATED CONTROL VALVE

Raud A. Wilke, Brookfield, and Francis H. Tennis, Oconomowoc, Wis., assignors to Koehring Company, Milwaukee, Wis.

Filed Feb. 17, 1969, Ser. No. 806,340
Int. Cl. F16k *11/07;, 31/38*

U.S. Cl. 137—625.6 **14 Claims**

Admittance of pressurized control fluid into a first chamber at one end of a valve spool while a second chamber at the other end of the spool is vented, effects actuation of the valve spool in one direction from neutral to an operating position allowing pressure fluid to flow from one passage to another at a rate determined by the distance the spool is displaced from neutral. Such displacement is halted when the spool effects closure of a vent in the second chamber. The position of the valve spool at the time the vent is closed is predeterminable so as to provide for stopping of the valve spool at any of a number of metering positions restricting fluid flow from said one passage to the other.

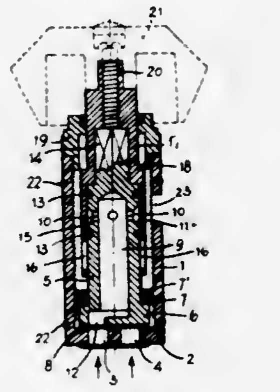


3,568,719
MIXING UNIT FOR FAUCETS

Marsilio Bonomi, Via G. Prati 6, Brescia, Italy

Filed Mar. 24, 1969, Ser. No. 809,697
Claims priority, application Italy, Mar. 26, 1968, 2732A/68
Int. Cl. F16k *19/00*

U.S. Cl. 137—636.4 **10 Claims**



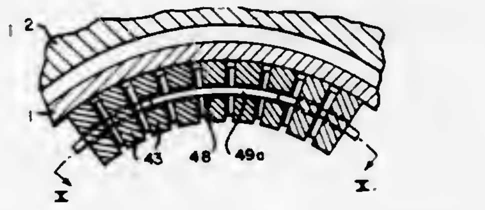
A mixing unit for two different fluids includes an angularly, but not axially movable member for selectively discharging either one or both fluids. The mixing unit may be used in a faucet having a sleeve that is axially movable between open and closed positions.

3,568,720
CLAMPING DEVICE FOR SEALING AND CLAMPING HEADS

Karl-Hans Staat, Homberg; Theodor Zacharias, Krefeld, and Horst Lubke, Hilden, Germany, assignors to Friedrick Kocks

Filed Feb. 14, 1969, Ser. No. 799,344
Int. Cl. F16l *55/10*

U.S. Cl. 138—89 **6 Claims**



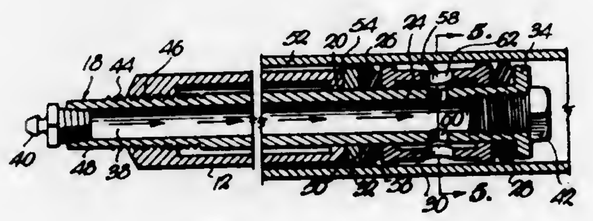
A sealing clamp is provided for one-sided holding and closing of hollow articles such as pipe consisting of a cylindrical elastic sealing sleeve and an elastic cylindrical clamping part arranged at the inner circumference of this sleeve and made of harder material in the form of spaced bars held apart by spring force acting in at least one axial recess in each bar.

3,568,721
TUBE REPAIR TOOL

Robert J. Ross, and Jack C. Kelley, Gonzalez, La., assignors to Reintjes Industrial Services of Louisiana, Inc., Gonzales, La.

Filed Mar. 18, 1969, Ser. No. 808,272
Int. Cl. F16l *55/18*

U.S. Cl. 138—97 **3 Claims**



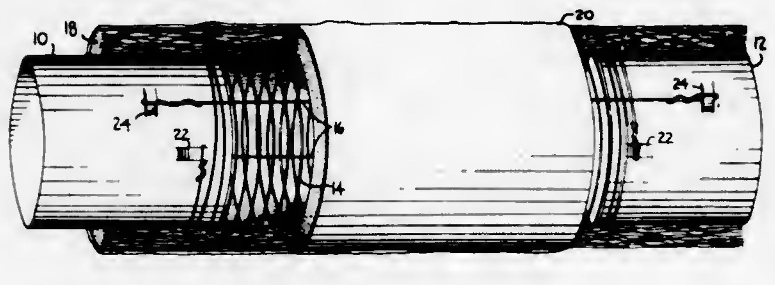
A tool for repairing graphite tubes of the type used in bundles in chemical processing equipment such as heat exchangers, without the necessity of removing the tube from the piece of processing equipment, the tool comprising an elongated, hollow sleeve insertable within the tube to be repaired; a pipe extending longitudinally of the hollow sleeve and having a central passage formed therein; a pair of spaced-apart expansible members carried by a portion of the pipe which extends beyond the distal end of the sleeve when the tool is in use; the sleeve and the pipe being relatively rotatable whereby said members may be radially expanded into engagement with the interior of the tube to be repaired to cooperate therewith to define a chamber. The pipe is provided with a nipple at one end so that adhesive material may be introduced into the central passage thereof and the other end of the pipe has at least one outlet hole formed therein, the outlet hole being in selective communication with openings formed in a lantern ring which is carried by the pipe between said expansible members, in order that adhesive material introduced into the pipe may be delivered against the tube to be repaired.

3,568,722
LONGITUDINALLY REINFORCED FLEXIBLE DUCT

William L. Runshe, and Clarence H. Helbing, Shelbyville, Ind., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sept. 17, 1968, Ser. No. 760,171
Int. Cl. F16l *11/02*

U.S. Cl. 138—133 **10 Claims**



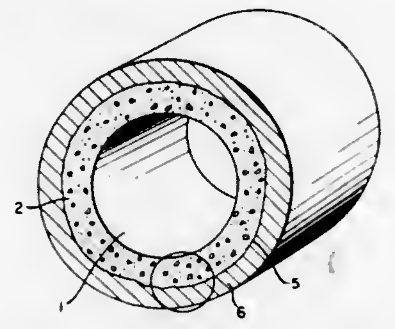
A flexible insulated duct comprising a wire helix wrapped with insulating material, encased in a fluid-impermeable sleeve and terminated with longitudinally reinforced connector members. The longitudinal reinforcement consists of cordlike tension means affixed to the connector members to enhance the axial tensile strength of the duct while maintaining its flexibility, i.e., its bendability and twistability.

3,568,723
METAL-CERAMIC COMPOSITE STRUCTURES

Donald Maurice Sowards, Ashbourne Hills, Claymont, Del., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.

Filed June 23, 1967, Ser. No. 648,332
Int. Cl. F16l *9/14*

U.S. Cl. 138—143 **5 Claims**



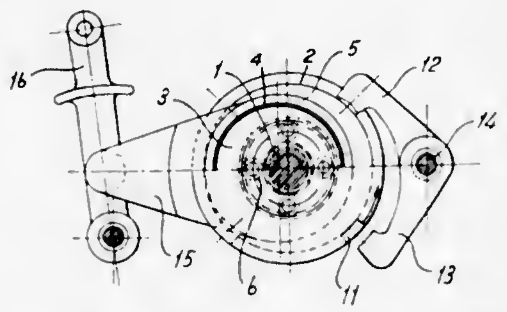
Metal-ceramic structures are made by casting molten metal around ceramic cores having specific physical properties. Most important of these properties is that the surface of the core which forms part of the metal-ceramic interface must have a porosity of between 20 and 80 percent and the porosity created by a multiplicity of uniformly distributed pores ranges from 25 to 2500 microns in size.

3,568,724
HEALD FRAME CONTROL DEVICES

Sergio S. Xaus, Street No. 33 Legalidad, Barcelona, Spain

Filed July 14, 1969, Ser. No. 841,486
Claims priority, application Spain, July 17, 1968, June 4, 1969, 356793;368031
Int. Cl. D03c *1/12*

U.S. Cl. 139—66 **10 Claims**



Improvements in heald frame control devices wherein a toothed driving shaft is meshed with planetary pinions of similar diameter mounted on a disc. The pinions are meshed with an interiorly toothed eccentric which actuates by its smooth exterior a flange that carries a projecting appendice articulated to the corresponding oscillatory driving lever of the heald frame. The disc and eccentric are selectively retained by the respective extremities of a cranked control lever which is oscillatable about its vertex. The eccentric and flange cause a relative reciprocating movement that is transmitted to the driving lever of the heald frame whereby the control lever undergoes a movement of displacement from its articulation point that graduates the opening of the shed.

3,568,725
DOBBIES

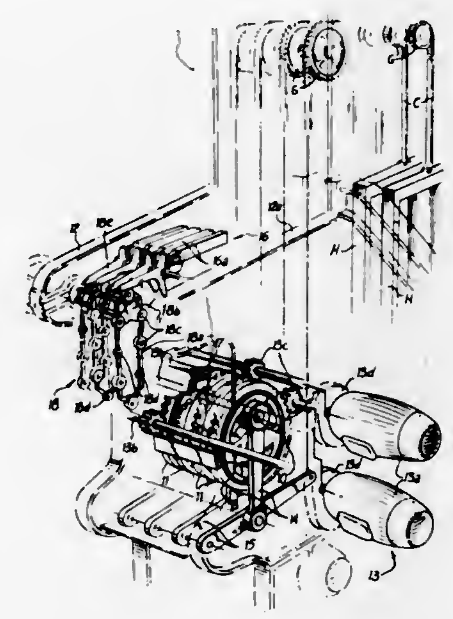
Thomas Hindle, and Vincent Pinder Banks, Blackburn, Lancashire, England, assignors to Hindle, Son and Company Limited, Blackburn, Lancashire, England

Continuation-in-part of application Ser. No. 694,129, Dec. 28, 1967, now abandoned. This application Aug. 8, 1969, Ser. No. 848,632
Int. Cl. D03c *1/00;* **D03d** *51/20*

U.S. Cl. 139—76 **10 Claims**

The present invention concerns a loom dobby with a multiplicity of jack levers operating healds or shuttle drop boxes, each lever being moved back and forth by its own electric

motor and a crank mechanism, and there is electrical control means to stop the jack levers automatically in positions for the insertion of weft picks in accordance with a preselected pattern to be produced on the finished fabric.

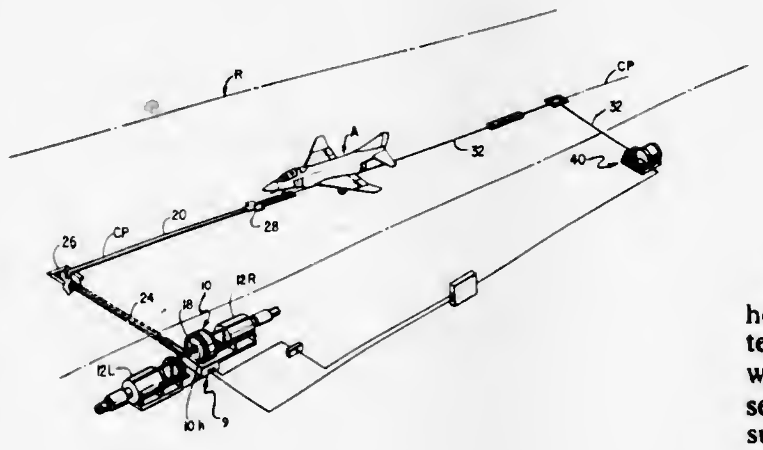


3,568,726
CATAPULT TAPE

Charles S. Thompson, Vincentown, N.J., and Melvin I. Weiss, Delaware, Pa., assignors to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Continuation-in-part of application Ser. No. 575,113, Aug. 25, 1966, now abandoned. This application Dec. 10, 1968, Ser. No. 795,379
Int. Cl. D03d *11/00*

U.S. Cl. 139—415 **15 Claims**



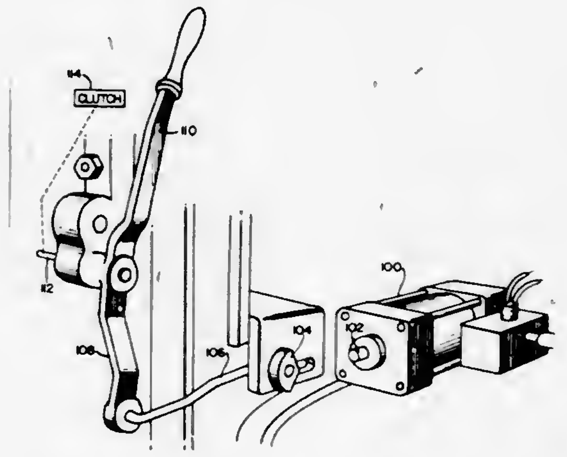
This disclosure pertains to a solid woven tape considerably wider than it is thick so as to permit coiling upon a rotatable reel of the type used in aircraft launching or recovery gear. The tape is constructed of a plurality of longitudinally extending load bearing strands which are bound together by transverse strands. The transverse strands are composed of a material having a higher initial modulus than the longitudinal strands so that lateral bulging of the tape is minimized when it is subjected to compressive forces in being wound upon a reel.

3,568,727
LOOM STOPPING SYSTEM

Leon G. Wilde, Andover; Albert Szczur, New Bedford, and William J. Stephens, Bedford, Mass., assignors to H. F. Livermore Corporation, Boston, Mass.

Original application May 1, 1967, Ser. No. 634,978, now Patent No. 3,451,438, dated June 24, 1969. Divided and this application June 19, 1969, Ser. No. 834,692
Int. Cl. D03d *51/00*

U.S. Cl. 139—336 **1 Claim**



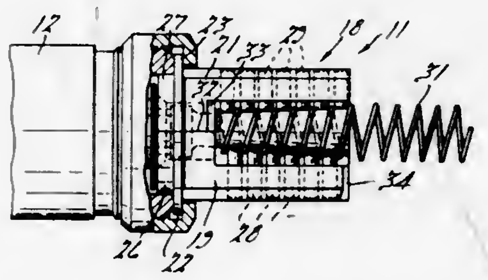
A disabling system responsive to a loom malfunction is provided for disengaging the drive clutch prior to stopping the lay whereby the loom is brought to a halt in a smoother and more controlled manner than is possible with conventional looms.

3,568,728
WIRE COILING TOOL

William O. Mueller, Detroit, Mich., assignor to Hans Sickinger Co., Pontiac, Mich.

Continuation-in-part of application Ser. No. 700,786, Jan. 26, 1968, Patent No. 3,520,334. This application Dec. 6, 1968, Ser. No. 789,636
Int. Cl. B21f *3/04*

U.S. Cl. 140—92.94 **1 Claim**



A wire coiling tool for spiral wire binders comprising split hollow body halves each of which has a series of inwardly extending pins, the facing pin sets being offset by one-half the wire pitch. In a second embodiment, each body half has two sets of pins, the four sets of pins being spaced apart 90° and successive pins around the circumference being offset by one-quarter the wire pitch.

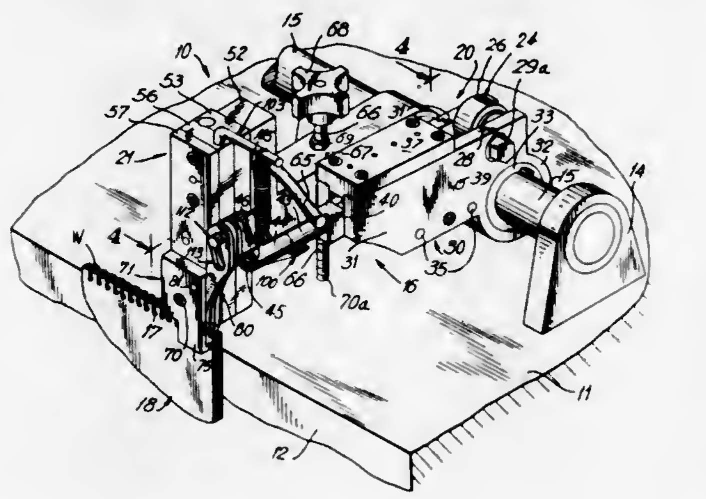
3,568,729
DEVICES FOR CLIPPING AND LOOPING ENDS OF HELICAL BINDERS

Albert Freundlich, Bronx, and Nicholas M. Diakoff, Astoria, N.Y., assignors to Freundlich-Gomez Machinery Corp., College Point, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,821
Int. Cl. B21f *35/02*

U.S. Cl. 140—103 **22 Claims**

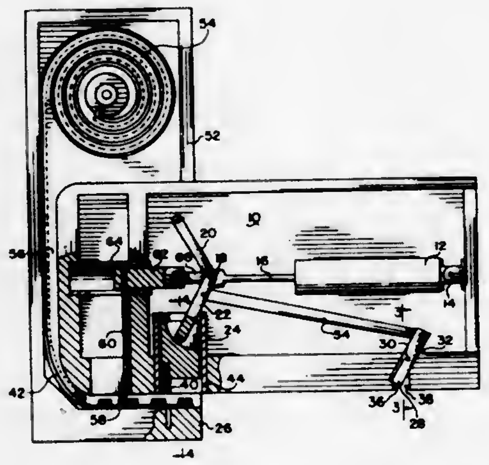
Devices positioned at the ends of a helical coil binder threaded through openings in a notebook or pad, clip the ends of the binder, then bend the clipped ends longitudinally inwardly around the outside of adjacent convolutions of the binder and then loop portions of the inwardly bent ends radially inwardly beneath and inside of said adjacent convolutions and then bend the ends longitudinally outwardly to form loops, and close the loops sufficiently to prevent the wire portions which pass through the loops, from coming out of the loops.



These devices each include a first member carrying a clipper, a second member carrying a bending cam, a third member carrying a looping cam, and a single control element to activate all these three members, successively.

3,568,730
METHOD OF SPLICING

Jimmy C. Ray, Rte. 2, Box 33, Denison, Tex.
Original application Feb. 7, 1966, Ser. No. 525,506. Divided and this application June 25, 1969, Ser. No. 836,277
Int. Cl. B21f *15/06*
U.S. Cl. 140—111 **8 Claims**

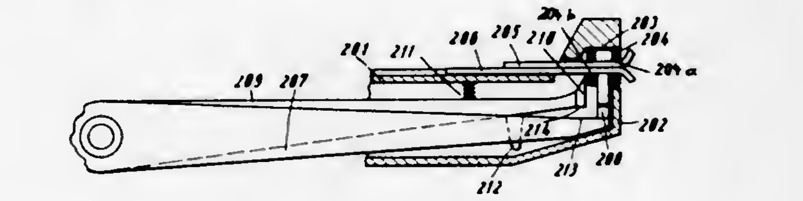


Connectors are attached to a paper tape in pairs. The tape is fed into a machine and wires are inserted into the connectors. Four wires are selected, arranged in two pairs and sheared so that the ends are even and then are inserted, two each into the two connectors. Thereafter, the connectors are crimped, electrically connecting the wires together.

3,568,731
TOOL FOR BINDING CABLE HARNESSES

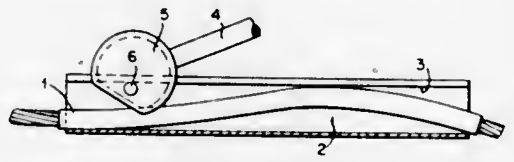
Heinrich Kabel, Quickborn, Holstein, Germany, assignor to Paul Hellermann GmbH, Pinneberg, Germany
Filed Nov. 4, 1968, Ser. No. 773,161
Claims priority, application Germany, Nov. 14, 1967, P 16 40 414.1
Int. Cl. B21f *15/06*
U.S. Cl. 140—117 **3 Claims**

Cable assemblies are to be bound by a strap the ends of which enter a slot in a lock member and are retained therein by a pin pushed through a bore transversely of the slot and held in place by deformation. The improved appliance for fixing the lock members comprises a piston ram for pushing the pin into the bore, and a cutting device which cuts off the projecting strap ends and which in its rest position acts as a locating stop for the lock member. The piston ram and cutting ram are operated together but a certain lost motion is provided so that operation of the cutting device commences only after the piston ram has pushed in the pin sufficiently to hold the strap ends.



3,568,732
SPLICE STRAIGHTENER FOR AERIAL CONDUCTORS

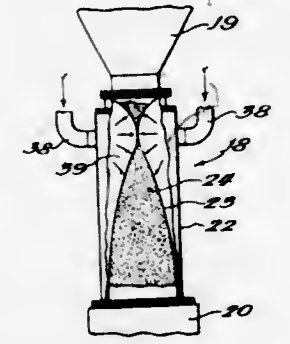
James A. Kelly, Jr., 3712 Woodland Ave., Drexel Hill, Pa., and Daniel A. McLaughlin, Gradyville, Pa. (Box 17, Valley Road, Glen Mills, Pa. 19342)
Filed Feb. 28, 1969, Ser. No. 803,380
Int. Cl. B21f *1/02*
U.S. Cl. 140—147 **5 Claims**



An apparatus is disclosed comprising a U-shaped channel with fulcrum ledges running the length of same, which is engaged about a bent splicing sleeve, and a lever cam with handle, with which a straightening force is applied. The lever cam, when inserted into the channel, cooperates with the fulcrum ledges in transmitting a straightening force applied to the splicing sleeve.

3,568,733
METHOD AND APPARATUS FOR FILLING BAGS

Erwin M. Lau, Dolton, Ill., assignor to Black Products Co., Chicago, Ill.
Continuation-in-part of application Ser. No. 660,259, Aug. 14, 1967, now abandoned. This application July 16, 1968, Ser. No. 745,155
Int. Cl. B65b *1/18*
U.S. Cl. 141—10 **11 Claims**

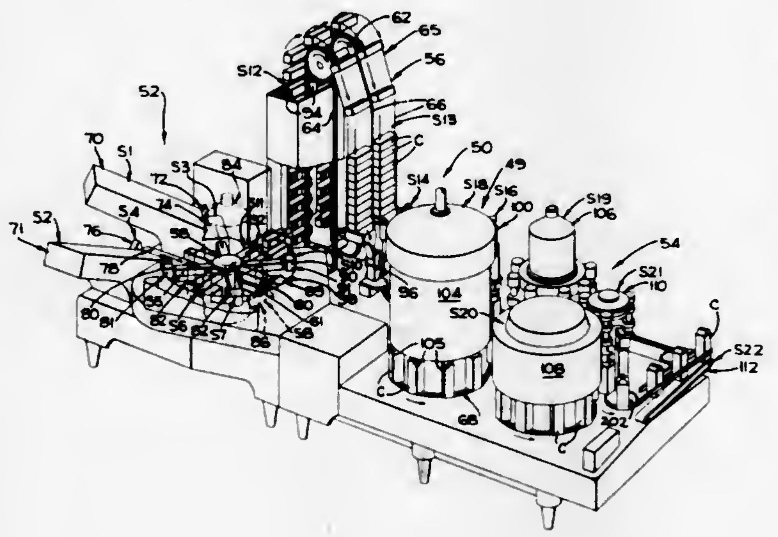


A bag-filling machine has a flexible sleeve extending from the supply bin to the feed hopper. The feeding action is obtained by squeezing the sleeve to force the charge of powdered material contained therein downwardly through the feed chamber and a communicating spout into a bag hung on the spout. A casing surrounds the flexible sleeve. Air under pressure is introduced into the space between the casing and

the sleeve to squeeze the sleeve. In a modification, the sleeve is squeezed by rollers. When a given weight of material has been fed into the bag, a scale mechanism trips and shuts off further flow of material through the spout by means of a pinch valve behind the spout, and terminates the squeezing action.

3,568,734
CARTON-FILLING APPARATUS

Leslie Vadas, Los Gatos, and Robert W. Drake, San Jose, Calif., assignors to FMC Corporation, San Jose, Calif.
Original application June 7, 1965, Ser. No. 461,738, now Patent No. 3,456,419. Divided and this application Mar. 11, 1968, Ser. No. 712,203
Int. Cl. B65b *3/12*
U.S. Cl. 141—89 **7 Claims**

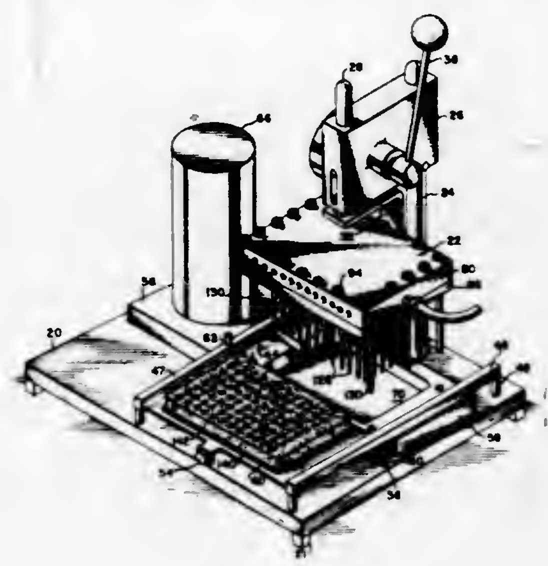


Carton-filling apparatus which is adjustable to handle cartons of different sizes and includes a plurality of reciprocable filling heads each having a filling tube and foot valve movable into and out of a carton. An in-motion adjustment device is provided to change the amount of movement of the filling tube while the apparatus is in operations to compensate for overfilling and underfilling of the cartons. A clean-in-place device enables the apparatus to be cleaned without disassembly, and a no-carton, no-fill device is provided to deactivate the filling heads when a carton is not present to receive the product therefrom.

3,568,735
LABORATORY MICROTITRATION DISPENSING APPARATUS

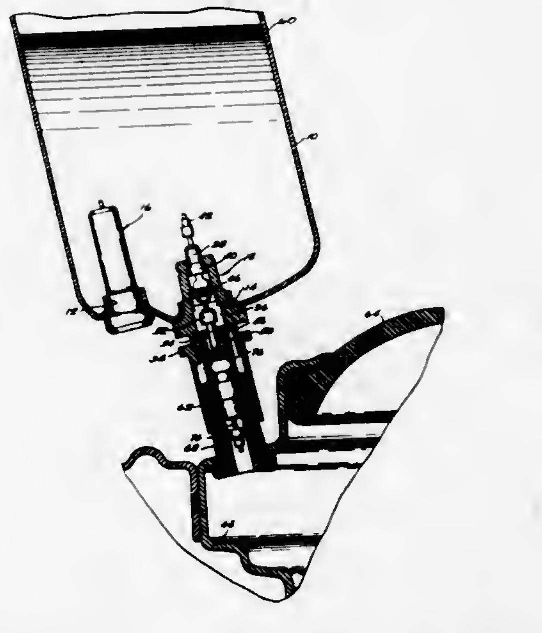
Jesse F. Lancaster, Great Falls, Va., assignor to Cooke Engineering Company, Alexandria, Va.
Filed June 26, 1968, Ser. No. 740,289
Int. Cl. B65b *3/30*; **B01j** *4/02*
U.S. Cl. 141—238 **11 Claims**

Laboratory dispensing apparatus including a base, a liquid reservoir and well assembly mounted on the base, and a microtitration plate carrier device mounted on the base for horizontal movement between a forward retracted position and a rearward operative position overlying a portion of the well. A novel vertically movable dispensing assembly is positioned above the base in operative alignment with the portion of the liquid well so that with the carrier in the forward retracted position the dispensed assembly may withdraw microquantities of liquid from the well and then dispense the same into the microtitration plate wells when the carrier is moved to the rearward position. The dispensing unit includes a novel pump piston actuator assembly and pneumatic control system which enable microquantities of liquid to be simultaneously and accurately picked up and dispensed from the dispensing needles or pipettes.



3,568,736
PORTABLE INFLATOR

Richard E. Linch, Chilton, Wis., and Ralph K. Boyer, Roxboro, N.C., assignors to Western Industries, Inc., Milwaukee, Wis.
Filed Aug. 30, 1967, Ser. No. 664,466
Int. Cl. B65b *1/04*, *3/04*; **B67c** *3/28*
U.S. Cl. 141—349 **5 Claims**

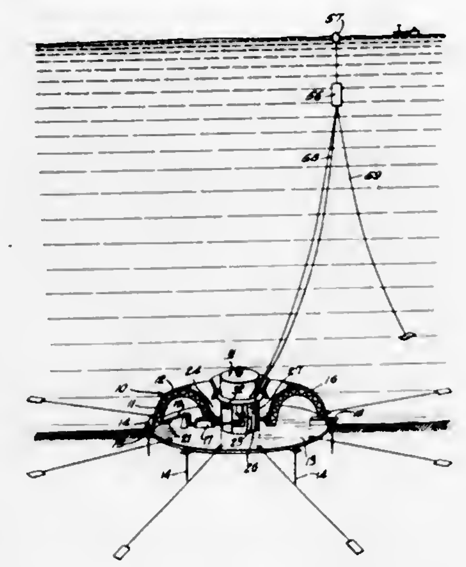


A portable container housing compressed gas and having valve means for automatically transferring the contents of the container directly to a vehicle tire or similar device requiring inflation upon coupling the container valve means to the valve of the tire or other device.

3,568,737
OFFSHORE LIQUID STORAGE FACILITY

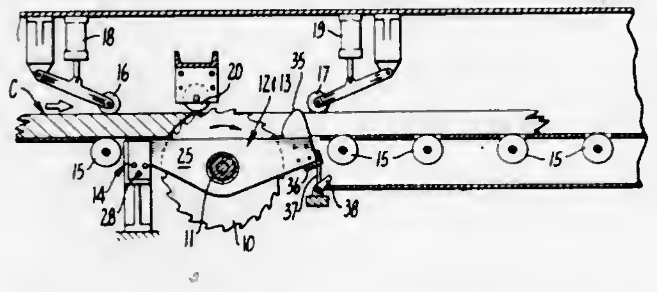
Robert B. Burns, Huntington, N.Y., assignor to Texaco Development Corporation
Filed Oct. 23, 1968, Ser. No. 769,777
Int. Cl. B65b *3/00*; **B67c** *3/00*
U.S. Cl. 141—383 **8 Claims**

The invention relates to an oil or liquid storage facility positioned at an offshore location in a relatively deep body of water and adapted for remote operation. The facility includes a main oil storage tank which is communicated with, and supplied by a plurality of satellite wells or smaller feeder tanks. A transfer tank is adapted for removable connection with the main tank to be periodically filled with oil stored in the latter. At predetermined intervals, the filled transfer tank is disconnected from the main tank, elevated to the surface of the water for removal, and replaced by an empty tank. The latter is then lowered to the main tank beneath the ocean surface where it is automatically connected to the main tank for continuing the filling operation.



3,568,738
APPARATUS FOR SAWING WOOD TO PRODUCE SMOOTH ROTARY PLANED SURFACES

Elbridge W. Thrasher, Ukiah, Calif., assignor to Masonite Corporation
Filed Jan. 17, 1969, Ser. No. 791,930
Int. Cl. B27b *11/02*
U.S. Cl. 143—55 **13 Claims**



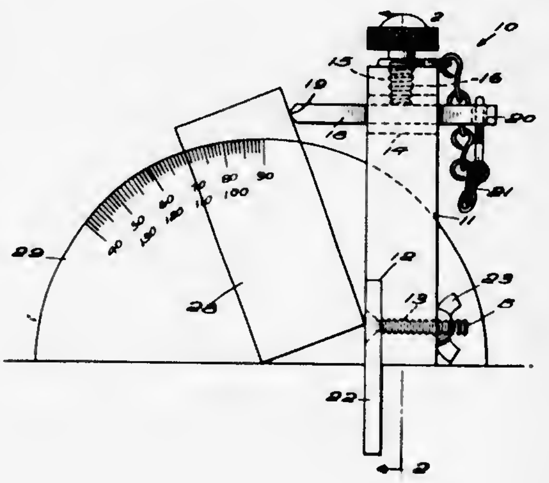
A method of sawing wood to produce a smooth rotary planed surface wherein a piece of wood is moved into a rotary saw in the direction of cutting while maintaining the sawed pieces in spaced relation and out of substantial contact with the back edge of the saw by shifting a splitter transversely in response to lateral transverse deflections of the saw.

A rotary saw machine having a pair of saw guides disposed on opposite sides of a saw blade mounted for axial movement upon a saw arbor, each saw guide comprising a wear member that is flexibly and resiliently supported for movement in a direction substantially parallel to the axis of blade rotation, each wear member having a surface that is maintained in contact with the side surface of the saw blade under a resilient preload force that urges the saw blade against the other wear member to rigidify the saw blade and maintain the blade in a predetermined cutting plane.

A rotary saw machine having a pair of saw guides disposed on opposite sides of the saw blade mounted for axial movement upon a saw arbor, means for yieldably supporting the saw guides for movement in a direction substantially parallel to the axis of blade rotation, and a splitter disposed adjacent the back edge of the saw blade and mounted to said support means, said splitter being free to move laterally in a direction substantially parallel to the axis of blade rotation in response to transverse deflections of the saw blade.

3,568,739
RAFTER GAUGE

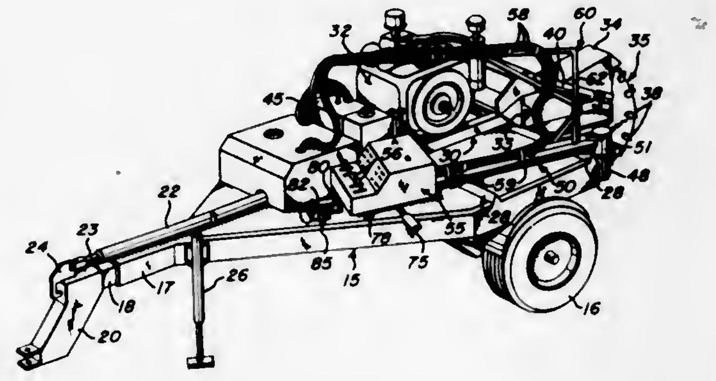
Chester E. Kirk, Corvallis, Oreg., assignor to Speed Cut Inc., Corvallis, Oreg.
Filed Feb. 25, 1969, Ser. No. 802,154
Int. Cl. B27b *27/06*
U.S. Cl. 143—170 **2 Claims**



A device for supporting a rafter while a compound angle cut is made at one end thereof to fit other rafters in the fabrication of a roof. The device is adjustable so that rafters may be cut to fit roofs of varying pitches.

3,568,740
STUMP CUTTER WITH A SELECTIVELY POSITIONABLE CONTROL CONSOLE

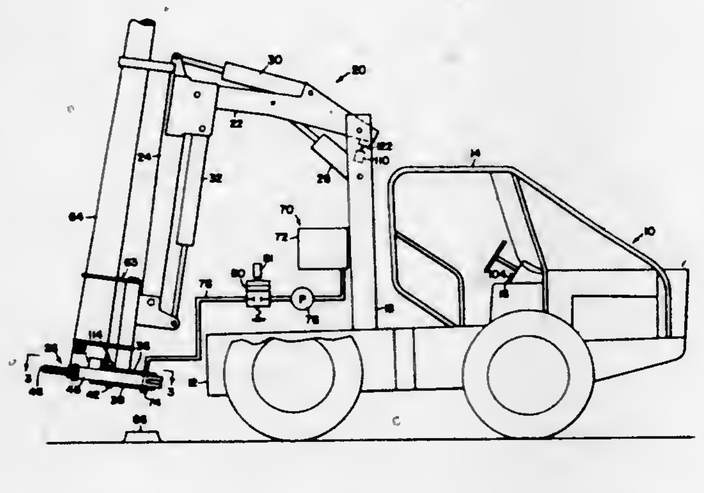
Leroy M. Speakman, Rte 1, Troy, Ohio
Filed Jan. 28, 1969, Ser. No. 794,661
Int. Cl. A01g *32/06*
U.S. Cl. 144—2 **8 Claims**



A stump cutter incorporates a portable wheel supported frame having a telescopic tongue, and a carriage is mounted on the frame for lateral movement. An engine is mounted on the carriage for driving a circular cutting disc which is supported by a housing pivotally mounted on the carriage for vertical movement. The movements of the tongue, carriage and cutting disc are effected by corresponding hydraulic cylinders connected by flexible lines to corresponding control valves mounted on a control console. An arm supports the console and is pivotally connected to the frame for movement of the console between a retracted position adjacent the frame and selectable extended positions in laterally spaced relation to the cutting disc.

3,568,741
COMBINED TREE FELLER AND FUNGICIDE APPLICATOR

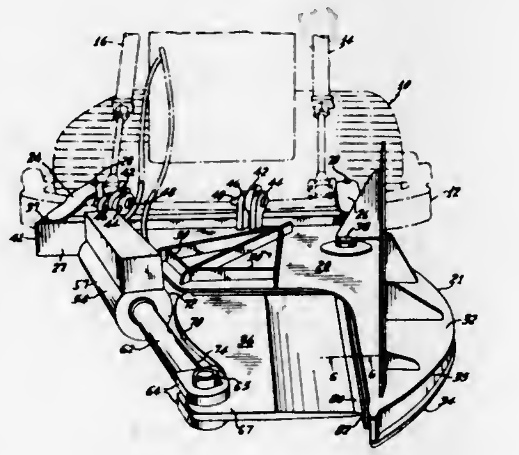
Robert Herrick Wilkinson, and Merriam Lee Gustafson, Balcarce Buenos Aires, Argentina, assignors to Deere & Company, Moline, Ill.
Filed July 31, 1969, Ser. No. 846,482
Int. Cl. A01g *23/02*
U.S. Cl. 144—3 **13 Claims**



A tree-felling device including shiftable tree-severing means mounted on a mobile support frame and an applicator for automatically applying fungicide or other materials to the stump of a tree in response to the severing means being shifted to a preselected position.

3,568,742
TREE SHEARING DEVICE WITH ANVIL

Edward V. Frankenberg, and Norman N. Griffith, Jacksonville, Fla., assignors to Fleco Corporation, Jacksonville, Fla. Original application May 9, 1968, Ser. No. 727,853. Divided and this application Oct. 16, 1969, Ser. No. 866,950
Int. Cl. A01g *23/02*
U.S. Cl. 144—34 **2 Claims**

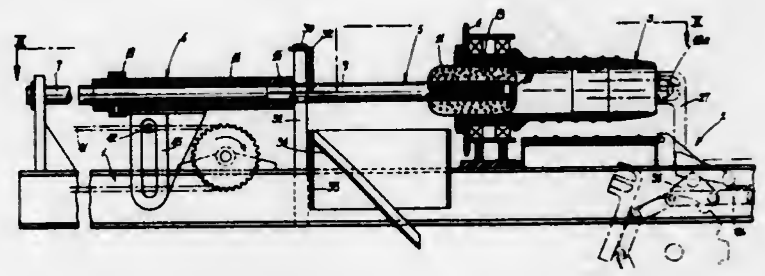


An improved tree shear device having a cutting blade pivotally mounted on a frame and powered by a cylinder and piston against an anvil which is removably attached to the frame so that the anvil can be properly shimmed to meet the cutting edge of the blade upon initial installation and after sharpening of the cutting edge.

3,568,743
CORING DEVICE FOR PINEAPPLE SIZING MACHINES

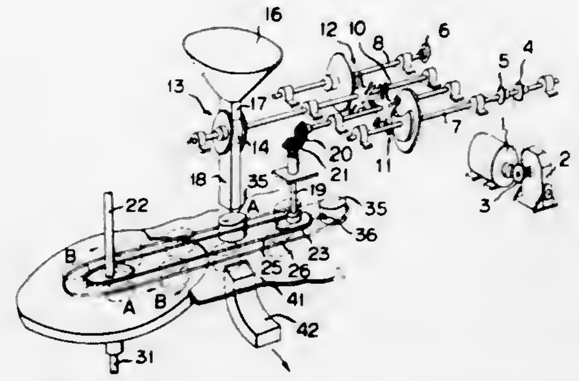
Raoul Dulieu, Les Chesnez (Yonne), France
Filed Jan. 21, 1969, Ser. No. 792,688
Claims priority, application France, July 3, 1968, No157,641
Int. Cl. A23n *3/12, 7/00*
U.S. Cl. 146—6 **6 Claims**

A coring device for a machine which serves to size pineapples by means of a rotary cutter against which the fruits to be sized are thrust axially, a tubular coring cutter being mounted in substantially coaxial relation with said rotary sizing cutter on a sliding carriage to which is imparted an axial reciprocating movement. The coring cutter is essentially provided with axially parallel grooves formed in the outer surface of the cutter near the fruit-cutting edge in order to prevent any rotational motion of the fruit during the simultaneous operations of coring and sizing.



3,568,744
MACHINE FOR AUTOMATICALLY REMOVING ASTRINGENT SKINS OF PEANUTS

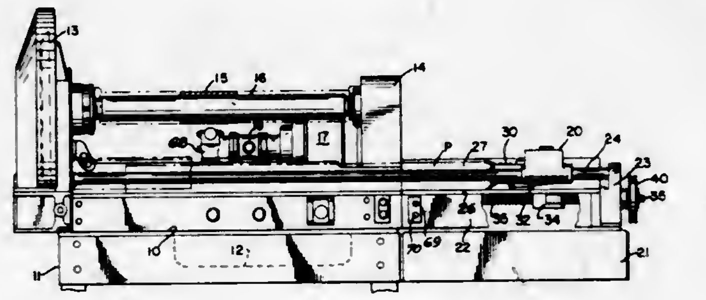
Keijiro Sakashita, Matsudo, and Shigenori Enokida, Tokyo, Japan, assignors to Cashew Co., Ltd., Tokyo, Japan
Filed Jan. 27, 1969, Ser. No. 794,069
Int. Cl. A23n *5/10*
U.S. Cl. 146—32 **1 Claim**



The present invention relates to a machine for automatically removing astringent skins of peanuts which comprises a transferable peeling board having a wire netting provided with edge tools and containers having openings on the bottom forwarded onto said board and retained at regular intervals thereon, automatically removing astringent skins only from kernels of peanuts accommodated in said containers by said peeling board.

3,568,745
SLICING MACHINE

Charles H. Johnson, Madison, Wis., assignor to Oscar Mayer & Co., Inc., Chicago, Ill.
Filed June 14, 1968, Ser. No. 737,027
Int. Cl. A22c *17/02*
U.S. Cl. 146—95 **3 Claims**



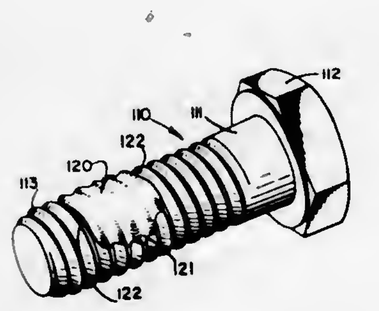
A slicing machine particularly adapted for large size bologna and similar products which may have greater than the normal length, the machine comprising a rotatably driven slicing knife disposed at the end of an elongate table on which the product is advanced by a reciprocably mounted pusher which carries a means to grip the trailing end of the product and which is reciprocated by connection with a screw which is rotated by a fluid motor forming part of a hydraulic control system and having proximity switches spaced along the path of the pusher which switches are actuated by the pusher and which switches open and close valves in the hydraulic system for effecting advance and return movement of the pusher.

3,568,746
SELF-LOCKING THREADED FASTENER

Charles C. Faroni, Summit, N.J., and John S. Humphrey, Jr., Johnson City, N.Y., assignors to Amerace Esna Corporation, New York, N.Y.

Filed Feb. 6, 1967, Ser. No. 618,263
Int. Cl. F16b *39/34*

U.S. Cl. 151—7 **19 Claims**



A reusable self-locking threaded fastener is provided having a patch of nylon or like thermoplastic material bonded to several convolutions of the unmodified thread surfaces and gradually merging at its boundary edge portions into the thread surfaces, the nylon patch being melted and fused and solidified without work-shaping pressures and containing from about 0.1 percent to about 5 percent by weight of molybdenum disulfide; a reusable self-sealing and self-locking fastener is provided in which the unmodified nylon patch has a circumferential extent of about 200° to about 300°; by adding to the nylon patch molybdenum disulfide the circumferential extent may be 360°; a method of forming the self-sealing and self-locking fasteners is provided wherein the heated fastener has the nylon in powdered form, and if desired the molybdenum disulfide mixed therein, dropped thereonto while the fastener rotates about its longitudinal axis to melt and hold a quantity of the nylon thereon, after which the fastener may be heated to the fusion temperature of the nylon to further melt the patch; further a primer coating of epoxy resin is provided between the patch and the fastener; the resultant fastener can be reused a minumum of five times and still retain the desired self-locking and self-sealing characteristics thereof.

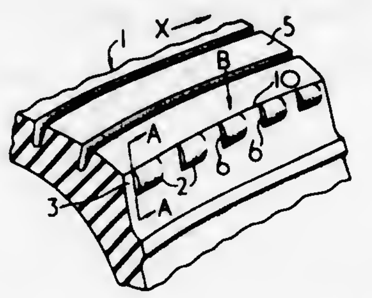
3,568,747
PNEUMATIC TIRES

Henry R. Fletcher, Birmingham, and Glyn B. Roberts, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London, England

Filed Apr. 4, 1968, Ser. No. 718,897
Claims priority, application Great Britain, Apr. 18, 1967, 16,196/67
Int. Cl. B60c *19/00*

U.S. Cl. 152—154 **13 Claims**

A pneumatic tire provided with a plurality of generally axially outwardly extending faces on at least one of its shoulder portions. The faces may engage with water standing on the surface over which the tire is to run and/or may be engaged with water thrown up from the surface. This engagement imparts a rotational effect to the tire in the manner of a turbine, which tends to reduce the slipping of the tire on the surface.



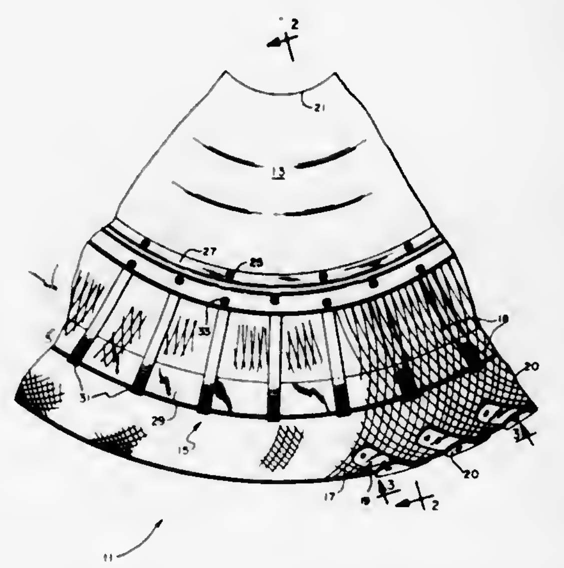
The engagement also tends to reduce the trajectory (angle and distance) of the water thrown up from the surface by the tire.

3,568,748
RESILIENT WHEEL

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration with Respect to an invention of; John N. Calandro, Goleta; Norman J. James, Panorama City, and Ferenc Pavlics, Santa Barbara, Calif.

Filed Feb. 17, 1969, Ser. No. 799,847
Int. Cl. B60c *7/06*

U.S. Cl. 152—250 **6 Claims**



A resilient wheel comprising a woven wire tire clamped to the rim of a conical wheel disc. The tread surface of the wire tire has tread units comprising abrasive coated strips clamped to the wire tire and arranged in a herringbone pattern around the tread area of the tire. A relatively rigid annular frame is provided inside the wire tire that limits deflection of the tire under load.

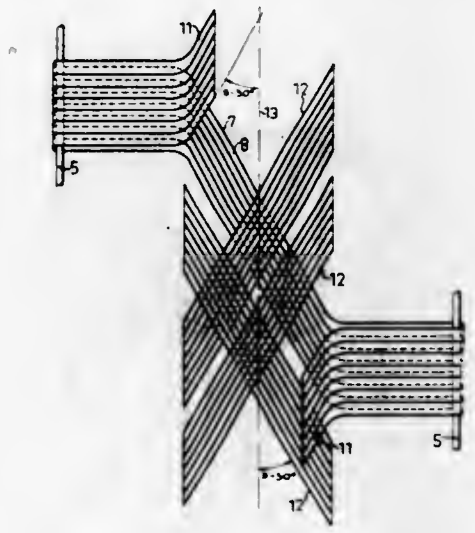
3,568,749
PNEUMATIC VEHICLE TIRE

Hans Menell, Ahlem Hannover, and Friedrich Bartsch, Hannover-Herrenhausen, Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany

Filed July 1, 1968, Ser. No. 741,714
Claims priority, application Germany, July 5, 1967, P 16 05 634.1
Int. Cl. B60c *11/00*

U.S. Cl. 152—354 **1 Claim**

A pneumatic vehicle tire with a carcass reinforcement of substantially parallel strength members which pass in one piece from bead to bead while forming components of rubberized cord layer means and in the tire sidewalls extend at least approximately at right angles with regard to the circumferential direction of the tire whereas in the zenith portion of said tire said strength members pass across the width of the tread strip at an angle of from 5 to 30° with regard to the tire circumferential direction, those portions of said strength members which extend from bead to bead being looped



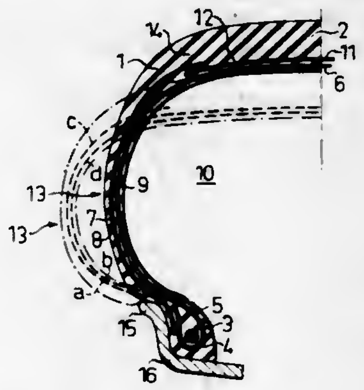
around the beads and being extended back into the shoulder areas of the tire.

3,568,750
PNEUMATIC VEHICLE TIRE

Hermann Henning, Hannover, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany

Filed June 12, 1968, Ser. No. 736,336
Claims priority, application Germany, June 13, 1967, P 16 05 633.1
Int. Cl. B60c *9/06*

U.S. Cl. 152—354 **8 Claims**



Strength members cross each other in two superimposed layers in tire sidewalls. Near tire beads adjacent to inner hollow chamber means, strength member portions extend at least nearly at right angles to tire circumferential direction; in tire sidewalls adjacent tire shoulders, these strength member portions extend at an inclined relative to tire circumferential direction. Strength member portions extend at an incline in the layer adjacent tire outer surface and in tire sidewalls adjacent to tire beads, latter strength members extend at least nearly at right angles to tire circumferential direction in sidewall area.

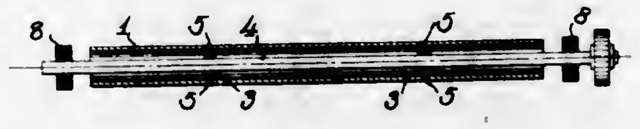
3,568,751
LARGE MOTION PICTURE SCREEN ROLLING-UP EQUIPMENT

Sasuke Takahashi, No. 32/11, Yasunakacha-6-chome, Yao, Osaka-Fu, Japan

Filed Dec. 17, 1968, Ser. No. 784,365
Claims priority, application Japan, Oct. 12, 1968, 43/74393
Int. Cl. A47g *05/02;* **A47h** *01/00*

U.S. Cl. 160—238 **4 Claims**

Large motion picture projection screen tubular rollup and support mechanism characterized by a rigid but lightweight hollow tubular outer shaft of screen width and a longer rigid inner supporting shaft bearing supported at opposite protruding ends and spaced centrally within the outer shaft by means of a pair of spacing support rings. The rings and the two shafts are so constructed and relatively arranged as to permit



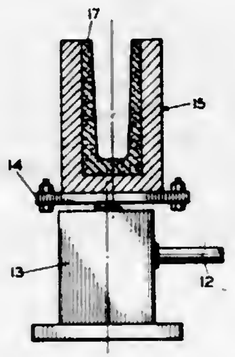
the inner shaft to flex under a supporting load in an independent manner which is not transmitted to the outer shaft to which the screen per se is attached, thereby maintaining the screen in a smooth, undistorted manner free of undesirable, abnormal light-reflecting slack or wrinkles when in the extended open screen condition.

3,568,752
METHOD FOR CONTROLLING THE AS-CAST GRAIN STRUCTURE OF SOLIDIFIED MATERIALS

Douglas C. Williams, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio

Filed Dec. 5, 1968, Ser. No. 781,375
Int. Cl. B22d *13/06*

U.S. Cl. 164—47 **12 Claims**



A process whereby the as-cast grain structure of metals and alloys is controlled by the application of duortical motion to a liquid metal or alloy as the liquid metal or alloy passes through the liquid-solid transition as the liquid cools.

3,568,753
PROCESS OF FABRICATING A COMPOSITE ZINC PRINTING PLATE

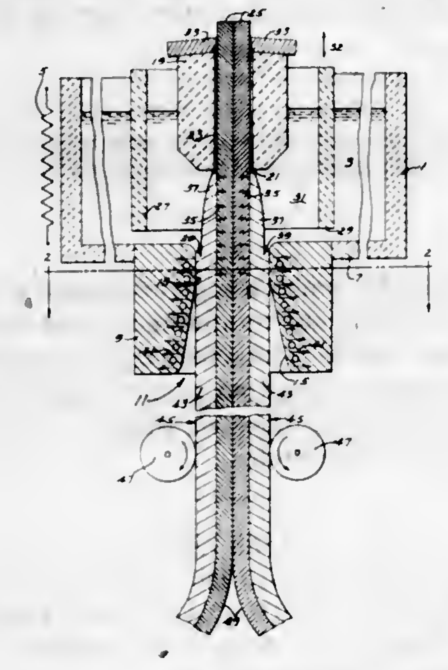
John F. Clarke, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 18, 1967, Ser. No. 691,329
Int. Cl. B22d *11/00;* **B41d** *3/00*

U.S. Cl. 164—86 **5 Claims**

In all forms of the invention at least one heat absorbing aluminum backing strip has one side prepared for bonding zinc thereto. The strip is then moved first through a pool of molten zinc and then through a slot in a cooling die. The slot in the die is wider than the thickness of the strip. Zinc from the pool is caused to flow controllably into the die slot and to freeze on the prepared face to form a zinc coating thereon as the strip approaches and passes through the die. The die is of a nonsticking short-throat type so as to produce a smooth finish on the coating before complete freezing occurs. The side of the strip which is not to receive a coat of zinc is shielded from the molten zinc.

In one form of the invention, shielding from the zinc is accomplished by placing two aluminum strips back to back as they pass through the zinc melt and the die. In another form, the back of the aluminum strip is shielded by omitting to clean that side of the strip and/or applying a suitable zincrepellant substance such as a film of oil or the like. In another form of the invention the back of the aluminum strip



engages part of the crucible containing the melt, to effect shielding.

3,568,754

CENTERING APPARATUS FOR MATCH PLATES ARRANGED AT A MATCH PLATE SUPPORT FOR MOLDING MACHINES

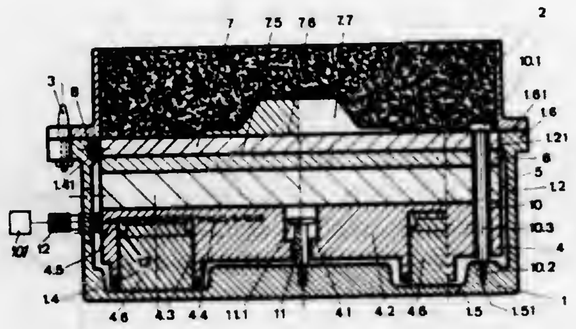
Werner Geiger, Meggen, assignor to Inventio Aktiengesellschaft, Hergiswil, (Nidwalden), Switzerland

Filed Nov. 14, 1968, Ser. No. 775,614

Claims priority, application Switzerland, Nov. 17, 1967, 16165/67

B22c *7/04* **Int. Cl. B23q** *3/18*

U.S. Cl. 164—159 **7 Claims**



There is disclosed a centering apparatus for match plates arranged in a match plate support of a molding machine wherein the match plate or plates possess predetermined impact surfaces which are to be pressed against impact means of the match plate support. According to an important aspect of the invention there are provided pressure transmission means adapted to be operatively connected with fluid energy-supply means, such pressure transmission means being disposed between the match plate support and the surfaces of the match plate situated opposite the impact surfaces thereof.

3,568,755

MACHINE FOR THE MANUFACTURE OF ARTICLES OF A SLURRY OF SOLID MATTER IN A LIQUID

Daniel Fredrik Ednell, Ed, Sweden, assignor to Foseco Trading A.G., Chur, Switzerland

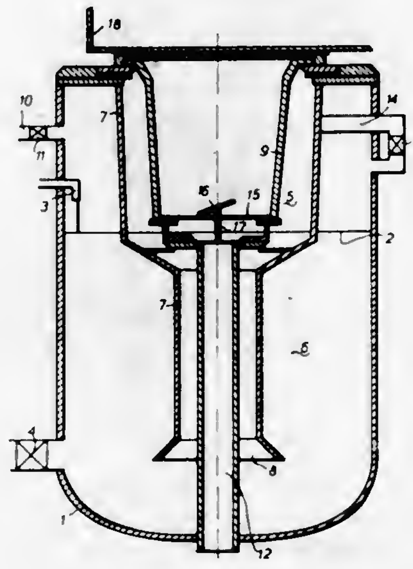
Filed May 28, 1968, Ser. No. 732,652

Claims priority, application Norway, July 3, 1967, 168914

Int. Cl. B22c *17/00*

U.S. Cl. 164—165 **8 Claims**

A machine for manufacture of articles by deposition of solid matter in a slurry on a perforated mould, a pressure difference being established for forcing the liquid component through the said pressure difference being reversed to blow



off the deposited article, the blowing means being located outside the means for depositing the solid matter.

3,568,756

TUNDISH HAVING OUTLET NOZZLE COMPRISING A SWIVELLABLE TERMINAL PORTION

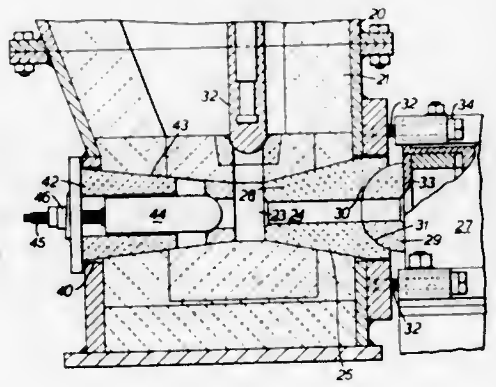
Richard James Dain, Tonbridge, Kent, England, assignor to Ashmore, Benson, Pease & Company Limited, Stockton-On-Tees, Teesside, England

Filed Sept. 6, 1968, Ser. No. 757,981

Claims priority, application Great Britain, Mar. 20, 1968, 13,450

Int. Cl. B22d *11/10*

U.S. Cl. 164—281 **3 Claims**



A tundish suitable for receiving molten metal to be cast continuously in a continuous casting mould has an outlet for the molten metal constituted by a nozzle the cross section of the bore of which is less than that of the cavity of the mould and a nonrigid joint is included between the outlet of the tundish and the inlet of the mould in order to permit limited inclination of the longitudinal axes of the mould and the nozzle. The part of the nozzle which defines the outlet therefrom is separate from the remainder of the nozzle and is swivellable to a limited extent with respect to the remainder of the nozzle. The longitudinal axes of the mould and the nozzle may be either substantially vertical or substantially horizontal.

3,568,757

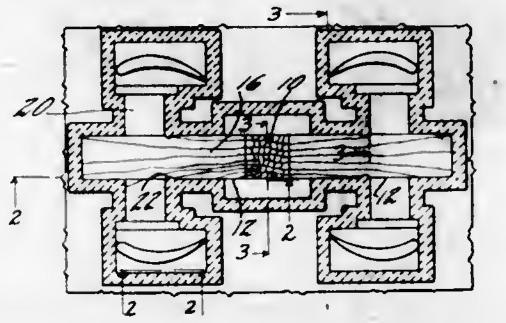
MOLD FOR PRODUCING SINGLE CRYSTALS

Barry J. Piearcey, Galmpton, Brixham, Devon, England, assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 22, 1968, Ser. No. 746,577

Int. Cl. B22d *15/04, 25/06*

U.S. Cl. 164—353 **14 Claims**



The mold is intended for producing single cast crystal articles and is adapted for multiple casting having a central mold portion with lateral branches from the sides of which single crystals grow into the article molds.

3,568,758

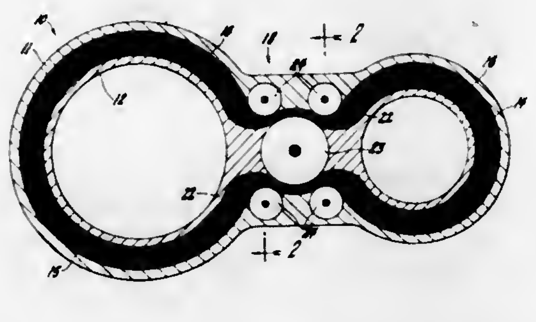
REGENERATIVE HEAT EXCHANGERS

Oliver K. Kelley, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 9, 1969, Ser. No. 840,275

Int. Cl. F28d *19/00*

U.S. Cl. 165—6 **21 Claims**



A regenerative heat exchanger has a heat exchange mass in the form of a multilayer band of thin metal sheet, preferably many turns of a single strip or sheet of metal. Sealing of the band is effected by rollers between which it passes in traversing from one fluid path to the other. The band is driven by a bevel gear engaging the margin of the band, which is formed with gear teeth. The layers of the band are compressed together where they pass through the rollers, to minimize fluid carryover from one path to the other. Elsewhere, the layers are spread apart by spring tabs struck from the metal and bearing against adjacent layers so that a free path for flow of fluid is provided between the layers.

3,568,759

HEAT EXCHANGER FOR A GAS TURBINE ENGINE

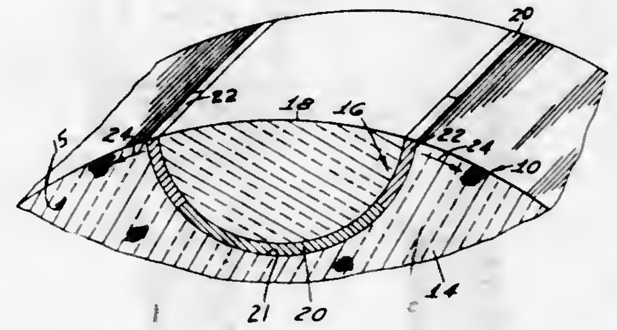
Joab J. Blech, Oak Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sept. 4, 1969, Ser. No. 855,175

Int. Cl. F28d *19/00*

U.S. Cl. 165—8 **5 Claims**

Solid ceramic plugs are cemented into axial grooves at the periphery of a ceramic regenerator core with a cement having a high coefficient of thermal expansion. The thermal expansion of the cement exerts forces on the rim portion of the regenerator core to counteract tensile stresses in the rim portion caused by expansion of the core interior. A foam cement



having low thermal expansion can be used on the inner area of the plug and high expansion cement can be used only on the outer area.

3,568,760

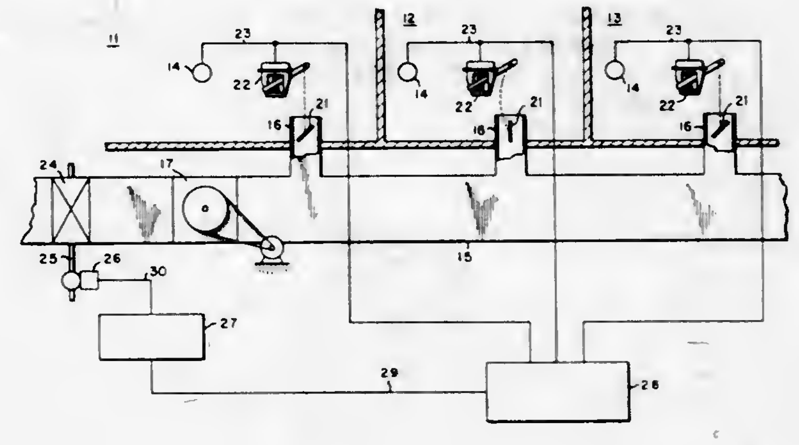
OPTIMIZATION SYSTEM

Joseph E. Hogel, River Grove, Ill., assignor to Honeywell Inc, Minneapolis, Minn.

Filed Mar. 18, 1969, Ser. No. 808,161

Int. Cl. G05d *23/185;* **F24f** *3/08*

U.S. Cl. 165—22 **17 Claims**



A pneumatic system for controlling the temperature of a plurality of zones in an optimum manner. Each zone has a thermostat that controls a damper within the zone to regulate the flow of conditioned air to the zone. The output of each thermostat is connected to a pressure selector, and the pressure signal representing the greatest deviation from the desired condition in a zone is transmitted to an optimizing relay that controls the conditioned air temperature. The relay is constructed and arranged so that in a warm air system the conditioned air temperature is not increased until the damper in the zone of greatest deviation has reached a maximum flow position.

3,568,761

SEMICONDUCTOR MOUNTING ADAPTER

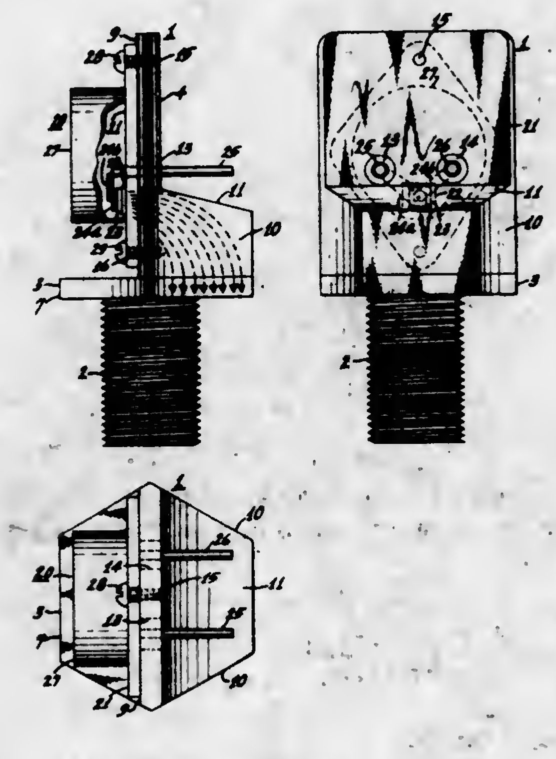
Robert Steven Berger, Edison, N.J., assignor to RCA Corporation

Filed May 20, 1969, Ser. No. 826,239

Int. Cl. H01l *1/12*

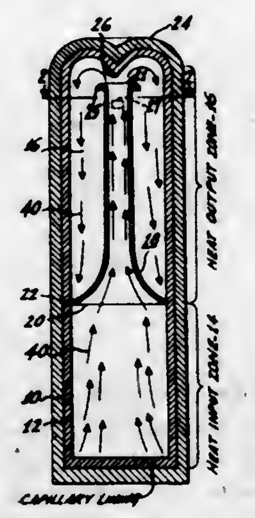
U.S. Cl. 165—80 **8 Claims**

A semiconductor mounting adapter comprising a base member joined to a threaded stud, and a support member joined to the base member. The support member has a mounting surface, a thick region adjacent to the base member which provides good heat dissipation characteristics, and means for mounting an encapsulated semiconductor device onto the mounting surface.



3,568,762
HEAT PIPE

Willis E. Harbaugh, Leola, Pa., assignor to RCA Corporation
Filed May 23, 1967, Ser. No. 640,693
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 **8 Claims**

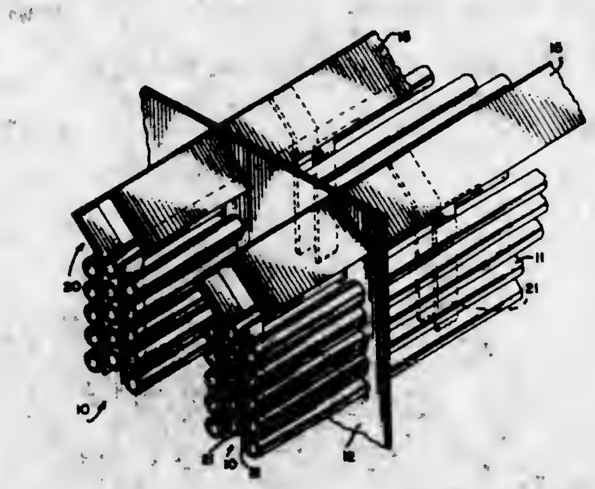


A heat pipe in which a vapor duct is mounted in the heat output zone to separate the vaporized working medium from the capillary walls of the heat output zone while the vapor is moving in a direction opposite to fluid capillary motion in the walls.

3,568,763
PROTECTIVE DEVICE FOR CONDENSER TUBES

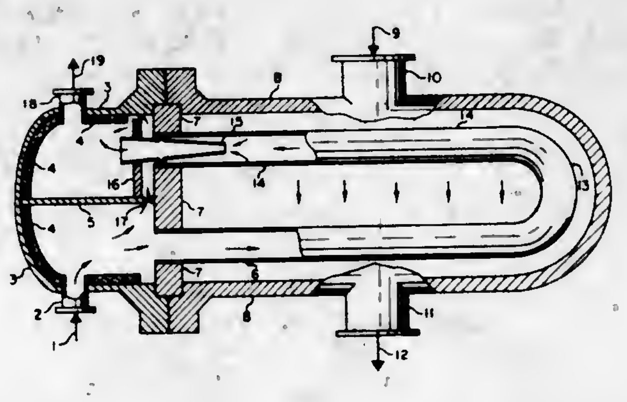
Robert J. Stoker, Phillipsburg, N.J., and Donald A. Halpin, Easton, Pa., assignors to Ingersoll-Rand Company, New York, N.Y.
Filed Feb. 26, 1969, Ser. No. 802,441
Int. Cl. F28b *1/02;* **F28f** *13/06*
U.S. Cl. 165—110 **9 Claims**

A protective device for the condenser tubes of a steam surface condenser. A baffle arrangement prevents direct impingement of high velocity against the tube bundles closest to the condenser inlet. Legs extend from the baffle between the individual tubes of the tube bundles to substantially dampen vibrations of the tubes.



3,568,764
HEAT EXCHANGER

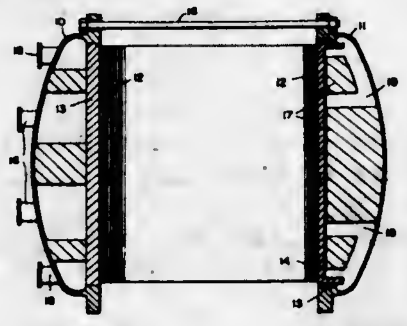
Daniel J. Newman, Jackson Heights; Louis A. Klein, Flushing, and Richard T. Britt, Elmont, N.Y.
Filed Sept. 5, 1969, Ser. No. 855,586
Int. Cl. F28f *9/02*
U.S. Cl. 165—134 **12 Claims**



A baffle is provided adjacent to the outlet side of the tube sheet of a multiple tube pass heat exchanger. A portion of the input fluid is passed between the baffle and the tube sheet, rather than through the tubes, so that the tube sheet is maintained at a substantially uniform temperature. Ferrules pass the outlet gas portions from the tubes to the outlet chamber of the channel.

3,568,765
PLATE-TYPE HEAT EXCHANGER

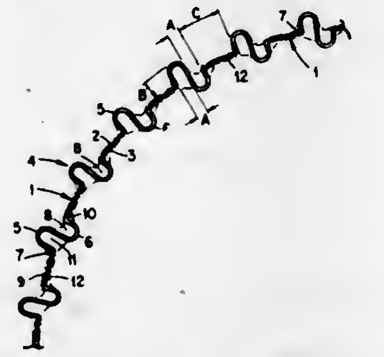
Otto Konrad, Schriesheim, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany
Filed Nov. 18, 1968, Ser. No. 776,428
Int. Cl. F28f *3/00*
U.S. Cl. 165—166 **5 Claims**



A plate-type heat exchanger for fluids, comprising a deck of separate plates with sealing means between adjacent plates which is compressed by two end pieces, each of these end pieces having the form of a short cylindrical shell with a domed end and the compressive forces being applied to the deck of plates by means of an end plate arranged in one of the end pieces and hydraulically movable in the direction of the longitudinal axis of the deck of plates.

3,568,766
CORRUGATED HEAT EXCHANGE MEMBER FOR EVAPORATION AND CONDENSATION

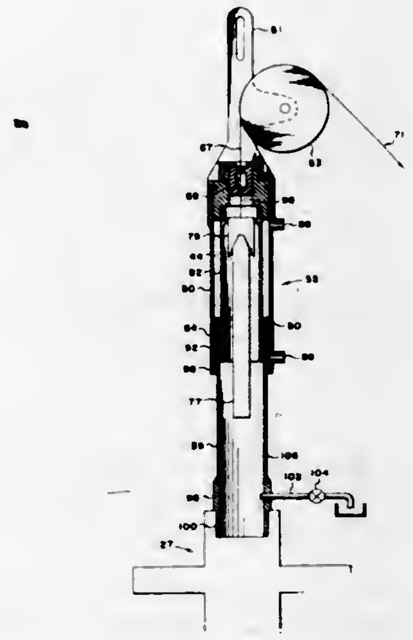
David G. Thomas, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 11, 1969, Ser. No. 806,169
Int. Cl. F28f *1/42*
U.S. Cl. 165–181 **8 Claims**



An improved heat exchange member having an evaporating surface on one side and a condensing surface on the opposite side is provided. The improved heat exchange member is fabricated of thin sheet material formed with spaced-apart longitudinally extending corrugations which draw condensate from the condensing surfaces and feed liquid to the evaporating surfaces between corrugations as a result of surface tension effects. The heat exchange member and corrugations therein are designed to operate in a vertical inclination to facilitate liquid flow along the corrugations. A thin film of liquid is maintained on the condensing and evaporating surfaces between corrugations with a resulting increase in the overall heat transfer coefficient. The heat exchange member may assume tubular as well as flat platelike configurations.

3,568,767
TELESCOPING WIRELINE LUBRICATOR

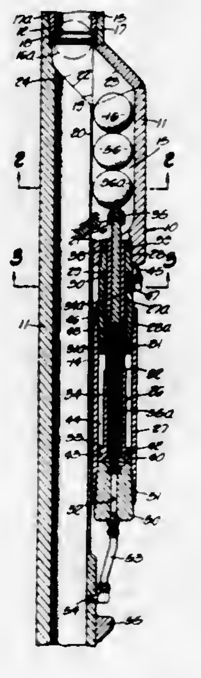
Folker H. Weiss, Los Altos, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Jan. 23, 1969, Ser. No. 793,482
Int. Cl. E21b *33/035*
U.S. Cl. 166—.5 **3 Claims**



A telescoping wireline lubricator is provided with first and second telescopically extendable tubular sections so that the lubricator is especially adapted for conducting wireline operations in a closely confined area such as an underwater wellhead installation.

3,568,768
WELL PRESSURE RESPONSIVE VALVE

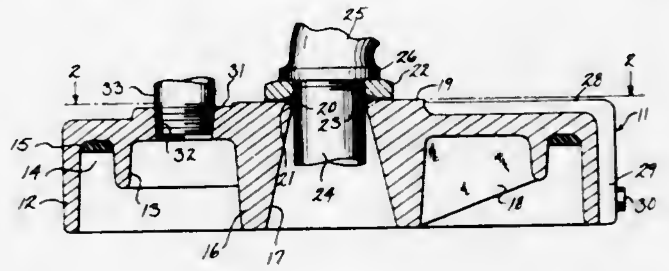
Cliva A. Rowell, Jr., Long Beach, Calif., assignor to Cook Testing Company, Long Beach, Calif.
Filed June 5, 1969, Ser. No. 830,719
Int. Cl. E21b *33/10;* **F16k** *17/34*
U.S. Cl. 166—72 **21 Claims**



A subsurface valve to control the flow of fluid in the bore of the well tubing. The valve has an operator which responds to control line pressure to cause a plug to seat in the bore tubing and prevent flow therethrough. The operator is maintained outside the bore and the plug is normally in a position offset from the bore. One form of the invention includes a movable sleeve for preventing movement of the plug toward seating position.

3,568,769
WELL CASING CAP

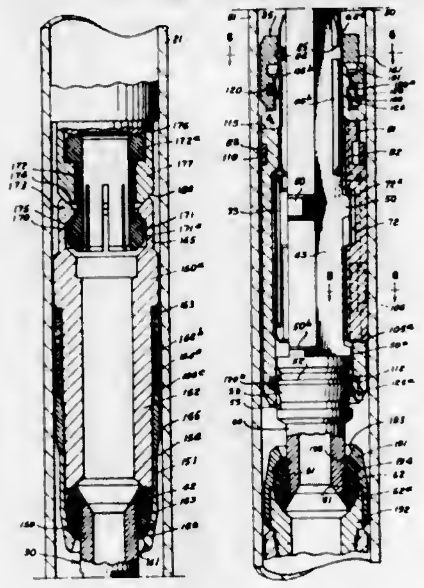
Herbert W. Maass, 10940 W. Congress St., Milwaukee, Wis.
Filed July 7, 1969, Ser. No. 839,235
Int. Cl. E21b *33/03*
U.S. Cl. 166—88 **7 Claims**



The cap has a circular flange, has a depending circular rib spaced inwardly from the flange to provide a circular gasket-receiving groove to fit over the upper end of the well casing, and has a central depending boss connected by radial ribs with the circular rib, the boss having a downwardly and outwardly flared central hole which can be bored to a required well pipe size. On the top of the cap there is an annular groove to receive an O-ring surrounding the discharge pipe, and there is a washer which has a complementary groove for receiving the upper portion of the O-ring, the discharge pipe having a shouldered portion above the washer whereby the weight of the piping and submersible pump tend to produce a self-seal around the discharge pipe and a self-seal on the upper edge of the well casing.

3,568,770
LATCH DEVICE FOR SUPPORTING WELL TOOLS IN A FLOW CONDUCTOR

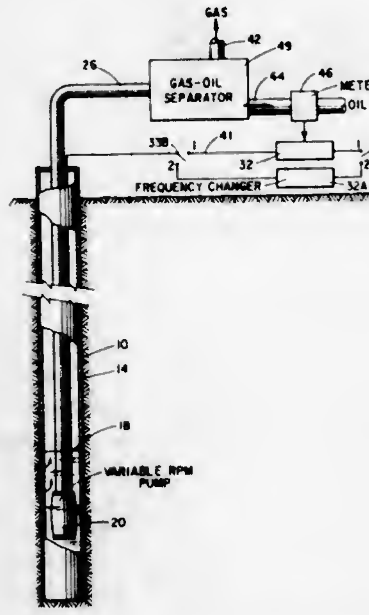
John V. Fredd, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed May 22, 1969, Ser. No. 826,926
Int. Cl. E21b *33/16, 23/00*
U.S. Cl. 166—153 **21 Claims**



An articulated well tool string comprising a piston power unit, a seal assembly, a safety valve, and a latch for releasably supporting the seal assembly and valve in a flow conductor. The latch includes outwardly biased locking keys supported around a mandrel movable between key-locking and key-releasing positions. During upward movement of the latch in the flow conductor the mandrel shifts upwardly to a key-locking position when the keys expand into a locking recess and engage a downwardly facing shoulder. The train is pumped into and out of the flow conductor by means of the piston which is returned to the surface after installing the latch. The latch and related tools may also be installed by wireline techniques.

3,568,771
METHOD AND APPARATUS FOR LIFTING FOAMING CRUDE BY A VARIABLE RPM SUBMERSIBLE PUMP

Renic P. Vincent, and Eldon L. Drake, Tulsa, Okla., assignors to Borg-Warner Corporation, fractional part interest to each and Pan American Petroleum Corporation, fractional part interest to each
Filed Apr. 17, 1969, Ser. No. 817,090
Int. Cl. E21b *43/00, 47/06;* **F04d** *27/00*
U.S. Cl. 166—250 **14 Claims**



Many oil wells, especially in their latter stage of primary or secondary recovery, produce foamy crude oil. This crude oil will vary from mostly liquid to mostly foam. Pumping such a fluid is rather difficult. The main difficulty is due to reduced bulk density of the fluids. Thus, a constant r.p.m. submersible centrifugal pump has very low efficiency. This invention controls the r.p.m. as a function of the bulk density of the crude in the well bore. Various means of obtaining this are given.

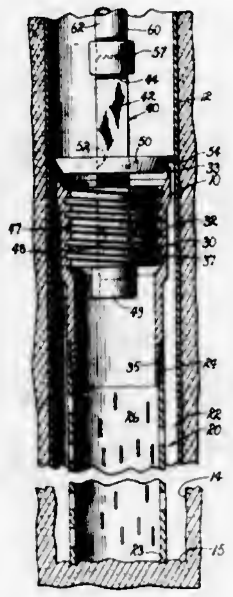
3,568,772
WELL STIMULATION WITH MICELLAR DISPERSIONS

William B. Gogarty, Littleton, Colo., and Walter B. Kirk, Jr., Robinson, Ill., assignors to Marathon Oil Company, Findlay, Ohio
Filed Sept. 25, 1969, Ser. No. 861,160
Int. Cl. E21b *43/22, 43/27*
U.S. Cl. 166—273 **25 Claims**

The injectivity index of injection wells is increased by injecting 1—500 gallons of a micellar dispersion per vertical foot of oil-bearing formation followed by 1—500 gallons of acid per vertical foot of oil-bearing formation. The micellar solution also tends to clean the oil-bearing sand so that the acid can more effectively "work" on the formation. Water, e.g. 0.5—50 volumes per volume of acid, can be injected after the micellar dispersion and before the acid. After the acid is injected, normal injection of water can be continued.

3,568,773
APPARATUS AND METHOD FOR SETTING LINERS IN WELL CASINGS

Robert O. Chancellor, and Forest E. Chancellor, P.O. Box 5578, Bakersfield, Calif.
Filed Nov. 17, 1969, Ser. No. 877,095
Int. Cl. E21b *43/10*
U.S. Cl. 166—315 **7 Claims**



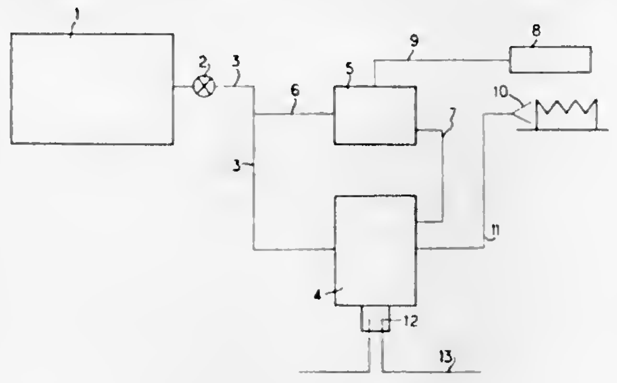
An apparatus and method for setting a production liner within a well casing providing an elongated tubular setting sleeve adapted to be mounted on the upper end of such a liner and to be loosely received within the casing including tool means releasably connected to the sleeve for initially lowering the liner and the sleeve into the casing and expander means borne by said tool means effective radially to flare the sleeve into tightly sealing relation against the inner diameter of the casing to preclude the passage of sand and the like past the sleeve and into the liner.

3,568,774
AUTOMATIC FIRE-EXTINGUISHING DEVICE FOR AUTOMOBILES, AMONG OTHER USES

Andre Michel Meoule, 38 Allee Boiron, Pessac (Gironde), France
Filed Dec. 2, 1968, Ser. No. 780,330
Claims priority, application France, Apr. 25, 1968, 149497
Int. Cl. A62c *3/00*
U.S. Cl. 169—2 **5 Claims**

Automatic fire extinguishing device for automobiles, among other uses, whose feeding of ejection parts or nozzles—from the extinguishing fluid container— is controlled by a main valve that is controlled by at least one pilot valve actuated by a heat detector, making it possible to stop immediately any fire breaking out and, consequently, to avoid the entire burning of the vehicle.

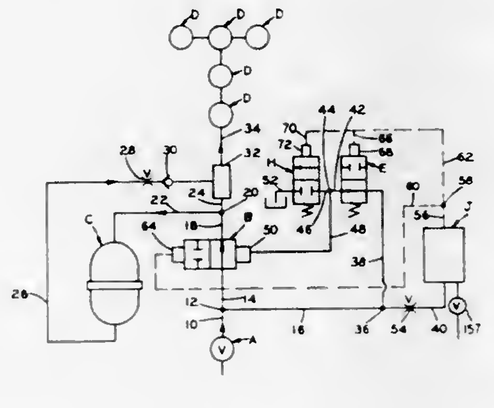
The fluid used for the control of the main valve, the control pressure of which is set by the pilot valve, is the extinguishing fluid.



The main valve includes a piston which is displaced by the control fluid, the purpose of said piston being on the one hand to open the feeding valve of the ejection parts, and, on the other hand, to control a changeover switch placed in the electric circuit of the vehicle.

3,568,775
FIRE PROTECTION SYSTEM WITH HYDRAULICALLY TIMED DISCHARGE

Simon Greenberg, Worcester, and Donald R. Tremblay, Oxford, Mass., assignors to Gulf & Western Precision Engineering Company, Manchester, Conn.
Filed Nov. 27, 1968, Ser. No. 779,477
Int. Cl. A62c *37/06*
U.S. Cl. 169—20 **4 Claims**

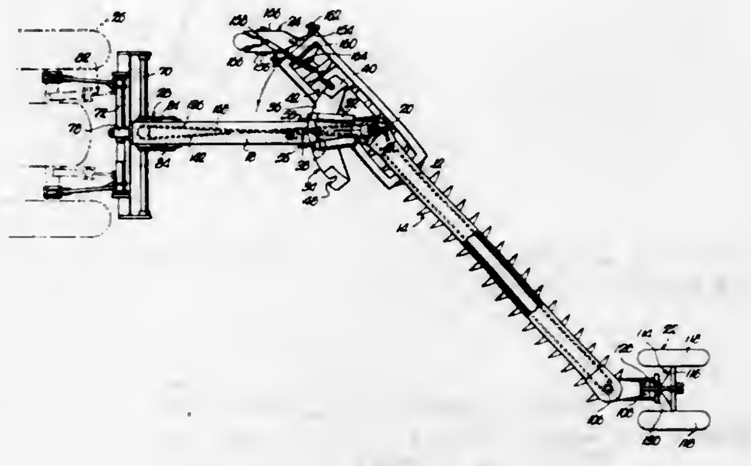


A fire protection system with hydraulically timed discharge includes timing means operated by flow of a predetermined volume of liquid to send a signal for cutting off flow of liquid to the main fire protection system.

3,568,776
CHASSIS FOR FARM IMPLEMENTS

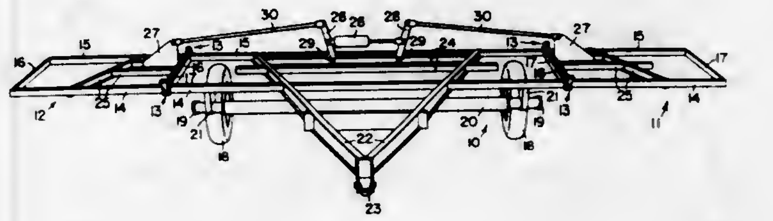
Charles J. Vassberg, Rte 1, Box 201, Lyford, Tex.
Continuation-in-part of application Ser. No. 621,938, Mar. 9, 1967, now Patent No. 3,509,945, dated May 5, 1970. This application June 24, 1968, Ser. No. 739,247
Int. Cl. A01b *69/08*
U.S. Cl. 172—285 **5 Claims**

A farm implement having a first beam provided with a hitch including a universal joint and being slidable along a tow bar with the joint directly over the bar to insure sliding without binding during turning of the implement. A second beam is pivoted to the first beam for swinging between two operating conditions extending in opposite directions at an angle from the path of travel of the implement. The rear end of the second beam is supported by a steerable wheel assembly and the front end of the beam is provided with a depth gauge wheel which is automatically moved into either of a pair of corresponding operating positions responsive to said swinging of said second beam to said respective conditions.



3,568,777
IMPLEMENT FRAME CONSTRUCTION

Richard Wayne Hook, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Sept. 30, 1968, Ser. No. 763,693
Int. Cl. A01b *63/10*
U.S. Cl. 172—316 **11 Claims**

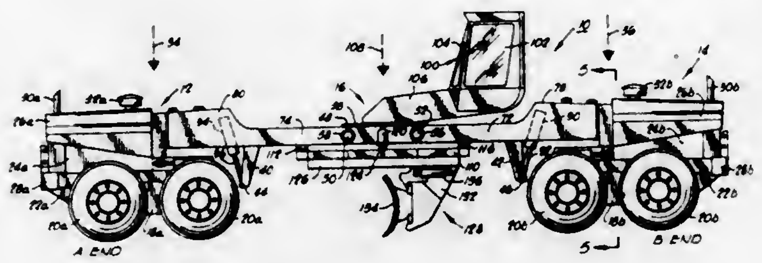


An implement having a main frame and outrigger frames connected to the main frame by hinge members which normally prevent the outrigger frames from moving into the same plane as the main frame. A double-acting hydraulic cylinder is operably connected between the frames at a rearward portion thereof to raise and lower the outrigger frames and to force the outrigger frames into substantially the same plane as the main frame. When the hydraulic cylinder forces the outrigger frames into the plane of the main frame, it sets up a moment which counteracts the field load moment caused by earth-working tools suspended from the frames and reduces hinge stress.

3,568,778
MOTOR GRADER APPARATUS

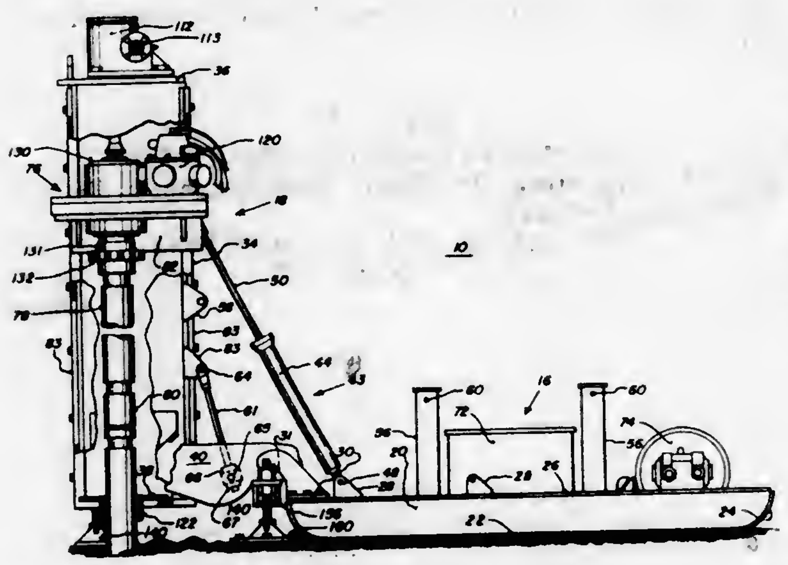
George W. Swisher, Jr., and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Jan. 23, 1969, Ser. No. 793,274
Int. Cl. E02f *3/76;* **A01b** *51/02;* **B62d** *5/00*
U.S. Cl. 172—785 **11 Claims**

Apparatus for earth working which consists of two similar mobile assemblies including drive engine and traction elements and which are oriented in back-to-back manner to support a main frame therebetween in articulated suspension. The main frame is adapted to carry a subframe which further supports one or more earth working implements in adjustable manner therebelow. and the operating cab is movably supported by a support arm which is rotatably affixed at a central position on the main frame.



3,568,779
UNDERGROUND ROTARY DRILL

Robert E. Cannon, P.O. Box 629, Hibbing, Minn.
Filed Sept. 19, 1969, Ser. No. 859,288
Int. Cl. E21c *11/02*
U.S. Cl. 173—44 **12 Claims**

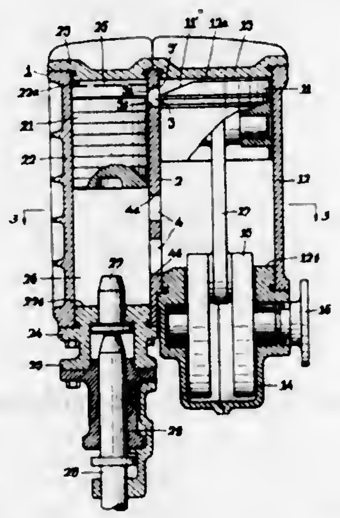


A rotary drilling apparatus of the portable type having a two-part frame including a base and head which are pivotally adjustable relative to one another with the headframe carrying the drill and feed structure. The headframe incorporates a feed drive in the form of a ball-screw arrangement which supports the cross head carrying the drill and motor for the same to reduce the overall size and length of the supporting structure for the drill and feed motors. This provides a compact drilling apparatus particularly adaptable for drilling sites having a minimum of head room.

3,568,780
FREE-PISTON-TYPE PERCUSSION DEVICE WITH AIR PUMP

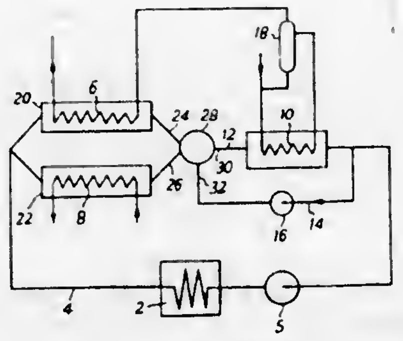
Susumu Matsuo, Shizuoka-ken, Japan, assignor to Daiichi **Kikai Seisakusho Co., Ltd., Osaka, Japan**
Filed July 22, 1969, Ser. No. 843,669
Claims priority, application Japan, Mar. 15, 1969, 44/19256
Int. Cl. B25d *11/02, 11/12*
U.S. Cl. 173—116 **1 Claim**

A tool cylinder is provided in parallel with an air pump cylinder. Each cylinder is separated by its respective piston into an upper and a lower chamber each of which communicates pneumatically through an upper and a lower opening with its counterpart in the other cylinder. The openings are open and closed by the relative position of the pistons. A constant volume of air is sealed tightly in the chambers. When the pump piston is actuated upwardly by an external rotary power source, highly compressed air is supplied on the head of the free-piston while a negative air pressure is produced in the lower chambers. The combination of this high pressure above and low pressure below causes the free-piston to be forced abruptly downward. At the lower dead point of the free-piston it hits a chisel and opens an upper portion of the lower opening thus allowing the high pressure in the upper chamber of the tool cylinder to escape to the lower chamber of the pump cylinder. A lower buffer or cushion chamber of relatively large volume is formed in the tool cylinder and it absorbs a part of the downward energy of the free-piston. The free-piston is pushed back by this cushion chamber to a position where a lower portion of the lower opening is opened. At this time, the pump piston is moving downward and thus provides a positive pressure in the lower chamber and a negative pressure in the upper chamber. The free-piston is driven upward by these positive and negative pressures and its own inertia and closes the upper opening, thereby forming an upper buffer chamber in the tool cylinder. The upward movement of the free-piston is absorbed by the upper buffer chamber and the free-piston then falls by its weight to a position where the upper opening is opened, to complete the cycle.



3,568,781
METHOD OF OPERATING LIQUID METAL COOLED NUCLEAR REACTOR

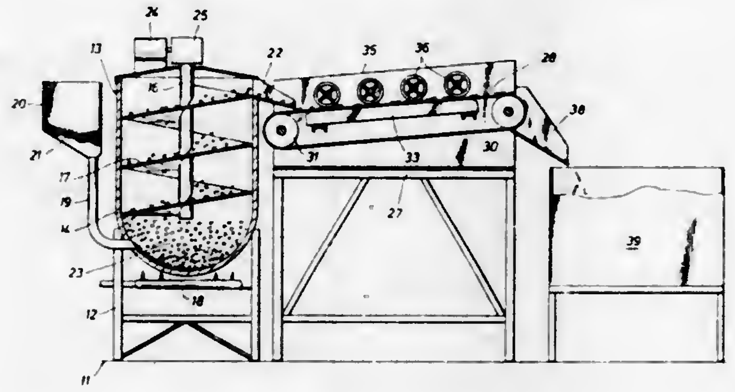
John W. E. Campbell, Ramla, Altwood Drive, Maidenhead, Berkshire; Martin C. Peters, 18 Ewhurst Close, Nonsuch Vale, Cheam, Surrey, and Alfred J. Perrin, 2 Windermere Ave, S. Kenton, Harrow, Middlesex, England
Filed Sept. 28, 1967, Ser. No. 671,381
Claims priority, application Great Britain, Sept. 29, 1966, 43669/66
Int. Cl. G21c *15/28*
U.S. Cl. 176—65 **9 Claims**



This invention relates to a nuclear reactor which utilizes liquid metal as a coolant medium in the primary coolant circuit to transfer heat from the core region of the reactor to a tubulous vapor generating unit. A recirculation branch is connected around a portion of the primary coolant circuit which contains the vapor generating tubes and means are provided to recirculate the primary coolant through the recirculation branch at a rate sufficient to ensure that the heat flux at the vapor generating tubes is less than the heat flux at which a departure from nucleate boiling occurs within the tubes.

3,568,782
METHOD FOR CONTROLLING DRILLING MUD LOSS IN A WELLBORE

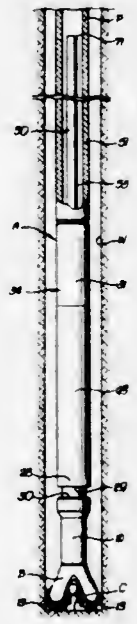
Jack C. Cox, Houston, Tex., assignor to Tenneco Oil Company, Houston, Tex.
Filed Dec. 8, 1969, Ser. No. 883,193
Int. Cl. E21b *21/04*
U.S. Cl. 175—72 **5 Claims**



A method for controlling drilling mud loss from a wellbore penetrating a thief formation. It includes the steps of storing a supply of unpopped cereal grain, such as popcorn, at the well site. Upon the indication of loss of drilling mud to the thief formation, a supply of the cereal grain is popped by passing the same through a heating zone to thereby expand the same and thereafter pumping the expanded material down the wellbore with the drilling mud until the thief formation is plugged.

3,568,783
FLUID-ACTUATED IMPACT APPARATUS

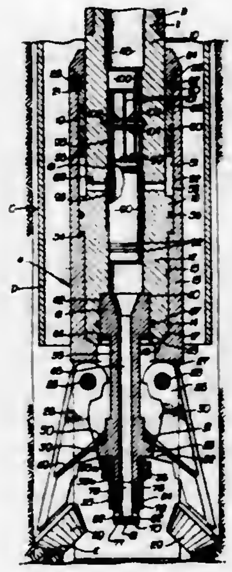
David V. Chenoweth, and Talmadge L. Crowe, Houston, Tex., assignors to Baker Oil Tools, Inc., Los Angeles, Calif.
Filed May 9, 1969, Ser. No. 823,437
Int. Cl. E21b *1/00;* **F21b** *5/00*
U.S. Cl. 175—92 **27 Claims**



A fluid-actuated hammer drill for drilling well bores and connected to a drill pipe string through which drilling fluid is pumped, which passes through a pair of shock passages controlled at their lower portions by one or more valves, the valves being switched by the flowing fluid to alternately close each shock passage, creating a high-pressure pulse in each passage when closed which acts upon and reciprocates a hammer to rapidly impact upon a companion anvil connected to a drill bit, the fluid flowing through the bit to convey the cuttings to the top of the well bore.

3,568,784
EXPANSIBLE ROTARY DRILL BIT

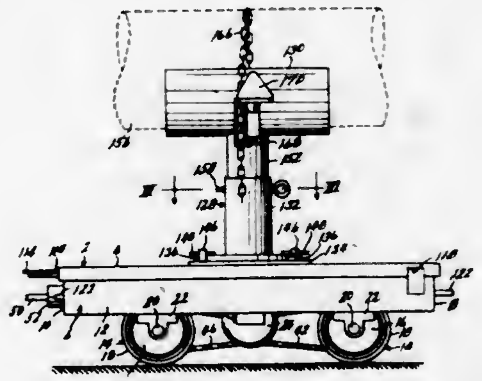
Archer W. Kammerer, Jr., Fullerton, Calif., assignor to Baker Oil Tools, Inc., City of Commerce, Calif.
Filed Sept. 24, 1968, Ser. No. 762,110
Int. Cl. E21b *9/32*
U.S. Cl. 175—268 **18 Claims**



An expansible rotary drill bit and method of using the same, wherein the expansible cutters are hydraulically held open by a quantity of liquid in a chamber between the mandrel of the bit and the cutter supporting body, the fluid being trapped in the chamber by a sleeve which closes ports in the mandrel, the sleeve being shiftable to open the ports to allow retraction of the cutters. Tools are provided for moving the sleeve in and pulling the sleeve from the mandrel of such a bit. A method is employed that uses such a bit in an air drilling operation, including the steps of filling the chamber with a fluid after lowering the bit in a drilled hole, and pressurizing the chamber to expand the cutters, and then trapping the fluid in the chamber.

3,568,785
MOTORIZED DOLLY

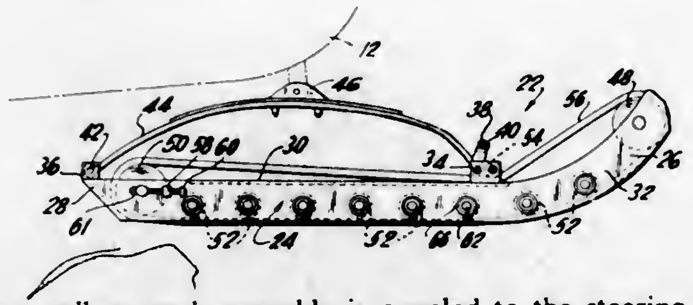
Walter S. Gray, Kansas City, Kans., assignor to Gray Brothers, Inc., Kansas City, Kans.
Filed Feb. 20, 1969, Ser. No. 800,922
Int. Cl. B60l *9/00*
U.S. Cl. 180—2 **5 Claims**



A motorized dolly consisting of a low platform supported by a pair of drum-type ground-engaging wheels, an electric motor disposed entirely beneath said platform so as to leave the top of said platform planar and unobstructed, and operable to drive said wheels, remote control means for operating said motor, and brake means for inhibiting the turning of said wheels.

3,568,786
SNOWMOBILE AND ATTACHMENT THEREFOR

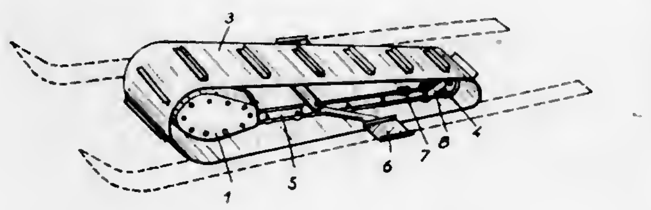
Herbert R. Harsch, 233 Windsor Parkway, Oceanside, N.Y.
Filed Dec. 18, 1968, Ser. No. 784,762
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **4 Claims**



An endless track assembly is coupled to the steering assembly of a snowmobile. The endless track assembly is positioned at the forward end of the snowmobile and replaces the conventional skis. The endless track assembly includes elongated support means that are longitudinally positioned, a plurality of transverse rollers journaled in the support means and an endless belt trained about the rollers such that a portion of the belt is in engagement with the ground.

3,568,787
TRACTOR FOR A SKIER

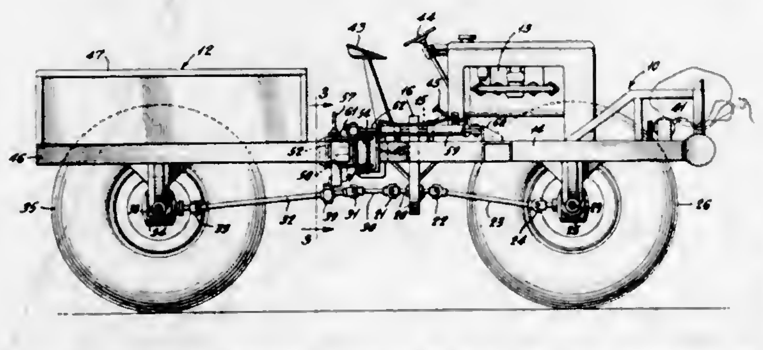
Henri Gremeret, 1 Avenue de Verdun, Menton-Aples-Martimes, France
Filed Jan. 9, 1969, Ser. No. 789,987
Claims priority, application France, Jan. 9, 1968, 135553
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **14 Claims**



A tractor for a skier comprises a motor supporting a driving pulley around which passes an endless crawler belt which in turn passes on a guide pulley adjustably supported on a frame rail attached to the motor for tensioning the belt. The frame rail supports rollers which guide the lower run of the belt, said frame rail being dismantleable or foldable to enable transport of the tractor. Footrests on either side of the tractor are pivotably supported on a bar on the frame rail and stabilizer arms extend rearwardly of the footrests and are resiliently urged into contact with the ground for enabling the skier to shift his weight toward one or the other of the footrests and respective stabilizer arm to thereby steer the tractor.

3,568,788
SWAMP BUGGY

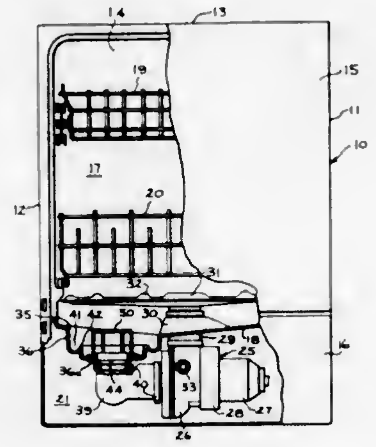
Harold Mayeaux, Rte. 2, Box 172, Houma, La. 70360
Filed Nov. 6, 1968, Ser. No. 773,749
Int. Cl. B60k *17/34;* **B62d** *63/02*
U.S. Cl. 180—51 **4 Claims**



An articulated swamp buggy vehicle including coupling means which allows yaw and roll movement of the vehicle at the point of articulation. The coupling means can be locked for roll while continuing to permit yaw movements thus enabling steering of the articulated unit.

3,568,789
NOISE BAFFLING METHOD AND APPARATUS FOR A WASHING APPLIANCE

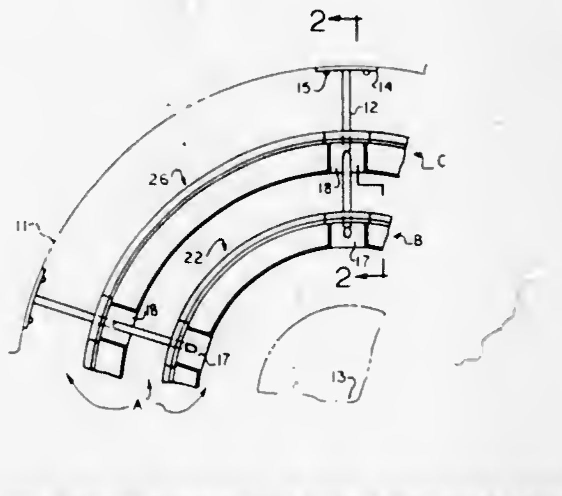
Lauren W. Guth, Louisville, Ky., assignor to General Electric Company
Filed June 9, 1969, Ser. No. 831,316
Int. Cl. F01n *1/16, 1/08*
U.S. Cl. 181—36 **11 Claims**



For a washing machine such as a dishwasher or the like having a substantially large volume drainage conduit means extending from the machine's washing chamber to a receiving pump situated downstream from the washing chamber, a method is provided for baffling pump noise normally emitted from the drainage conduit when drainage flow begins to ebb at the end of a chamber drainage operation. Apparatus is provided for implementing the method described, including valve means adapted to substantially close off the cross-sectional area of the drainage conduit when drainage flow diminishes.

3,568,790
AIR DIVIDER RING STRUCTURE FOR JET ENGINE INLET AIR DUCT

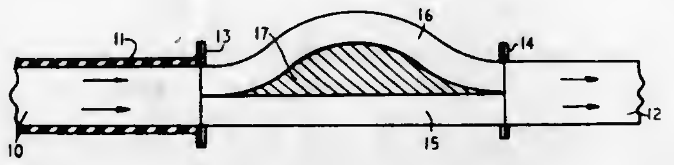
Edward M. Sankey, Chula Vista, Calif., assignor to Rohr Corporation
Filed Sept. 29, 1969, Ser. No. 861,849
Int. Cl. B64d *33/02;* **F01n** *1/10*
U.S. Cl. 181—36 **8 Claims**



One or more inlet air dividing, sound absorptive rings are supported coaxially within the inlet duct of a jet engine nacelle on a plurality of radially inwardly extending, streamlined struts. Each sound absorptive ring comprises a plurality of arcuate honeycomb panel sections releasably connected at their lateral edges by piano hinge type connectors to narrow longerons supported by said struts, the panel sections and the longerons comprising complementary segments of each sound absorptive ring.

3,568,791
AIR DUCTING

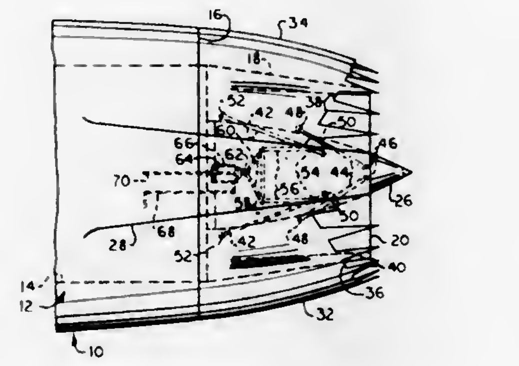
Russell E. Luxton, Turramurra, New South Wales, Australia, assignor to The University of Sydney, Sydney, New South Wales, Australia
Filed Feb. 25, 1969, Ser. No. 802,184
Claims priority, application Australia, Feb. 27, 1968, 34220/68
Int. Cl. F01n *1/10, 1/06*
U.S. Cl. 181—44 **11 Claims**



A noise attenuator for inserting into the air ducting of an air-conditioning or ventilating system which consists of a section of air ducting divided into at least two channels which differ from one another in length by an odd number of halves or quarters of the wave length of the predominant sound wave which is to be suppressed or diminished.

3,568,792
SOUND-SUPPRESSING AND THRUST-REVERSING APPARATUS

George R. Urquhart, Bonita, Calif., assignor to Rohr Corporation
Filed June 18, 1969, Ser. No. 834,343
Int. Cl. F01n *1/08, 1/14;* **B64d** *33/06*
U.S. Cl. 181—51 **13 Claims**

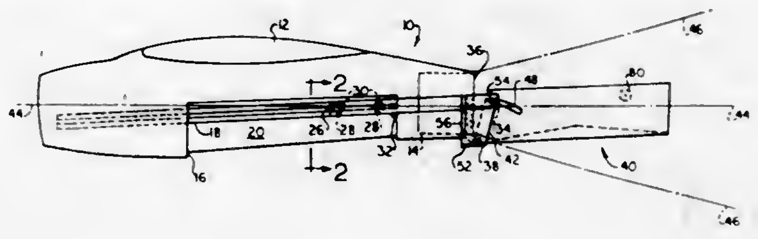


Apparatus includes exhaust gas nozzle and at least two deflectors of arcuate cross section generally surrounding nozzle. Trailing edges of deflectors are serrated to form spikes. In first, retracted position, deflectors are streamlined with nacelle. In second position, leading edges of deflectors scoop in ambient air around nozzle and some spikes overlie nozzle exit to turbulize gas stream, while others intercept ambient air, causing mixing and cooling and noise reduction. In third, fully extended position deflectors join to produce reverse thrust bucket, and spikes are offset laterally to mesh and permit tight closing. Nozzle may be daisy type to also produce noise suppression.

3,568,793
SOUND-SUPPRESSING APPARATUS

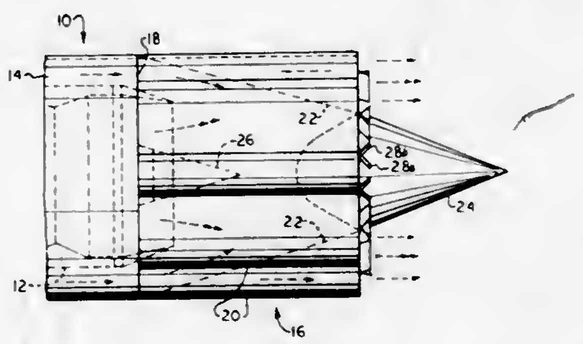
Victor Millman, and Remo Tontini, San Diego, Calif., assignors to Rohr Corporation
Filed Sept. 25, 1969, Ser. No. 860,974
Int. Cl. F01n *1/14, 1/16;* **B64d** *33/06*
U.S. Cl. 181—51 **7 Claims**

Support means carried by engine housing has pivotal mounting means at aft end. Support means is axially slidable between forward stowed position and aft deployed position. In latter, pivotal mounting means is adjacent to nozzle exit. Noise shield is swingably mounted on mounting means to swing vertically on lateral axis. Shield is elongate and preferably trough shaped to surround jet stream and reflect noise upward. Optimum results require holding shield at suitable angle to intercept expansion boundary of jet stream. Upper or inner surface of shield is formed with leading edge lip contiguous to jet stream at nozzle exit, followed by depressed forward portion, raised intermediate portion and tapered aft portion. Leading edge lip produces Coanda-type attachment to jet stream, depressed portion produces reduced static pressure to urge shield into interception position, and tapered aft portion produces increasing pressure gradient to oppose effect of forward portion and trim shield to position for optimum thrust and noise attenuation. When support means is stowed, shield is carried forward to stow in streamlined relation to engine housing.



3,568,794
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF A FAN-JET ENGINE

Jack H. Hilbig, Chula Vista, Calif., assignor to Rohr Corporation
Filed Oct. 2, 1969, Ser. No. 863,083
Int. Cl. F01n *1/08, 1/14;* **B64d** *33/06*
U.S. Cl. 181—51 **2 Claims**

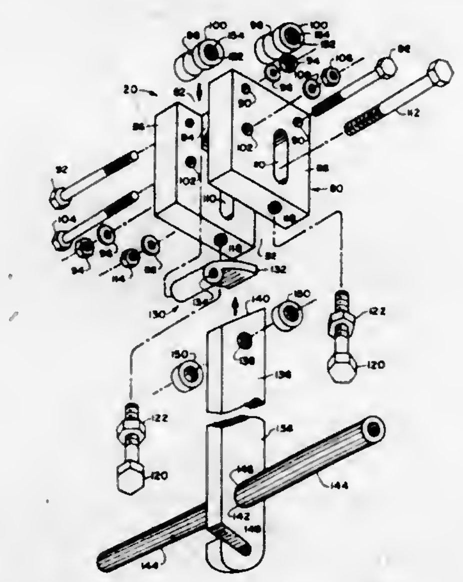


A tubular housing is concentrically spaced around the aft section of a fan-jet engine casing, and a lobed thrust nozzle is mounted on the aft end of said housing and extends rearwardly from said casing, fan air flowing to the nozzle through the space between said casing and housing and then flowing with exhaust gas of the engine through the lobes of said nozzle. Vanes are mounted at the aft edges of the nozzle lobes for movement between a retracted position extending longitudinally thereof and a deployed position extending laterally from opposite sides thereof.

3,568,795
EMERGENCY ESCAPE SYSTEM

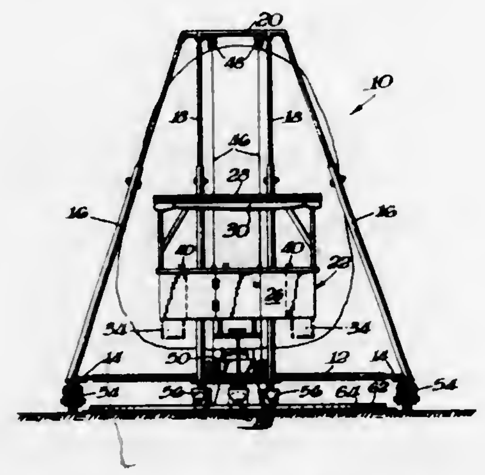
John T. McGough, Cocoa Beach; Robert A. McDaris, Merritt Island; Charles R. Billings, Cocoa Beach, Fla.; Paul F. Neal, Clark Air Force Base, Philippines, and James C. Sweat, Merritt Island, Fla., administration the United States of America as represented by the Administration of the National Aeronautics and Space Administration
Filed Oct. 2, 1967, Ser. No. 672,384
Int. Cl. B61b *7/20*
U.S. Cl. 182—10 **3 Claims**

An automatic braking device for preattachment to a cable connected between high and low elevational points to provide an emergency escape system. The braking device and cable are so arranged that as a person using the emergency escape system descends from the high elevational point, the slope of the cable causes the angle of the braking device to change in relation to the cable thereby effectuating gradual stopping of the person as he approaches the lower elevational point.



3,568,796
FRUIT WORKERS PLATFORM

Lawrence Edward Stanhope, 223 Windsor Drive, Lakeland, Fla. 33803
Filed Apr. 30, 1969, Ser. No. 820,390
Int. Cl. E04g *1/18*
U.S. Cl. 182—141 **8 Claims**

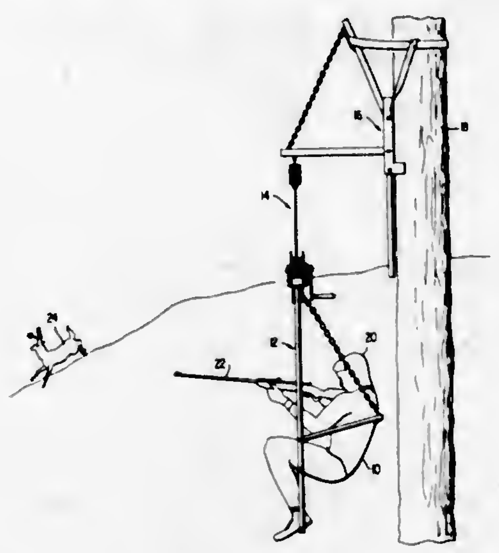


A fruit workers platform includes a support frame which can be moved from tree to tree and at least one working station thereon. Means are provided to dispose the workers at all levels of each tree for picking, pruning, etc.

3,568,797
SPORTSMAN'S BASE

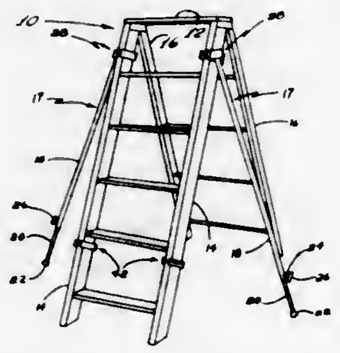
Willie R. Hardy, P.O. Box 306, Tyhran Drive, Kathleen, Ga.
Filed Apr. 10, 1969, Ser. No. 815,112
Int. Cl. E04g *3/10*
U.S. Cl. 182—142 **5 Claims**

A sportsman's base which includes a collapsible seat housed within a supportable frame. The supportable frame is attached to an adjustable and hand-cranked pulley system whereby once attached to a vertical structure the same may be raised or lowered at will. The attachment of the combination pulley system and support frame to the vertical structure includes a pivotally mounted and perpendicularly extending bar member which is connected to the channel of a plate member. The plate member includes teeth for digging into and fixedly attaching to the vertical structure. Additionally, a belt is connected to another bar member attached to the plate member and to the perpendicularly extending bar for providing added leverage to the gripping teeth. Initially, the plate member is hoisted to the desired level by the use of interfitted poles which fit within a similar pole connected to the channel of the plate member.



3,568,798
LADDER STABILIZER

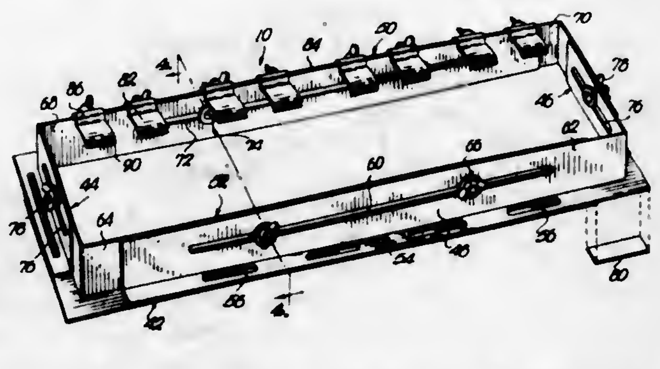
Ted W. Pierce, P.O. Box 231, Stratton, Nebr.
Filed July 28, 1969, Ser. No. 845,293
Int. Cl. E06c *1/22*
U.S. Cl. 182—172 **6 Claims**



A ladder stabilizing apparatus which consists of foldable, extensible legs mountable on the siderails of a ladder by means of a hinging structure which dictates and limits the angular displacement of the legs.

3,568,799
OIL FLOW SUPPRESSION ATTACHMENT FOR INTERNAL COMBUSTION ENGINES

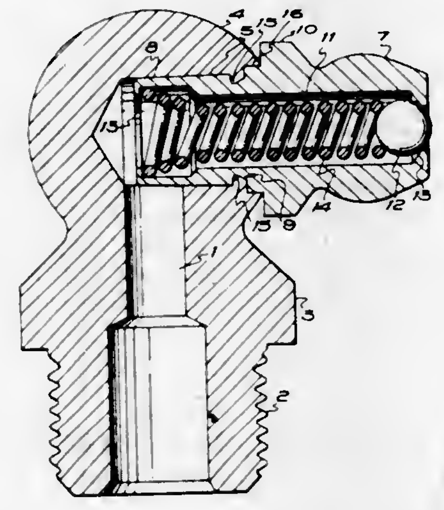
Stanley A. Bivins, 3429 Paseo, Kansas City, Mo. 64109
Filed Apr. 17, 1969, Ser. No. 817,052
Int. Cl. F01m *11/00*
U.S. Cl. 184—6 **8 Claims**



An oil flow suppression attachment for internal combustion engines to be secured to the engine in place of the valve cover when the valve cover is removed for the purpose of adjusting the valve, the attachment being in the form of a frame having a base flange secured to the head of the engine and an upstanding wall which circumscribes a portion of the upper surface of the head whereby to retain therewithin oil which flows into said area during the adjustment of the valves when the engine is running. The frame carries a plurality of fingers which can be selectively disposed in overlying relationship to oil orifices whereby to suppress the stream of oil normally entering the area through the orifices.

3,568,800
GREASE GUN NIPPLE ASSEMBLY

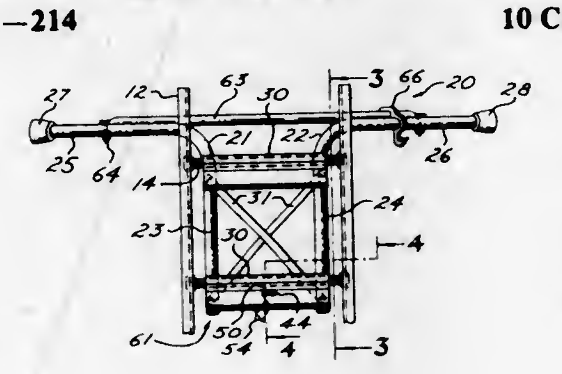
Adrian K. Fisher, Leeds, England, assignor to Kingfisher (Lubrication) Limited, Leeds, England
Continuation-in-part of application Ser. No. 622,770, Mar. 13, 1967, **now abandoned. This application** Aug. 18, 1969, Ser. No. 850,993
Int. Cl. F16n *21/02;* **F16b** *39/00*
U.S. Cl. 184—105 **3 Claims**



A grease gun nipple assembly comprises a body adapter of relatively soft material with a bore extending through it, and a nipple of relatively hard material engaged frictionally at one end of the bore. An axial through passage in the nipple communicates with the bore so that, when a grease gun engages the nipple, grease be passed along the bore of the adapter and the axial passage of the nipple. When the nipple, which has means defining an annular groove, and the adapter are fitted together, an annular ledge with a tapered surface is deformed out of the material of the body adapter and this annular ledge engages the nipple groove which is higher at the rear of the nipple than at the front, to aid in force fitting the nipple into the bore of the body adapter by filling the nipple groove, the depth of the groove increasing in the direction in which the nipple is pushed into the bore.

3,568,801
LADDER STABILIZING DEVICE

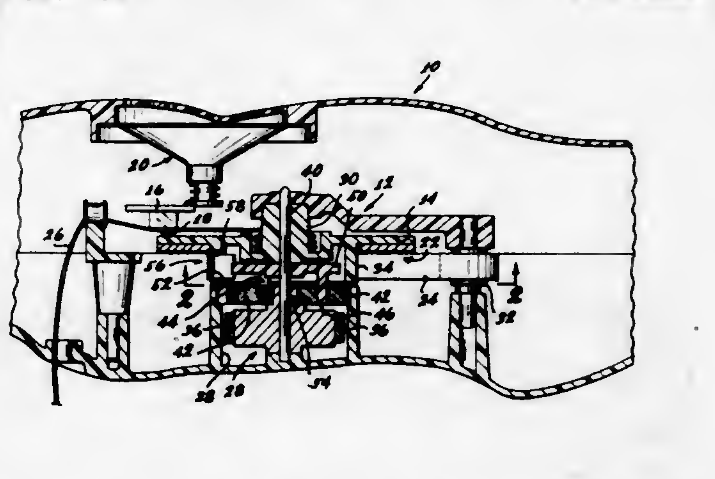
Richard L. Werner, Sharon, Pa., assignor to H.D. Werner Co. Inc., Greenville, Pa.
Filed Feb. 28, 1969, Ser. No. 803,282
Int. Cl. E06c *7/48*
U.S. Cl. 182—214 **10 Claims**



A stabilizing device is provided with a pair of inverted, rung engaging channel members and two outwardly diverging arms, the arms being connected together by a lateral brace. The channel members are adapted to fit over rungs of different shapes and sizes, and retainer means extend across the open side of one channel member to maintain the member in engagement with a rung.

3,568,802
SPRING MOTOR WITH INTEGRAL SPRING CLUTCH

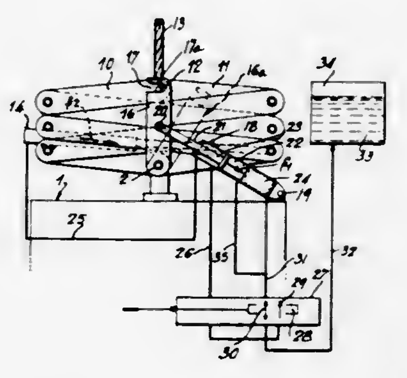
James E. Marshall, Westminster, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Sept. 11, 1969, Ser. No. 857,083
Int. Cl. F03g *1/00*
U.S. Cl. 185—39 **10 Claims**



A spring motor for toys and other mechanisms whose speed is regulated by a governor and that includes a constant-torque spring which can be wound onto a power drum or unwound therefrom onto a takeup spool, wherein a ratchet is employed to uncouple the governor from the spring during winding of the spring thereon, to reduce the power required to wind the spring. A ratchet wheel coupled to the governor lies within the power drum, and the end portion of the spring that is fixed to the drum has an outer part that extends to the ratchet wheel to serve as a pawl that drives it only as the spring unwinds.

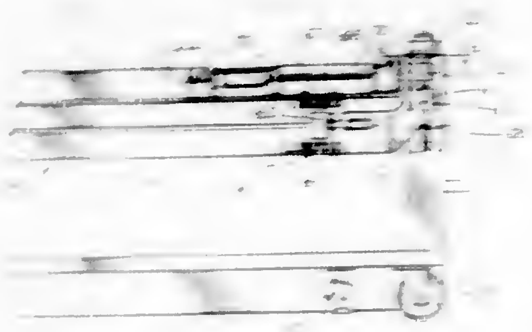
3,568,803
EXTENDING DEVICE FOR SETTING IN MOTION A LIFT-BOOTH IN CASE OF AN ELECTRIC BREAKDOWN

Jacques Leon Alexandre See, 47 rue Guersant, Paris 17eme, and Alain Albert Louis Houille, 5 allee La Bruvere, Clichy-sous-bois, Seine Saint-Denis, France
Filed Dec. 2, 1968, Ser. No. 780,608
Claims priority, application France, Dec. 1, 1967, 130593
Int. Cl. B66b *9/00*
U.S. Cl. 187—1 **10 Claims**



The device for setting in motion a lift-booth in case of an electrical breakdown comprises extending connecting means interposed between the booth and the suspension cable thereof, the weight of said booth being used as a source of energy for working said means so as to cause their extension in an adjustable measure.

3,568,80[illegible]
ELEVATING TABLE WITH IMPROVED BALL SCREW DRIVE
Robert A. Olsen, 309 S. Oak St., Palatine, Ill.
Filed Aug. 14, 1968, Ser. No. 752,6[illegible]
Int. Cl. B66f [illegible]
U.S. Cl. 187—2[illegible] 3 Claims



A ball screw drive and suspension system which includes, generally, a ball screw which is supported at the top by a self-

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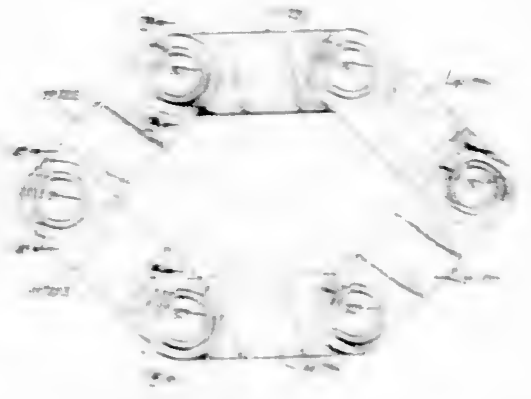
3,568,80[illegible]
TORSION YIELD SHOCK MOUNT
Lowell T. Batt, Chesapeake, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 27, 1969, Ser. No. 853,4[illegible]
Int. Cl. F16f [illegible]
U.S. Cl. 188—1 4 Claims



A shock mount for shipboard equipment comprising two sets of [illegible] interconnected by

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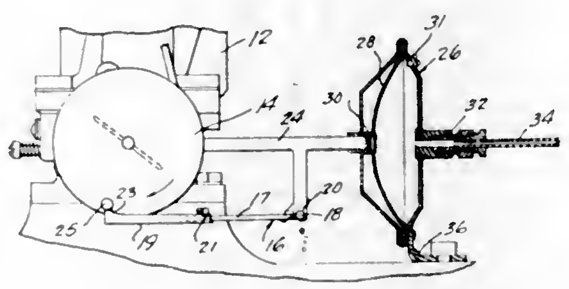
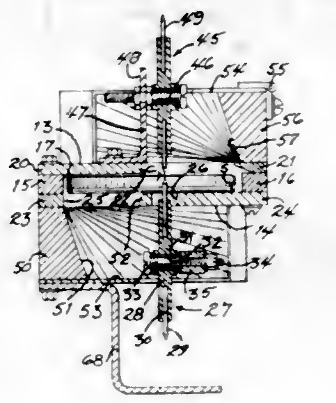
3,568,808
MOTOR AND BRAKE CONTROL ANTISKID DEVICE
Ravanell Hampton, 1055 Cleveland, Kansas City, Kans.
Filed Mar. 14, 1969, Ser. No. 807,272
Int. Cl. F16d *67/00*
U.S. Cl. 192—3 **4 Claims**



An antiskid brake device including diaphragm means in communication with the fluid from the master brake cylinder and said diaphragm means having a biasing spring therein for normally urging a lever means in one direction, and a carburetor device with a fast idling cam wheel member, and said

panel uppermost, to pass without turning and continue down the chute but causing those which have the open side upper-

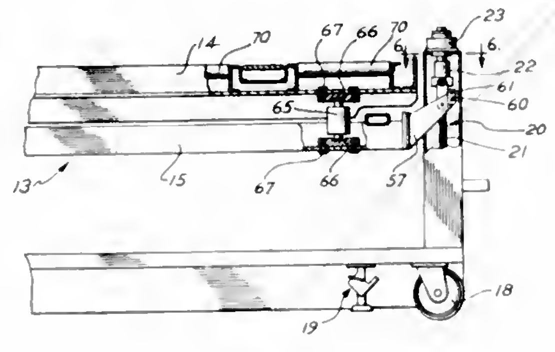


most to turn, as they advance down the chute, to properly oriented position for application to jars in a processing line.

3,568,811
MEMORY SYSTEM FOR AN ELECTRIC TYPEWRITER
Arthur R. Johnson, Wethersfield, Conn., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed Sept. 20, 1968, Ser. No. 761,041

3,568,804
ELEVATING TABLE WITH IMPROVED BALL SCREW DRIVE

Robert A. Olsen, 309 S. Oak St., Palatine, Ill.
Filed Aug. 14, 1968, Ser. No. 752,627
Int. Cl. B66b *11/04*
U.S. Cl. 187—25 **3 Claims**

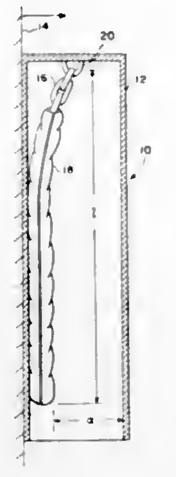


A ball screw drive and suspension system which includes, generally, a ball screw which is supported at the top by a self-aligning bearing and is supported and driven at the bottom by a drive assembly. The load, in the instant case, the roller platform of an elevating table, is supported by a ball nut through a pair of links capable of accepting misalignment between the ball screw and the load supporting mechanism, i.e., the roller platform. With this arrangement, the alignment tolerances between each vertical lift assembly are far more liberal than heretofore possible.

The elevating table further includes four load cells which are functionally associated with its roller platform and an indicator mechanism, in a fashion such that articles placed on the roller platform are automatically weighed and the weight indicated.

3,568,805
SUSPENDED MASS IMPACT DAMPER

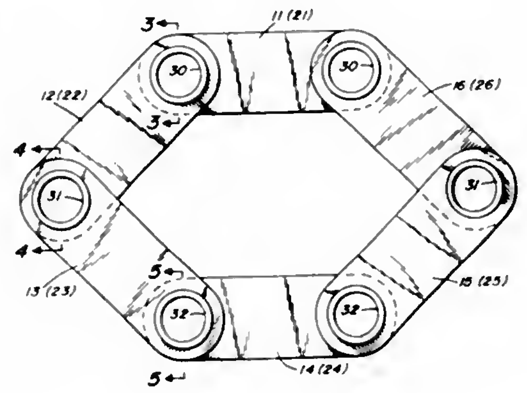
Wilmer H. Reed III, Hampton, Va., Administration the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Jan. 29, 1969, Ser. No. 794,968
Int. Cl. F16f *7/10*
U.S. Cl. 188—1 **11 Claims**



This disclosure concerns a damper mechanism for tall and towerlike structures, such as smokestacks and antennas, etc., and comprises a suspended mass such as a chain confined in an enclosure fastened to the primary structure. Vibrations of the primary structure produce opposing movements of the mass and resulting impacts of the mass with the enclosure sides in turn produce a damping force on the primary structure.

3,568,806
TORSION YIELD SHOCK MOUNT

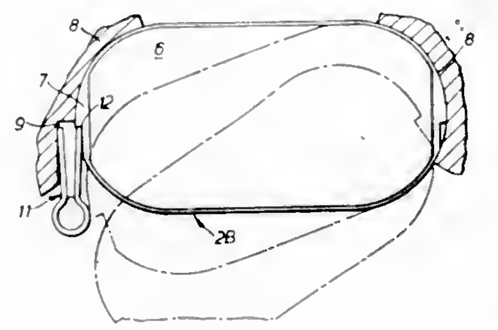
Lowell T. Butt, Chesapeake, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 27, 1969, Ser. No. 853,447
Int. Cl. F16f *7/12*
U.S. Cl. 188—1 **9 Claims**



A shock mount for shipboard equipment comprising two sets of hexagonally arranged links rigidly interconnected by tubular pin units having inner and outer tubes. Sudden shock energy of a sufficient amount received by the vessel will cause the hexagonal frames to permanently collapse by virtue of torsional yielding of the inner tubes of the pin units. This will reduce the shock energy transmitted to the equipment to a tolerable amount.

3,568,807
VEHICLE DISC BRAKES

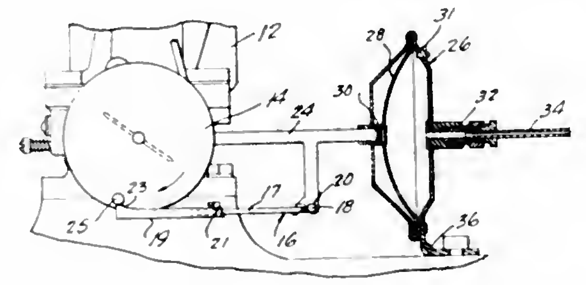
Anthony W. Harrison, Kings Road, Tyseley, Birmingham, England
Filed Mar. 10, 1969, Ser. No. 805,477
Claims priority, application Great Britain, Mar. 19, 1968, 13337/68
Int. Cl. F16d *65/02*
U.S. Cl. 188—73.6 **4 Claims**



A caliper-type disc brake having renewable brake pad assemblies which are accommodated in opposed recesses formed in the caliper body on opposite sides of the gap in the body which receives the brake disc, the recesses and pad assemblies being complementarily shaped, so that the pad assemblies are guided for movement towards and away from one another and are restrained against any substantial movement in planes parallel to that of the brake disc; to allow the insertion, without the need to dismantle the caliper body, of pad assemblies having a thickness greater than the width of the gap in the caliper body, at least one of the pad assemblies and the corresponding recess are so shaped that the pad assembly can be inserted into the recess by movement in a plane parallel to that of the brake disc of said one pad assembly relative to the caliper structure, and one of said relatively movable members carries a spring clip while the other is provided with a cooperating shoulder with which the spring clip makes positive locking engagement when the pad assembly is in operative position, the spring clip yielding resiliently to permit such insertion.

3,568,808
MOTOR AND BRAKE CONTROL ANTISKID DEVICE

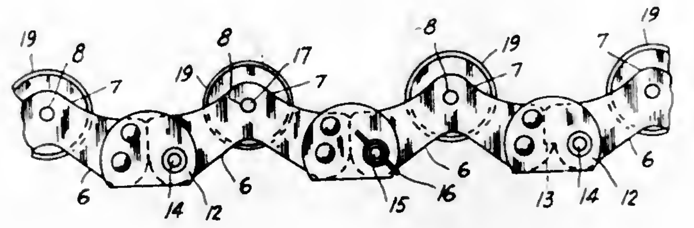
Ravanell Hampton, 1055 Cleveland, Kansas City, Kans.
Filed Mar. 14, 1969, Ser. No. 807,272
Int. Cl. F16d *67/00*
U.S. Cl. 192—3 **4 Claims**



An antiskid brake device including diaphragm means in communication with the fluid from the master brake cylinder and said diaphragm means having a biasing spring therein for normally urging a lever means in one direction, and a carburetor device with a fast idling cam wheel member, and said lever means being disposed to move said cam wheel member to a pulling position when the brakes are actuated and the brake fluid bears against the diaphragm means, so that the speed of the engine will be at a pulling speed when the brakes are applied to avoid skidding of the vehicle. The lever means is provided with means for adjusting its length including a telescoping arrangement and setscrew means. A rounded foot on the lever means fits a pulley on the carburetor wheel, so when the brakes are released, the foot will pull the wheel back to a closed position.

3,568,809
CONVEYOR

John Alexander Macdonald, 138 Kangaroo Point Road, Sylvania, New South Wales, Australia
Filed Aug. 5, 1968, Ser. No. 750,098
Int. Cl. B65g *13/11*
U.S. Cl. 193—35 **6 Claims**

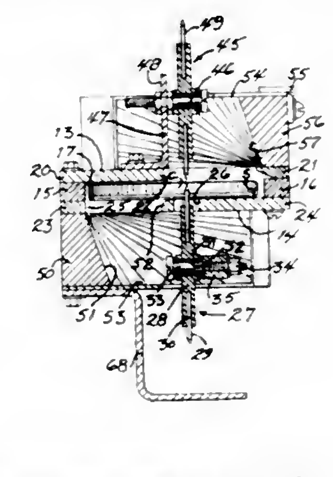


A conveyor having a plurality of rolls between sections of the conveyor which sections are arranged so that the conveyor will support a load applied in first direction but may be rolled up into a roll for easy transport by a force applied in a direction opposite to said first direction.

3,568,810
CAP TURNOVER DEVICE

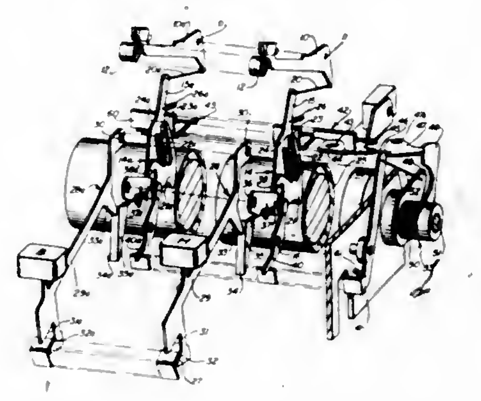
Ben O. Daniels, Elmhurst, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Nov. 29, 1968, Ser. No. 779,816
Int. Cl. B65g *11/20*
U.S. Cl. 193—43 **8 Claims**

A chute for delivering jar caps from a hopper or other supply source which is adapted to be disposed in an inclined position so that caps emerging from the hopper will pass by gravity between a pair of top and bottom pin wheels which control the turning movement of the caps, allowing those which are properly oriented, that is, those having the top panel uppermost, to pass without turning and continue down the chute but causing those which have the open side uppermost to turn, as they advance down the chute, to properly oriented position for application to jars in a processing line.



3,568,811
MEMORY SYSTEM FOR AN ELECTRIC TYPEWRITER

Arthur R. Johnson, Wethersfield, Conn., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed Sept. 20, 1968, Ser. No. 761,041
Int. Cl. B41j *5/22*
U.S. Cl. 197—107 **5 Claims**

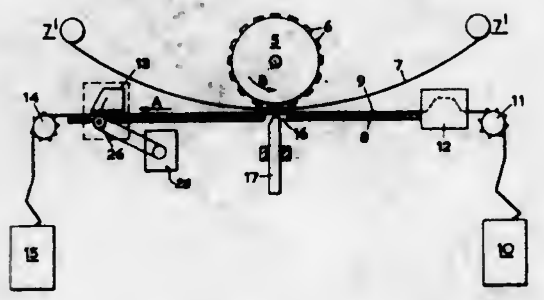


A typewriter provided with a bail operatively positioned upon initiation of a first type action to block the drive of a subsequently initiated type action or shift action and hold it in memory until the first type action has been substantially completed. The bail is also operatively positioned upon initiation of a shift action to block the drive of a subsequently initiated type action and hold it in memory until the shift action has been substantially completed.

3,568,812
HOLDBACK DEVICES

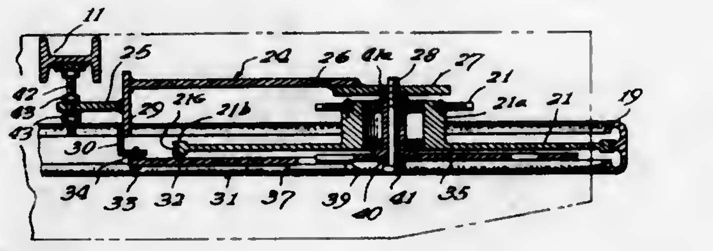
Ronald John Frank Eitel, Stoke-on-Trent, Staffordshire, England (c/o English Electric Computers, Ltd, Kidsgrove, England)
Filed May 22, 1968, Ser. No. 731,231
Claims priority, application Great Britain, May 24, 1967, 24059/67
Int. Cl. B41j *15/00*
U.S. Cl. 197—133 **2 Claims**

The specification describes a holdback device for controlling the flow of a web of paper in a high-speed line printer. The device prevents reverse movement of the web, for example when being printed upon, and allows forward movement of it. The backward movement — caused by the web being gripped between the rotating character shaft and the printing hammers — results in the misalignment of printed characters, and may even cause damage to the web. The devices described have a blade or pawl movably mounted in contact with the paper web, and pivotally bearing on a fixed surface. If reverse movement starts to take place the blade or pawl pivots on the fixed surface and grips the web between it and a drum contacting the other side of the web. The drum is free to move only in a sense such as to move the web in the forward direction and it is driven in this sense simultaneously with or immediately prior to movement of the web in the forward direction — when the printing of a line of characters has been completed — thus aiding the unlocking of the blade or pawl.



3,568,813
ESCALATOR STRUCTURE

Robert O. Schaeffer, and Leonard R. LaSalle, Jr., Moline, Ill., assignors to Montgomery Elevator Company
Filed Aug. 15, 1969, Ser. No. 851,161
Int. Cl. B66b *9/14*
U.S. Cl. 198—16 **7 Claims**

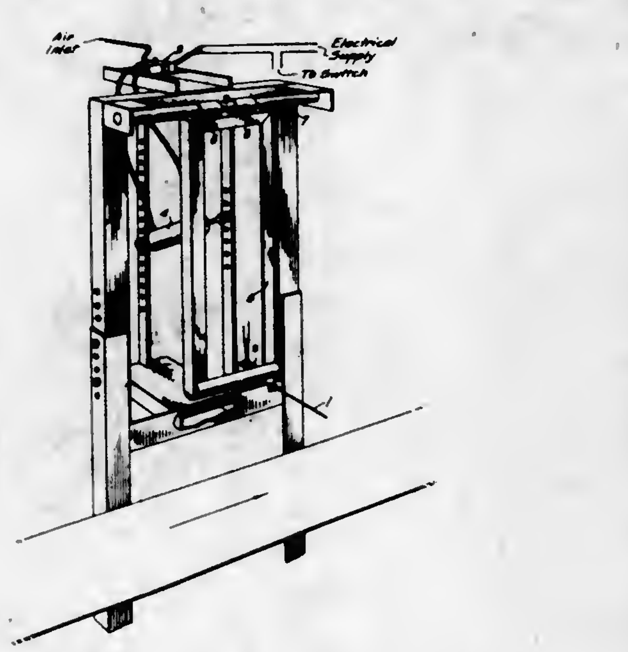


An escalator structure provided with an improved handrail-supporting and -guiding means in which the mounting for each handrail sheave includes sideplate means which is split from top to bottom into a first portion that is mounted on a sheave bracket and a second portion that is secured in end abutting relationship to the first portion by means of splice plates. A spindle for the sheave is removably mounted in the second portion; and as a result of the split sideplate structure removal and replacement of the sheaves is simplified. Furthermore, mounting of the upper guide for the handrail is improved.

3,568,814
AUTOMATIC CONVEYOR DISCHARGE SYSTEM

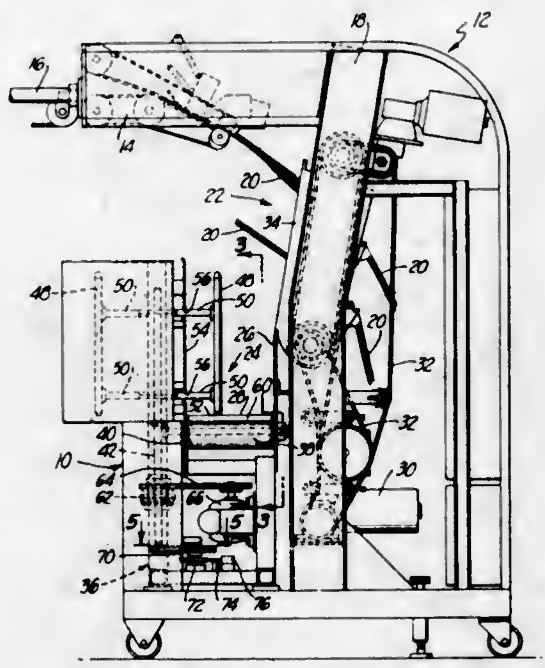
Johnnie L. Gates, Prairieville, La., and Charles W. Chesmore, Sikeston, Mo., assignors to Gulf Oil Corporation, Pittsburgh, Pa.
Filed Jan. 7, 1969, Ser. No. 789,450
Int. Cl. B65g *47/42, 47/52*
U.S. Cl. 198—21 **1 Claim**

Distribution of filled bags of solids after bag sealing is obtained without interruption of flow by discharging bags from a constantly moving conveyor by means of an air-cylinder-powered discharging member which swings transversely across the conveyor in response to actuation of a flexible microswitch actuating arm by the moving bag, thereby transferring the bag to a second constantly moving conveyor. An electrical counting and control system may be used so as to discharge the desired number of bags at any one of several such discharging stations.



3,568,815
OUTFEED CONVEYOR MECHANISM OF A CONVEYOR SYSTEM FOR CONVEYING UNITS SUCH AS STACKS OF PUBLICATIONS AND THE LIKE

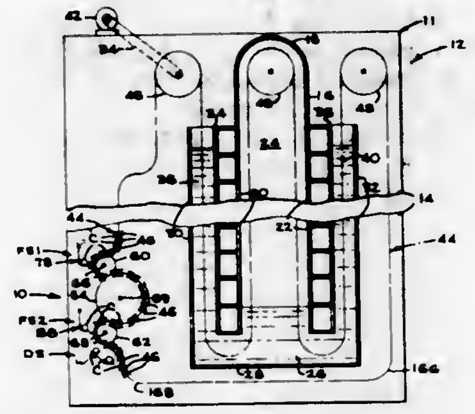
Raymond L. Wiseman, Santa Ana, Calif., assignor to Sta-Hi Corporation, Newport Beach, Calif.
Filed July 26, 1968, Ser. No. 747,869
Int. Cl. B65g *15/14, 47/04;* **B65b** *33/14*
U.S. Cl. 198—23 **21 Claims**



A preceding stacker deposits a stac[illegible] publications vertically downwardly between transversely spaced guide surfaces onto a longitudinal unit receiving surface of an outfeed conveyor at a unit receiving station. Both the unit receiving surface and at least a pair of pushers are intermittently simultaneously movable in either longitudinal direction to move the deposited stack in either longitudinal direction from the unit receiving station onto and across sets of freely rotatable, low inertia rollers. The pushers are normally positioned one at either longitudinal end of the unit receiving station during said stack deposit to straddle said stack and are synchronized for movement with the unit receiving surface, one across the unit receiving station while the other moves away from the station end, dependent on the direction of stack movement.

3,568,816
MULTIPLE FEED AND DISCHARGE SYSTEM AND METHOD

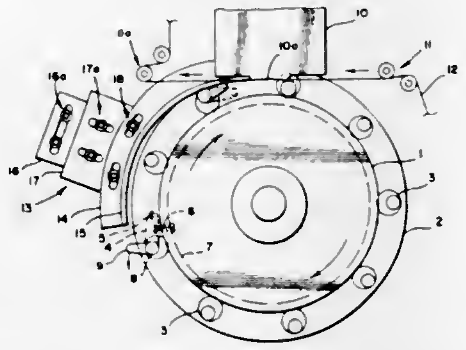
Warren S. Smith, and Adil A. Mughannam, San Jose, Calif., assignors to FMC Corporation, San Jose, Calif.
Filed Dec. 19, 1968, Ser. No. 785,174
Int. Cl. B65g *17/46, 47/82*
U.S. Cl. 198—24 **8 Claims**



Mechanism for feeding at least two distinguishable groups of filled containers into the carriers of a processing conveyor by transferring rows of one of the group of containers into spaced ones of the carriers at one feed station and feeding containers of a distinguishable group of containers into other ones of the carriers at a second feed station that is remote from the first feed station. After processing the containers, all of the rows of containers are discharged from the carriers at a single discharge station and are thereafter segregated into their original groups. The processing conveyor has I-beam carriers thereon and is trained around pairs of small diameter sprockets at each feed station and at the discharge station so as to open the I-beam carriers sufficiently to accommodate a large size range of containers.

3,568,817
MACHINES FOR ORIENTED MARKING OF CYLINDRICAL OR TAPERED ROUND PARTS

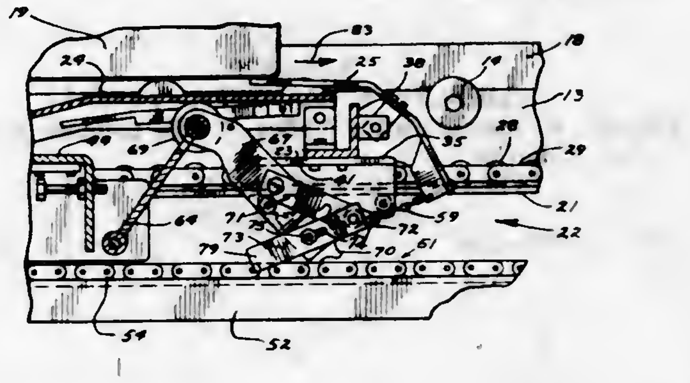
Robert J. Douglas, Windsor, and Robert C. Aregood, South Windsor, Conn., assignors to The Bristol Brass Corporation, Bristol, Conn.
Filed Nov. 21, 1968, Ser. No. 777,826
Int. Cl. B65g *47/24*
U.S. Cl. 198—33 **6 Claims**



In a machine of the type wherein a part of circular cross section is rolled relatively across a die, the rotatably mounted part is oriented during its approach to the die by contacting its periphery with a relatively moving surface (e.g., a faster moving pressure dial or plate, or a stationary orienting guide) so as to initiate rotation of the part, and the rotation is stopped at a predetermined angular orientation when a projecting tab or the like rotating with the part contacts an orienting or escapement guide, the part then sliding relative to the surface until the orientating or escapement guide releases the projecting tab to permit the part to roll across the die. For multiple station marking, the part can be reoriented before each station, or the initial orientation can be maintained through all stations. The orienting arrangement can also be used to orient the part for a further different operation, or for automatic unloading.

3,568,818
CONVEYOR FOR ACCUMULATING, SPACING AND STORING ARTICLES

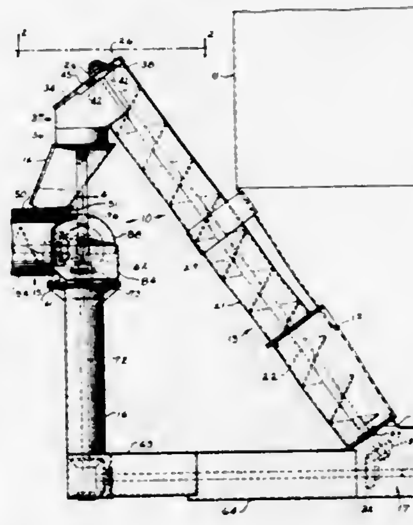
Douglas R. Hanson, 1720 9th Ave., Anoka, Minn. 55303
Filed Aug. 19, 1969, Ser. No. 851,250
Int. Cl. B65g *25/04, 47/26*
U.S. Cl. 198—34 **3 Claims**



An accumulation conveyor track, including parallel lines of pairs of spaced-apart rollers, receives pallets or boxes to be stored thereon and positions and maintains them in predetermined spaced relation to each other. The boxes never get closer than the predetermined distance to each other. An elevatable and lowerable platform rides on a platform carriage. This carriage is chain driven in the direction of box movement and rides on a carriage track below and parallel to a conveyor track support plane defined by the top of the spaced-apart conveyor rollers. Such a platform raises into driving relationship to each box as it comes on to the conveyor and moves the box up to the predetermined distance from the box ahead of it. A feeler arm on the platform carriage ahead of the platform allows a sprocket on a pivoted platform drive arm to engage and run on a fixed roller chain pathway below the platform carriage track to position the platform in its upper position when no obstruction is felt by the feeler arm. When the feeler arm encounters a box ahead of it, it causes the platform to lower to position its box on a conveyor track at the predetermined distance from the forward box. The power to raise the platform and at least part of the weight of the box is derived from the reaction of the motion of the platform carriage with respect to the fixed chain pathway.

3,568,819
MOUNTING AND DRIVE FOR A HORIZONTALLY AND VERTICALLY SWINGABLE UNLOADING FEED CONVEYOR

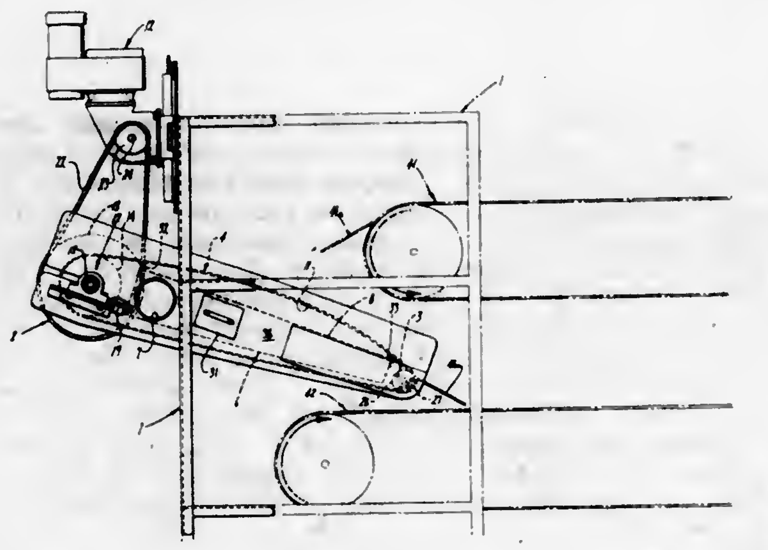
William W. Mann, Talmage, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.
Filed Feb. 24, 1969, Ser. No. 801,632
Int. Cl. B65g *47/58;* **B60p** *1/40*
U.S. Cl. 198—45 **1 Claim**



A feed-unloading mechanism from a mixing and storage tank comprises a vertically inclined lift auger conveyor receiving feed from a mixing and storage tank and having a discharge head directing the upwardly conveyed feed downwardly through a pivotally mounted chute. The chute directs the feed into a generally horizontal unloading auger conveyor pivotally mounted to swing horizontally and vertically through wide arcs while the unloading feed auger is driven by a bevel gear drive comprising two small bevel gears and a larger intermediate bevel drive gear.

3,568,820
AIRSLEEVE TRANSFER SYSTEM

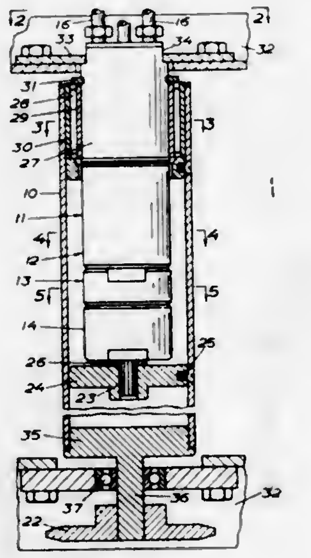
Richard D. Patch, Castro Valley, Calif., assignor to Lucas-California Co.
Filed Sept. 4, 1968, Ser. No. 757,241
Int. Cl. B65g *37/00*
U.S. Cl. 198—84 **3 Claims**



A device consisting of an endless belt buoyed upwardly by air under pressure discharging from a plenum chamber having a plurality of discharge openings; the raised belt absorbes impact loads imparted by materials received from above the device and discharges them to a lower elevation.

3,568,821
POWER-DRIVEN CONVEYOR ROLLER

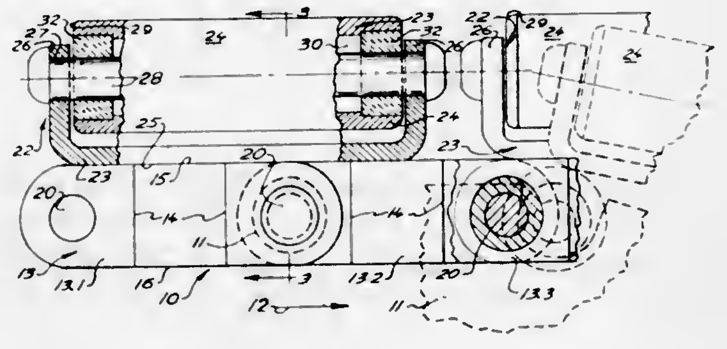
Ernst Gunnar Gronkvist, Stockholm, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden
Filed Dec. 19, 1968, Ser. No. 785,163
Claims priority, application Sweden, Dec. 29, 1967, 18,082/67
Int. Cl. B65g *13/02*
U.S. Cl. 198—127 **1 Claim**



A conveyor roller of the type used in conveyor roller trains is provided. The conveyor roller includes a drum with an enclosed power unit. One end of the drum is journaled in a frame, the other end is journaled on the power unit which projects out from the drum and is fixedly mounted in the frame. A driving shaft of the power unit rotates the drum via a member inside the drum.

3,568,822
CONVEYOR CHAIN

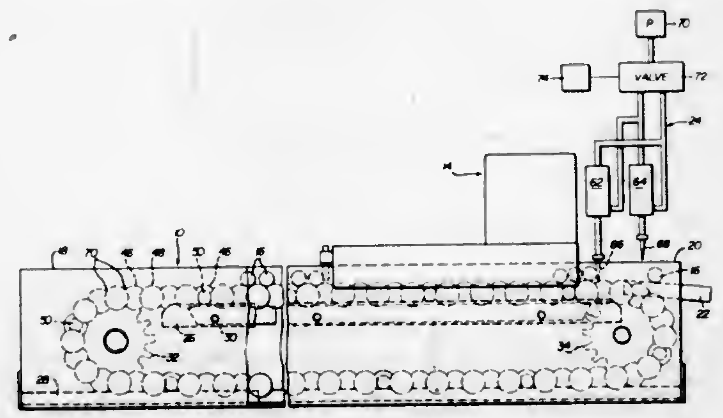
Robert D. Conkey, West Vancouver, British Columbia, and Rupert H. Clement, Richmond, British Columbia, Canada, assignors to Canada Chain and Forge Company Ltd., Granville Island, Vancouver, Canada
Filed Jan. 21, 1969, Ser. No. 792,474
Int. Cl. B65g *17/24*
U.S. Cl. 198—183 **3 Claims**



A conveyor chain formed of pintle-connected links wherein alternate links of the chain carry elongated roller assemblies having rollers extending longitudinally of the direction of travel of the chain and forming a supporting surface for objects to be transported and wherein each assembly is positioned on its carrying link so as to extend over and thereby be supported by a link immediately in advance of its carrying link when the chain extends in a straight line condition.

3,568,823
STORAGE CONVEYOR

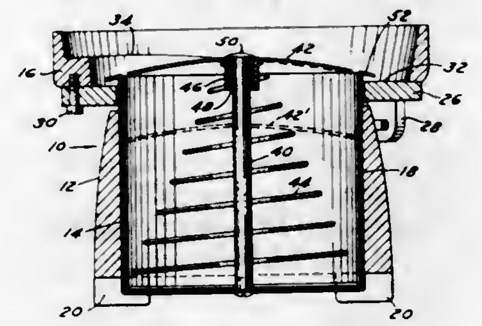
Bruno Rettig, Ypsilanti, and William G. Lehman, Birmingham, Mich., assignors to Hydromation Engineering Company, Livonia, Mich.
Filed May 12, 1969, Ser. No. 823,838
Int. Cl. B65g *17/00*
U.S. Cl. 198—189 **8 Claims**



Article handling apparatus utilizing an endless chain to move elongated article supporting rollers that are staggered to form article spaces and are also offset relative to each other to support the elongated articles at spaced points along their linear surface. The apparatus incorporates a gate mechanism that can be selectively actuated to stop the article while the chain continues to move and also to pass single articles when wanted.

3,568,824
VIBRATOR WORK PARTS FEEDER AND RESERVOIR SUPPLY SYSTEM

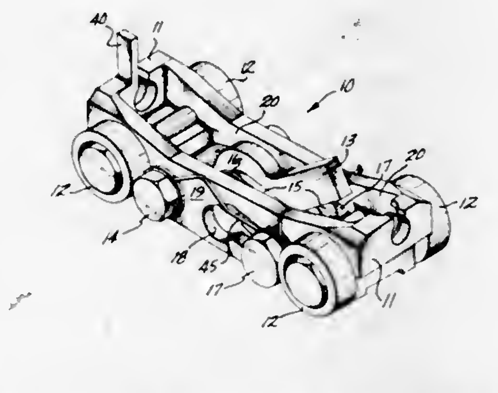
George M. Tarzian, 1744 Rosehill Drive, Chicago, Ill.
Filed July 9, 1968, Ser. No. 743,551
Int. Cl. B65g *27/02*
U.S. Cl. 198—220 **7 Claims**



A vibratory work parts feeder including an annular rim mounted for vibrational actuation and having a spiral ascending track on its inner periphery, a deep reservoir bowl for work parts disposed in concentric relation therewithin and extending relatively below said rim, and means within the reservoir bowl for elevating and maintaining work parts at the level of said rim for distribution thereto and subsequent transfer thereby.

3,568,825
CARGO MOVING SHUTTLE CONVEYOR

Donald F. Munger, Federal Way, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed June 27, 1968, Ser. No. 740,621
Int. Cl. B65g *25/08*
U.S. Cl. 198—221 **9 Claims**

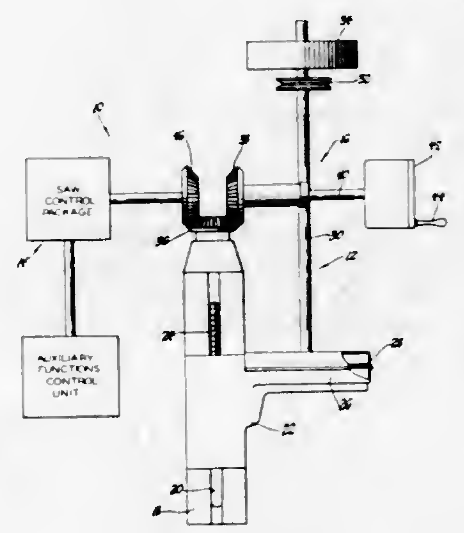


A shuttle conveyor for moving articles fore-and-aft on a track on a floor, such as baggage in an aircraft cargo compartment, comprises a shuttle bar pivotally mounted in a carriage movable on the track and a link pivotally connected to the shuttle bar and cooperative with suitably positioned spring loaded plungers and stop members both (1) for erecting the bar for pushing the article on the floor in one direction, and (2) for lowering the bar for passing under the articles to again rise and push the articles in the other direction at the option and control of a distant operator.

3,568,826
AUTOMATIC SAW CONTROL ASSEMBLY FOR A LINECASTING MACHINE

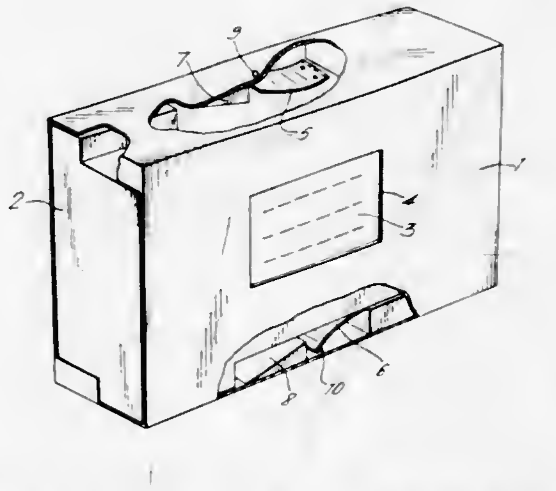
Eugene A. Mychalowych, and Gerald A. Fasse, Warren, Mich., assignors to Booth Newspapers, Inc., Detroit, Mich.
Filed Mar. 29, 1968, Ser. No. 717,328
Int. Cl. B41b *11/72*
U.S. Cl. 199—59 **6 Claims**

The subject matter of this invention is a saw control assembly of the type for use with a linecasting machine having a saw movable between various cutting positions by a hand operated means. The assembly includes a motorized drive for moving the saw while retaining the hand operated means, the drive includes a clutch for transmitting driving forces to the saw for slipping in response to a predetermined resistance to prevent injury to the motorized drive. An electronic closed servo loop is utilized for activating and deactivating the motorized means to control the cutting position of the saw. The servo loop includes a decoder utilizing NAND logic for developing a saw signal and 8-4-2-1 BCD signals from alphanumeric input signals, the signals from the decoder set a set of four registers, one for storing the pica tens digit, one for storing the pica units digit, one for storing the point tens digit, and one for storing the point units digit. The registers are adapted to be set by manually operated switches as well as by signals received from the decoder. The desired command position stored in the registers is compared with signals developed by an angular shaft encoder whose signals in 8-4-2-1 BCD form indicate the actual position of the saw by a parallel comparator. The parallel comparator employs NAND logic and develops various signals including drive-up and drive-down signals. The latter two signals control the direction of the motor by controlling first and second power transistor means, each of which in turn controls a pair of switching transistors.



3,568,827
TRANSPORT OR MAILING CONTAINER

Hans-Richard Haring, Schwabenstr. 13, Solingen, Germany
Filed June 2, 1969, Ser. No. 829,237
Int. Cl. B65d *5/38, 27/06, 43/20;* **E05c** *19/06*
U.S. Cl. 206—1.5 **8 Claims**



A transport or mailing container consists of two interfitting sections wherein the outer section has a window aperture and the inner section has label space on opposite walls corresponding to the window aperture, the inner container carrying at least one outwardly biased resilient means for engaging behind a corresponding stop provided on the inside of the outer section which has also an opening opposite the resilient means for exerting inward pressure on the resilient means to clear the stop.

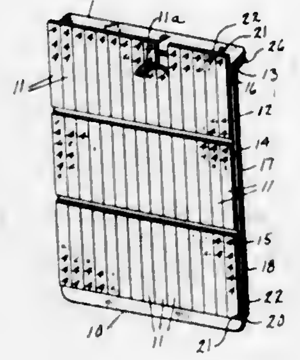
3,568,828
MODIFIED SEQUENTIAL ORAL CONTRACEPTIVE

Leonard Joseph Lerner, New Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed Mar. 1, 1967, Ser. No. 619,562
Int. Cl. A61j *7/00*
U.S. Cl. 206—42 **5 Claims**

This invention relates to new modified sequential oral contraceptive preparations and a method of administering them. According to this invention a regimen is followed in which a combination of estrogen and a low amount of progestogen is administered for the first 14 to 19 day phase of the cycle and a combination of estrogen and a high amount of progestogen is administered for the succeeding 4 to 7 day phase of the cycle. A 25 to 28 day cycle is completed with a 5 to 7 day hormone-free phase which may include the use of placebos or iron and/or vitamin supplement.

3,568,829
BIFUNCTIONAL LABEL STORAGE CARD

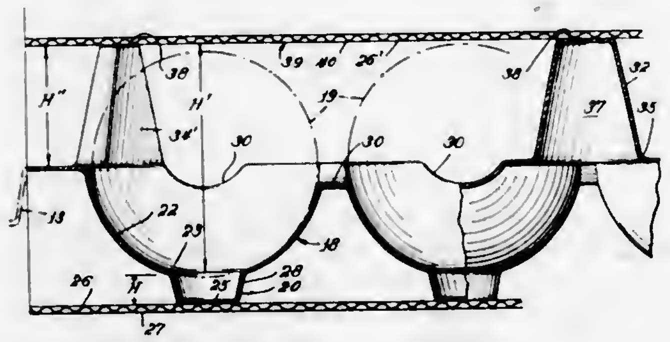
William H. Brady, Jr., 2906 E. Linnwood, Milwaukee, Wis.
Filed Oct. 1, 1969, Ser. No. 862,760
Int. Cl. G09f *3/02;* **B65d** *83/08*
U.S. Cl. 206—56 **6 Claims**



A bifunctional label storage card including a carrier member with pressure-sensitive adhesive labels stored on one of its surfaces and a hinge member detachably joined to the opposite surface of the carrier member, the carrier member being separable into two portions along at least one zone underneath portions of the labels stored thereon and the hinge member also being separable into at least two portions, so that a portion separated from the carrier can be hinged backwardly to expose an end of labels stored thereon or, alternatively, a portion of the carrier member and a portion of the hinged member can be separated from the balance of the structure for withdrawal of labels from the card and then precisely replaced to provide continued protection against soiling or other damage to the adhesive of any unused labels.

3,568,830
SHIP-DISPLAY TRAY AND PACKAGING

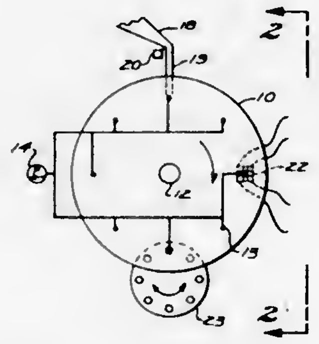
Robert A. Moren, Mount Prospect, Ill., assignor to Plastofilm, Inc., Wheaton, Ill.
Filed Apr. 4, 1969, Ser. No. 813,603
Int. Cl. B65d *71/00, 25/10, 81/00, 5/50*
U.S. Cl. 206—65 **9 Claims**



A tray for packaging and displaying delicate articles such as pieces of fruit. The trays, which are nestable when empty, include a number of wells which snugly receive individual articles. Hollow supporting legs extend both downwardly below the tray and upwardly above the tray, the downwardly extending legs opening on the upper side of the tray and the upwardly extending legs opening on the bottom of the tray. The height from the bottom of the well to the top of the extending legs is greater than the corresponding dimension of the article contained in the well. Filled trays are stackable using cardboard, plastic, etc. dividers between trays.

3,568,831
CHIP-CLASSIFYING APPARATUS

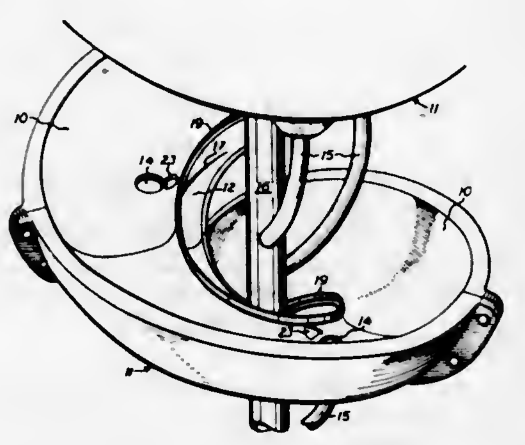
Mortimer Penberg, Claremont, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.
Filed Jan. 6, 1969, Ser. No. 789,284
Int. Cl. B07c *5/00*
U.S. Cl. 209—73 **12 Claims**



According to the present disclosure, chip-classifying apparatus is provided with a platen having conductive film contacts in a configuration conforming to the contact configuration of the chip device to be classified. The platen is mounted at a test station and is electrically connected to suitable test apparatus. Motive means is provided for moving the chips to the test station and thereafter to a depository station. The motive means includes a tubular vacuum needle connected to a source of reduced pressure. A funnel is mounted to the open end of the vacuum needle, which funnel has a configuration and size conforming to that of the chip being moved so that the chip is oriented by reaction against the funnel to an orientation compatible with the contact configuration of the platen.

3,568,832
HELICAL ORE CONCENTRATOR

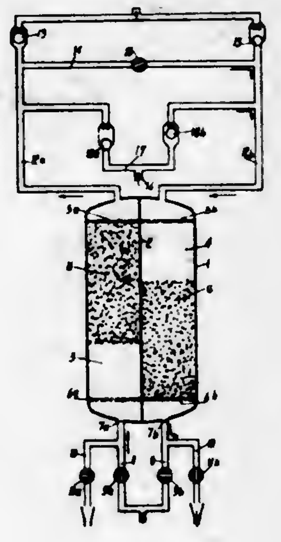
Bo K. G. Persson, Trelleborg, Sweden, assignor to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden
Filed Feb. 3, 1969, Ser. No. 796,046
Claims priority, application Sweden, Feb. 9, 1968, 1718/68
Int. Cl. B03b *3/04*
U.S. Cl. 209—459 **7 Claims**



An apparatus for concentrating ore and the like material having two chutes joined by a ridge-shaped portion and running in adjacent parallel relation and helically about a substantially vertical axis. The outer chute carries a mixture of a liquid and the material to be concentrated, and the inner chute carries the liquid by means of which the concentration is effected, the liquid being transferred from the inner chute to the outer chute by the centrifugal force. A groove is arranged in the ridge-shaped portion. A band which may have through holes is inserted in the groove and its projection from the groove is adjustable. The band serves as an adjustable overflow to enable precise control of the transfer of the liquid from the inner chute to the outer chute at successive portions along the length of the chutes.

3,568,833
ION EXCHANGE METHOD AND APPARATUS

Henricus S. H. Ritzen, Rijswijk, Netherlands, assignor to Machinenfabrick Reineveld N.V., Delft, Netherlands
Filed Oct. 21, 1968, Ser. No. 769,067
Claims priority, application Netherlands, Oct. 19, 1967, 67.14199
Int. Cl. B01d *15/04*
U.S. Cl. 210—35 **4 Claims**



A method of continuously treating a liquid with an ion exchanger material contained in vessels being alternately in service by providing in each vessel an amount of ion exchanger material being in small excess as compared with the required amount for treating the volume of liquid that has to be treated during the time required for regenerating and washing a corresponding amount of ion exchanger material.

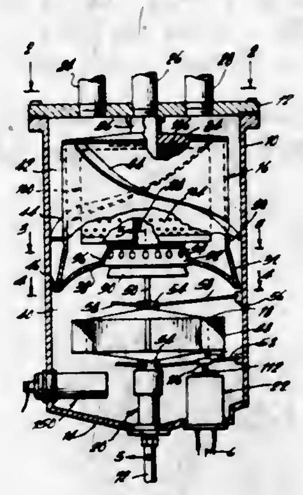
3,568,834
FILTERING ALKALINE METAL CLEANER

Lyle G. Treat, Ferguson, Mo., assignor to The Dow Chemical Company, Midland, Mich.
Filed Nov. 5, 1969, Ser. No. 874,418
Int. Cl. B08b *3/10*
U.S. Cl. 210—71 **12 Claims**

Process of fine filtering an alkaline metal cleaner containing emulsified soluble oil in which the requisite amount of aminopolyacetic acid or ammonium or alkali metal salt thereof is added to the cleaner periodically to maintain unchelated hardness in the range of zero to about 400 p.p.m. hardness expressed as $CaCO_3$, and up to 2 percent by weight of free polyacetic acid or ammonium or alkali metal salt thereof, and the cleaner is filtered through a medium capable of removing solids larger than about 0.1 to 10 microns major dimension.

3,568,835
LIQUID SEPARATOR AND FILTER UNIT

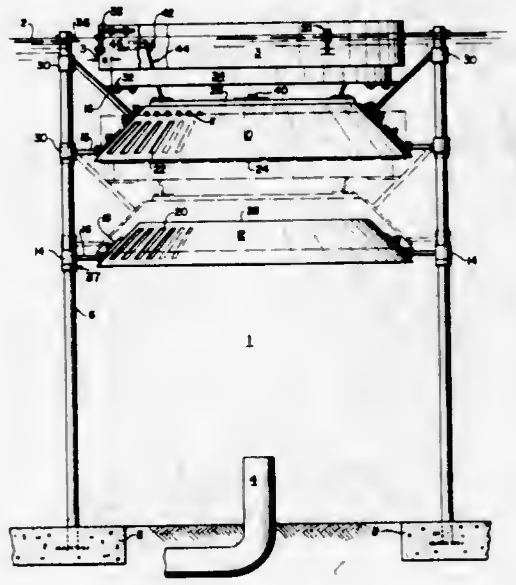
Holger M. Hansen, Ann Arbor, Mich., assignor to The International Marketing Corporation, Detroit, Mich.
Filed July 1, 1968, Ser. No. 741,401
Int. Cl. B01d *35/14*
U.S. Cl. 210—86 **12 Claims**



An apparatus for separating water and other foreign material from a liquid such as diesel fuel and then filtering the fuel comprises a container having an inlet at its upper end for the liquid to be treated and means for subjecting the incoming liquid to the action of sufficient centrifugal force to separate water and heavier dirt particles from the fuel and cause the water and dirt particles to settle into the lower portion of the container. The fuel is then caused to flow upwardly through a valve to a final filter and is discharged from an outlet in the container. A float in the lower portion of the container has a density between that of water and the fuel and controls the opening and closing of the valve. As the float rises due to the accumulation of water in the bottom of the container the valve closes off the flow of fuel to the filter to prevent the delivery of contaminated fuel to the engine. The float also operates a warning signal to indicate the imminence of the closing of the valve, as well as an exit valve, previously opened, to provide a drain for the water and other materials which have been separated from the fuel.

3,568,836
SEWAGE TREATMENT UNIT

Bartow Ray, McLean, Va., assignor to Future Products Development Corporation, McLean, La.
Filed Mar. 28, 1969, Ser. No. 811,411
Int. Cl. B01d *21/14*
U.S. Cl. 210—86 **7 Claims**



A unit for collecting floating solids from sewage ponds comprising a frame with a vertically slideable float and collection bin therein and a guide means, all positioned above a sewage inlet to trap solids in the collection bin. The added buoyancy raises the float out of the water when the bin is filled.

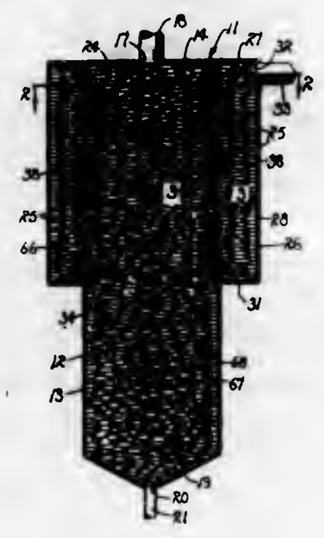
3,568,837
DEVICE FOR SEPARATING PARTICULATE MATTER FROM A STREAM OF FLUID

Claude C. Laval, Jr., Fresno, Calif., assignor to A. V. Electronics, Inc.

Continuation-in-part of application Ser. No. 478,177, Aug. 9, 1965, now abandoned. This application July 24, 1967, Ser. No. 656,312

Int. Cl. B01d *21/26*

U.S. Cl. 210—136 **9 Claims**



A centrifuging device having particular utility in separating particulate matter from a fluid stream, characterized by a stream jetting orifice and means for directing a stream along a swirling path as it is jetted from the orifice, a particular feature of the device being a resilient lip supported adjacent to the orifice and adapted to vary the effective dimension of the orifice in response to variations occurring in the flow characteristics of the stream for insuring a jetting of the stream over a wide range of streamflow characteristics.

3,568,838
SEWERAGE SYSTEM FOR HOUSES, PARTICULARLY IN RURAL AREAS

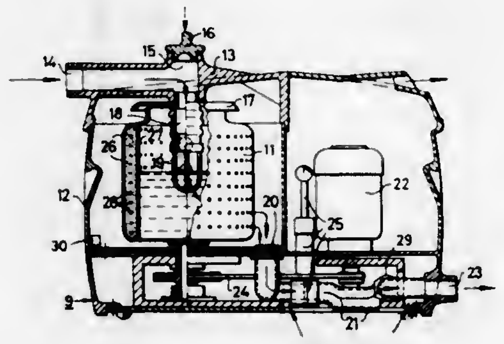
Wolter Appelgren, Saltsjobaden; Jan-Olov Jorsback, Enskede; Gudmund Naeslund, Bromma, and Ernst Rolf Olsson, Vallingby, Sweden, assignors to AB Landsbygdens Frilidsbebyggelse, Stockholm, Sweden and Viak AB Vallingbyplan, Vallingbys, Sweden

Filed Mar. 19, 1968, Ser. No. 714,206

Claims priority, application Sweden, Mar. 23, 1967, 4134/1967

Int. Cl. B01d *33/06*

U.S. Cl. 210—136 **12 Claims**



A sewerage system for houses comprises a mechanical strainer, preferably of the centrifugal filter type, for immediate and efficient separation of solid and semisolid impurities from the waste water before the latter is pumped out through a narrow sewer. Mechanical strainer and pump form a convenient installation unit. A replaceable or renewable filter is included in the mechanical strainer.

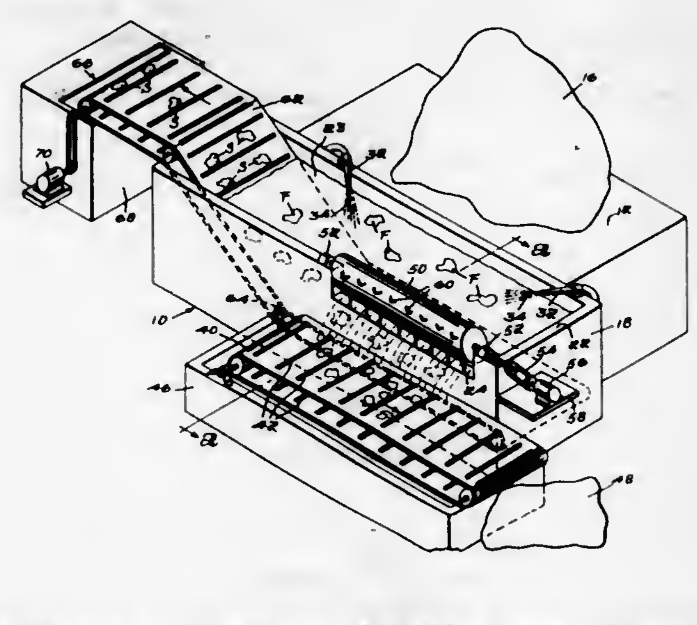
3,568,839
APPARATUS FOR SEPARATING AND REMOVING FLOATABLES

John V. Dunlea, Jr., Wellesley, Mass., assignor to Seadun, Inc.

Filed Feb. 14, 1969, Ser. No. 799,413

Int. Cl. B01d *21/12*

U.S. Cl. 210—152 **4 Claims**



Apparatus for removing floatable matter (commonly referred to as "floatables") from rubbish prior to the subsequent treatment thereof. The rubbish is deposited in a water-filled tank and the water is agitated to break up and thoroughly wet all particles. The floatables are swept over a spillway onto a first conveyor exterior of the tank, which conveyor removes the floatables to another location for further processing. A second conveyor removes that portion of the rubbish which sinks to the bottom of the tank.

3,568,840
PACKING MATERIALS FOR GEL PERMEATION CHROMATOGRAPHY

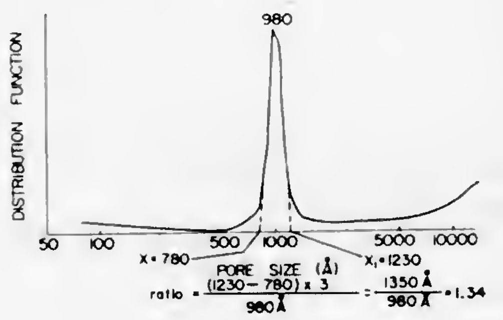
Atsushi Hashimoto, Yokohama-shi, Japan, assignor to Mitsubishi Kasel Kogyo Kabushiki, Kaisha, Tokyo-to Japan

Filed Dec. 24, 1968, Ser. No. 786,641

Claims priority, application Japan, Dec. 30, 1967, 42/84765

Int. Cl. B01d *15/08*

U.S. Cl. 210—198 **13 Claims**



Packing material to be packed in columns of gel permeation chromatographic devices. The packing material comprises alumina having a particle size ranging from 10 to 70 microns, a distribution peak ranging from 10 to 10^5 Angstrom units, and a ratio of the bottom extent of the sharp portion of the pore size distribution curve to the distribution peak of less than 2.

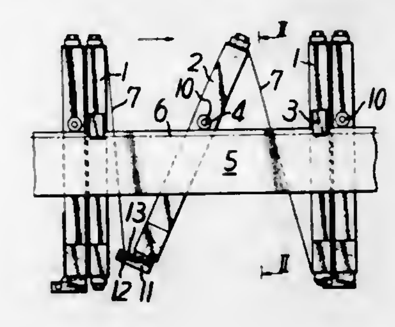
3,568,841
APPARATUS FOR RELEASING FILTER CAKE IN FILTER PRESS

Ken-Ichiro Kurita, 36-4-5-Chome, Senriyama-nishi, Suita Osake Prefecture, Japan

Filed Jan. 12, 1970, Ser. No. 2,273

Int. Cl. B01d *25/12*

U.S. Cl. 210—225 **4 Claims**



In a filter press of plate-and-frame type which comprises filter plates and filter frames alternately arranged with filter cloth disposed between adjacent surfaces and in which the filter plates are adapted to be separated from the filter frames after filtration, filter frames are supported movably by pivot members on side bars for supporting filter plates and adapted for pivotal movement about the pivot members. Filter cloth attached to the upper end of each filter frame is connected to the lower end of the preceding filter plate while filter cloth attached to the lower end of the filter frame is connected to the upper end of the following filter plate. When the filter plate is separated, the filter frame is thereby pivotally moved into inclined position by being pulled by the filter cloth to permit the cake to drop from the interior of the frame.

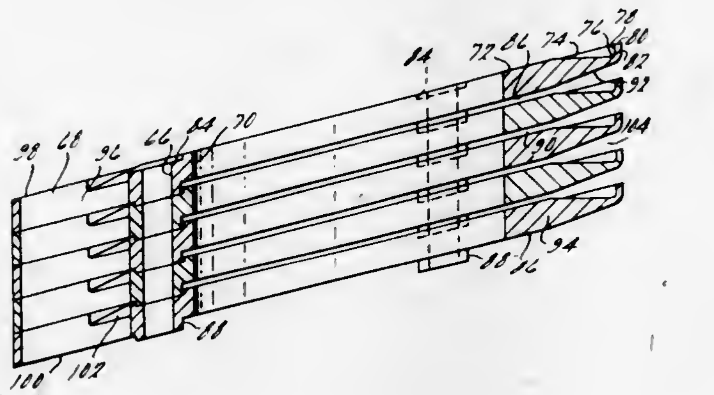
3,568,842
APPARATUS FOR SEPARATING MIXTURES OF IMMISCIBLE LIQUIDS

John W. Bozek, 6093 Waterfront Drive, Waterford, Mich.

Filed Mar. 11, 1969, Ser. No. 806,205

Int. Cl. B01d *29/42, 25/00*

U.S. Cl. 210—307 **6 Claims**



A separator element construction; for use in the continuous separation of mixtures of immiscible liquids when the mixture flows through the element such as for separation of water from turbine engine fuel, wherein a plurality of ring members are stacked to form a hollow chamber with shaped slots communicating from the interior to the exterior of the chamber and wherein, the upper surface of each slot is oleophilic and the lower surface of each slot is hydrophilic and is connected to a hydrophilic drain surface to permit the water that collects on the hydrophilic surface to drain to a sump without interferring with the expelled water-free fuel when the mixture is forced through the slots.

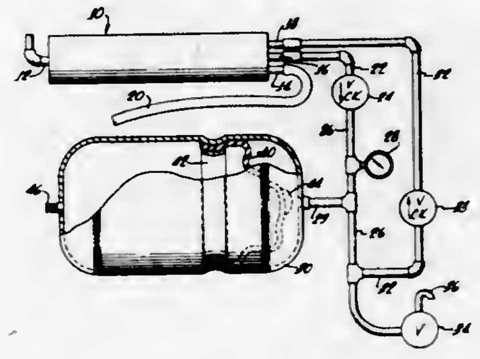
3,568,843
WATER STORAGE SYSTEM FOR REVERSE OSMOSIS PURIFICATION UNIT

Ross M. Brown, Palos Verdes Estates, Calif., assignor to Desalination Systems, Inc., San Diego, Calif.

Filed Dec. 6, 1968, Ser. No. 781,912

Int. Cl. B01d *31/00*

U.S. Cl. 210—321 **7 Claims**



Pressure in a tank for storing water purified by a reverse osmosis unit is relieved at a predetermined proportionate pressure level by providing a connection from water in said tank to a restricted elongated flow channel used for control of brine release and pressure control in the reverse osmosis unit. Connection to the flow control channel is made at a point intermediate its ends and preferably at a point closer to the brine release end. The flow control channel may be formed by a spiral groove in a face of one element maintained in contact with an adjoining face of another element, with the tank pressure relief connection at a point preferably from one-tenth to one-half the length of the channel measured from its brine release end.

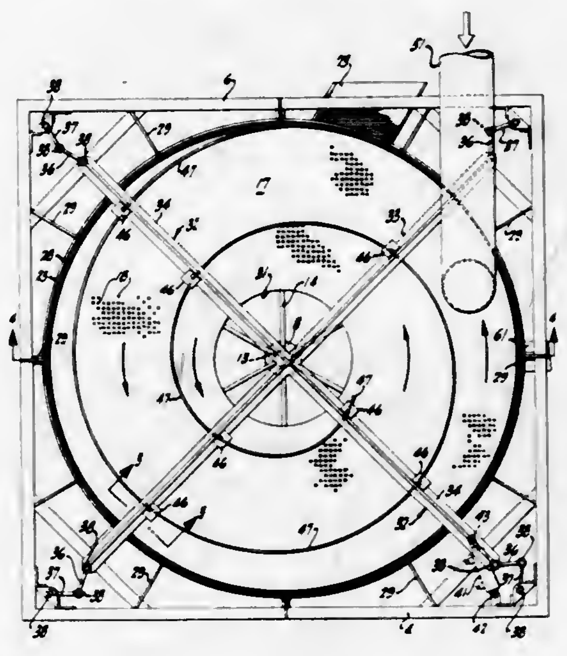
3,568,844
MACHINE FOR SEPARATING JUICE FROM CRUSHED GRAPES

Robert J. Coffelt, Sacramento, and George R. Giannini, Davis, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed June 24, 1969, Ser. No. 836,018

Int. Cl. B01d *33/24*

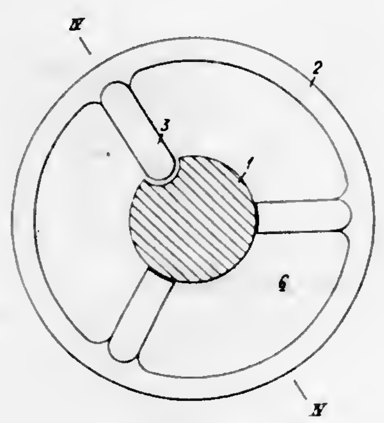
U.S. Cl. 210—327 **6 Claims**



A machine separates juice from crushed grapes by receiving the crushed grapes on a perforated table revolving on a frame relative to a spiral wall supported by the frame close to the table. The wall may be moved laterally relative to the table. The juice is caught beneath the table and the pomace is discharged. The pomace can be further treated on one or more subsequent, similar table and spiral wall unit or units.

3,568,845
FILTER CANDLE FORMED BY STACKED ELEMENTS

Lino Llamas, Alvarez deBaena 7, Madrid, Spain
Filed July 10, 1968, Ser. No. 743,689
Claims priority, application Spain, July 19, 1967, 343.183
Int. Cl. B01d *25/16*
U.S. Cl. 210—488 2 Claims



A stack of elements for a filtering candle in which each of the elements comprises an outer ring portion and a plurality of radially inwardly extending spokes defining between themselves openings axially aligned with each other and spacer means spacing the ring portions in axial direction from each other, in which the spacer means are located radially inwardly of the ring portions.

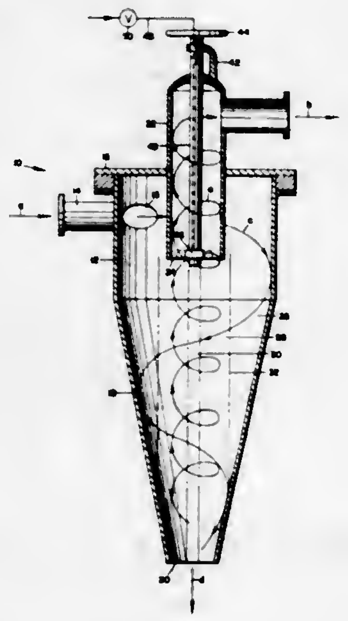
3,568,846
PLASTIC FILTER MEDIA

Albert J. Haefner, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.
Filed Apr. 29, 1968, Ser. No. 725,168
Int. Cl. B01d *39/04*
U.S. Cl. 210—506 6 Claims

An improved filter media is prepared by subjecting particles of a plastic material having discrete, irregular, nonuniform shaped surfaces to treatment with a quantity of a surfactant or wetting agent sufficient to permit the plastic particles to be readily wetted by water.

3,568,847
HYDROCYCLONE

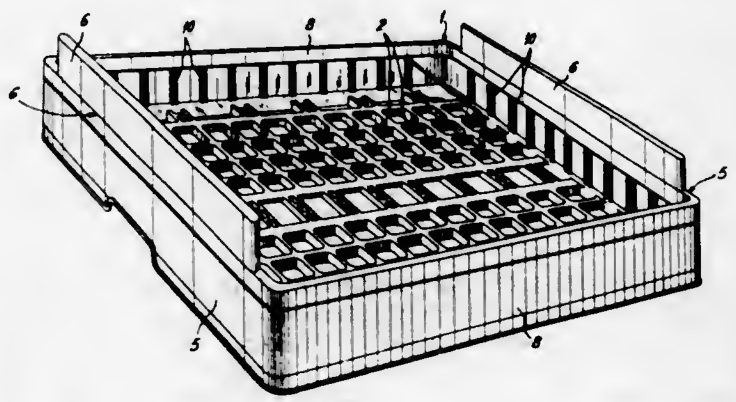
Wayne F. Carr, Rte. #2 Branson Road, Oregon, Wis. 33575
Filed Dec. 9, 1968, Ser. No. 782,309
Int. Cl. B04c *5/103*
U.S. Cl. 210—512 3 Claims



A means and method for controlling the separation of particles or contaminates from liquid mixtures, within a hydrocyclone by mechanically effecting a shifting of the transition zone or point between the free and forced vortex paths in a manner so as to increase or decrease the centrifugal force without significantly changing the through put.

3,568,848
DISH TRAY

Guy Tzifkansky, 16 rue Ronsard a 91, Montgeron, (Essonne), France
Filed Mar. 26, 1969, Ser. No. 810,493
Claims priority, application France, Apr. 1, 1968, 146,670
Int. Cl. A47g *19/08*
U.S. Cl. 211—41 3 Claims

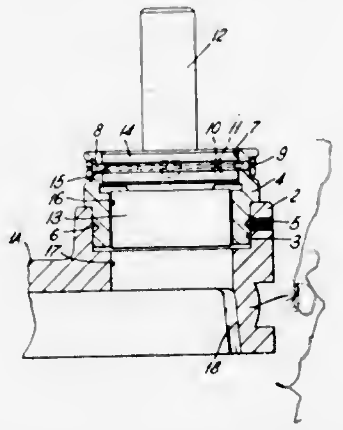


A dish tray having a shape of a parallelepiped pan and an apertured bottom, two sidewalls carrying on their upper edges a pair of projecting upstanding flanges, plates adapted to act as screen means to prevent the splashing of wash water or rinsing water from another treatment station of the dishwasher, and adapted to be disposed normally to the axis along which the tray is driven in the corresponding dishwashing machine.

The sidewalls are hollow and open at the bottom to permit stacking of a plurality of superposed trays, for storing up the dishes, by causing flanges of an underlying tray to fit into the corresponding hollow walls of the tray above.

3,568,849
TOOLHOLDING DEVICES

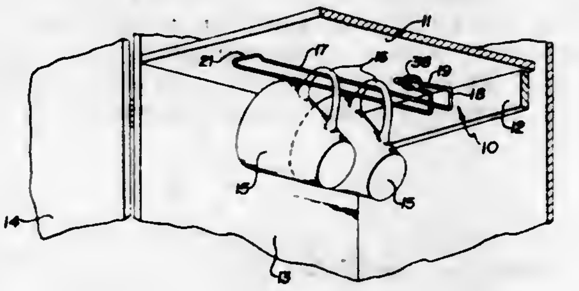
James M. Hutchison, Deptford, England, assignor to Molins Machine Company Limited, London, England
Filed Jan. 17, 1969, Ser. No. 791,934
Claims priority, application Great Britain, Jan. 31, 1968, 4909/68
Int. Cl. B23q *13/00*
U.S. Cl. 211—60 1 Claim



A cutting tool is held in a carrier having a circumferential groove. The tool and the carrier are retained in an annular member by means of pin elements in the annular member which are spring loaded inwards into the groove. A plurality of such annular members are carried in a tool magazine.

3,568,850
CUP HANGER

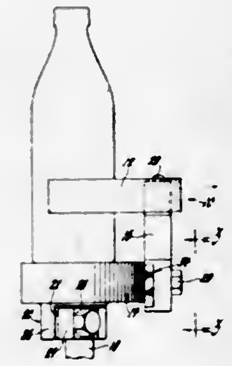
Joseph M. Rogers, 1845 Highcrest Place, Brooklehurst Kamloops, British Columbia, Canada
Filed Mar. 28, 1969, Ser. No. 811,315
Int. Cl. A47g *29/00*
U.S. Cl. 211—71 2 Claims



A hanger having a base portion and an article supporting portion which are parallel and extend in the same direction away from a connecting bracing portion, the base portion being securable to a first support with the bracing portion engaging a second support at right angles to the first support.

3,568,851
YIELDABLE ANTIROTATIONAL MEANS AND METHOD FOR A BOTTLE SUPPORT

Anthony R. Schafer, Detroit, Mich., assignor to Deba Zacharia doing business as Dee-Ton Engineering, St. Clair Shores, Mich.
Filed Sept. 12, 1968, Ser. No. 759,475
Int. Cl. A47b *73/00*
U.S. Cl. 211—74 15 Claims

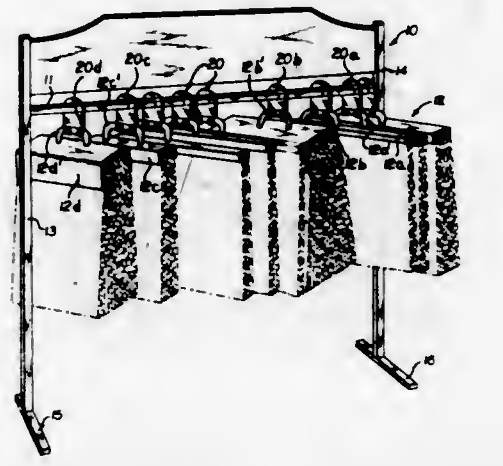


Improvements are disclosed in the bottling art in which a bottle saddle assembly is employed having a bottle saddle supported over a saddle base by a saddle post; said improvements comprising means for holding the saddle post on the saddle base comprising means supporting the saddle post for rotation about an axis, and yieldable means preventing rotation of the saddle post about said axis, said yieldable means applying a yieldable antirotational force on the saddle post which holds said saddle post upright but which yields to a superior rotative force which would otherwise break parts of said saddle assembly.

3,568,852
SLIDING CARRIER MEANS

Fred Howard, New York, N.Y., assignor to Howard Displays, Inc., New York, N.Y.
Filed July 5, 1968, Ser. No. 742,884
Int. Cl. A47g *25/06*
U.S. Cl. 211—113 1 Claim

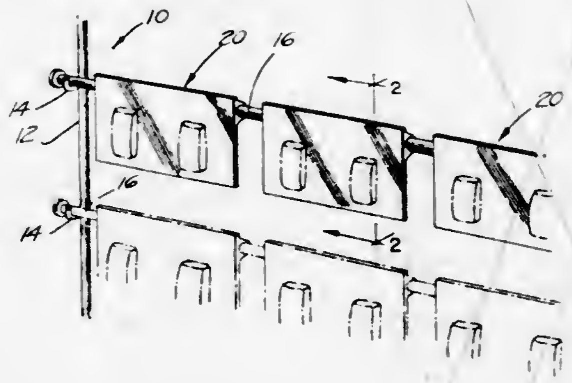
Accessories for racks or like supports consist of one or more carrier elements each capable of maintaining and retaining in slant position a sample book or a holder of carpet pieces, tile assemblies and the like, whereby the carrier element or elements may be readily and easily shifted along a polygonal-shaped support bar while the elements assume a



predetermined angularity with respect to the support bar, as necessitated by the dimensions of the sample books.

3,568,853
ARTICLE HOLDER FOR USE IN DISPLAY RACK

Hans J. Felbelman, 11 Baldwin Orchard Drive, Cranston, R.I.
Continuation of application Ser. No. 621,246, Mar. 7, 1967, now abandoned. This application Aug. 14, 1969, Ser. No. 850,266
Int. Cl. A47f *7/92*
U.S. Cl. 211—113 3 Claims

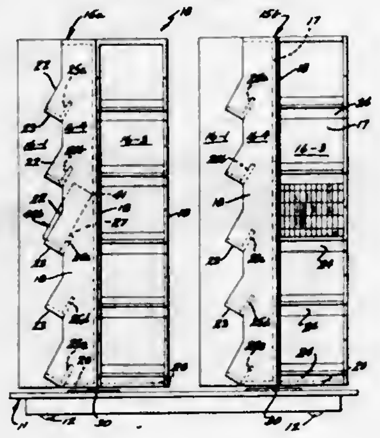


An article holder on which ornamental articles are displayed and having a longitudinally extending groove integrally formed on the rear surface thereof that is adapted to be frictionally received on a rod of a counter display rack, the frictional engagement of the rod in the groove providing for easy insertion of the article holder on the rod and removal therefrom.

3,568,854
VENDING AND DISPLAY DEVICE

Norman R. Welch, 905 Bailey Park N.E., Grand Rapids, Mich.
Filed Dec. 19, 1968, Ser. No. 785,180
Int. Cl. A47f *5/02*
U.S. Cl. 211—163 13 Claims

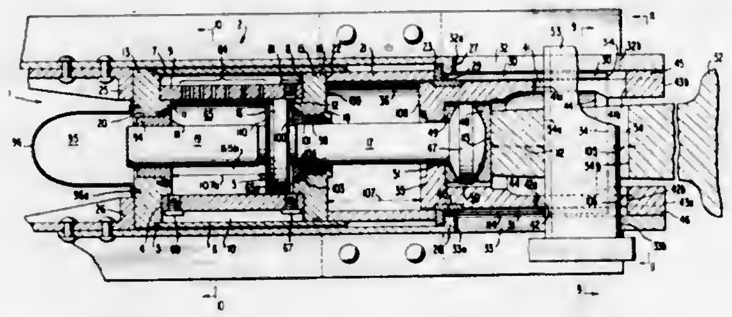
A device for vending and displaying products, particularly cigarettes, including a plurality of cabinet members mounted in rotatable fashion upon a suitable base member. Each of the cabinets contains a series of vertically spaced shelves, the shelves being adapted to receive cigarette cartons in gravity-feed position. The device is adapted particularly for vending the individual cigarette packages singly as opposed to entire cartons.



3,568,855

HYDRAULIC CUSHIONING APPARATUS FOR RAILWAY CARS

Orum E. Seay, and Robert Q. Shelton, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed May 27, 1968, Ser. No. 732,236
Int. Cl. B61g *9/08*
U.S. Cl. 213—8 **13 Claims**



Cushioning apparatus for railway cars, which apparatus includes an hydraulic impedance mechanism having a high pressure cylinder and a low pressure cylinder. The high pressure cylinder is operable to transmit mechanical buff shock independent of the low pressure cylinder.

A coupling apparatus for a railway car where a draft key is limited to a fixed increment of movement while buff movement of a coupler under the continuous control of an hydraulic impedance mechanism takes place over an increment exceeding the length of the fixed movement increment of the draft key.

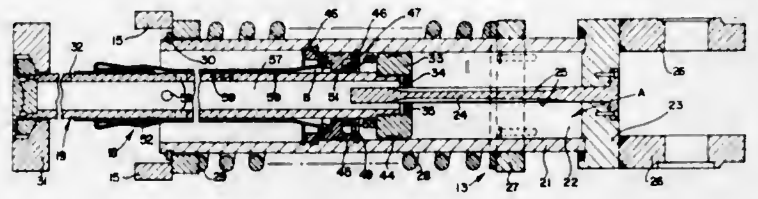
A method and apparatus for cushioning forces imposed on a railway coupling wherein draft key movement is limited to a first increment, hydraulically controlled buff movement of a coupler takes place over a second increment exceeding the length of the first increment, and mechanical force is transmitted through a high pressure cylinder of an impedance mechanism, substantially to the exclusion of forced transmission through a low pressure cylinder.

3,568,856

HYDRAULIC CUSHIONING DEVICE FOR RAILWAY CARS

Willis H. Knippel, Palos Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed July 22, 1969, Ser. No. 843,429
Int. Cl. B61g *9/08, 9/16*
U.S. Cl. 213—43 **10 Claims**

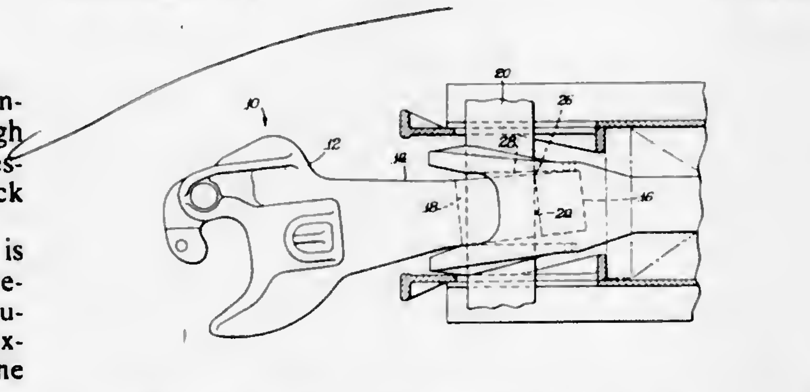
A double-acting hydraulic cushioning device for railway cars is formed with a hydraulic fluid filled cylinder having a closed end and an open end through which a piston rod is movable for reciprocating a piston within the cylinder. A flexible accumulator boot is connected to the piston rod and to an intermediate cylinder head for closing the end of the cylinder. A metering pin cooperates with the piston for providing a relatively constant metered flow from the cylinder to the accumulator during the buff stroke on the unit. The piston is provided with a sliding valve and orifice plate which cooperates with the metering pin to meter the flow during the buff stroke and to move to another position during the return stroke thereby permitting an increased flow of fluid from the accumulator boot through the cylinder. The intermediate cylinder head is provided with a cavity which contains a fluid pressure responsive valve slidable to open passages leading from the accumulator boot to the cylinder and in a return and draft stroke of the piston the valve being movable over the passages to restrict the flow therethrough. The valve plate and the piston has a configuration which permits misalignment of the piston relative to the axis of the cylinder without affecting the metering operation. Further, the piston is provided with a piston ring engaging the cylinder wall with the piston ring groove on the piston being designed to permit misalignment without affecting the sealing relation of the piston ring. The slidable valve plate within the recess or cavity of the intermediate cylinder is also of a flexible construction which in the event of misalignment does not impair its functional operation.



3,568,857

COUPLER KEYSLOT BEARING CONTOUR

Russell George Altherr, 10005 Prudential Plaza, Chicago, Ill.
Filed July 3, 1969, Ser. No. 838,776
Int. Cl. B61g *7/00*
U.S. Cl. 213—64 **9 Claims**



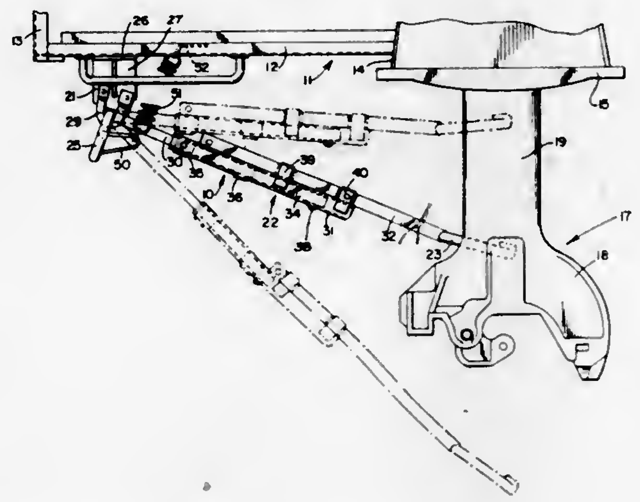
An improved keyslot bearing contour for a railroad coupler shank is disclosed. The keyslot contour comprises a plurality of arcs which are designed to minimize localized bearing on the keyslot during angular pull of the coupler. The improved keyslot contour is formed by a first arc, rearwardly extending towards the butt end of the coupler, which terminates in a plurality of second arcs located at each side of the coupler in proximity to the intersection of the keyslot with the side walls of the coupler.

3,568,858

UNCOUPLING ROD ASSEMBLY

Leonard F. Manyek, Lansing, Ill., assignor to Stanray Corporation, Chicago, Ill.
Filed Jan. 9, 1969, Ser. No. 790,062
Int. Cl. B61g *3/08*
U.S. Cl. 213—166 **4 Claims**

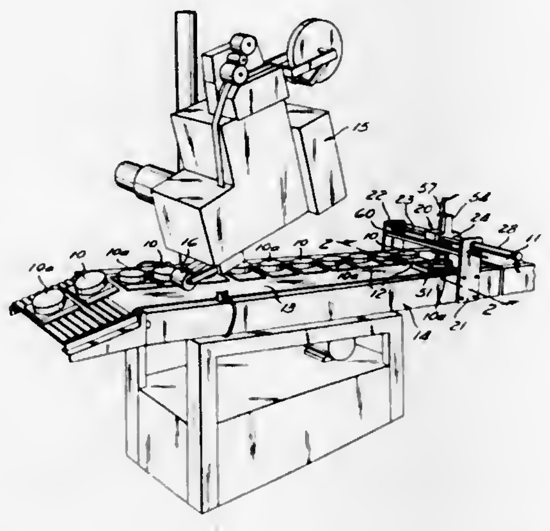
An uncoupling rod assembly for railway vehicles having cushioning incorporated therein. The assembly includes telescoping members to accommodate the length of travel and swinging movement of the couplers. The telescoping members are formed from relatively thin stock to reduce the weight of the uncoupling rod assembly.



3,568,859

ALIGNING MEANS FOR PACKAGE LABELING

Stanley E. Truesdell, Mentor, Ohio, assignor to Avery Products Corporation
Filed Dec. 5, 1968, Ser. No. 781,331
Int. Cl. B64g *47/28*
U.S. Cl. 214—1 **4 Claims**



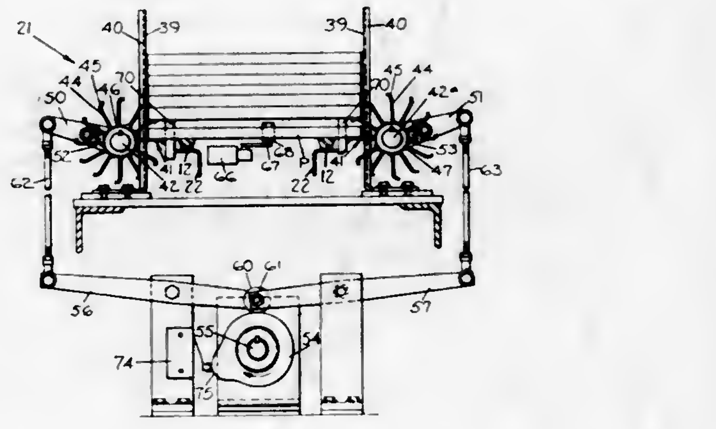
A machine for transferring and orienting packages which are received from a packaging machine in bilateral symmetry with respect to a longitudinal axis of a moving conveyor and which are then delivered to a labeling device. The machine includes a vacuum head transfer means which picks up each package in one longitudinal row and transfers each such package to a space between its bilaterally symmetrical package and a following package so that the packages are aligned in single file. During such transfer, the head rotates the package on a central axis normal to the conveyor so that the packages are uniformly oriented with respect to each other for proper feeding to the labeling device.

3,568,860

STACKING OR TIERING DEVICE

Phillip G. Rawlins, Sinking Spring, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Feb. 17, 1969, Ser. No. 799,727
Int. Cl. B65g *57/30*
U.S. Cl. 214—6 **10 Claims**

A device for forming a stack of relatively thin articles or packages delivered in succession. The device includes a plurality of paddle wheels on opposite sides of a package delivery conveyor with individual blades of a succession thereof on each wheel positioned to underlie the margin of a package delivered by the conveyor. Upon completion of the delivery the paddle wheels are rotated or indexed in a direction to elevate the package by the underlying blades and position succeeding blades for receiving a second package.

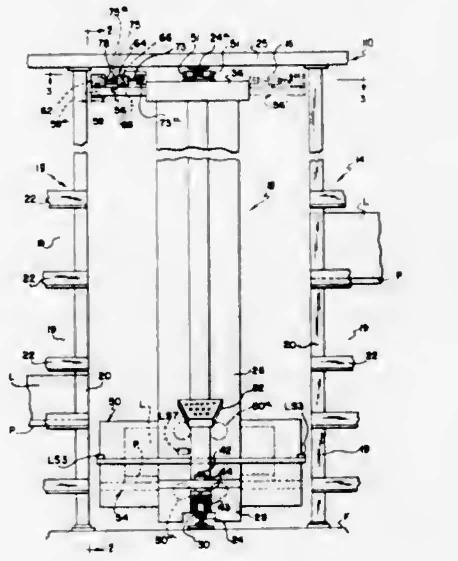


Upon further indexing movement of the paddle wheels the initial package is again elevated until the blades performing such function withdraw past the edges of the package and permit the package to drop onto the package supported by the blades therebelow. At the same time other blades of the successions are positioned to receive a third package. The operation is continued until a stack of packages of the desired number has been obtained.

3,568,861

POSITIVE LOCATING DEVICE FOR LOAD CARRIER IN AUTOMATIC WAREHOUSING SYSTEM

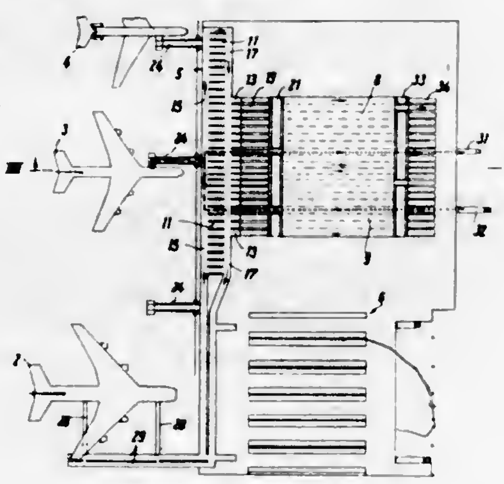
Wayne G. Atwater, Willoughby, and Sanford Saul, Cleveland, Ohio, assignors to The Triax Company, Cleveland, Ohio
Filed Oct. 2, 1968, Ser. No. 764,504
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 **10 Claims**



An automatic warehousing system comprising a storage structure defining a plurality of load handling storage locations and an automatic load carrier movable alongside the storage structure for delivering loads to and/or picking up loads from the load storage locations. Automatic locating means is provided adapted for movement from an inactive position to an active position, for coaction between the storage structure and the load carrier to mechanically couple the load carrier in predetermined position with respect to a selected one of the storage locations, so that the laterally movable extractor of the load carrier will be in proper position with respect to the selected load storage location for inserting a load into or removing a load from the selected location. Circuit means is provided with control means in the circuit means so that the load carrier cannot be energized to move longitudinally with respect to the storage structure when the locating means is in its activated position between the storage structure and the load carrier, with such circuit means also including means for permitting extractor movement only when the locating means is in its activated position.

3,568,862
AIR FREIGHT INSTALLATION WITH ARTICLE HANDLING AND STORAGE MEANS

Klaus Walkhoff, Essen, and Uwe Lichtenford, Essen-Werden, Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed July 28, 1969, Ser. No. 845,190
Claims priority, application Germany, Aug. 27, 1968, P1,781,120
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 **15 Claims**

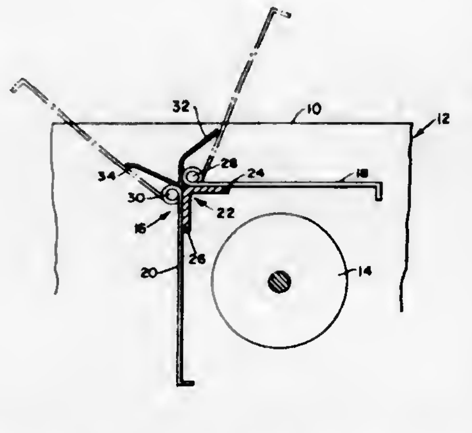


The invention pertains to transloading of air freight in which, adjacent to a ramp area for planes, is a building having a truck dock on the side opposite the ramp area. Within the building are conveyors and shelf means, preferably roller shelf means, for transporting and supporting the goods during transfer thereof between planes and between planes and trucks. The conveyors provide for lateral and vertical movement of the goods while the shelf means, which are distributed laterally and vertically and extend in the direction from the ramp area to the dock, provide for horizontal movement of the goods between the truck dock and the ramp area.

3,568,863
SAFETY SHIELD FOR COMBINE GRAIN TANK AUGER

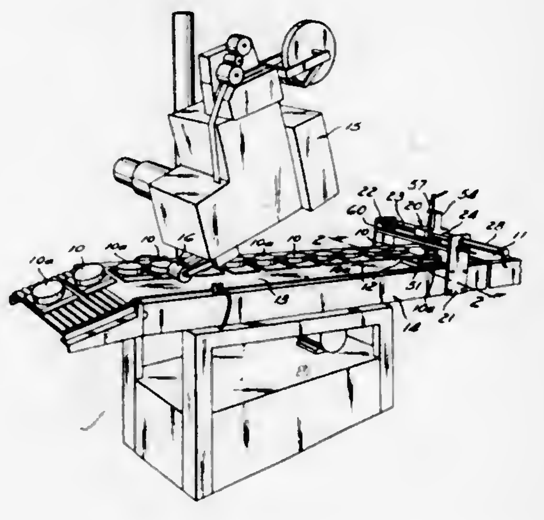
Helmut Rohwedder, Mittelbach; Eberhard Podleska, Bierbach, and Kurt Buhler, Zweibruecken, Germany, assignors to Deere & Company, Moline, Ill.
Filed July 3, 1969, Ser. No. 838,797
Claims priority, application Germany, Dec. 4, 1968, P 18 12 571.8—23
Int. Cl. B60p *1/40*
U.S. Cl. 214—83.32 **6 Claims**

A safety shield is provided for the grain tank, for example, of a combine so as to protect the operator from injury. The shield is yieldably mounted so that it can move away from the auger in response to the pressure of accumulating grain.



3,568,864
ALIGNING METHOD FOR PACKAGE LABELING

Stanley E. Truesdell, Mentor, Ohio, assignor to Avery Products Corporation
Original application Dec. 5, 1968, Ser. No. 781,331. Divided and this application Dec. 10, 1969, Ser. No. 880,520
Int. Cl. B65g *47/24*
U.S. Cl. 214—152 **3 Claims**

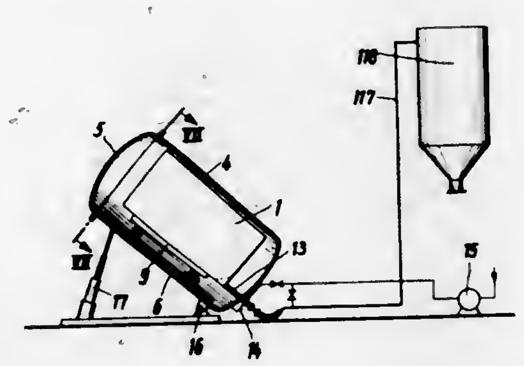


A method for transferring and orienting packages which are received from a packaging machine in bilateral symmetry with respect to a longitudinal axis of a moving conveyor and which are then delivered to a labeling device. The method includes the steps of picking up each package in one longitudinal row and transferring each such package to a space between its bilaterally symmetrical package and a following package so that the packages are aligned in single file. During such transfer, the package is rotated on a central axis normal to the conveyor so that the packages are uniformly oriented with respect to each other for proper feeding to the labeling device.

3,568,865
METHOD AND APPARATUS FOR EMPTYING CONTAINERS FILLED WITH BULK, LIQUID OR PASTY MATERIAL

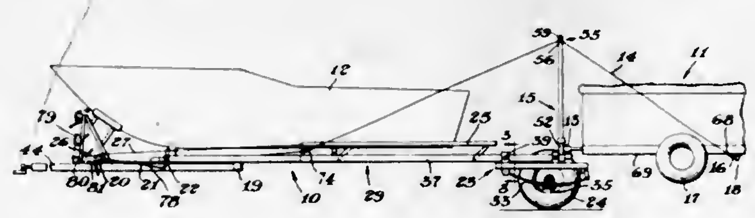
Gunter Willmroth, Porz/Urbach, Germany, assignor to Wilhelm Hermanns KG, Porz/Urbach, Germany
Filed Feb. 6, 1969, Ser. No. 797,199
Claims priority, application Germany, Nov. 6, 1968, P 18 295.2
Int. Cl. B65g *65/40*
U.S. Cl. 214—310 **12 Claims**

There is disclosed a method for emptying containers filled with bulk, liquid or pasty material, wherein the filled container is placed into a pressure vessel, the interior of the container is connected with that of the pressure vessel, and a connection capable of being shut off which extends through the wall of the pressure vessel and permits the flowing off of the material disposed in the container is provided between the container and a site outside of the pressure vessel, whereafter a pressure differential with a pressure drop to the site outside of the pressure vessel is created between said exterior and the interior of the container and the pressure vessel respectively and after opening the flow off connection. Furthermore there are disclosed apparatus for practicing said method. One of said apparatus is characterized by a tiltably mounted pressure vessel capable of being connected to a compressed air line and provided for receiving the container, the interior of said pressure vessel being capable of being connected with that of the container and a flow off line capable of being connected with the lower end of the interior of the tilted container extending through the wall of said pressure vessel. Another of said apparatus is characterized by a tiltably supported pressure vessel in communication with atmosphere and provided for receiving the container, the interior of said pressure vessel capable of being connected with that of the container and a line capable of being connected with the lower end of the interior of the tilted container and provided for discharging the material extending through the wall of said pressure vessel, said line capable of being connected to a vacuum source.



3,568,866
TOWABLE TRAILER COMBINATION

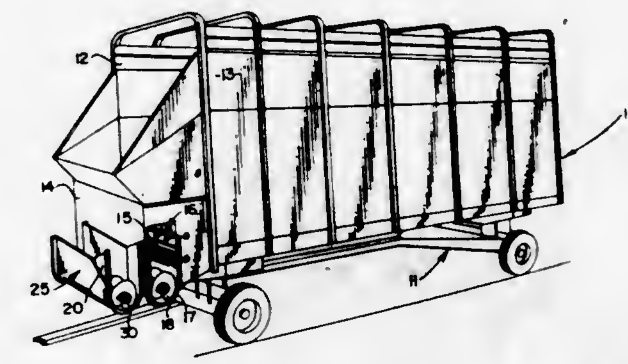
Glenn Black, 1007 Wilson St., Bay City, Mich.
Filed Oct. 24, 1968, Ser. No. 770,263
Int. Cl. B60p *3/10, 3/40*
U.S. Cl. 214—500 **10 Claims**



A smaller two-wheeled trailer is mounted behind and suspended from a larger two-wheeled trailer, with the wheels of the smaller slightly above ground level, in easily and controllably disconnectable combination. The smaller trailer has the tongue removed and ordinarily stowed out of the way for subsequent separate use of the trailer. Short rigid support members extend forwardly from the smaller trailer and are attached to the back of the larger trailer so as to be pivotal in at least the vertical plane while attached. Flexible support means extend down and back from upstanding support members on the larger trailer to attaching means on the smaller trailer. Taking in the flexible support means or moving the upper end of the upstanding support means forward raises the smaller trailer off the ground, in which position it becomes legally transportable in combination with the larger trailer which is preferably provided with a longitudinally slidably adjustable axle assembly.

3,568,867
CONVEYOR EXTENSION

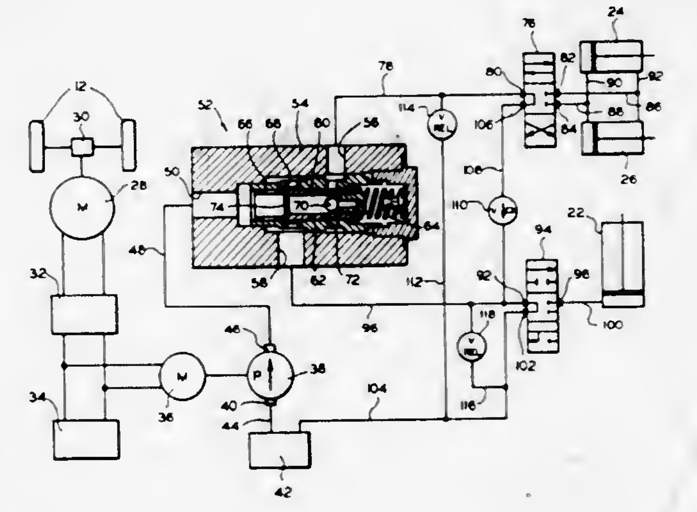
Peter Sammarco, Bellwood; Robert W. Sanderson, III, Lombard, and Arnold Zimmerman, Downers Grove, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Mar. 5, 1969, Ser. No. 804,578
Int. Cl. B60p *1/40*
U.S. Cl. 214—522 **6 Claims**



An extension for an auger-type cross conveyor of a conventional self-unloading wagon wherein the extension includes an auger supported in a trough pivotally mounted on the wagon box for swinging movement about horizontal and vertical axes. The auger of the cross conveyor and the auger of the extension are provided with universal joint sections providing a driving connection therebetween which accommodates pivoting movement of the extension about the horizontal axis. The universal joint sections are separable upon swinging the extension about the vertical axis to a transport position.

3,568,868
HYDRAULIC SYSTEM FOR A LIFT TRUCK

Willard L. Chichester, Battle Creek, Mich., assignor to Clark Equipment Company
Filed Sept. 8, 1969, Ser. No. 855,950
Int. Cl. B66f *9/20;* **F15b** *11/16*
U.S. Cl. 214—674 **8 Claims**



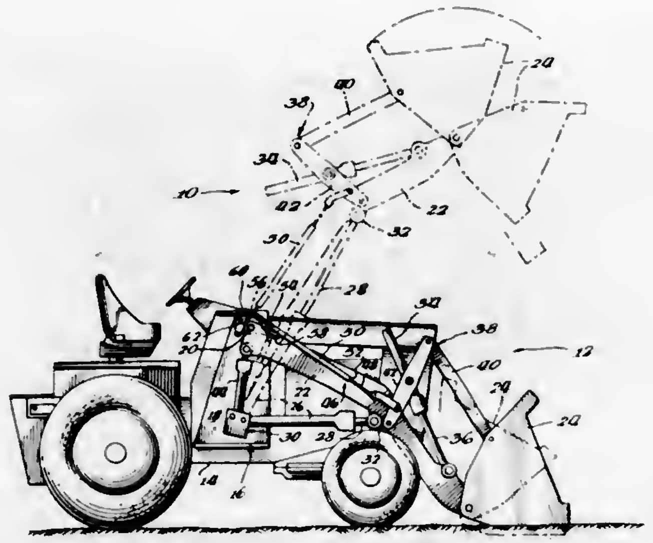
A hydraulic system for use in a lift truck. A single pump supplies fluid to a flow priority valve which supplies fluid up to a predetermined flow to an upright tilt circuit and supplies any fluid above the predetermined flow to an upright lift circuit. The tilt circuit is connected to the lift circuit by a one-way valve so that the entire flow from the pump can be supplied to the lift circuit.

3,568,869
ANTI-ROLLBACK MECHANISM

Gary L. Beiley, Terre Haute, Ind., and Gary A. Dickman, Milwaukee, Wis., assignors to J. I. Case Company, Racine, Wis.

Filed Jan. 9, 1969, Ser. No. 790,050
Int. Cl. E02f *3/30*

U.S. Cl. 214—764 **10 Claims**



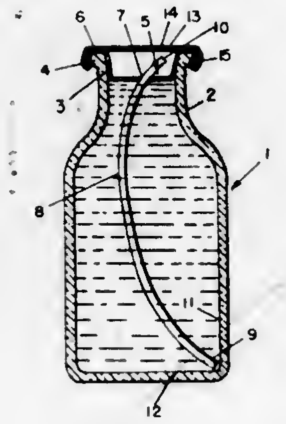
A loader unit mounted on a tractor and including pivotally mounted lift arms on which there is pivotally supported a bucket controlled by a hydraulic circuit including a bucket control cylinder. The loader unit includes an antirollback mechanism incorporating a control member and a control link. The control member is moved relative to the link in response to movement of the bucket control operating lever; and the control link is movable relative to the control member by raising and lowering of the lift arms and pivoting of the bucket relative to the lift arms so that the link engages the control member to prevent rollback of the bucket when the bucket and the arms are in position to permit rearward dumping of the bucket.

3,568,870
PLASTIC BOTTLE WITH SELF-CONTAINED DRINKING TUBE

Edward R. Elston, 1691 E. Granda Court, Ontario, Calif.

Filed Mar. 3, 1969, Ser. No. 803,617
Int. Cl. B65d *77/28*

U.S. Cl. 215—1 **1 Claim**

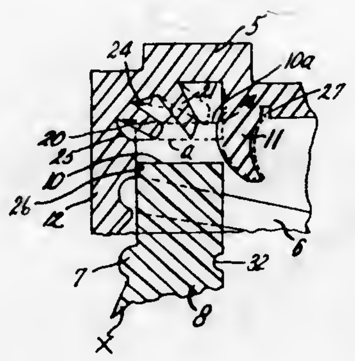


A plastic bottle having a reduced neck with a filling opening therein is formed with an apertured cup-shaped well crimped thereto and arranged within the opening and through which a curved drinking tube projects into the bottle. The filling opening is closed by a flat cap crimped thereto and below which the apertured well is spaced so that the upper end of the tube is concealed therein and is movable upwardly therethrough when the cap is removed for drinking purposes.

3,568,871
CLOSURE CAP

Jay G. Livingstone, 715 W. Market St., Akron, Ohio
Continuation-in-part of application Ser. No. 701,524, Jan. 8, 1968, now Patent No. 3,494,496, and a continuation-in-part of 797,922, Feb. 10, 1969, now abandoned. This application May 12, 1969, Ser. No. 823,742
Int. Cl. B65d *41/28, 41/16*

U.S. Cl. 215—40 **4 Claims**



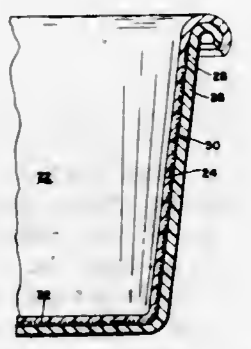
A flexible cap is designed to make a tight seal with a bottle or the like. The cap may be either a snap-on or a screw-on cap. There are two annular tonguelets which extend down from the top of the cap, and preferably there is also an annular tongue. The tongue and tonguelets are concentric. The tonguelets are brought into pressure contact with the top surface of the wall of the bottle when the cap is in place on the bottle, and the tongue makes pressure contact with the inner top edge and/or the inner surface of the wall of the bottle. The tonguelets meet the top of the wall at an angle and when they are in pressure contact with this wall they are flexed. When both tonguelets are inclined inward, the outer tonguelet makes a greater angle with the skirt of the cap than the inner tonguelet so that when the tonguelets are flexed inward against the top of a bottle there is more room for the outer tonguelet to flex inward than if both tonguelets were parallel.

3,568,872
INSULATED PLASTIC CONTAINER

James C. Logomasini, Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 28, 1968, Ser. No. 771,238
Int. Cl. B65d *25/18*

U.S. Cl. 220—9 **1 Claim**

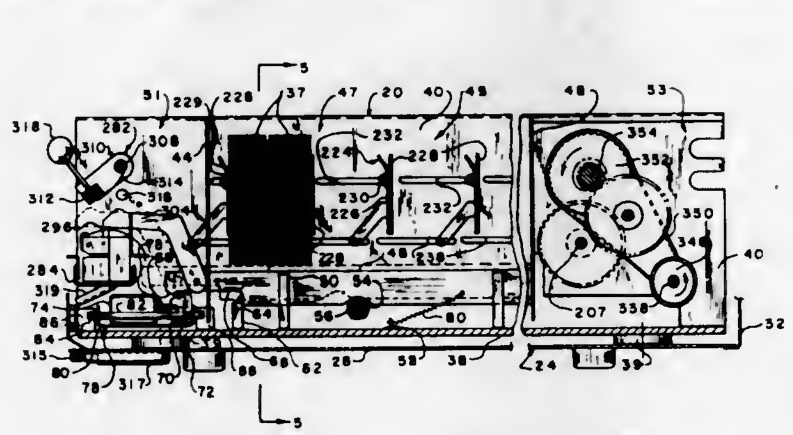


A double walled container wherein at least one of the enclosed sides of the opposing walls has a portion of its surface provided with a foam covering associated with said wall.

3,568,873
APPARATUS FOR THE SELECTION OF CODED ELEMENTS FILED AT RANDOM

Laurence Allan Cross, Jr., Lambertville, N.J., assignor to Randomatic Data Systems, Inc., Trenton, N.J.
Original application Mar. 9, 1965, Ser. No. 438,216, now Patent No. 3,486,617, Continuation-in-part of application Ser. No. 272,485, Apr. 11, 1963, now Patent No. 3,292,631, Continuation-in-part of application Ser. No. 280,964, May 16, 1963, now Patent No. 3,303,492, Continuation-in-part of application Ser. No. 287,275, June 12, 1963, now Patent No. 3,231,186. Divided and this application May 9, 1969, Ser. No. 840,080
Int. Cl. B65d *25/06*

U.S. Cl. 220—22.5 **9 Claims**



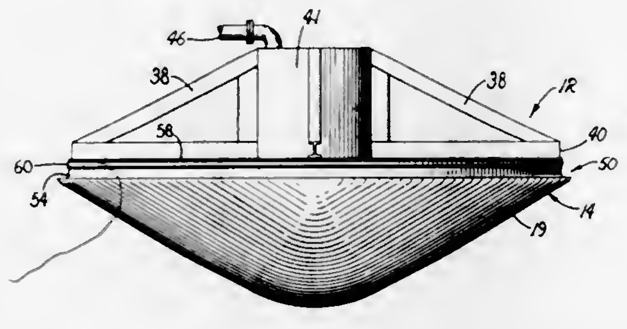
A fixed and a movable divider detect and self-adjust to the thickness of a card deck, and grip the cards tightly between them. Whatever the variable distance may be between the dividers when gripping the cards, the movable divider is backed off to a card-releasing position over a further distance which is a constant, such that the deck is always loosened to the same degree without regard to its thickness. A shoe contactor rolls a locking shoe of the movable divider along a trackway to shift the movable divider to its card-releasing position, and by pressure against the shoe locks the movable divider in that position.

3,568,874
PRESSURE SEAL

T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Ewald Heer, La Canada; Calvin M. Beylik, Glendora; John A. Garba, Los Angeles, and Frank W. Orlik, Manhattan Beach, Calif.

Filed Apr. 14, 1969, Ser. No. 815,760
Int. Cl. B65d *53/02*

U.S. Cl. 220—46 **5 Claims**



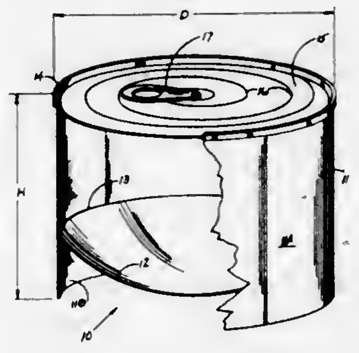
A pressure seal particularly suited for use in establishing a seal between a hermetically sealed test specimen and an associated test fixture disposed within an environmental test chamber, for purposes of subjecting the specimen to changing conditions of pressure and temperature, characterized by a rigid sealing member circumscribing an opening through which a vacuum is drawn, and an annular skirtlike, flexible sealing member formed of resilient and impervious material depending from the test fixture in circumscribing relationship with the rigid member in a manner such that pressure may be delivered from the specimen to the chamber, as a given positive pressure is established within the specimen, and a hermetic seal established therebetween as a given reduced pressure is established within the specimen for purposes of duplicating contemplated pressure conditions as may be encountered by a space craft as it approaches a celestial body enveloped in an atmosphere.

3,568,875
COMBINATION PET FOOD CONTAINER AND DISPENSER

Edward Olan, 33 Piper Drive, Searington, N.Y.

Filed Apr. 9, 1969, Ser. No. 814,735
Int. Cl. B65d *17/24, 7/42*

U.S. Cl. 220—54 **7 Claims**



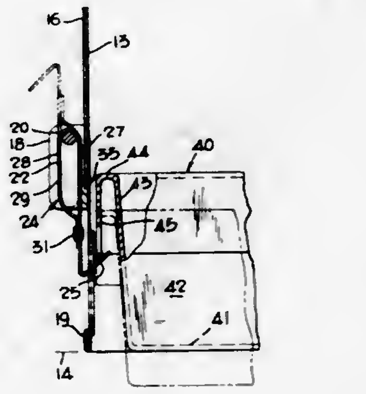
This disclosure is directed to a combination pet food container and dispenser in which the bottom of the container is concave or dish shaped so that a pet or animal may feed directly from the container in which the pet food is packaged and distributed. The container is also provided with a readily removable lid which hermetically seals the contents of the container until used, and is constructed so that the open edge of the container is devoid of sharp edges when used as a feeding dispenser.

3,568,876
COVER-CARRIER FOR MAIL TRAYS AND THE LIKE

Gene D. Danenberger, R.R. 2, Box 83AA, Chandlerville, and Glenn G. Vancil, Rte. 1,, Pawnee, Ill.

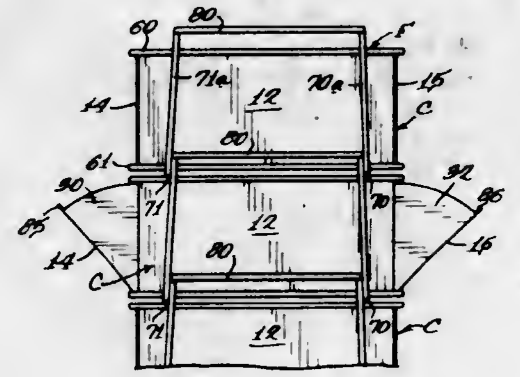
Filed Dec. 12, 1968, Ser. No. 783,354
Int. Cl. B65d *45/00*

U.S. Cl. 220—55 **7 Claims**



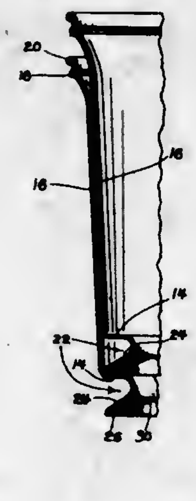
A cover-carrier for objects, such as stacked trays of mail which are to be maintained in order, transported and protected, features hooks which are magnetically latched in either suspended or retracted positions. On opposite walls of the inverted boxlike cover-carrier, hanging on horizontal pins, are the elongated loop ends of the hooks which when turned downward pass through apertures. Magnets between the pins and the apertures holds the hooks inwardly against the wall of the cover-carrier, to engage beneath the lip of the lowermost object. When the hooks are rotated outwardly, their loop ends slip downward in a retracted position, where they are held by the same magnets.

3,568,877
TOTE-BOX OR THE LIKE
Conrad D. Mastrud, Jr., 734 N. Leavitt, Chicago, Ill.
Filed July 18, 1968, Ser. No. 745,785
Int. Cl. B65d *25/16, 5/56*
U.S. Cl. 220—65 **4 Claims**



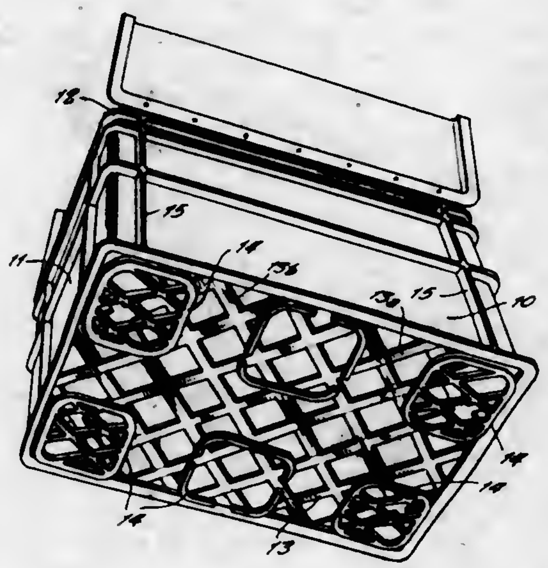
A tote-box having a container with a bottom and upstanding end and sidewalls with a structural framework for strengthening the container and rendering the tote-box stackable with side entry to the container wherein one of the sidewalls of the container is outwardly pivotal to provide side entry access and said structural framework including members encircling the container and coacting with the container for strengthening thereof and rendering the container stackable with other similar units along with structure to lock the container to the framework and to limit the outward pivotal movement of the container sidewall, the container being formable from a one-piece blank of cardboard or the like and wherein color coding can be provided for a variety of tote-boxes merely by preselection of the precolored stock used in forming the containers.

3,568,878
CONTAINER
Stephen Fotos, Englewood Cliffs, N.J., assignor to Multi Molds, International, Inc., New York, N.Y.
Continuation of application Ser. No. 346,476, Feb. 21, 1964, now abandoned. This application July 6, 1967, Ser. No. 660,540
Int. Cl. B65d *21/02, 1/26*
U.S. Cl. 220—97 **6 Claims**



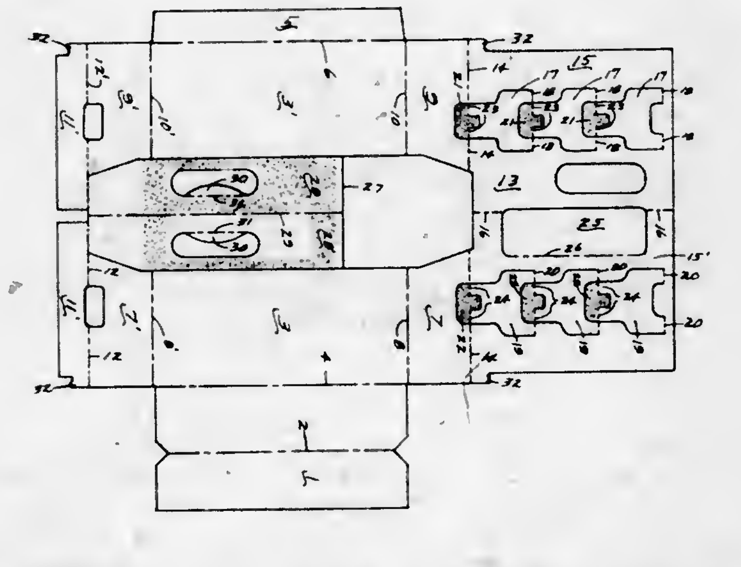
A one-piece nestable thin wall container made from plastic sheet material including a novel stacking configuration which permits axial yielding movement of a nested stack of similarly configured containers when a weight is impressed thereon.

3,568,879
PLASTIC STACKING AND TRANSPORT CASE
Theodor Box, 1108 Allene Road, Brielle, N.J.
Filed Mar. 4, 1969, Ser. No. 804,145
Int. Cl. B65d *21/02, 1/22*
U.S. Cl. 220—97 **4 Claims**



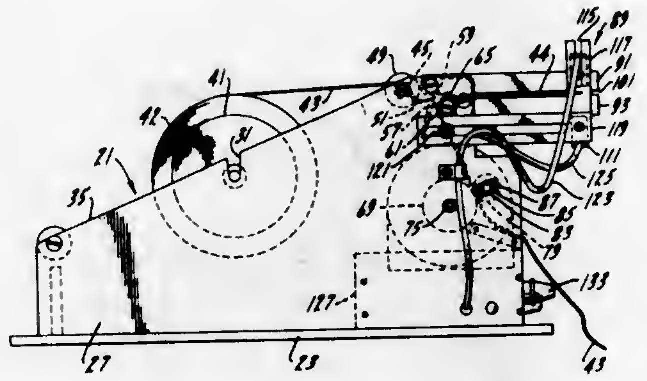
An integrally molded oblong rectangular plastic transport case having a length-to-width ratio greater than 1 and less than 1.5 has its bottom wall formed with two rows of three spaced and aligned framelike outward extensions each, said rows being symmetrical to the lengthwise center line of said wall, to provide a single lengthwise channel intersected by two crosswise channels of a width in excess of twice the width of the upper edges of the side and end walls of the case. The center lines of each of the crosswise channels are spaced from the short sides of said bottom wall such as to enable crosswise stacking and mutual interlock of tiers each including a plurality of cases. The spaces within the extensions near the corners of said bottom wall include gridlike structures flush with their outer surfaces, to provide discrete bearing surfaces for the wheels of a gravity conveyor used for loading and unloading of the cases.

3,568,880
BASKET STYLE CARRIERS
Glen Ray Harrelson, Monroe, La., assignor to Olinkraft, Inc.
Filed Aug. 19, 1969, Ser. No. 851,414
Int. Cl. B65d *5/48, 5/02*
U.S. Cl. 220—113 **3 Claims**



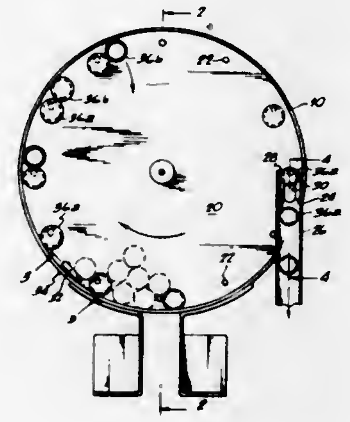
An improved full or partial protection, multiarticle carrier requiring a reduced number of steps for erection and having increased handle strength. The lateral partition panels which separate the articles within a longitudinal row are cut from a single pair of riser panels.

3,568,881
LABEL DISPENSING DEVICE
Francis M. Croney, Euless, Tex., assignor to Devmar, Inc., Arlington, Tex.
Filed Aug. 5, 1968, Ser. No. 750,340
Int. Cl. G07f *11/00*
U.S. Cl. 221—13 **7 Claims**



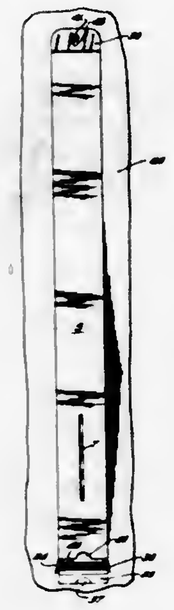
A label dispensing machine for separating pressure sensitive adhesive coated labels from a continuous backing tape and delivering the labels to a removal station upon demand. The labels are separated from the continuous backing tape by means which pulls the backing tape away from the labels as the labels are fed to a support roller contiguous to the removal station. The backing tape and its attached labels are fed through the dispensing machine by a driving means which engages the backing tape. The driving means is actuated by an electric eye means which is associated with the label removal station. The electronic circuit between the electric eye means and the drive motor is designed so as not to be adversely affected by changes in voltage.

3,568,882
HOPPER-TYPE APPARATUS FOR FEEDING ORIENTED SHALLOW FLANGED ARTICLES
Samuel S. Aidlin, 214 Beaumont St., New York, and Stephen H. Aidlin, 3855 Shore Parkway, Brooklyn, N.Y. 11235
Filed Apr. 15, 1969, Ser. No. 816,216
Int. Cl. B23q *7/12*
U.S. Cl. 221—164 **5 Claims**



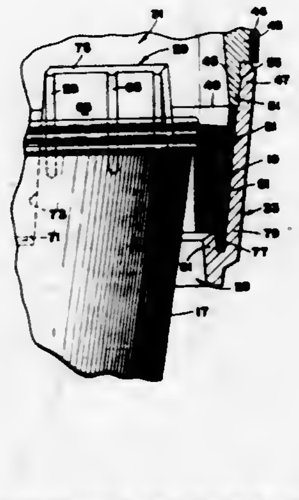
Hopper-type apparatus for feeding oriented shallow, flanged articles, such as jar caps, which includes a hopper having a rotating hopper bottom provided with a circular row of pins set into its surface in spaced relation to the wall of the hopper, and a ramp mounted in the lower part of the hopper, with its slope facing the direction of rotation of the bottom, and its lower end contacting the same, to thereby raise articles from the hopper bottom moved by the rotation thereof and drop them over the pins passing the ramp.

3,568,883
CARTON DISPENSER FOR WRAPPED ARTICLES
Gordon S. Reynolds, Salt Lake City, Utah, assignor to Le Voy's Inc., Salt Lake City, Utah
Filed Mar. 21, 1969, Ser. No. 809,219
Int. Cl. A47f *1/08;* **B65d** *83/00, 5/16*
U.S. Cl. 221—305 **4 Claims**



A carton dispenser for wrapped articles in which articles may be packaged for delivery, and later the carton dispenser hung on a wall and articles may be withdrawn one at a time for use through a bottom opening in the carton dispenser provided by the removal of a tab initially folded to close the opening until the dispenser is put to use.

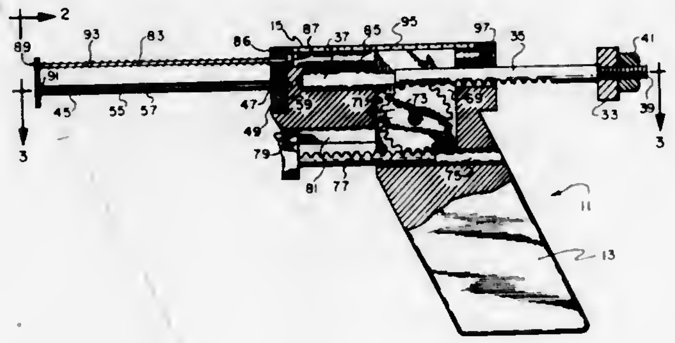
3,568,884
DISPENSER
Joseph Petricek, Sr., LaMirada, Calif., assignor to Solo Cup Company, Chicago, Ill.
Filed June 11, 1969, Ser. No. 832,171
Int. Cl. A47f *1/04*
U.S. Cl. 221—310 **6 Claims**



A dispenser is formed with an elongated housing the interior of which is hollow for receiving a stack of nested cups. Each bottom cup is removed one at a time by pulling it past a retaining means including flexible bristles extending radially inward in the housing to engage the cups adjacent the rims thereof. A guiding means in the housing limits tilting or angular movement of the cups from a position substantially in alignment with a longitudinal axis for the dispenser. The guide means may be in the form of angularly spaced and longitudinally extending guiding ribs which are arranged to define a guiding surface having an internal diameter slightly greater than the exterior diameter of the cup rim.

3,568,885
THICKNESS MEASURING AND INJECTION DEVICE

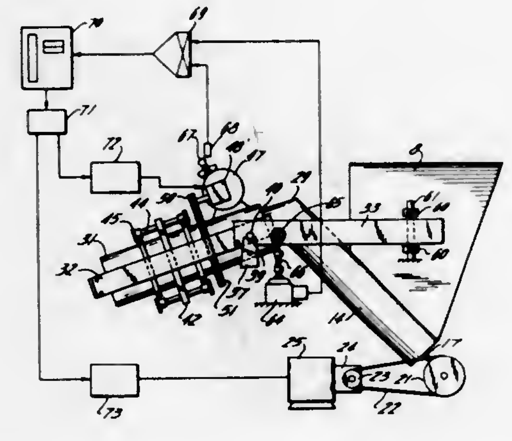
Robert L. Spencer, Huntsville, Ala. Administrationthe United States of America as represented by the administrator of the National Aeronautics and Space Administration
Filed July 30, 1969, Ser. No. 845,990
Int. Cl. B67d *5/06*
U.S. Cl. 222—23 **6 Claims**



A device for measuring the thickness of a surface material, such as spray-on foam insulation applied on a backing, and injecting a repair substance into the material. An injection gun comprises a needle that penetrates the thickness of the material being measured while a slidable thickness-indicating rod is pushed inwardly of the gun by an amount equal to the penetration of the needle. Two separate syringe cylinders are provided for containing fluid components that form foam insulation material when mixed and as the needle is withdrawn from the foam material these components are injected through separate needle passages into the cavity formed by the needle penetration.

3,568,886
LOW CAPACITY WEIGHER AND FEEDER

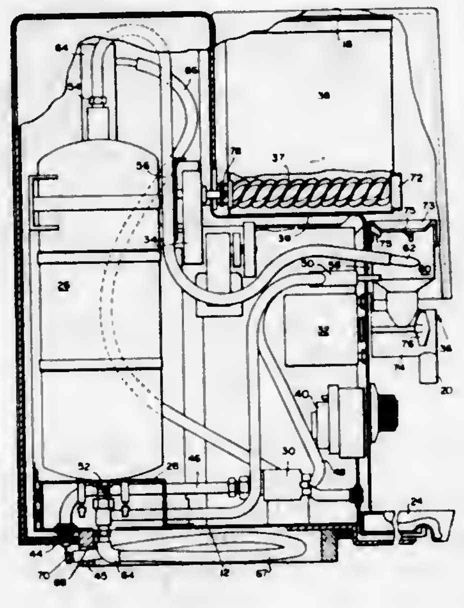
John L. Christmann, Passaic, N.J., assignor to Merrick Scale Mfg. Company, Passaic, N.J.
Filed Mar. 18, 1969, Ser. No. 808,265
Int. Cl. B67d *5/08*
U.S. Cl. 222—55 **14 Claims**



A low capacity weigher and feeder for handling capacities from 100 pounds per hour to a fraction of a pound per hour comprising a bin discharging material into a screw prefeeder or conveyor inclining to and transferring the material into a rotating drum declining from the transfer end of the screw conveyor and supported by a beam fulcrumed at the point of transfer between the screw conveyor and the drum and connected to a low capacity strain gauge for controlling the rate of feed and integrating the weight of said material. Both the screw conveyor and the drum are rotated by separate variable speed motors which are regulated by the strain gauge and a pulser wheel with its pickup coil.

3,568,887
HOT BEVERAGE DISPENSER

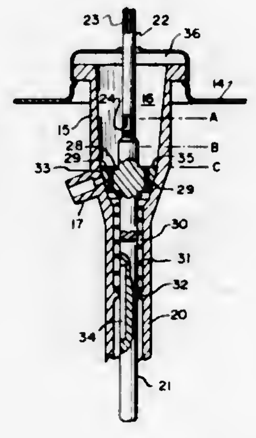
William H. Jacobs, Chestnut Hill, and Robert L. Norton, Norfolk, Mass., assignors to Jet Spray Cooler, Inc., Waltham, Mass.
Filed Nov. 13, 1967, Ser. No. 682,343
Int. Cl. B67d *5/08, 5/56*
U.S. Cl. 222—70 **6 Claims**



A hot chocolate dispenser having a water heater and a powder flavor pot and an adjustable timing means for dispensing different size drinks by dispensing variable quantities of water and powder.

3,568,888
SELECTIVE AEROSOL VALVE SYSTEM

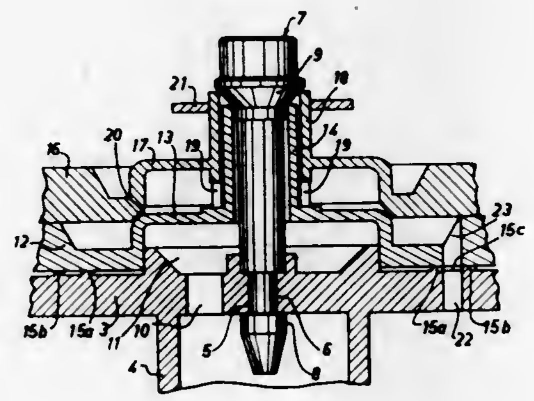
Andrew A. Baldoni, Crystal Lake; Gerard W. Meister, Barrington, and Larry D. Hufsey, Elgin, Ill., assignors to Simoniz Company
Filed July 23, 1969, Ser. No. 844,079
Int. Cl. B65d *35/22*
U.S. Cl. 222—94 **4 Claims**



An aerosol dispensing valve system for dispensing selectively a first fluid only, a second fluid only or a mixture of the fluids depending upon the position of a movable valve stem in which the fluids are retained in their own separate containers and are maintained distinct except when the mixture is dispensed.

3,568,889
VALVE FOR DISPENSING A PLURALITY OF FLUIDS

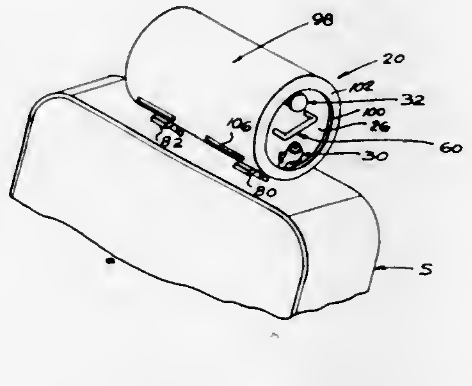
Bruno Morane, Paris, France, assignor to L'Oreal, Paris, France
Filed Nov. 21, 1968, Ser. No. 777,599
Claims priority, application France, May 6, 1968, PU150,611
Int. Cl. B67d *5/52*
U.S. Cl. 222—136 **13 Claims**



Valve for simultaneously distributing fluids from a plurality of pressurized tanks comprising a central stem encircled by a plurality of radially spaced concentric cylinders, the upper ends of which seal against a seat on the upper end of the stem, while each lower cylinder end is attached to one of a plurality of superposed transverse plates, with the interior of each cylinder in communication with one of said tanks.

3,568,890
HEADREST-LIQUID CONTAINER

Thomas S. Leachman, 3608 Volcanic Ave., El Paso, Tex.
Filed Sept. 17, 1969, Ser. No. 858,755
Int. Cl. B67d *5/06*
U.S. Cl. 222—183 **7 Claims**

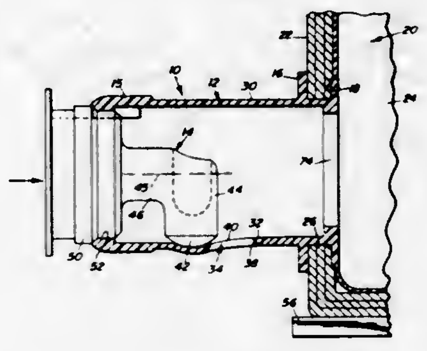


A headrest-liquid container in which a substantially cylindrical container, having filling and spigot means, is encased in a protective pad, and has brackets extending through the pad for seat back engagement. The container may be supplied with pivotal legs for use apart from the headrest function.

3,568,891
SPOUT FOR CONTAINER

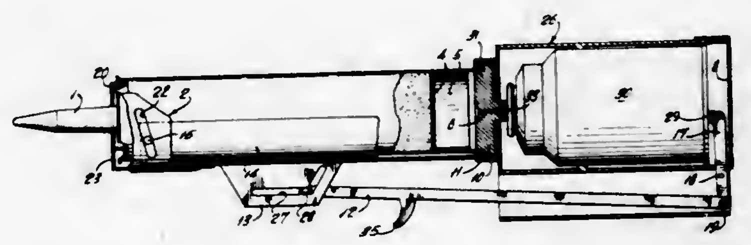
Frank T. Parish, 313 Brooklawn, Frederick, Md.
Filed Sept. 6, 1968, Ser. No. 757,903
Int. Cl. B65d *37/00*
U.S. Cl. 222—213 **8 Claims**

A spout or spigot for use with a receptacle containing liquids wherein a valve member is prestressed against a dispensing opening to thereby limit liquid flow except by relieving the prestressed condition by squeezing of a tubular member.



3,568,892
AEROSOL CAULKING ASSEMBLY

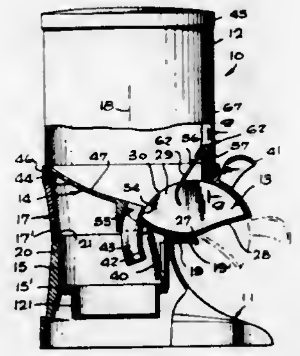
Keith E. Burk, Kalamazoo, Mich., assignor to U.S. Plywood-Champion Papers Inc., New York, N.Y.
Filed Mar. 13, 1969, Ser. No. 807,045
Int. Cl. B67d *5/46*
U.S. Cl. 222—327 **16 Claims**



A caulking assembly wherein the plunger within the caulking cartridge is moved forward utilizing a gas secured from an aerosol container thereby permitting uniform and even application of the caulking compound only at the desired areas. The aerosol caulking gun mechanism comprises in combination a metal cartridge holding assembly, a power source holding assembly and an actuator assembly.

3,568,893
DISPENSER

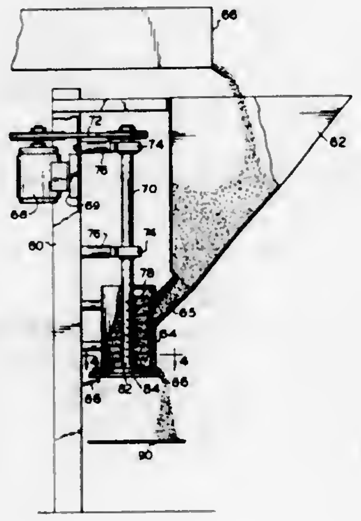
Henry Becker, 4163 Beverly Blvd., Los Angeles, Calif.
Filed June 9, 1969, Ser. No. 831,606
Int. Cl. G01f *11/10*
U.S. Cl. 222—362 **15 Claims**



A dispenser for delivering measured quantities of nuts or the like from a supply receptacle, and including a unit forming a bottom wall of the supply receptacle and constructed to retain in position a pivotally movable measuring chamber and a spring element which coacts with the measuring chamber to close off the flow of nuts or other items thereinto upon a pivotal dispensing operation.

3,568,894
MEANS TO METER GRANULAR OR PARTICULATE MATERIAL

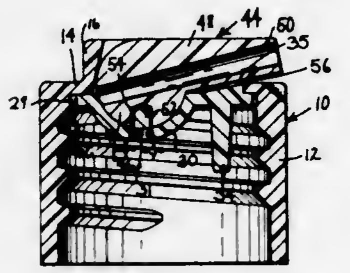
Kenneth M. Allen, and Chester H. Harper, Newberg, Oreg., assignors to Allen-Harper, Inc., Newberg, Oreg.
Filed Jan. 21, 1969, Ser. No. 792,510
Int. Cl. G01f *11/00*
U.S. Cl. 222—410 **10 Claims**



Apparatus to meter granular or particulate material including a bottomless hopper, means to introduce granular or particulate material into the hopper, a horizontal plate disposed beneath said hopper, the edges of said plate extending outwardly of said hopper, the plate supporting the material within said hopper with a portion of the material peripherally exterior of the hopper and resting on the plate at its angle of repose, and means to oscillate the plate in its plane to distribute the material over the edges thereof.

3,568,895
DISPENSING CLOSURE CAP FOR A CONTAINER

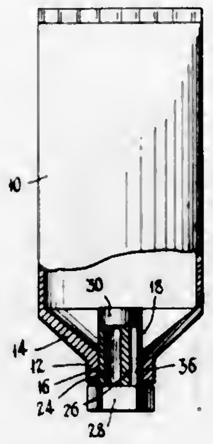
Alvin J. Porter, Minneapolis, Minn., assignor to Product Design & Engineering Inc., Minneapolis, Minn.
Filed July 30, 1968, Ser. No. 748,850
Int. Cl. B67d *5/12*
U.S. Cl. 222—534 **3 Claims**



A dispensing closure cap including a base portion having an annular wall and a top portion formed with a slot together with a spout having an arm portion terminating in a base with a passageway extending through said arm and said base. An insert for said base having an outlet hole formed therethrough together with complementary socket means formed within said top portion and said insert in which the base of said spout is mounted for pivotal movement together with means for securing the insert in the base portion with the arm of the spout extending through said slot, the pivotal movement of the spout causing said passageway of said spout to register with said outlet hole of said insert or to not register whereby the outlet hole is sealed off.

3,568,896
CAPTIVE STOPPER FOR TOOTHPASTE TUBES AND LIKE CONTAINERS

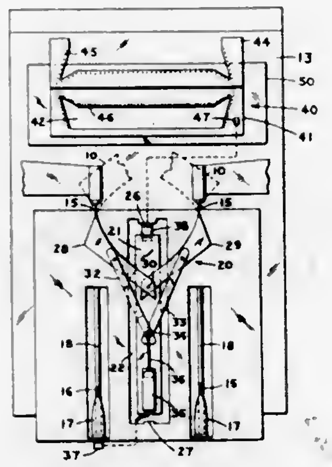
Arthur M. Harris, Fairfield, Conn.
Filed Sept. 5, 1969, Ser. No. 855,552
Int. Cl. B65d *51/06*
U.S. Cl. 222—557 **14 Claims**



A closure for dispensing-type containers such as collapsible tubes, comprising a tubular orifice for location at the discharge end of the container, said orifice having annular transverse end surfaces at its outer and inner ends. Two stopper members are engageable respectively with the end surfaces of the orifice, said members being connected together by a resilient hinge pin which is eccentrically disposed in the orifice and which mounts the stopper members for simultaneous pivotal movement between closing positions wherein they shut off the orifice bore and dispensing positions wherein they open said bore. At least one of the stopper members has a raised land portion which is adapted to occupy one end of the orifice bore. The hinge pin flexes to permit said land portion to surmount and traverse the one end surface of the orifice during pivotal movement of the stopper members between the open and closed positions. The land portion provides a detent action, apprising the user of the fully closed positioning of the stopper members.

3,568,897
METHOD AND APPARATUS FOR MANUFACTURING GARMENT PARTS

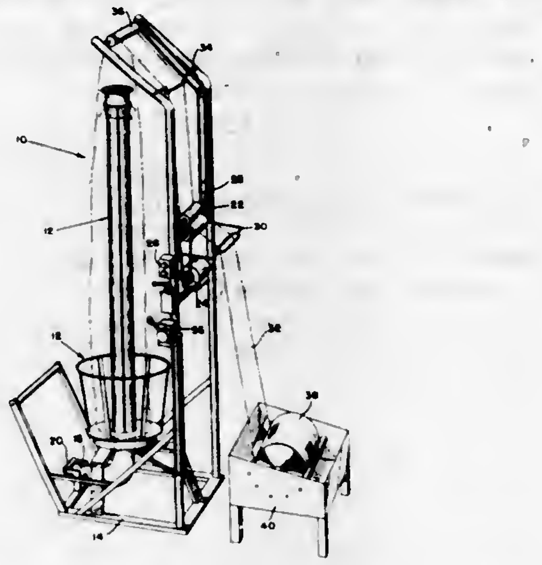
Richard J. McFalls, Troy, N.Y., assignor to Cluett, Peabody & Co., Inc., Troy, N.Y.
Filed Dec. 15, 1969, Ser. No. 885,030
Int. Cl. A41h *43/00*
U.S. Cl. 223—2 **6 Claims**



Method and apparatus for turning, shaping and topstitching a multiple-ply garment part including a collapsible form which shapes and delivers the turned garment part to a clamping jig for subsequent topstitching.

3,568,898
EVERTING APPARATUS AND METHOD

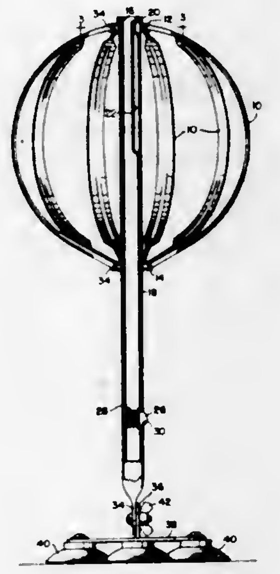
Roy J. Griffin, Jr., 296 Araminta Drive, Winston-Salem, N.C.
Filed Sept. 5, 1969, Ser. No. 862,611
Int. Cl. A41h *43/00*
U.S. Cl. 223—43 **15 Claims**



Apparatus and method for everting a supply of a tubular fabric utilizing an elongated, hollow, tubular member about the exterior of which can be collected a supply of tubular fabric by the utilization of a selectively directed air stream. The collected fabric is then directed into and through the interior of the tubular member by a second selectively directed air stream so that the inside of the fabric is turned to the outside and the fabric emerges from the tubular member in an everted condition. Various drive and guide means are incorporated to move the fabric to the tubular member and receive the fabric from the tubular member for conveyance to a remote location.

3,568,899
WIG SUPPORT

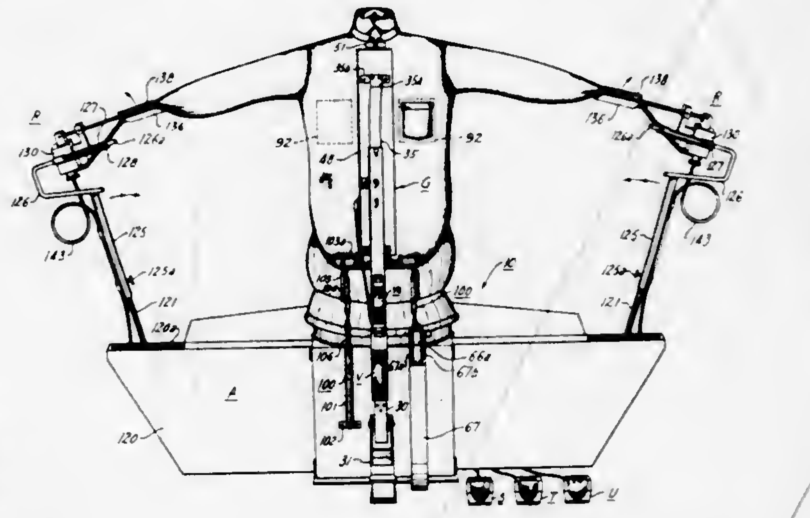
Albert Rosenberg, 6700 Harbison Ave. Apt. 11A, Philadelphia, Pa.
Filed Feb. 2, 1970, Ser. No. 7,608
Int. Cl. D06c *15/00*
U.S. Cl. 223—66 **6 Claims**



A collapsible wig support is formed by means of a plurality of bendable ribs which are assembled in a generally circular arrangement with one set of ends of the ribs movable with respect to the other to bend the ribs to form a generally spherical shape suitable for mounting a wig. The ribs are latched in the bent condition. The ribs themselves may be suitable for carrying fasteners for securing the wig thereto directly, or a cover may be placed over the framework of ribbing so that the wig can be attached or pinned to the cover itself. The mounting of the rib framework is supported by a suitable type of stand or clamping structure so that it can be erected and retained on a table or the like. When not in use, the framework may be unlatched so that the ribs unbend to a collapsed condition, whereby the entire unit takes up very little space and is suitable for storage and for portability.

3,568,900
SHIRT PRESSING MACHINE

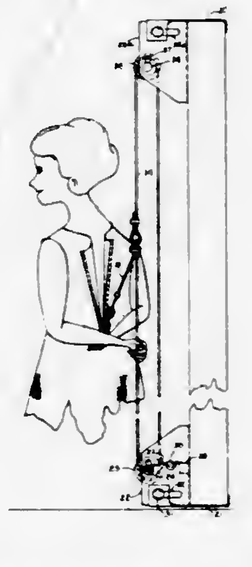
August F. Paris, 1415 McCullough Ave, Brockway, Pa.
Filed Oct. 27, 1969, Ser. No. 869,830
Int. Cl. A41h *5/00, 5/02*
U.S. Cl. 223—70 **23 Claims**



A machine for finishing laundered and drycleaned shirts employs an expandable permeable fabric form into which a mixture of hot air and dry steam are introduced. The form is adjustable for different shirt sizes and is surmounted by a partible collar shaper. The machine has an internal front counter presser plate and an outer cooperating, separately-heated, front pressure plate, suitable bottom edge clips, a front edge top and bottom clip assembly, and a back pressure plate that is termed a shirt tail finisher. The fabric form has a backwardly-positioned lower bustlelike secondary or auxiliary form that cooperates with the back pressure plate to give an outwardly-diverging expanding action to a shirt tail being finished. The form has portions of increased permeability opposite seamed or thickened portions of the shirt and makes use of metal plate means for finishing pockets. The machine operates in a substantially automatic cycle and is provided with cuff-gripping means that accommodates to any suitable length of sleeve and to short sleeves.

3,568,901
SLIDE FASTENER OPERATING MECHANISM

Lewis F. McNitt, 23219 Lake Road, Bay Village, Ohio
Filed Nov. 22, 1968, Ser. No. 778,267
Int. Cl. A47j *51/06*
U.S. Cl. 223—111 **3 Claims**



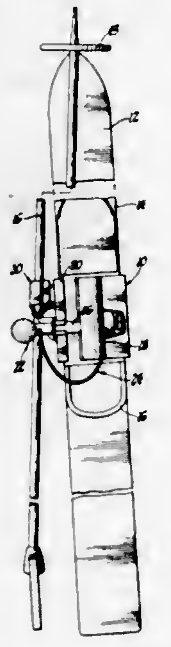
A slide fastener operating mechanism adapted for door or wall mounting is secured to an endless cord that is suspended and running between spaced, resiliently supported end pulleys, themselves positioned in easily removable over-the-door or wall securable brackets.

3,568,902
DEVICE FOR CARRYING AND SECURING SKI EQUIPMENT

Samuel M. Highberger, 5543 Westwood Lane, Birmingham, Mich.

Filed July 11, 1968, Ser. No. 744,197
Int. Cl. A45f *3/00*

U.S. Cl. 224—45 **23 Claims**



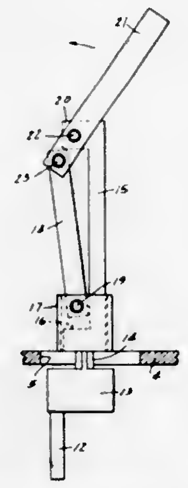
A device for use in carrying and securing ski equipment including a U-shaped member and a hinged member that is lockable with respect to the U-shaped member after the U-shaped member and hinged member are positioned around a pair of skis that are disposed in back-to-back relationship. The device also includes a pivotable member for locking ski poles into a fixed position, the pivotable member being positioned so that a single locking plunger can tie together the U-shaped member, the hinged member, and the pivotable member thereby adapting the device to be carried or alternatively secured to a fixed object.

3,568,903
STRIPPING MEMBER ASSEMBLY

Pierre Lang, Ecublens, Switzerland, assignor to J. Bobst & Sons, Inc., Prilly, Switzerland

Filed May 16, 1969, Ser. No. 825,252
Claims priority, application Switzerland, May 20, 1968, Apr. 16, 1969, 7781/68;5721/69
Int. Cl. B26f *3/00*

U.S. Cl. 225—93 **7 Claims**



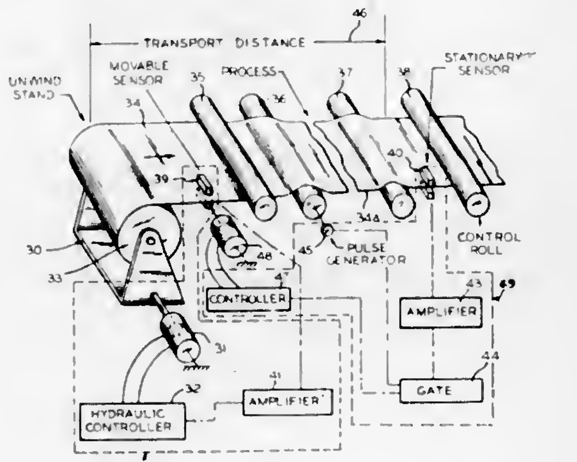
A device for rapidly releasably connecting a waste stripping pin or reject ejector to a grid or supporting frame. The stripping pin is connected to or forms a part of a leg which in turn is guided for rectilinear movement within a sleeve. The parts are arranged so that the stripping pin and/or its associated pin block and the sleeve sandwich the grid or frame between them with the pin extending from one side of the frame or grid and the leg extending through and protruding from the opposite side of the frame or grid. A simple lever arm or eccentric linkage interconnects the free end of the leg with the sleeve whereby to positively lock the assembly on the grid or frame.

3,568,904
SAMPLE DATA WEB AND STRIP GUIDE CONTROL SYSTEM

Robert S. Kurz, Des Plaines, Ill., assignor to GPE Controls, Incorporated, Morton Grove, Ill.

Filed Aug. 1, 1969, Ser. No. 846,856
Int. Cl. B65h *25/26*

U.S. Cl. 226—15 **11 Claims**



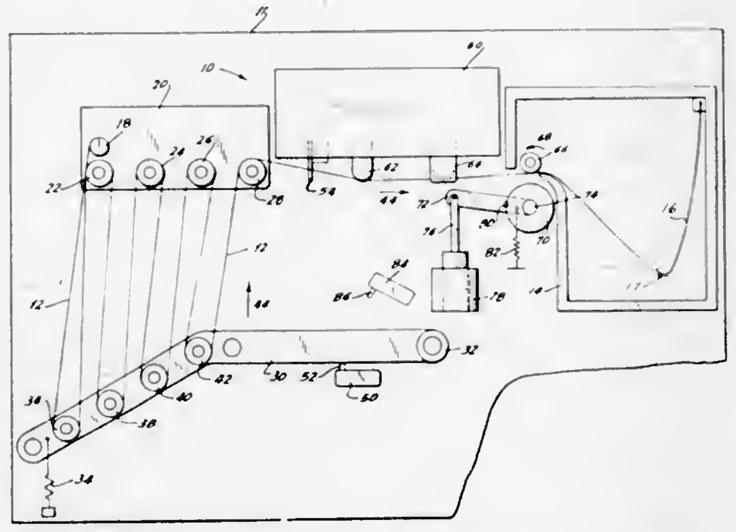
Control system for guiding a traveling web or strip to facilitate the performance of work on the web or strip to provide strip positioning at a location remote from the strip actuator by employing a movable sensor adjacent the actuator modulating the actuator in response to a set point, and a stationary sensor at the control point generating a time sampled signal to the movable sensor for changing the set point in response to the position of the strip at the control point.

3,568,905
TAPE FEEDING RETRACE MECHANISM

Hans F. Napfel, Huntington; Lee H. Schank, Melville, and Norman Buten, Douglaston, N.Y., assignors to Fairchild Camera and Instrument Corporation, Syosset, L.I., N.Y.

Filed May 9, 1969, Ser. No. 823,266
Int. Cl. G11b *15/29*

U.S. Cl. 226—50 **6 Claims**



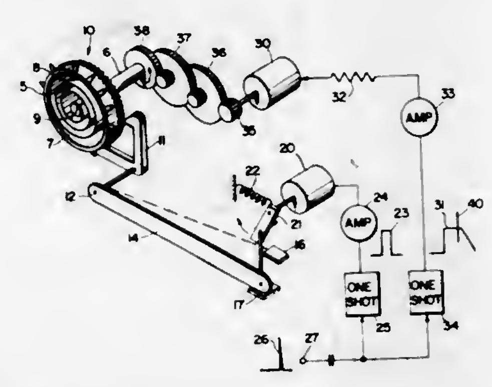
A mechanism for drive and rapid retrace of a length of recording tape to be used in a linear manner in a teaching apparatus or the like. The tape is carried by a retrace arm and driven in one direction in opposition to a spring force by a driven capstan into a storage compartment thereafter to be rapidly withdrawn from the compartment when not subjected to driving forces by the spring force.

3,568,906
INCREMENTAL DRIVE SYSTEM FOR CODED TAPE

John Paul Jones, Jr., Wayne, Pa., assignor to Navcor, Inc., a Division of KDI Corporation, Norristown, Pa.

Filed June 6, 1969, Ser. No. 831,191
Int. Cl. G03b *1/24*

U.S. Cl. 226—76 **7 Claims**



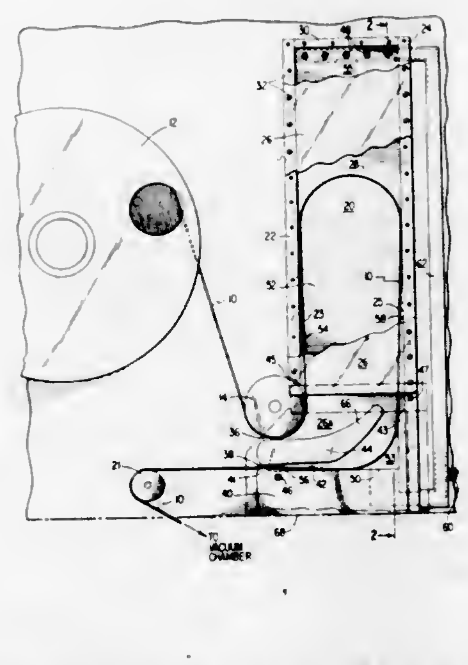
A system is described for incrementally advancing coded tape in response to an electronic trigger signal by means of a sprocket drum driven by a DC motor of limited torque during a time period at which a current drive pulse of predetermined duration occurs. An energy storage spring is coupled between a motor driven shaft and the drum to absorb energy from the motor until a stall condition is reached, and an incremental ratchet mechanism confines the rotation of the drum to a predetermined angle for each motor driving pulse, thereby efficiently using a small amount of energy only during the advancing period. A second motor reciprocates the ratcheting mechanism during the period the drum motor is operated.

3,568,907
REDUCTION OF TAPE STICTION

James Power Watson, Jupiter, Fla., assignor to RCA Corporation

Filed May 6, 1969, Ser. No. 822,173
Int. Cl. G11b *23/12*

U.S. Cl. 226—97 **9 Claims**



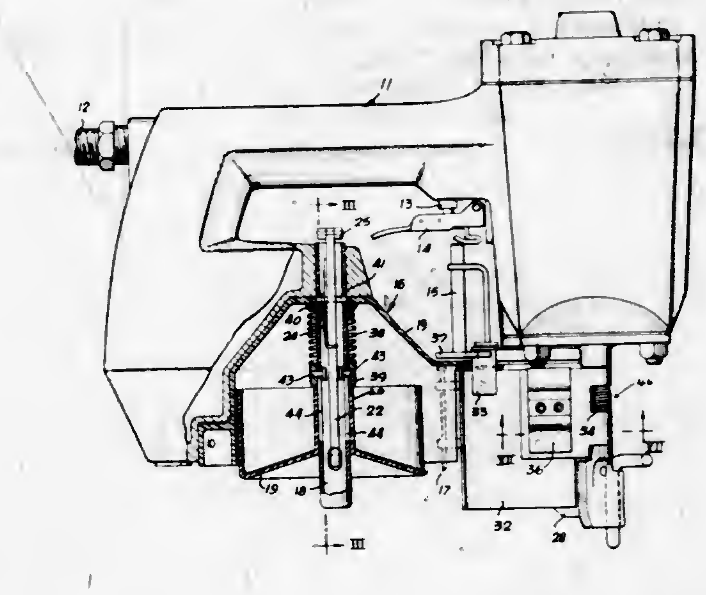
Tape stiction between a tape loop and the walls of a vacuum chamber is reduced by creating an air film, at a pressure greater than that within the tape loop, between the tape and walls.

3,568,908
MAGAZINE AND SKIP-OFF PREVENTING MECHANISM FOR FLUID ACTUATED FASTENER DRIVING MACHINE

I. Walton Bader, Brooklyn, N.Y., assignor to Swingline Inc., Long Island City, N.Y.

Filed Oct. 10, 1968, Ser. No. 775,989
Int. Cl. B25c *1/04*

U.S. Cl. 227—127 **10 Claims**



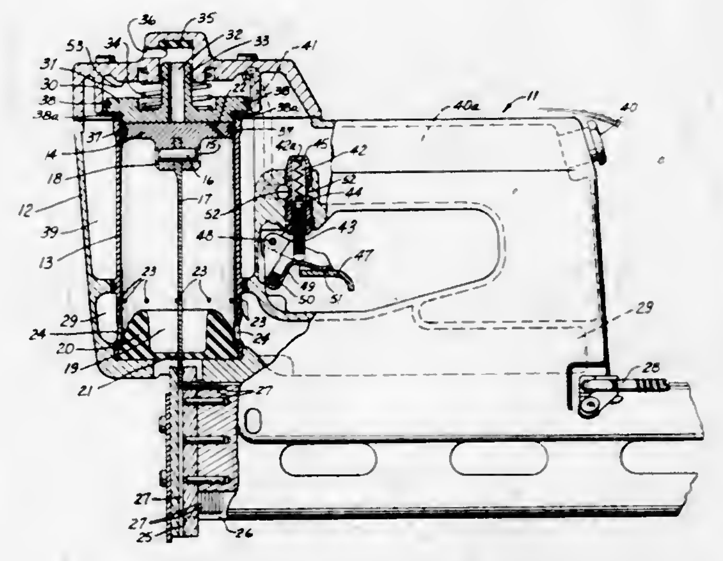
Improvements to a fluid-actuated fastener driving machine are shown. These include a magazine structure having a container for holding a plurality of fasteners, a stem within the container and a movable guide carried by the stem. A cover overlies the container and a cover ejecting member is connected to the stem. The guide is selectively connectable to the cover. Feed structure is operatively connected to the magazine and includes a track, a door overlying the track, a reciprocatingly movable first feed pawl within the track and a pair of auxiliary feed pawls springably connected to the door, spaced from the first feed pawl and at opposite sides thereof. A fastener ejecting channel is operatively connected with the track and has a holding member disposed therewithin. The member is movable out of the channel by impingement of a driven fastener thereupon.

3,568,909
FASTENER DRIVING MACHINE

Garry R. Perkins, Rolling Meadows, Ill., assignor to Spotnails, Inc., Long Island City, N.Y.

Filed July 23, 1969, Ser. No. 843,942
Int. Cl. B25c *1/04*

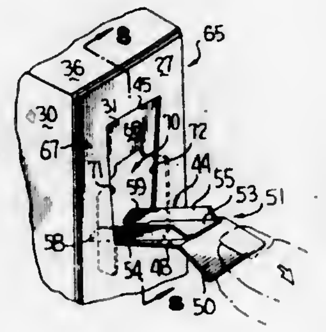
U.S. Cl. 227—130 **12 Claims**



A fastener driving machine is adapted shown having a housing with a piston movable therewithin. An air pressure system is to move the piston in a driving stroke and a bumper is abuttable with the piston at the end of the driving stroke. An air return chamber is connected to the housing by means of a plurality of openings within the housing and these openings are normally below the piston at the time that the piston commences its return stroke. These openings will be above the piston if the bumper is damaged and, therefore, will not permit the machine to operate in this condition.

3,568,910
CARTON WITH EASY TO OPEN POUR SPOUT

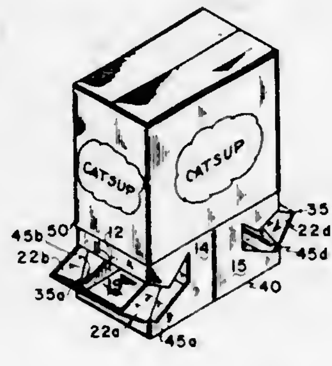
Don J. McConnell, Paramount, Calif., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Nov. 4, 1968, Ser. No. 773,226
Int. Cl. B65d *5/72*
U.S. Cl. 229—17 **13 Claims**



This disclosure relates to a carton including pour spout provisions defined by a first exterior pour spout defining panel and a second aligned interior pour spout defining panel. The first panel includes an inwardly depressible starting portion and an outwardly extensible gripping portion and the second panel includes a central portion affixed to the exterior first panel and pour spout sidewall forming portions hingedly connected with the central portion. Means located inwardly with respect to the exterior first panel blocks inward movement of the gripping portion to provide outward extension thereof upon depression of the starting portion.

3,568,911
DISPENSING CONTAINER

Donald R. Bebout, Stone Mountain, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed Jan. 22, 1969, Ser. No. 792,956
Int. Cl. B65d *5/72*
U.S. Cl. 229—17 **10 Claims**

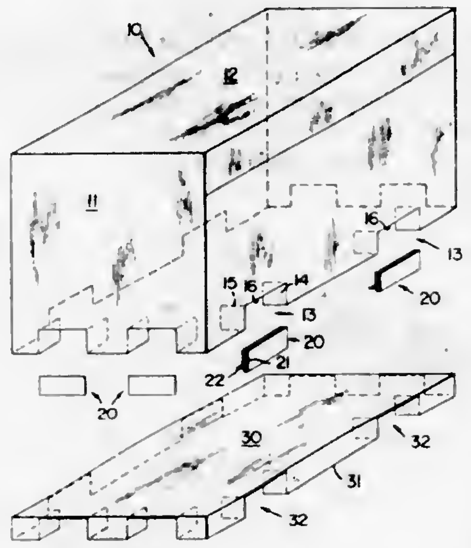


A dispensing container with a dispensing bin struck out from three foldably connected sidewalls. There is disclosed a twin dispenser using a pair of such bins and an integral upwardly projecting bin stay for frictionally inhibiting closure of an opened bin.

3,568,912
REINFORCED PALLETIZED CARGO CONTAINERS

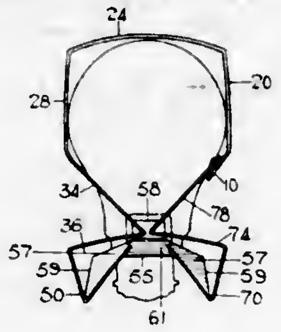
John de Simas, 960 Hillcrest, Millbrae, Calif. 94030
Filed Sept. 20, 1968, Ser. No. 761,272
Int. Cl. B65d *13/00*
U.S. Cl. 229—23 **5 Claims**

Reinforced cardboard palletized cargo containers having a container portion with cutouts at the bottom of the sidewalls for receiving the tines of a forklift truck. The cutouts include vertical flaps extending into the container from the sides of the cutouts for positioning on the flaps a flat base on which packaged goods are placed. An elongate U-shaped bracket extends over the upper edge of the cutouts frictionally engaging the sidewalls of the container. The brackets provide a durable bearing surface for the tines of a forklift truck and include a flat edge extending into the container above the flat base on which packaged goods rest for positioning the base between the flat edge of the bracket and the cutout flaps of the container walls.



3,568,913
CONTAINERS FOR ELECTRICAL GLOBES OR SIMILAR OBJECTS

Reginald Friedenthal, 430, Amcor House, 88, Marshall Street, Johannesburg, South Africa
Filed Jan. 27, 1969, Ser. No. 794,004
Claims priority, application South Africa, Feb. 5, 1968, 68/0747
Int. Cl. B65d *5/02, 85/30*
U.S. Cl. 229—40 **8 Claims**

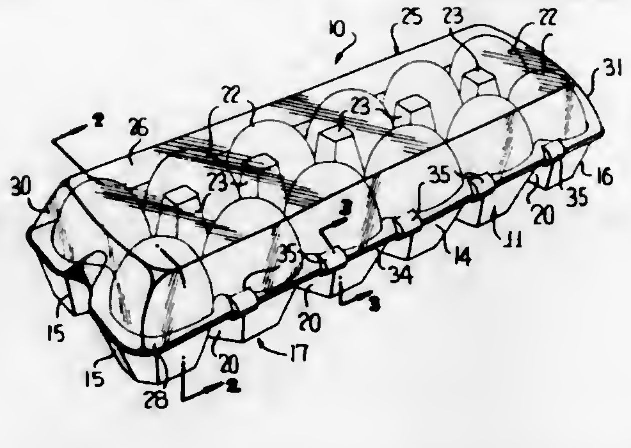


A carton for an incandescent electric globe consisting of a base portion adapted to support the metallic part of the globe and a loop, the ends of which are connected to the base portion, surrounding the glass portion of the globe.

3,568,914
PLASTIC COVERED MOLDED EGG CARTON

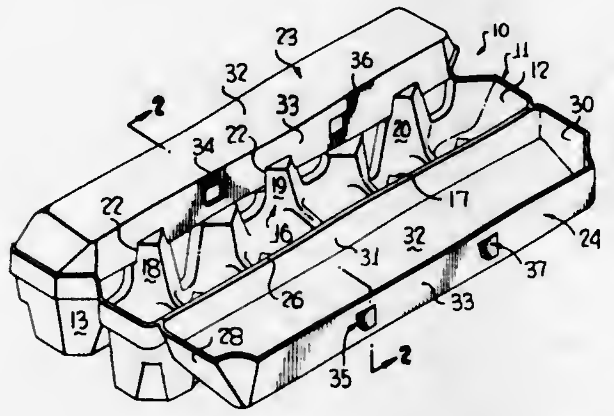
Heinz Ahlmeyer, Pearl River, N.Y., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Nov. 12, 1968, Ser. No. 774,959
Int. Cl. B65d *5/66, 1/00, 25/00*
U.S. Cl. 229—44 **4 Claims**

An egg carton having a pocketed molded paper pulp lower carton body portion and a transparent plastic or synthetic resinous material cover portion is disclosed herein. The lower body portion and cover portion are hingedly connected by the provision of an elongate terminal rib or bead integrally molded on the extremity of one side of the lower body portion and a plurality of channeled projections integrally molded on one side of the cover portion and partially encompassing the elongate rib or bead for pivotal movement thereon. The body portion and cover portion are latched together by an elongate integrally molded grooved projection on the body portion cooperating with a rib or bead terminating a further side of the cover portion to be snapped into the groove of the grooved projection and on the opposite side of the carton from the hinged connection of the body and cover portions.



3,568,915
LOCKING MEANS FOR CARTON COVERS

Fred C. Newman, La Grange Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 5, 1968, Ser. No. 702,847
Int. Cl. B65d *45/00*
U.S. Cl. 229—45 **9 Claims**

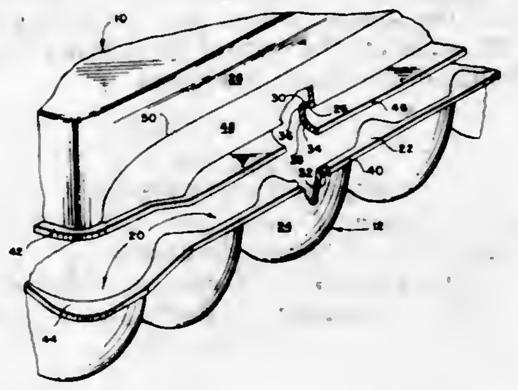


This disclosure is directed to novel-locking means for cartons of the type having a pair of covers joined to a carton body along generally parallel disposed hinge lines. The covers include front panels positioned in generally contiguous relationship in the closed position thereof, and the locking means are in the form of a male element protruding outwardly from one of the front panels and being interlockingly received within female recess means on the other of the front panels.

3,568,916
LOCKING MECHANISMS FOR EGG CARTONS

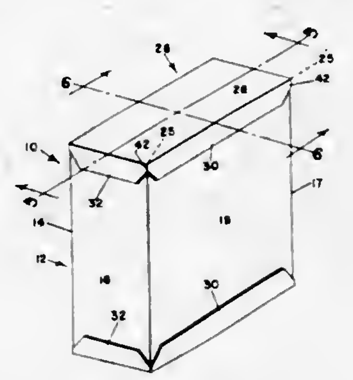
George R. Scheuring, Pittsburgh, Pa., assignor to Sinclair-Koppers Company, Pittsburgh, Pa.
Filed Apr. 4, 1969, Ser. No. 813,616
Int. Cl. B65d *45/00*
U.S. Cl. 229—45 **9 Claims**

Locking mechanisms for egg cartons having an integrally hinged tray and cover. The locking mechanism includes a locking flange that extends inwardly from the bottom of the cover's front wall and engages the underside of a protruding lip on the carton's tray when the carton is closed, and a depending flange that extends downwardly and outwardly from the inner edge of the locking flange to flex the locking flange over the protruding lip and into locking position as the tray and cover are moved into closed position.



3,568,917
CARTON HAVING AN END CLOSURE LABEL

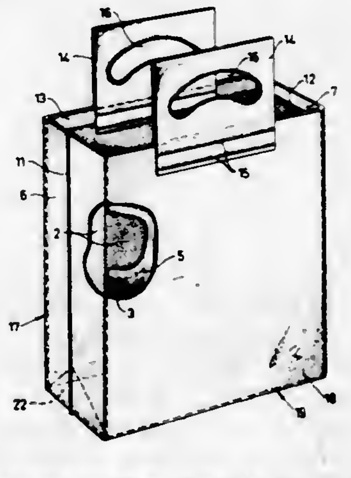
Robert W. Vergobbi, Braintree, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
Filed July 17, 1968, Ser. No. 745,428
Int. Cl. B65d *5/70*
U.S. Cl. 229—51 **3 Claims**



A carton having a separate end closure label or covering adhesively secured to the ends thereof primarily for the purpose of covering and closing any pinhole openings at corners or other areas of conventional carton end closures whereby to prevent leakage of finely divided materials and to prevent entrance of air or moisture.

3,568,918
SHOPPING BAG HAVING REINFORCED WALLS

Karl Olof Blomqvist, Hackstavagen 7, S-184 00 Akersberga, Sweden
Filed Feb. 4, 1969, Ser. No. 796,492
Claims priority, application Switzerland, Feb. 9, 1968, Oct. 11, 1968, 1735/1968;13772/1968
Int. Cl. B65d *33/02, 33/10*
U.S. Cl. 229—55 **1 Claim**

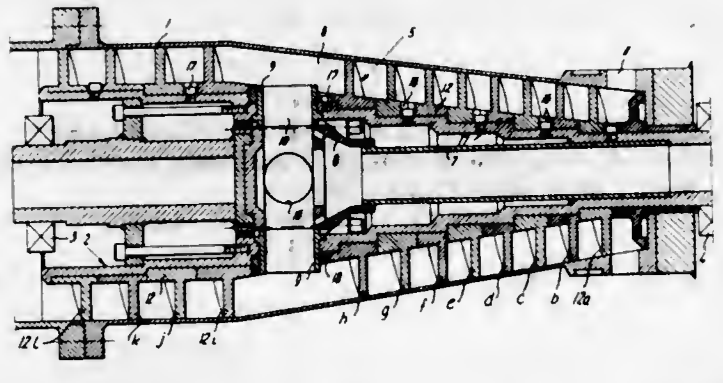


A collapsible shopping bag having four sides and a square bottom when opened out from a flattened state. It is formed by two layers of flexible and heat-sealing plastics foil with an intermediate stiffening sheet of Kraft paper inserted between such layers extending continuously across the bottom and along two opposite bag sides. The bag in flattened state has two side-forming walls connected by a transverse bellows fold to form the square bottom and the mating longitudinal edges of the walls and the ends of the bellows fold are closed by heat sealing of the plastic foil layers.

3,568,919

SCREW CENTRIFUGE

Torben Boss Nielsen, Copenhagen, Denmark, assignor to Titan Separator A/S, Soborg, Denmark
Filed Dec. 24, 1968, Ser. No. 786,654
Claims priority, application Denmark, Jan. 10, 1968, 73/68
Int. Cl. B04b *1/00*
U.S. Cl. 233—7 **5 Claims**

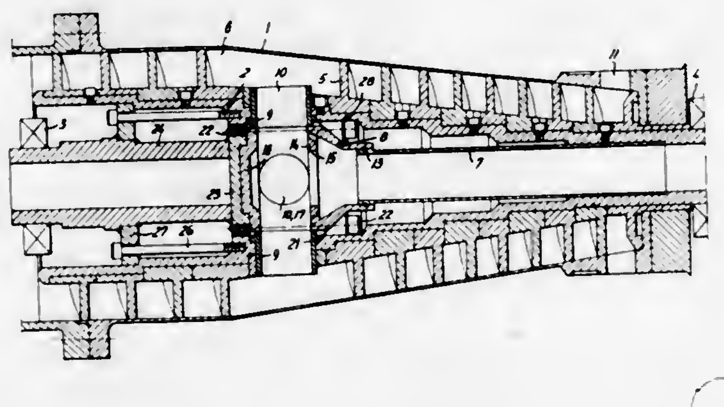


A screw centrifuge comprising inner and outer centrifuge rotors rotating at differential rotational speeds with a screw secured to the outer surface of the inner rotor for conveying separated solid matter. The screw comprises a plurality of axially adjoining sections individually secured to the internal rotor and located angularly with respect to one another to form a substantially continuous helix.

3,568,920

SCREW CENTRIFUGE

Torben Boss Nielsen, Copenhagen, Denmark, assignor to Titan Separator A/S, Soborg, Denmark
Filed Dec. 24, 1968, Ser. No. 786,662
Claims priority, application Denmark, Jan. 10, 1968, 74/68
Int. Cl. B04b *1/00*
U.S. Cl. 233—7 **4 Claims**

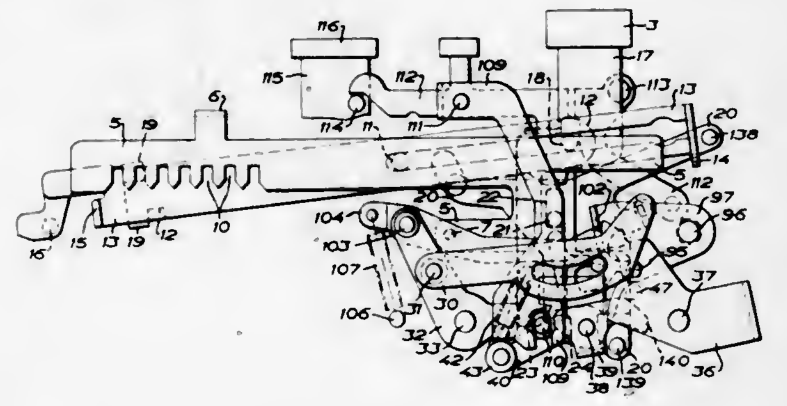


A screw centrifuge comprising inner and outer centrifuge rotors rotating at differential rotational speeds with a screw secured to the outer surface of the inner rotor for conveying separated solid matter. Means for supplying raw material to the separating chamber between the rotors, comprises an axially extending supply duct communicating with radial bushings secured in the inner rotor via a dismountable insert having corresponding, radially orientated discharge apertures.

3,568,921

POWER-DRIVEN CALCULATING MACHINE

John Lydfors, Malmo, Sweden, assignor to Aktiebolaget Addo, Malmo, Sweden
Filed May 22, 1969, Ser. No. 826,862
Claims priority, application Sweden, May 28, 1968, 7,102/68
Int. Cl. G06c *15/12, 13/00, 23/00*
U.S. Cl. 235—60 **3 Claims**



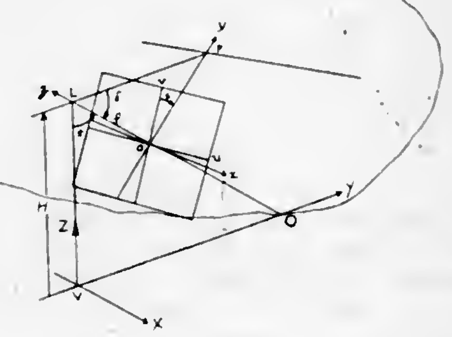
A power-driven calculating machine with a shiftable multiplier register containing a multiplier, a counter and a setting pin carriage with a multiplicand, which includes a presetting means connectable with the setting pin carriage by actuation of a preset operating means after insertion of the multiplicand in the setting pin carriage but before operation of the multiplication means, said presetting means being capable upon adjustment of the setting pin carriage after the multiplying operation, of stopping the carriage in the decade position occupied after insertion of the multiplicand but before the multiplying operation, and operable by preselection operating means for shifting said setting pin carriage so that in the shifting direction after insertion of the product in the counter but before a definite number of decade positions are produced by adding and subtracting means so that the multiplicand can be positively or negatively added to the product in the counter in a definite decade position in relation to said product.

The machine will be able to permit the multiplication of two factors by one another to obtain a product and then positively or negatively add one factor to the product in a position which has been decade shifted a definite number of steps in relation to the product.

3,568,922

SLIDE RULE

Paul M. Pepper, 514 E. Schreyer Place, Columbus, Ohio
Continuation of application Ser. No. 450,235, Apr. 7, 1965, Continuation-in-part of application Ser. No. 234,789, Nov. 1, 1962, now abandoned , Continuation-in-part of application Ser. No. 253,229, Jan. 22, 1963, now abandoned. This application Sept. 18, 1967, Ser. No. 674,045
Int. Cl. G06g *1/02*
U.S. Cl. 235—70 **12 Claims**

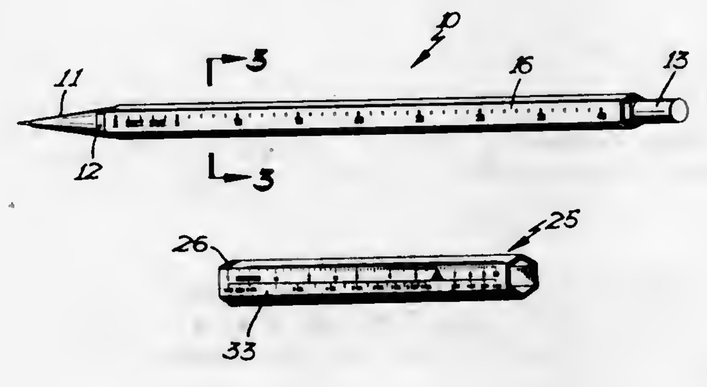


This invention relates generally to special purpose slide rule mathematical computers and particularly to a slide rule for computing the dimensions and positions of objects appearing on oblique aerial photographs.

3,568,923

AERONAUTICAL COMPUTER

Loyal H. Chapman, 1801 Flag Ave. South, Minneapolis, Minn.
Filed Mar. 28, 1969, Ser. No. 811,405
Int. Cl. G06g *1/02*
U.S. Cl. 235—70 **2 Claims**

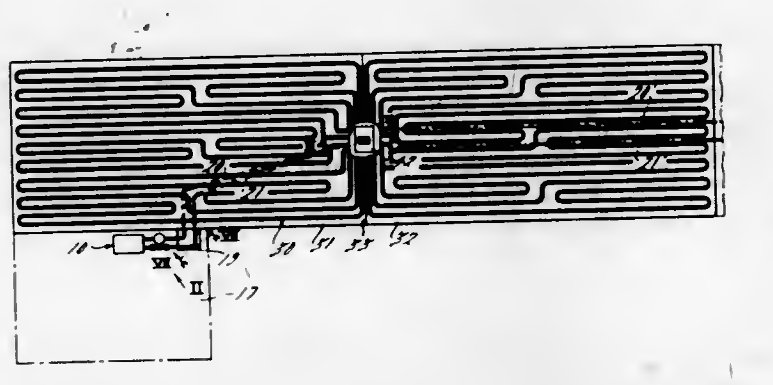


An aeronautical computer which combines a writing instrument with measuring scales used for measuring distances on aeronautical maps and log scales used for making various speed and fuel calculations.

3,568,924

SNOW MELTING SYSTEM

Lawrence H. Chenault, 3840 West Thirteen Mill Road, Royal Oak, Mich.
Filed June 25, 1969, Ser. No. 836,264
Int. Cl. F24d *3/02*
U.S. Cl. 237—1 **11 Claims**



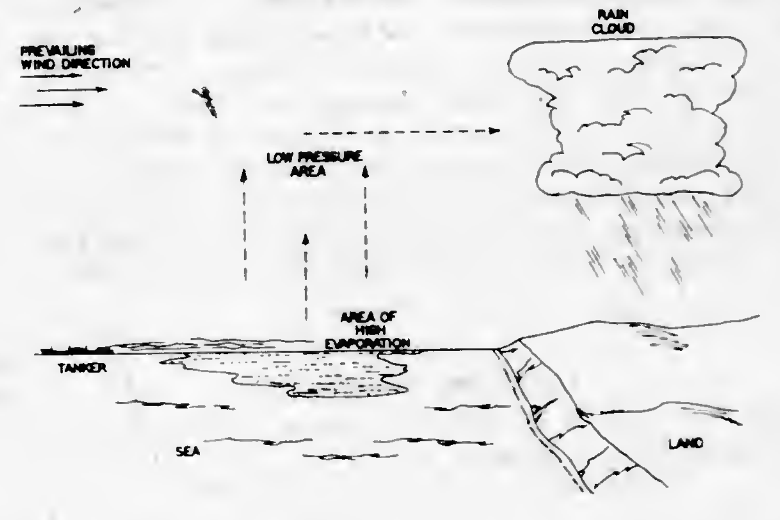
A system for melting snow and ice from paved surfaces consisting of flexible plastic tubing imbedded in the pavement is supplied wit a circulatory liquid heating agent via supply mains beneath the pavement and which feed the tubing through risers located in pits positioned at expansion joints in the pavement. All joints and connections are located in the pits together with freely flexible inlet and outlet sections of the tubing, none of which bridges the expansion joint. The liquid heating agent circulates in closed loop circuits and the system is charged through filling means located in a return line close to the heating source and which includes a check valve located between two access openings.

3,568,925

METHOD FOR PRODUCING INCREASED RAINFALL IN COASTAL REGIONS

Arthur C. Lietzer, 50 Rhine St, San Francisco, Calif.
Filed Aug. 8, 1968, Ser. No. 751,259
Int. Cl. A01g *15/00*
U.S. Cl. 239—2 **5 Claims**

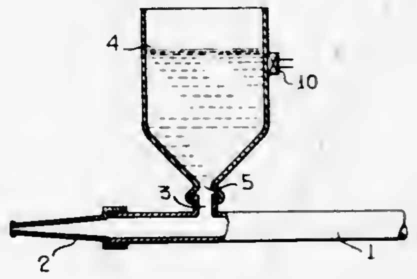
A method of producing increased rainfall in coastal regions by spreading a thin layer of solar radiation,absorbing material over a large surface area of the sea adjacent the coastal region to increase heat absorption at the water surface and evaporation of water when the prevailing weather direction is from the sea to the land, to thereby produce increased rainfall on the target land area.



3,568,926

WATER ADDITIVE

Romald E. Bowles, Silver Springs, Md., assignor to Bowles Engineering Corporation, Silver Springs, Md.
Filed June 13, 1967, Ser. No. 645,710
Int. Cl. A62c *1/02*
U.S. Cl. 239—10 **6 Claims**

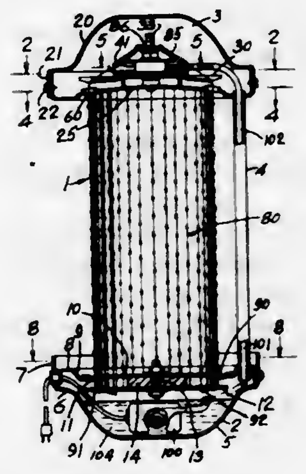


Material is added to a liquid jet to reduce jet dissipation by increasing the characteristic viscosity and surface tension of the liquid. Specifically, polyethylene oxide is added to water to increase the surface tension and apparent characteristic viscosity of water to decrease the dispersive effect of air on a water or liquid stream issued from a high velocity nozzle.

3,568,927

DISPLAY DEVICE

Robert H. Scurlock, 15138 Orizaba Ave., Paramount, Calif.
Filed July 29, 1968, Ser. No. 748,360
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **4 Claims**



The display device has top and bottom members held separated by tubular columns or posts. Extending between the top and bottom members are spaced-apart parallel vertical strings or threads and liquid is placed in a tank in the bottom member and pumped therefrom through a tubular column to the top member where the liquid is directed to a distributor plate, which feeds the liquid evenly to the upper ends of the threads interconnecting the top member and the bottom member, the liquid flowing downwardly on said threads in the form of droplets to be received in the lower tank and recirculated by the pump to the top member. The display device may have surrounding the same various ornamentations such as flowers, plants, and spot lights may play upon the droplets as they move downwardly on the threads.

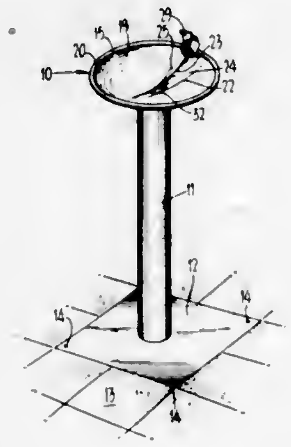
3,568,928
DRINKING FOUNTAIN

Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Faucet Company, Berkeley, Calif.

Filed July 26, 1968, Ser. No. 748,000

Int. Cl. E03b *9/20*

U.S. Cl. 239—28 **5 Claims**



A drinking fountain having a faucet from which water discharges upwardly and inwardly toward the center of a basin equipped with an antisplash ridge projecting from the concave bottom wall of the basin and terminating in a narrow crown having downwardly and outwardly curved slopes merging into the bottom wall of the basin. The ridge is aligned with the water discharge from the faucet to prevent splashing impingement of the water against the basin bottom wall, and the ridge is provided along the crown thereof with a port communicating with the basin waste outlet and serving normally as a ventilation opening therefor. The fountain also includes a hollow pedestal containing both the waste conduit and water supply conduit, the latter of which serves as a locating device to establish the relative orientation of the basin and pedestal for assembly thereof.

3,568,929
CONNECTING DEVICE FOR A MULTIPART THRUST NOZZLE

Karl Butter, Munich, and Karl Stoeckel, Ottobrunn, Germany, assignors to Bolkow Gesellschaft Mit Beschrankter Haftang, Ottobrunn by Munich, Germany

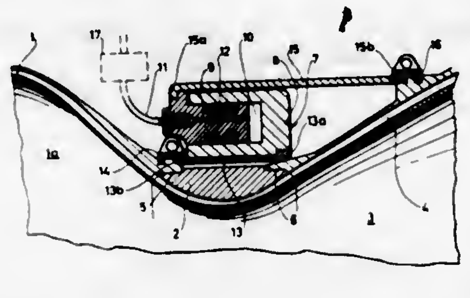
Filed July 3, 1968, Ser. No. 742,442

Claims priority, application Germany, July 13, 1967, B93463Ia/46g

Int. Cl. B64d *33/04*

U.S. Cl. 239—127.1 **12 Claims**

A connecting device for the separate sections of a thrust nozzle in a rocket construction is made up of members secured to different ones of the thrust nozzle sections and which combine to form a pressure chamber. A fluid pressure medium or spring pressure or a combination of the two may be utilized within the pressure chamber for securing the separate sections together in tightly held interengagement.



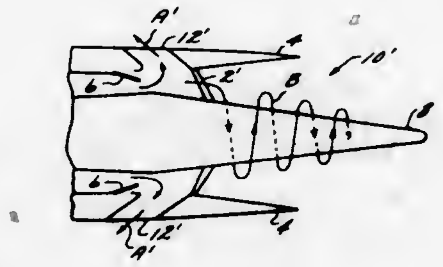
3,568,930
TURBINE ENGINE THRUST REVERSER/SPOILER UTILIZING STAGGERED BLOCKER DOORS

Andrew P. Kuchar, West Chester, Ohio, assignor to General Electric Company

Filed Aug. 25, 1969, Ser. No. 852,598

Int. Cl. B63h *11/10*

U.S. Cl. 239—265.19 **8 Claims**



A target-type thrust reverser for a gas turbine engine. The reverser utilizes blocker doors positioned within an exhaust nozzle for turning the main portion of exhaust gas flow radially outwardly. The doors are staggered to permit a percentage of exhaust gas flow to leak therethrough. Swirl inducers formed as part of the doors provide a circumferential velocity vector to the leakage flow and thereby induce a high total pressure loss in the leakage flow. The forward thrust associated with the leakage flow is thereby minimized.

3,568,931
THRUST REVERSER

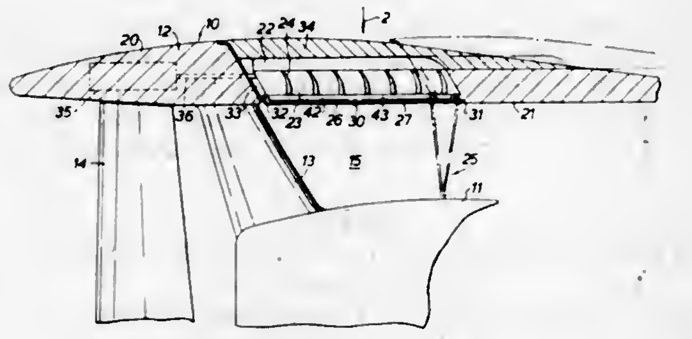
James Oswald Mortlock, Derby; Francis Jeffrey Colville, Sutton-in-Ashfield, and James Millward, Nuthall, England, assignors to Rolls-Royce Limited, Derby, England

Filed Sept. 9, 1969, Ser. No. 856,426

Claims priority, application Great Britain, Sept. 11, 1968, 43257/68

Int. Cl. B64c *15/04*

U.S. Cl. 239—265.31 **11 Claims**



A thrust reverser comprises a cylindrical casing having an apertured portion; a plurality of thrust reverser members which are mounted within the casing and are movable between a thrust reversal position, in which they block the casing to fluid flow therethrough and force the fluid to pass out through the said apertured portion, and a forward thrust position in which they permit the fluid to flow through the casing but block a part only of the apertured portion; a plurality of additional members which are disposed within the casing and are movable between a forward thrust position, in which they block at least most of the remaining part of the apertured portion, and a thrust reversal position, in which they permit the fluid to pass out through the apertured portion; a sleeve member which is movable over the casing between forward thrust and thrust reversal positions in which the apertured portion is respectively closed and opened to fluid flow therethrough; interconnecting means which interconnect the thrust reverser members, the additional members and the sleeve member so that the movement of all these members between their thrust reversal and forward thrust positions occurs simultaneously; and power-operated means for effecting the movement of the said members.

3,568,932
CERAMIC BURNERS

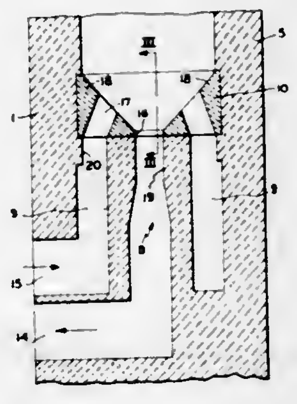
Jacobus Van Laar, Santpoort, and Johannes H. W. Ouwerkerk, Ijmuiden, Netherlands, assignors to Didier-Werke A. G., Wiesbaden, Germany

Filed Oct. 17, 1969, Ser. No. 867,988

Claims priority, application Germany, Oct. 19, 1968, P 18 03 984.4

Int. Cl. B05b *7/06*

U.S. Cl. 239—424.5 **9 Claims**



A ceramic burner for hot blast stoves for blast furnaces. A ceramic block has a central hole and a crown of holes surrounding it. A vertical conduit feeds gaseous fie; and a second coaxial conduit supplies combustion air. The conduits have their upper ends passing through the holes. The upper surface of the block slants upwardly from the central hole and the holes of said crown are directed toward the prolonged axis of the central hole. The central hole has essentially the shape of a rectangular slot and the sloping part of the upper surface of the block comprising essentially two flat surfaces which comprise an angle of 40°—120°, and the crown of holes is subdivided into two rows of holes running parallel to each other and to the longitudinal sides of said central hole. The rectangular shape of the central hole shows a ratio of length versus width between 4:1 and 6:1 and the slot width is less than 600 mm. Each of the two rows of holes has at least four holes the middle axis of which form together with the prolongation of the axis of the central hole an angle ranging from 20° to 70°.

3,568,933
SPRAY NOZZLES

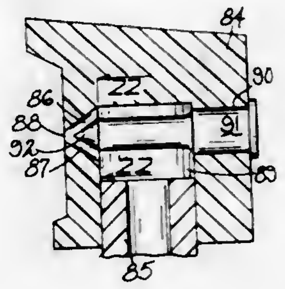
Richard Terence Macguire-Cooper, Benson, Oxon, England (c/o Oxford Industrial Group, Navron House, St. Helens Ave.)

Continuation-in-part of application Ser. No. 614,904, Feb. 9, 1967, now abandoned. This application Mar. 5, 1969, Ser. No. 806,025

Int. Cl. B05b *1/26*

U.S. Cl. 239—543 **9 Claims**

A spray nozzle for the spraying of liquid particles, comprising a plurality of converging jet-forming passages for directing the flow of fluid, wherein a cavity is positioned at the location of the convergence of said passages. The nozzle opening for expelling the converging streams of fluid is formed at substantially the point where the axes of the jet-forming passages intersect or, in the case where the axes do not intersect, at substantially the point where the axes intersect if the axes are projected onto a plane in which one of the axes is located.



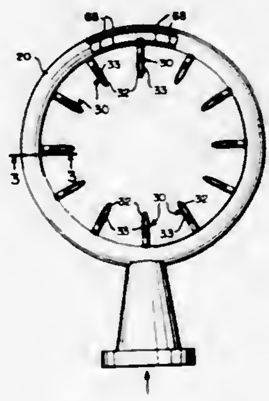
3,568,934
GAS RING FOR FUEL BURNER

John Dunn, Montvale, N.J., assignor to Peabody Engineering Corporation, New York, N.Y.

Filed Feb. 10, 1969, Ser. No. 797,952

Int. Cl. B05b *1/18*

U.S. Cl. 239—567 **6 Claims**



A gas ring for fuel burners having a burner throat, the ring having an inside diameter substantially the same as that of the throat and having a peripherally spaced set of elongated nozzles or fingers extending radially (inward) from the ring. The fingers have discharge openings in at least one side and are oriented to discharge gas well within the air stream in said burner throat at various angular positions to which they may be adjusted. Such fingers may be used alone or in conjunction with conventional gas exit orifices spaced around the inner periphery of the ring.

3,568,935
HINGED SPRAY PLATE AND BOX FOR DISHWASHERS

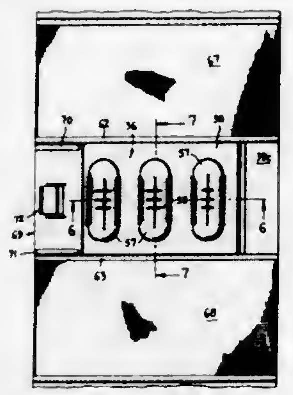
Roger L. Hoffman, Pequannock, N.J., assignor to General Electric Company

Filed Feb. 17, 1969, Ser. No. 799,752

Int. Cl. B05b *1/14*

U.S. Cl. 239—568 **9 Claims**

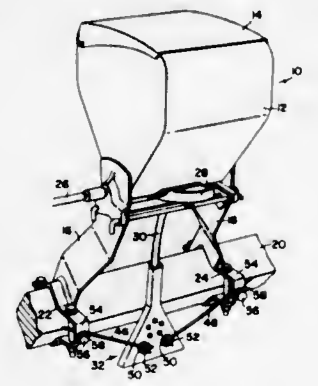
A spray box connectable to a water inlet in a dishwasher and including a separate spray plate hinged to the spray box and releaseably closeable thereover by means of a quick release fastener whereby to facilitate cleaning of the spray box and spray plate, the spray plate being formed preferably with three parallel semicylindrical protrusions each of which contains a plurality of spaced slots, and a sealing gasket being



located between the confronting surfaces of the spray plate and the spray box.

3,568,936
DIFFUSER FOR GRANULAR MATERIAL

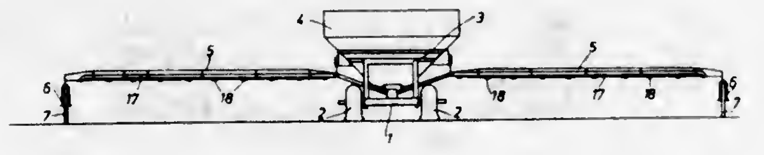
Darrel Lee Honnold, Winterset, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Feb. 24, 1969, Ser. No. 801,541
Int. Cl. B05b *1/14*
U.S. Cl. 239—590.5 **5 Claims**



A diffuser for granular herbicide dispensers which is formed of two sections constructed from plastic. Each section consists of a generally vertical wall having flanges along its side edges and a plurality of integrally formed protrusions. When the two sections are placed together the flanges overlap and the protrusions abut. The flanges which form sidewalls are generally downwardly divergent so that, as material is dispensed through the diffuser it strikes the protrusions and is spread laterally over a relatively wide area.

3,568,937
SPREADER FOR SPREADING PULVERULENT AND GRANULAR MATERIALS

Xavier Roger Grataloup, Montereau, France, assignor to Societe Anonyme: Nodet-Gougis, Montereau, France
Filed Aug. 8, 1969, Ser. No. 848,450
Claims priority, application France, Aug. 14, 1968, 163,166
Int. Cl. A01c *15/04*
U.S. Cl. 239—655 **6 Claims**

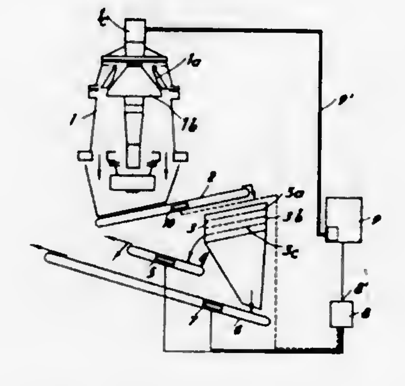


The present invention relates to a forced-air spreader for spreading pulverulent or granular material.

This spreader comprises a frame which is adapted to be connected to a tractor and which is mounted on wheels and which carries a hopper adapted to receive pulverulent or granular material and to distribute it through proportioning units of known type to tubes of different lengths mounted on two arms pivotally connected to the hopper, pipe connections being provided whereby, from each proportioning unit, the distributed material passes transversely into the neck of a venturi which at its inlet receives air supplied by a centrifugal fan and which produces, in the respective pipe connection, a suction effect that draws in the said material, this material being entrained by the current of air, being projected out of the venturi with acceleration, and escaping through the respective pivotally mounted tube, which at its end is provided with a deflector or dividing element dispersing the material thus entrained and projected, and the pivotally mounted tubes thus effecting the uniform distribution of the material over the ground.

3,568,938
CONTROLLING THE GRANULOMETRY OF MATERIAL

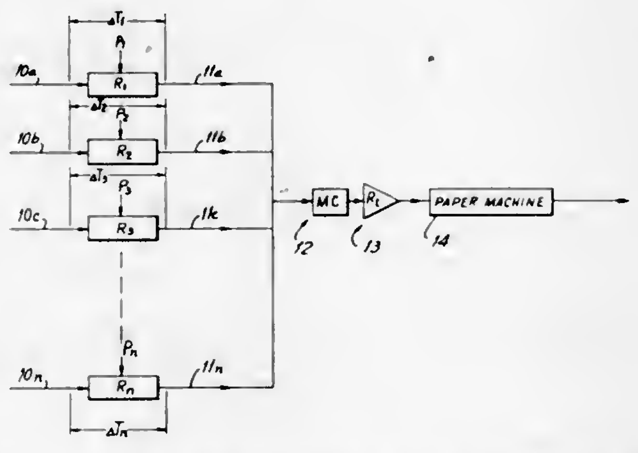
Paul Marcel Emile Barrot, Clichy, and Claude Yves Lucien Lemardley, Paris, France, assignors to Societe Anonyme: Babbitless, Paris, France
Filed May 17, 1968, Ser. No. 730,059
Claims priority, application France, May 31, 1967, 108,609
Int. Cl. B02c *4/32*
U.S. Cl. 241—24 **40 Claims**



Apparatus for and method of automatically providing a constant granulometry of comminuted materials, by making simultaneous measurements of variables with respect to a given mesh to form an output signal, comparing said signal with a reference signal obtained from one of a family of characteristic grinding curves and generating from the resulting signal the corrections necessary to maintain the granulometry constant.

3,568,939
METHOD AND APPARATUS FOR CONTROLLING PULP REFINERS

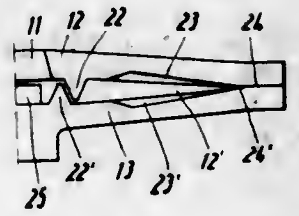
Donald B. Brewster, New York, N.Y.; Philip H. Emery, Jr.; Robert C. Hatcher, and Cheng S. Lin, Charleston, S.C., assignors to Westvaco Corporation, New York, N.Y.
Filed Oct. 3, 1968, Ser. No. 775,975
Int. Cl. B02c *25/00, 21/00*
U.S. Cl. 241—28 **12 Claims**



A control system, receiving inputs from a group of grinders or refiners, generates a signal representative of overall grinding or refining action. Operating from this signal, the control system controls at least one of the grinders or refiners in the group such that the cumulative qualitative output from all the grinders or refiners is equal to a desired set point.

3,568,940
COAXIAL DISC REFINING APPARATUS FOR RECLAIMING RUBBER SCRAP

Herbert Alfred Merges, 6451 Wolfgang, Germany
Original application July 12, 1966, Ser. No. 564,694, now Patent No. 3,460,769, dated Aug. 12, 1969. Divided and this application Aug. 19, 1968, Ser. No. 766,353
Int. Cl. B02c *7/04*
U.S. Cl. 241—47 **3 Claims**

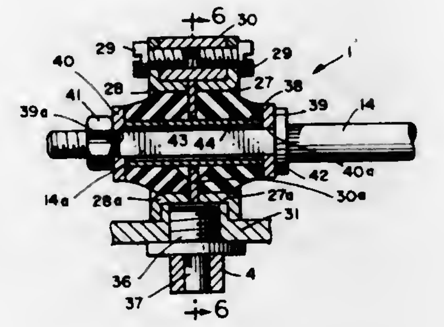


A rubber reclaiming apparatus includes two circular, coaxial discs in a housing. One disc is stationary and has a central feed opening and a circular row of spaced teeth about the opening. The other disc is driven and carries a central impeller opposite the feed opening and a circular row of spaced teeth closely juxtaposed to the teeth of the stationary disc in a radially inward direction in a common radial plane. Respective annular working face portions of the two discs extending from the teeth in an outward direction are conical and approach each other axially toward the disc peripheries. The annular, outermost portions of the working faces are radial, parallel to each other and smooth. Circumferentially spaced radial grooves extend in each of the conical face portions and gradually decrease in depth toward the radial face portions.

A coaxial screw conveyor feeds pretreated rubber scrap to the supply opening of the stationary disc, and the tubular shaft of the screw supplies steam. The material circumferentially discharged from the discs is collected.

3,568,941
TRAVERSING MECHANISM FOR SPOOL WINDING

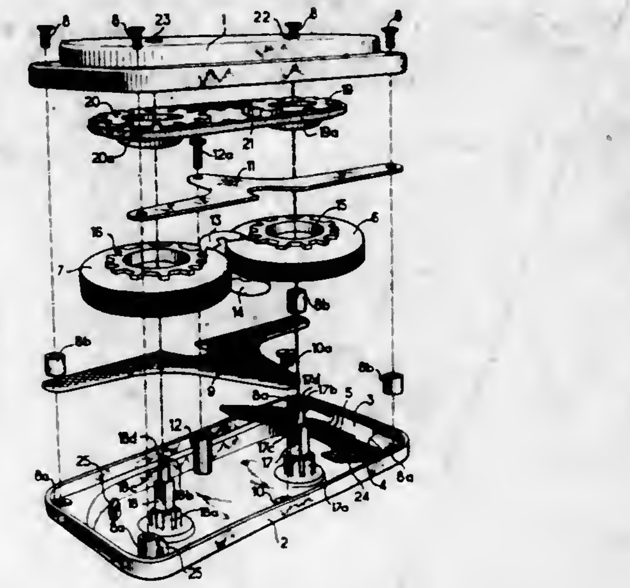
Peter Uelpenich, Oberbruch, Rhineland, Germany, assignor to Glanzstoff AG, Wuppertal, Germany
Filed Oct. 28, 1968, Ser. No. 771,235
Claims priority, application Germany, Oct. 28, 1967, P 15 74 356.3
Int. Cl. B65h *54/28*
U.S. Cl. 242—43 **5 Claims**



Traversing mechanism for rapidly winding a thread onto a rotating spool in which a traversing rod carrying one or more thread guides is reciprocally driven in a linear axial path by cam means constructed to abruptly brake and reaccelerate the rod at the points of reversal of its reciprocation, the rod and cam means being coupled or interconnected by resilient coupling means in the nature of an elastomeric vibration damping connector.

3,568,942
CARTRIDGE FOR ENDLESS TAPE HAVING A NOTCHED EDGE

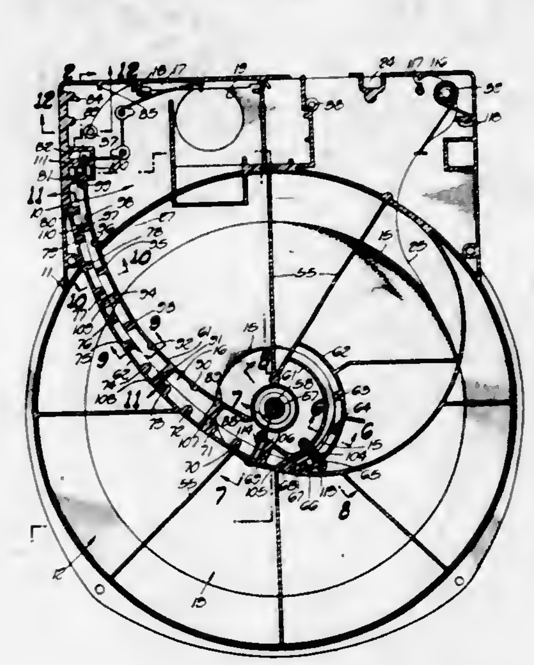
Serge Leon Louis Cailliot, 38,rue du Bois de Boulogne, Neuilly-sur-Seine, France
Filed Jan. 13, 1969, Ser. No. 790,740
Int. Cl. B65h *17/48;* **G11b** *5/00*
U.S. Cl. 242—55.17 **14 Claims**



A cartridge for an endless tape having a notched edge comprises two spools mounted on parallel axes and provided with peripheral protuberances mating with said notches. A motor is provided for driving one spool in one direction at a predetermined speed and a second motor is connected for driving the other spool in the opposite direction at a different speed when the first motor is inoperative. Gear or belt means are provided to drive either spool from the other.

3,568,943
MOTION PICTURE FILM CARTRIDGE

Edward Robak, Garden Grove, Calif., assignor to Technicolor Inc., Hollywood, Calif.
Filed May 19, 1969, Ser. No. 825,504
Int. Cl. B65h *17/48;* **G11b** *23/06*
U.S. Cl. 242—55.19 **12 Claims**



There is disclosed herein a cartridge for a continuous loop roll of motion picture film, such as Super 8 sound motion picture film. The cartridge includes top and bottom sections, and a turntable disposed between the sections for supporting a roll of film, such as 600 feet in length. One section of the cartridge includes a film guide channel for directing the inner convolution of film from the central portion of the roll to a film gate engaging portion of the cartridge for projection of the film which, after projection, is returned to the outer convolution of the roll. The film guide channel includes a plurality of molded projections which cause the film to be supported essentially solely by an edge thereof to prevent rubbing of either surface of the film thereby preventing abrading and scratching of the surfaces of the film.

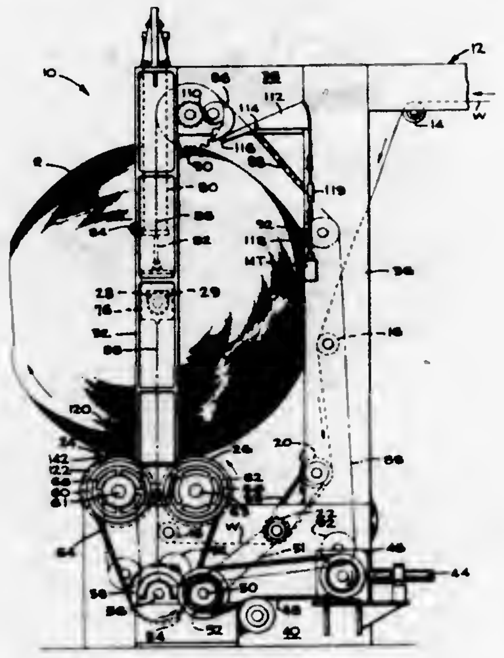
3,568,944
WINDING MACHINE

Orrin H. Besserdich, Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 12, 1969, Ser. No. 798,712

Int. Cl. B65h *17/08*

U.S. Cl. 242—66 5 Claims



A winding machine, of the vertical type having double winding drums and a spindle cradled between the winding drums to frictionally drive a web onto the spindle, is provided with an automatically operated power lift mechanism on the spindle. As the roll accumulates on the spindle and its weight increases, the lift mechanism offsets a predetermined part of the weight of the roll so that it maintains a condition of optimum pressure on the web being fed between the winding drums and the roll. The same lift mechanism lifts the finished roll off the winding drums to unwind part of the web from the roll so that the web can be conveniently severed above the drums, thus leaving ample web to start a new roll. When the machine is in operation, an automatic guard shields the nip between the roll and the winding drum which is exposed to the operator.

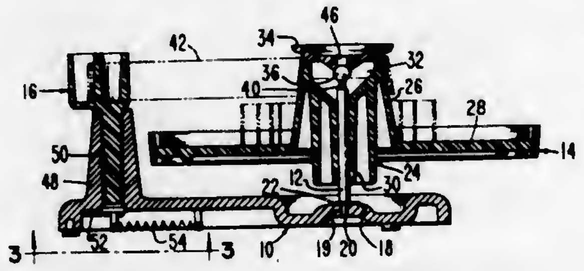
3,568,945
TAPE REEL

Neal Hepner, Birmingham, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 12, 1968, Ser. No. 774,887

Int. Cl. B65h *17/02*

U.S. Cl. 242—68.3 2 Claims



The disclosure embodies a reel which is rotatable about a vertical axis to unwind a roll of tape being pulled either from the inner end of the roll or from the outer end of the roll. The reel is mounted to rotate about a vertical shaft which in one mode of operation of the reel projects upwardly into a closed chamber of the reel hub. A bearing in the form of a ball rests in a socket in the top of the shaft and a hubcap has a socket to receive the ball such that the entire weight of the reel rests on the ball and rotates substantially freely on the shaft. In this mode, the reel is employed to unwind nonrewound tape or a roll of tape of which the lead end is the inner end. The reel is usable in another mode merely by inverting it whereupon the ball is displaced and entrapped in the chamber, the tape now functioning to take the thrust of the reel against a stationary mounting base. In this mode, tape is unwound from a roll of rewound tape of which the outer end is the lead end. The thrust of the hubcap against the mounting provides a drag on the reel which is desirable to prevent acceleration of the wheel by its inertia.

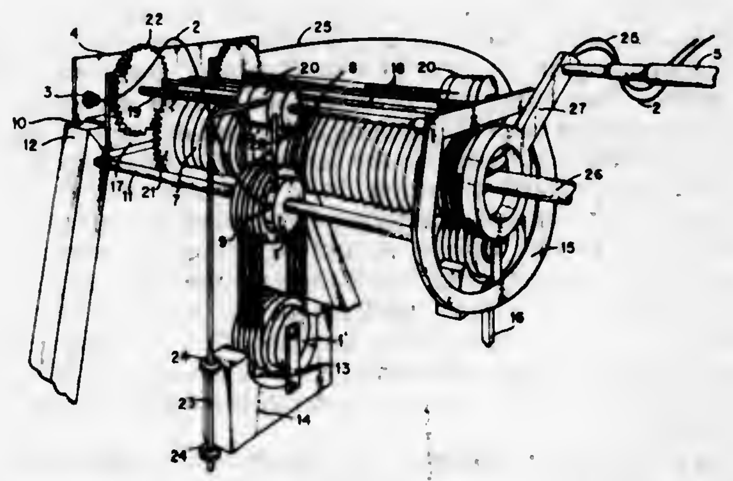
3,568,946
APPARATUS FOR ELIMINATING LINE TWIST

Jesse I. Anderson, and DeRay Parker, Idaho Falls, Idaho, assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 27, 1969, Ser. No. 811,026

Int. Cl. B65h *51/20, 59/36, 54/28*

U.S. Cl. 242—85 1 Claim



This invention is an apparatus for preventing twisting, kinking, fouling and intertwining of lines attached to rotational devices. A weighted block and tackle arrangement is used for each line, in combination with a grooved takeup drum. A separate portion of the drum is used for the takeup of each line.

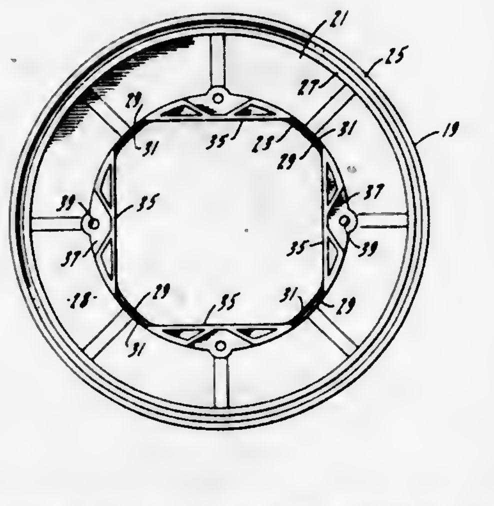
3,568,947
FISH TAPE REEL WITH INTERLOCKING TABS

Johannes A. E. Oprins, Sycamore, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.

Filed Dec. 26, 1968, Ser. No. 787,091

Int. Cl. B65h *75/36*

U.S. Cl. 242—85.1 3 Claims



An electrician's fish tape reel including a pair of identical, generally annular shaped reel sections removably connected to each other. The reel sections fit together in alignment through means of tabs and recesses formed in the reel sections adjacent the inner walls thereof. The tabs and recesses fit together only in selected positions of rotation of the reel sections relative to each other.

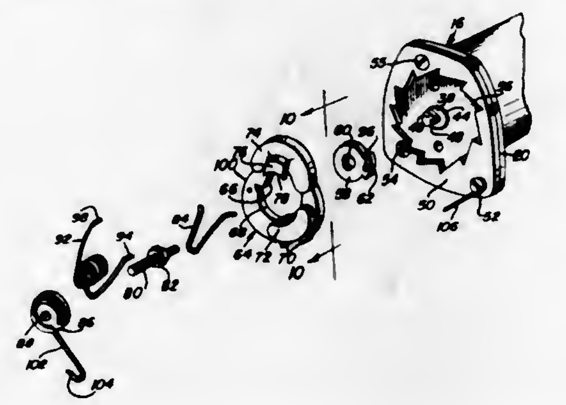
3,568,948
DUAL FUNCTION SEAT BELT RETRACTOR

Joel A. Burns, 917 Bank of the Southwest, Amarillo, Tex.

Filed Jan. 14, 1969, Ser. No. 790,979

Int. Cl. B65h *75/48*

U.S. Cl. 242—107.4 5 Claims



A rotary lock assembly comprising a base having a shaft journaled therefrom for rotation in opposite directions between a first position and a second position through a third intermediate position a predetermined number of degrees of rotation from the first position toward the second position. The assembly includes deactivatable inertia actuated lock structure operatively associated with the shaft and the base and responsive to acceleration of rotation of the shaft above a predetermined value in one direction of rotation of the shaft toward the second position to lock the shaft against further rotation in that direction. Further, the assembly includes structure responsive to disposition of the shaft in a position between the first position and the intermediate position for deactivating the locking structure.

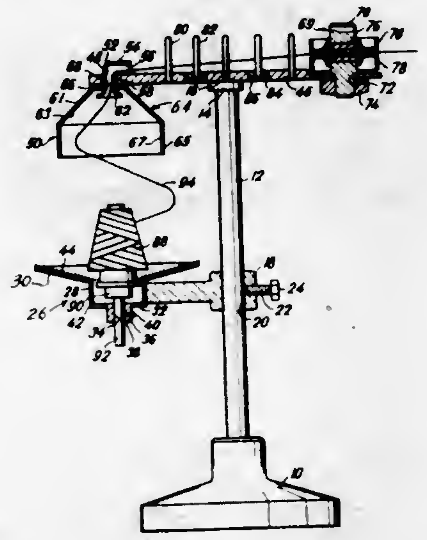
3,568,949
YARN BALLOON DAMPING DEVICE

Miloslav Riha, Rybniky, and Karel Vystrcil, Vypustky, Czechoslovakia, assignors to Vyzkumny a vyvojovy ustav Zavodu vseobecneho Strojirenstivi, Brno, Czechoslovakia

Filed Oct. 9, 1968, Ser. No. 766,138

Int. Cl. B65h *49/00*

U.S. Cl. 242—129.8 9 Claims



A device to prevent ballooning of yarn when it is being intermittently withdrawn from a stationary bobbin. An angular guide slightly brakes the yarn, so that during or at the end of a withdrawal cycle centrifugal forces will cause the yarn to whip against the inner surfaces of the conical and cylindrical sections of the balloon limiter substantially dampening any ballooning action by the yarn. The yarn is further braked by passing it across a plurality of pins mounted in a plurality of planes on a carrier.

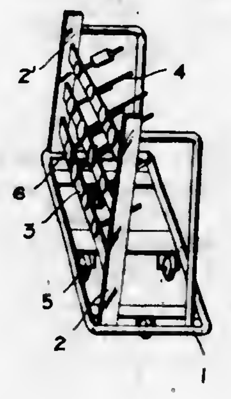
3,568,950
BOBBIN TRUCK FOR ARRANGING TRANSFER TAIL

Shigeyasu Niwa, Matsuyama-shi, Japan, assignor to Teijin Limited, Osaka, Japan

Filed Mar. 6, 1969, Ser. No. 804,805

Int. Cl. B65h *49/02;* **D02h** *1/00;* **D03j** *5/08*

U.S. Cl. 242—131 5 Claims



This invention is intended to wind up a loose transfer tail of yarn on the end of a bobbin, and to fix the tail end of yarn with an adhesive tape, etc. while rotating the bobbin on a bobbin truck wherein bobbin holder supporting plates are fixed onto the stanchions or plates of the bobbin truck. A number of bobbin holders are mounted on the bobbin holder plates and are made rotatable with a rotation drive disposed at the outer end of the bobbin holder. When a bobbin is put onto the bobbin holder, the bobbin can be manually rotated together with the bobbin holder by means of the rotation drive.

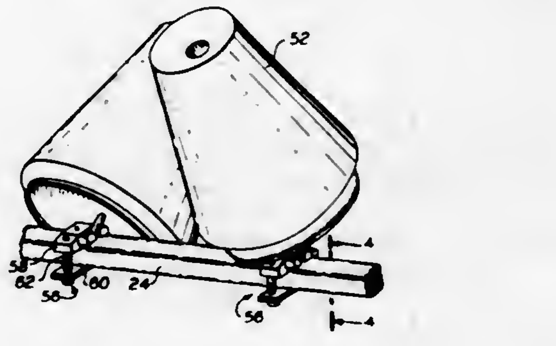
3,568,951
YARN PACKAGE MOUNTING FOR CREEL APPARATUS

Joseph Neuburger, New York; Edward Vossen, Malverne, N.Y., and Edward W. Schussel, King of Prussia, Pa., assignors to Stop-Motion Devices Corporation, Plainview, N.Y.

Filed Apr. 29, 1969, Ser. No. 820,072

Int. Cl. B65h *49/02;* **D02h** *1/00;* **D03j** *5/08*

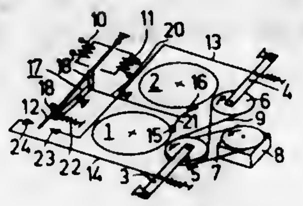
U.S. Cl. 242—131 5 Claims



The yarn package mounting comprises a block assembly removably secured to a cross bar of the creel. A yarn package holder has a spindle terminating in an angularly related end portion which is inserted into an aperture on the block assembly for pivotal movement therein. The block assembly includes a pair of opposite bearing surfaces in the path of the spindle to limit the pivotal movement thereof between two positions which correspondingly define the two preferred positions for the yarn package on the creel.

3,568,952
RECORDING AND/OR PLAYBACK APPARATUS

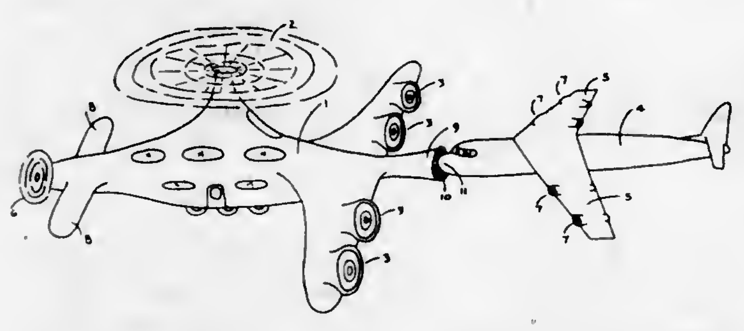
Lothar Jager, Vienna, Austria, assignor to U. S. Philips Corporation, New York, N.Y.
Filed Apr. 2, 1969, Ser. No. 812,827
Claims priority, application Austria, Apr. 5, 1968, A3346/68
Int. Cl. B11b *15/32;* **G03b** *1/04*
U.S. Cl. 242—204 **2 Claims**



A device for controlling the forward and reverse travel of a record carrier in a recording and/or playback device having an operational control lever displaceable in opposite directions from a rest position for activating either the forward or reverse travel and a mechanical linkage between the control lever and a brake release mechanism for the rotatable record carrier discs. Upon activation of the control lever in either direction, the brake will simultaneously be released from the discs.

3,568,953
AIRCRAFT AND JET TAKEOFF AND LANDING SYSTEM

Dale L. Beezley, P.O. Box 41, Los Altos, Calif.
Filed Mar. 26, 1969, Ser. No. 810,702
Int. Cl. B64c *37/02;* **B64d** *5/00*
U.S. Cl. 244—2 **2 Claims**

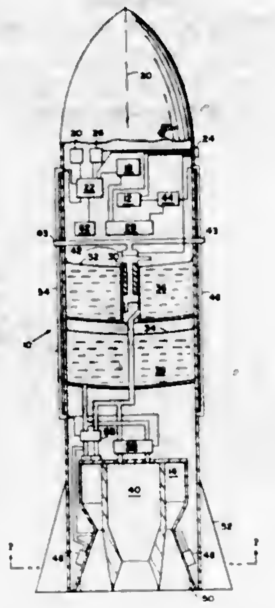


An aircraft takeoff and landing system capable of nearly vertical takeoff and landing of any conventional aircraft by the use of an assist craft having rotary wing vertical takeoff and landing capability with rearwardly directed fans capable of providing lift to said conventional craft positioned closely behind said assist craft.

3,568,954
DIRECTIONAL CONTROL-AUTOMATIC METEOROLOGICAL COMPENSATION (D.C.-AUTOMET) INERTIAL GUIDANCE SYSTEM FOR ARTILLERY MISSILES

William C. McCorkle, Jr., Huntsville, Ala.
Filed Apr. 4, 1966, Ser. No. 540,480
Int. Cl. F42b *15/18*
U.S. Cl. 244—3.2 **9 Claims**

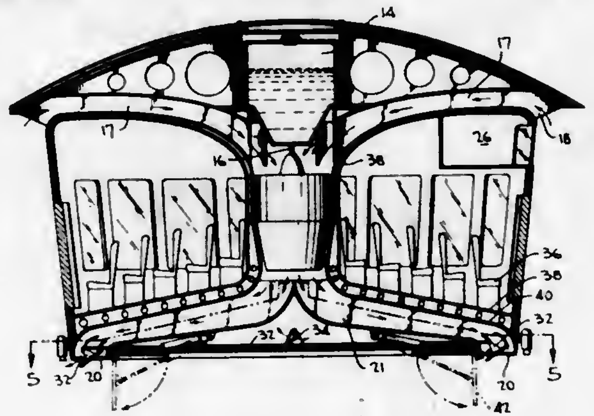
A missile system disposed for flight in a planned trajectory ending at a target. The trajectory includes booster propulsion and sustainer propulsion phases of flight. The missile is controlled in the booster propulsion phase by means of a directionally controlled (D.C.) inertial guidance system which controls thrust direction. Booster control means is provided for creating pressure differentials across the propulsive gases of the booster motor for thrust vectoring the missile to maintain the missile in the trajectory during the booster propulsion phase of flight. In the sustainer phase of flight, the missile is controlled by an automatic meteorological compensation inertial guidance system (AUTOMET) which controls thrust magnitude. Sustainer control means is provided for varying the thrust of the sustainer to maintain the difference in the actual and desired velocities at null and thus maintain zero net axial force on the missile in the sustainer phase of flight. The system is, therefore, known as the D.C.-AUTOMET guidance system.



Previous inertial guidance systems utilized a stabilized platform having a number of accelerometers mounted thereon. A plurality of gyroscopes were needed to provide a reference for the stabilized platform. Furthermore, in guidance systems of this type, very expensive precision instruments were required to perform the guidance and control functions.

3,568,955
BLOWHARD VTOL AIRCRAFT

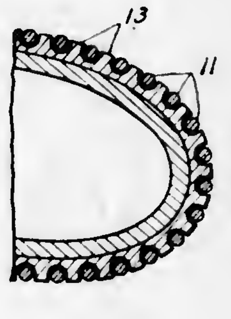
James E. Mc Devitt, The Center, Martinsburg, W. Va.
Continuation-in-part of application Ser. No. 680,271, Nov. 2, 1967, now abandoned. This application Dec. 24, 1968, Ser. No. 786,574
Int. Cl. B64c *29/00*
U.S. Cl. 244—23 **6 Claims**



This invention relates to vehicles for the transportation, thru the air, of goods and persons. It contemplates the use, as a power source, of a jet engine the axis of which is vertically disposed with the intake uppermost and the discharge port lowermost, the structure of the vehicle encircling the engine. The products of combustion are conducted by conduits to outlet ports disposed in a circle the center of which is approximately on the axis of the engine and means is provided for controlling, and supplementing if necessary, the outflow of products of combustion in such manner as to supply maneuvering power.

3,568,956
MEANS FOR REDUCING AIR PRESSURE AGAINST LEADING EDGE PORTIONS OF AIRPLANE WINGS AND AILERONS

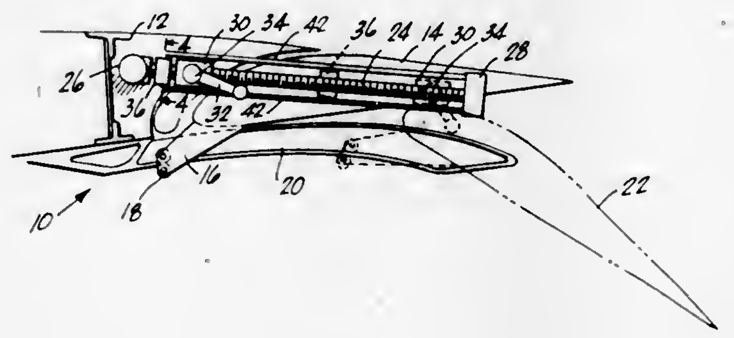
Clayton I. Swanson, 4029 Phinney Ave. North, Seattle, Wash.
Filed Oct. 3, 1968, Ser. No. 764,830
Int. Cl. B64c *1/38, 23/02*
U.S. Cl. 244—41 **1 Claim**



This disclosure relates to means for reducing the back pressure of a fluid against a vehicle moving in, on or through said fluid. It can be applied to both air- and waterborne vehicles. When applied to waterborne ships and the like it reduces back pressure and friction of the water against their prow portions. When applied to air vehicles which travel at supersonic speeds it reduces air pressure and air friction against the leading edges of wings, ailerons, nose cones and the like and helps to prevent overheating and sonic boom.

3,568,957
LONG STRUCTURAL COLUMN SUPPORT

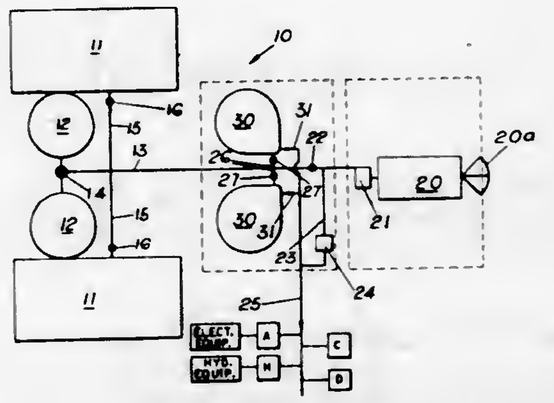
Lorin A. Wood, Lakewood, Calif., assignor to McDonnell Douglas Corporation
Filed Nov. 13, 1968, Ser. No. 775,273
Int. Cl. B64c *3/38, 9/02*
U.S. Cl. 244—42 **3 Claims**



A structural column support having two external superimposed threads of different lead whereby a load carrying nut moves along the column at a higher rate than the screw support sleeve which follows the threads of lesser lead. The sleeve thus divides a single long column into two shorter columns which may be of a smaller diameter and lesser weight than the longer unsupported column, while resisting the same bending and buckling compressive forces.

3,568,958
AIRCRAFT

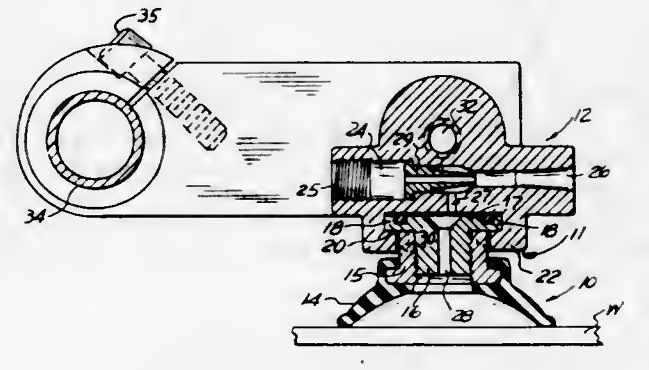
Kenneth Joseph Bhore, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed June 6, 1968, Ser. No. 735,002
Int. Cl. B64d *27/02*
U.S. Cl. 244—55 **9 Claims**



An aircraft having power plant comprising a plurality of main engines arranged to produce forward propulsion of the aircraft, and a further engine which alone comprises means to provide reverse thrust for the aircraft.

3,568,959
VACUUM CUP TYPE WORK GRIPPING MEANS

Leland F. Blatt, Grosse Pointe, Mich. (24121 Mound Road, Warren, Mich. 48091)
Filed Apr. 9, 1969, Ser. No. 814,687
Int. Cl. A47b *47/00;* **B66c** *1/02*
U.S. Cl. 294—64 **3 Claims**

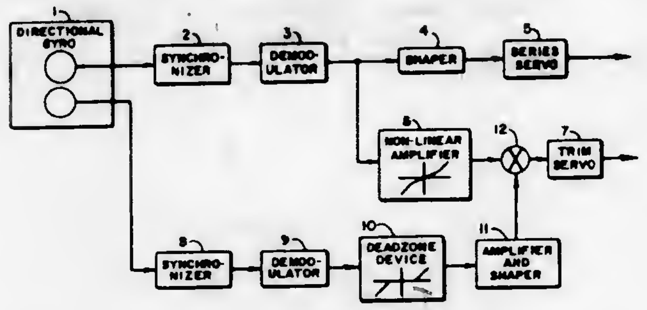


A vacuum cup type of work gripping means such as is shown in FIG. 4 of U.S. Pat. No. 3,349,927 of Oct. 31, 1967, of Leland F. Blatt, the undersigned, characterized by the provision of a three-way valve in its supply line and further characterized by a novel arrangement of separate parts facilitating manufacture, assembly, and part replacement.

3,568,960
HELICOPTER FLIGHT CONTROL SYSTEM

Carl D. Griffith, Scottsdale, Ariz.; Victor H. Levi, El Cajon, and John S. McBrayer, Woodland, Calif., the United States of America as represented by the Secretary of the Army.
Int. Cl. B64c *17/00*
U.S. Cl. 244—77 **10 Claims**

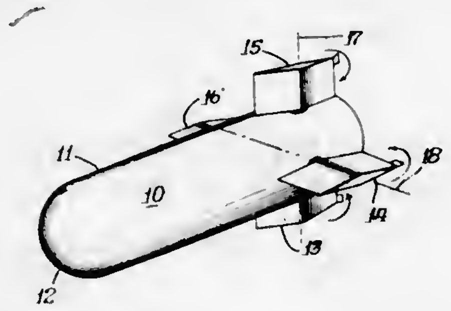
This invention relates to a heading control system for flight control of a helicopter of the single rotor type. Nonsimilar, redundant signals from a directional gyro are separately processed in a nonlinear manner so as to produce a more accurate and rapid trim response. One of the redundant signals, responsive to heading error, is processed and fed to a nonlinear gain element. The other of the redundant signals, responsive to heading rate of change, is processed and fed to



a deadzone, nonlinear gain element. The redundant signals are then combined and subsequently fed to the trim servo.

3,568,961
AUTOROTATING DECELERATING SYSTEM FOR AERODYNAMIC BODY

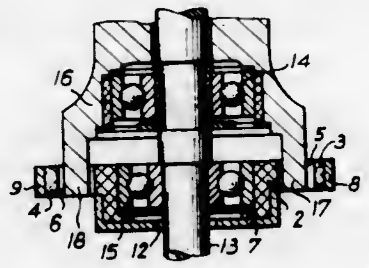
James D. Iversen, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
Filed Feb. 26, 1969, Ser. No. 802,473
Int. Cl. B64c *9/32*
U.S. Cl. 244—113 **4 Claims**



A system for decelerating an aerodynamic body includes at least two pair of rotor members mounted on the exterior of the body. Members of each pair are mounted at diametrically opposite locations on the body. The rotor members are adapted to rotate about axes perpendicular to the flight line of the body and thereby produce a drag on the body. By rotating the members to produce cancelling lift forces, a greatly increased drag force is induced on the body while maintaining its static stability. A modification is also disclosed for powering the rotor members.

3,568,962
VIBRATION-INHIBITING MOUNTING ELEMENT FOR SMALL ELECTRIC MOTORS

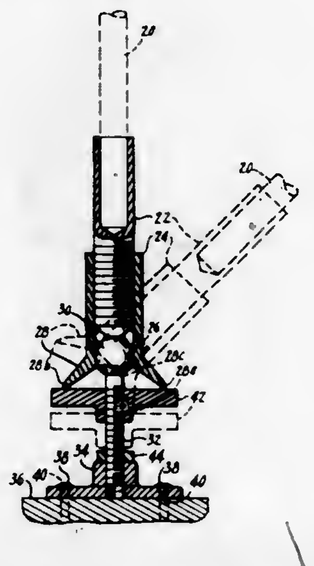
Hans-Joachim Janssen, Hundsmuehlen, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Oct. 30, 1968, Ser. No. 771,828
Int. Cl. F16f *15/04*
U.S. Cl. 248—15 **7 Claims**



A unitarily constructed mounting element which inhibits the transmission of vibrations from a small electric motor to the device or instrument to which the motor is attached. The element includes at least two zones having differing energy loss factors. One of the zones provides damping to prevent the transmission of high-frequency radial vibrations, while another of the zones serves as insulation to prevent the transmission of low-frequency tangential vibrations.

3,568,963
MOUNTING

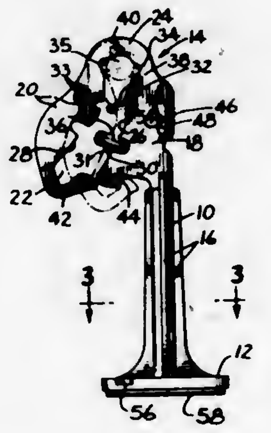
Arthur A. Koskinen, 4458 Soquel Drive, Soquel, Calif.
Filed Sept. 11, 1969, Ser. No. 857,157
Int. Cl. A45b *25/00*
U.S. Cl. 248—42 **8 Claims**



A mount holding a vertical rod with a ball at its top positioned in a ball joint opening of a housing having an umbrella holder within a bore extending from the ball joint opening at the top of the housing. When the umbrella holder is slightly raised so that the ball is no longer being forced against the ball joint opening, the housing may be pivoted about the ball. A nut on the vertical rod supports the housing which has a conical bottom extending below the ball so that the housing is tilted by adjusting the height of the nut. In another embodiment a slot at the housing bottom allows the housing to be tilted past the vertical rod to a horizontal position. In another embodiment the ball is locked into position by means of a cam and plunger.

3,568,964
CABLE MOUNTING

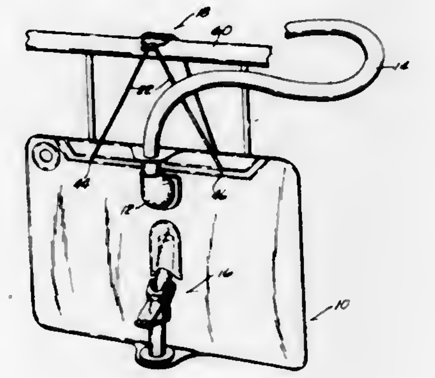
John W. Perkins, Deerfield, Ill., assignor to Gavin Instruments Inc.
Filed Dec. 9, 1968, Ser. No. 782,144
Int. Cl. F16l *3/22*
U.S. Cl. 248—68 **7 Claims**



A standoff mounting for cables and the like includes an elongated post constructed to be fastened at one end to a surface of a building structure and having a resilient head at the other end. The head includes a pair of spaced half portions, one of which is resiliently moveable with respect to the other, and the head also includes a plurality of notches for receiving the cables. A clamp is formed on the head for maintaining the spaced half portions positioned so as to firmly hold the cables in the notches.

3,568,965
SUPPORT APPARATUS FOR A BAG

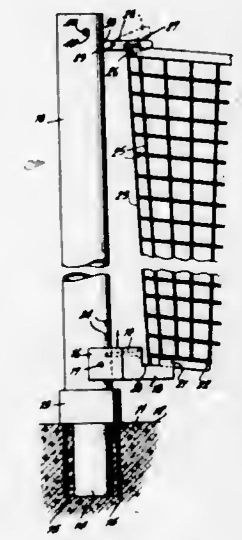
James L. Clark, Whitefish Bay, Wis., assignor to Plastronics, Inc., Milwaukee, Wis.
Filed Feb. 12, 1969, Ser. No. 798,630
Int. Cl. F16g *11/02, 11/14*
U.S. Cl. 248—95 **3 Claims**



A support apparatus for a bedside drainage bag comprising a support cord fastened to the bag and a support clamp means permanently attached to the ends of the cord and adapted for releasable engagement with the central portion of the cord. The support clamp is made of metal material in the form of a one-piece stamping.

3,568,966
LITTER BASKET MOUNTING AND LOCKING MEANS

Ciro J. Lucci, 402 Foster Ave., Brooklyn, N.Y. 11230
Filed Oct. 4, 1968, Ser. No. 765,065
Int. Cl. B65f *1/14*
U.S. Cl. 248—154 **5 Claims**

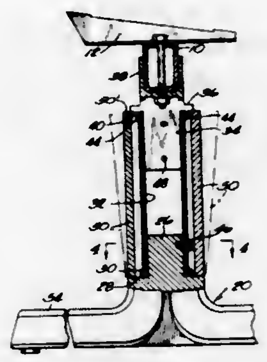


A wire or mesh screen litter basket is mounted by its top and bottom rims on a supporting post adapted to be anchored in the ground in such manner that the litter basket is maintained above ground level and can be locked in supported position from which it can be released only by unlocking with the proper key.

3,568,967
MODULAR FURNITURE BASE

Ronald T. Furtak, Chicago, and Robert W. Schier, Glenview, Ill., assignors to Krueger Metal Products, Inc., Green Bay, Wis.
Filed Apr. 9, 1969, Ser. No. 814,643
Int. Cl. F16m *11/20*
U.S. Cl. 248—188.1 **4 Claims**

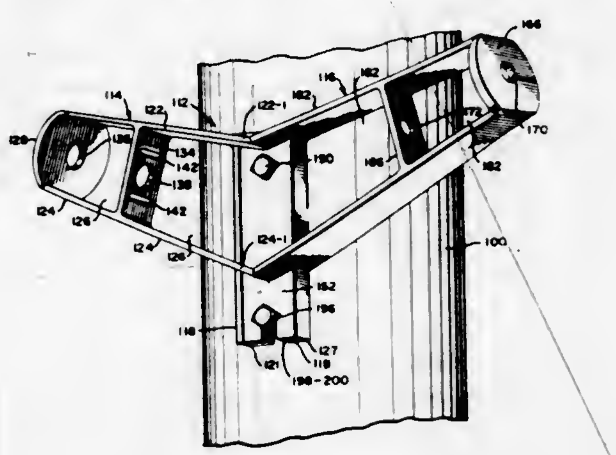
Furniture items are mounted on a support bar which is carried by a plurality of base assemblies each including feet and an upright leg and a bar supporting channel, the leg having fairing strips at opposite sides thereof merging with the feet and the bar supporting fitting and interlocked with the feet of



the fitting to be retained in position without separate connection.

3,568,968
UTILITY WIRE SUPPORTING BRACKET

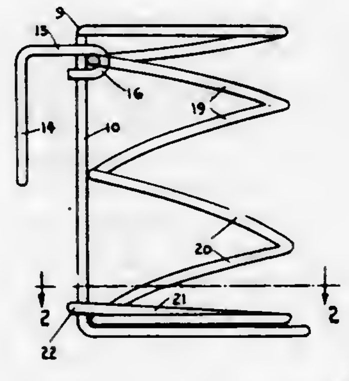
Edwin C. Taylor, New Haven, Conn., assignor to MIF Industries, Inc., Branford, Conn.
Filed Apr. 16, 1969, Ser. No. 816,698
Int. Cl. F16m *13/00;* **H01b** *17/16*
U.S. Cl. 248—221 **12 Claims**



A bracket of the type which supports power wires is formed of two elements which assemble to form a complete bracket assembly for mounting upon a pole. The elements interlock in an advantageous way, and also provide certain special features to facilitate the mounting of electrical insulators upon the bracket.

3,568,969
WIRE HOLDING CUP AND SPRING COMBINED

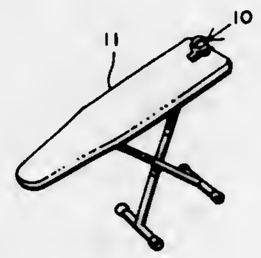
Thomas G. Boman, Pataskala, Ohio (P.O. Box 203 Kirkesville, Ohio 43033), and Edward F. Sparks, 106 Fisher Road, Buffalo, N.Y.
Filed July 7, 1969, Ser. No. 839,570
Int. Cl. A47k *1/08*
U.S. Cl. 248—311 **4 Claims**



Our invention involves the use of a flexible element, shaped to serve as a holder or container unit, the size of the unit being varied as the element is flexed, and a gripping arm associated with and movable in proportion to the flexing of the said flexible element.

3,568,970
RECEPTACLE HOLDER FOR IRONING BOARDS

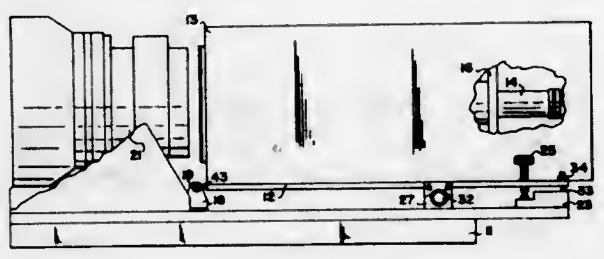
John E. Mallett, 6715 N. Miami Ave., Miami, Fla.
Filed Oct. 13, 1969, Ser. No. 865,644
Int. Cl. A47k *1/08*
U.S. Cl. 248—311 **2 Claims**



A receptacle holder for ironing boards being removably secured to the edge of a conventional ironing board having a circular rim portion for receiving a receptacle used in the ironing process such as starch and the like and which engages the outer lower edge of the receptacle to prevent the receptacle from spilling out of the holder as it becomes tilted upon jostling the ironing boards. There is also provided a member at the base of the holder that engages the inner lower edge of the tilted receptacle in the event an extremely small receptacle is placed in the holder.

3,568,971
CATHODE RAY TUBE MOUNTING

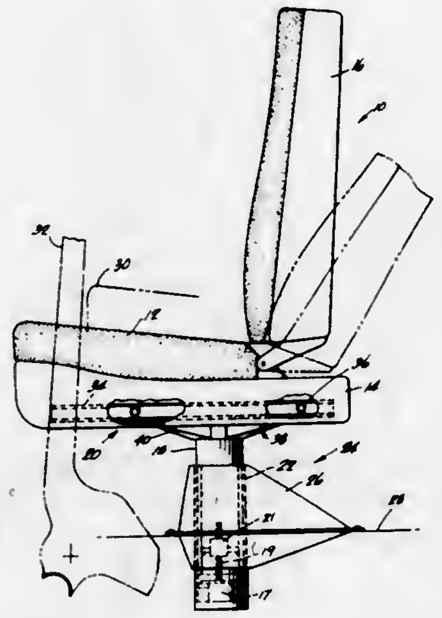
Howard I. Jarmy, San Francisco, and Gary D. Oates, Los Gatos, Calif., assignors to Singer-General Precision, Inc., Binghamton, N.Y.
Filed Dec. 11, 1968, Ser. No. 782,929
Int. Cl. F16m *11/14*
U.S. Cl. 248—350 **4 Claims**



In order to mount a cathode ray tube so that the face of the cathode ray tube is parallel to the faces of the optical system through which the image is to be projected and to insure that the axis of the cathode ray tube lies upon the optical axis of the projection system, this cathode ray tube mount utilizes separate base and chassis. The cathode ray tube is rigidly mounted on its own chassis, which may include a complete housing, and the front of the chassis is supported on a ball or universal joint. The back end of the chassis is provided with means for adjusting the vertical and lateral position of each of the two back corners. In the preferred embodiment shown, the adjustment means are manually controlled screws, but any suitable adjustment means can be utilized.

3,568,972
INTEGRATED TRACKAGE PILOT SEAT

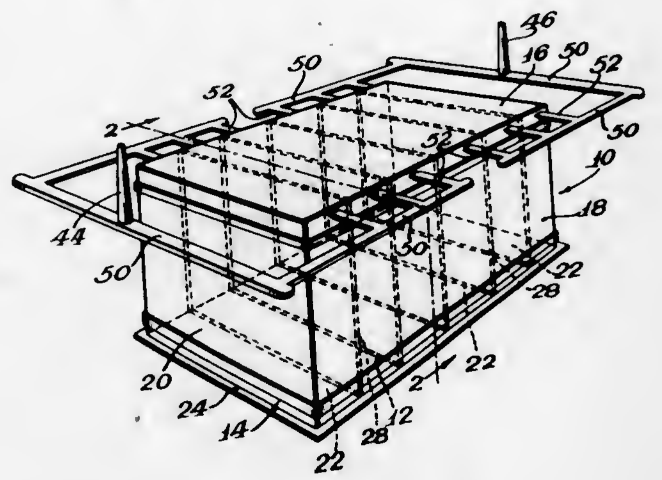
Gale K. Sherman, Tustin, Calif., assignor to McDonnell Douglas Corporation
Filed Apr. 14, 1969, Ser. No. 815,691
Int. Cl. B60n *1/02*
U.S. Cl. 248—419 **5 Claims**



A seat telescopically mounted for vertical movement with structure for effecting all directions of motion (laterally and fore and aft) within the seat itself.

3,568,973
EDGE GATING OF THIN WALL CONTAINERS

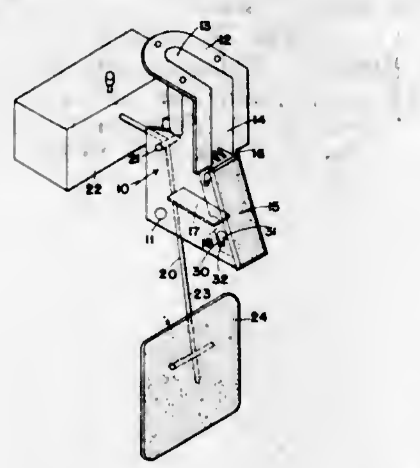
Gerald A. Rau, and Le Roy W. Mason, Baraboo, Wis., assignors to Flambeau Plastics Corporation
Filed May 2, 1969, Ser. No. 821,238
Int. Cl. B29f *1/00*
U.S. Cl. 249—107 **4 Claims**



A gating system for molding thin walled, partitioned plastic containers. The container includes a bottom, a pair of sidewalls, and a pair of end walls, a juncture being defined between the bottom and sidewalls. Transverse walls extend between the sidewalls and are spaced intermediate the end walls. First and second spaced sprues are provided. A first pair of gates are spaced opposite each other and introduce plastic into the mold at the juncture between each of the transverse walls or between a transverse wall and each of the end walls. Two runners extend from the first sprue to each of the first pair of gates. A second pair of gates, similar to the first pair of gates, are provided and a second pair of runners, similar to the first pair of runners, extend from the second sprue to each of the second pair of gates.

3,568,974
DETACHABLE FRONT FLUID DISPENSING HEAD

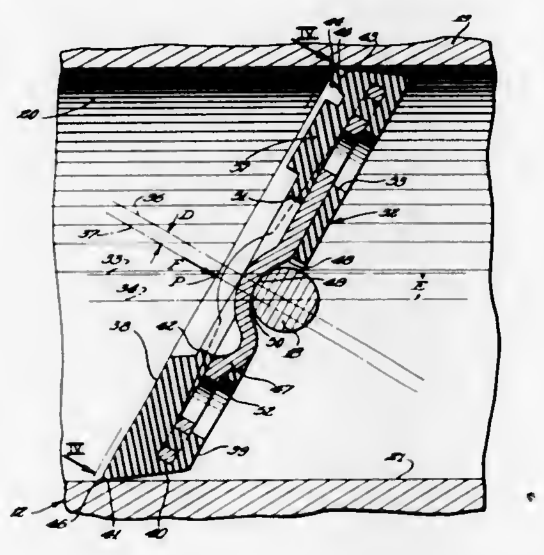
Clifford Delorme, Saint James, Manitoba, Canada, assignor to Arnett Company Limited, Manitoba, Canada
Filed Dec. 30, 1968, Ser. No. 787,740
Int. Cl. F16k *7/06*
U.S. Cl. 251—7 **1 Claim**



A dispensing head includes a body portion with an open-faced channel extending downwardly therethrough and detachable cover plate so that a compressible dispensing tube can be laid in the channel without having to thread same through the body portion. The plate has a pair of semicylindrical recesses one of which receives a compressing member to close off the tube, the cover plate being reversible to facilitate engagement with the body portion and thus ensuring that one of the recesses is always in the correct position to receive the compressing member.

3,568,975
BUTTERFLY FLUID FLOW VALVE

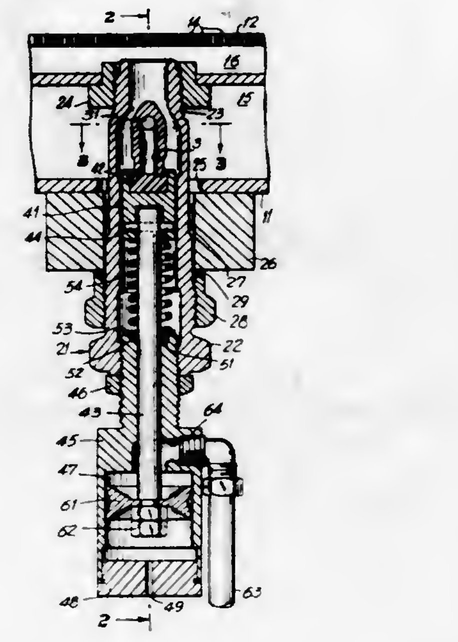
Frank E. Obermaier, Park Ridge, and Arthur A. Scott, Prospect Heights, Ill., assignors to Eaton Yale & Towne Inc.
Filed Mar. 6, 1968, Ser. No. 710,927
Int. Cl. F16k *31/16, 1/226*
U.S. Cl. 251—58 **4 Claims**



A vacuum actuated butterfly fluid flow valve including a valve body having a cylindrical bore formed therein between fluid inlet and outlet connections, a leakproof butterfly valve plate mounted within the bore on a rotatable operating rod and a vacuum motor having an operating member connected to the operating rod for rotating the rod and the valve plate upon actuation of the vacuum motor.

3,568,976
VALVE FOR PRESSING MACHINE

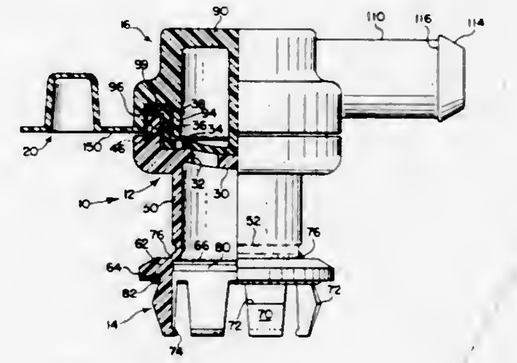
Fred W. Thumm, Wyckoff, N.J., assignor to New York Pressing Machinery Corp., New York, N.Y.
Filed Aug. 28, 1969, Ser. No. 853,776
Int. Cl. F16k *31/12*
U.S. Cl. 251—63.6 **7 Claims**



A valve for a pressing machine formed as a closed unit having a central shaft which controls a valve at one end for permitting the delivery of live steam to a pressing surface, with operation of the valve being controlled by means of a piston at the other end of the shaft operated on by air pressure, with a seal surrounding the shaft to prevent communication between the live steam and the compressed air.

3,568,977
VALVE ASSEMBLY

John F. Nelson, Des Plaines, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.
Filed Jan. 29, 1969, Ser. No. 796,306
Int. Cl. F16l *37/28;* **F16k** *15/16*
U.S. Cl. 251—148 **18 Claims**

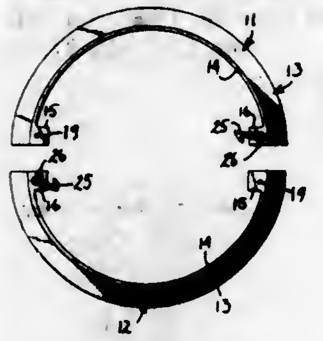


A one-way flap-type check valve for use with low pressure installations. All portions of the valve are capable of being snapped together in sealing relation to one another and in sealing relation to an apertured workpiece.

3,568,978
TIRE BEAD PROTECTOR

Lester L. Larson, Minneapolis, Minn., assignor to Paul E. Hawkinson Company, Minneapolis, Minn.
Filed June 9, 1969, Ser. No. 831,625
Int. Cl. B60c *25/14*
U.S. Cl. 254—50.1 **2 Claims**

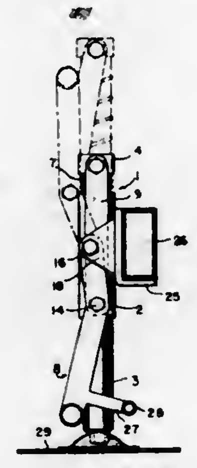
A tire bead protector for use with a pneumatic tire spreader during a retreading process. The protector consists of a pair of identical semicircular lengths of cast high



strength aluminum having an L-shaped cross section and connected end-to-end by a quick operating latch mechanism.

3,568,979
FLOOR JACK MECHANISM

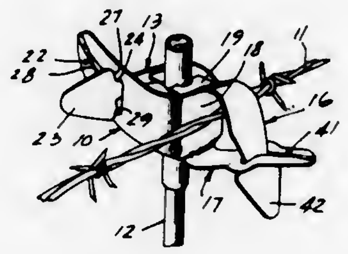
Leo J. Notenboom, 121 Lake St. South, Kirkland, Wash.
Filed Apr. 1, 1969, Ser. No. 812,272
Int. Cl. B66f *3/00*
U.S. Cl. 254—116 **8 Claims**



A jack mechanism is disclosed for use with wheeled vehicles to transfer the weight of the vehicle from the wheels to the jack. A support leg telescopes from a barrel frame to the ground. The leg is raised and lowered by a foot operated lever arm pivotally attached to the barrel and attached to the leg by a compression member. The lever arm acts against the force of a spring interposed between the leg and barrel to lower the leg. The spring aids in raising the leg.

3,568,980
ATTACHMENT MEANS AND INSULATOR FOR ELECTRIFIED FENCES

Robert S. Hulburt, Chicago, and Efrem M. Ostrowsky, Highland Park, Ill., said Ostrowsky assignor to said Hulburt
Filed May 12, 1969, Ser. No. 823,857
Int. Cl. A01k *3/00;* **H01b** *17/16*
U.S. Cl. 256—10 **19 Claims**



Reusable flexible, insulating members have a pair of oppositely extending arms deflectable into a configuration encircling an adjoining fence wire and characterized by locking means for forming a closed loop to restrain electrically conductive fence wire against displacement. A body portion of each member is characterized by standoff projections spacing the flexible, insulating members outwardly of the fence post. Also, the body portion may include a plurality of post attachment means configured to facilitate attachment to fenceposts of a variety of configurations, for example T-posts and rods.

3,568,981 thru 3,569,601

VOID

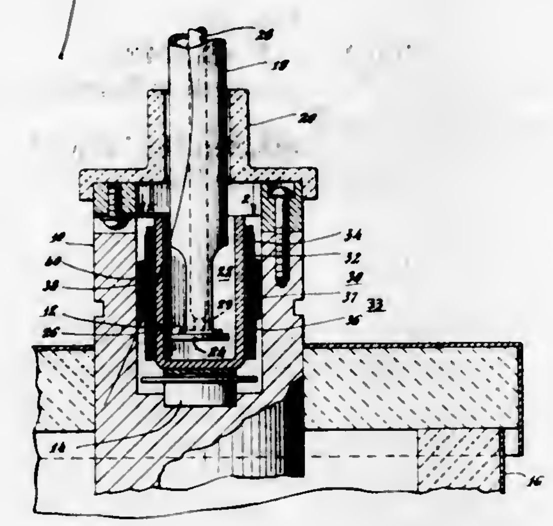
ELECTRICAL

ERRATA

For Classes 176—65 and 210—35 see:
Patent Nos. 3,568,781 and 3,568,833

3,569,602
TEMPERATURE PROGRAMMING APPARATUS WITH A HEATING SENSING ARRANGEMENT

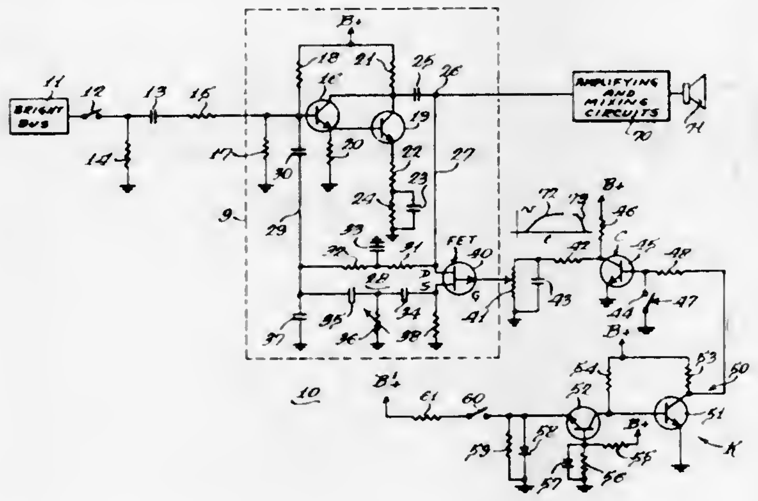
Stanley Norem, Bayside, N.Y., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed July 7, 1969, Ser. No. 839,276
Int. Cl. H05b *3/62*
U.S. Cl. 13—24 **10 Claims**



An apparatus for varying the temperature of a material over a range of temperatures in a programmed manner includes an electric furnace which is heated both by a heater element which exhibits a relatively nonlinear resistance-temperature characteristic and a linearizing electrical impedance coupled to the element to provide a relatively linear resultant resistance-temperature characteristic. The heating element and linearizing impedance are positioned with respect to the furnace for transferring to the furnace thermal energy created by the dissipation of electrical energy therein.

3,569,603
MOVING FORMANT BAND-PASS AMPLIFIER FOR AN ELECTRONIC MUSICAL INSTRUMENT

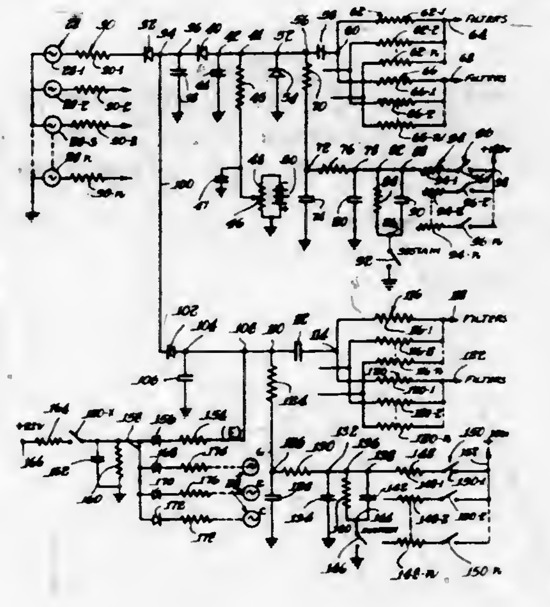
Donald R. Kern, Buffalo Grove, Ill., assignor to Hammond Corporation, Chicago, Ill.
Filed Aug. 1, 1968, Ser. No. 749,334
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.19 **11 Claims**



A circuit for achieving the moving or changing formant effect in an electronic musical instrument such as an electric organ. The circuit employs a band-pass amplifier with parallel T resistive-capacitive feedback circuits in which an FET (Field Effect Transistor) is employed as a variable resistance to cut in, by degrees, one of the T feedback circuits. The effective resistance of the FET and thus the band-pass of the amplifier are varied by a capacitive and resistive timing circuit that is controlled via a keying circuit from one or more keys or other player-operated controls, such as the manual keys of an electric organ.

3,569,604
ELECTRONIC MUSICAL INSTRUMENT DIODE KEYING WITH ISOLATION AND WAVE-SHAPING

Harold O. Schwartz; William V. Machanian; Robert D. Barry, and Richard E. Barbas, North Ionawanda, N.Y., assignors to The Wurlitzer Company, Chicago, Ill.
Filed May 12, 1965, Ser. No. 455,233
Int. Cl. G10h *1/02, 5/10*
U.S. Cl. 84—1.01 **31 Claims**

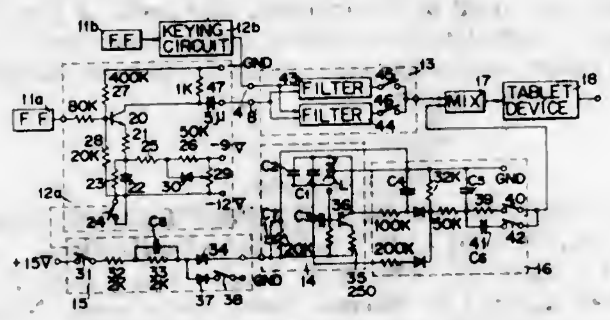


An electronic musical instrument, such as an organ, utilizing a plurality of constantly operating square wave generators, with the generators connected to utilization circuits by means of diodes which are normally biased off. Potential is switched selectively to the diodes upon closure of key switches to play the various tones. Diodes are shared in order that two diodes might be in series between each tone generator and utilization circuit for maximum isolation, while conserving the total number of diodes necessary. The diodes are supplied with potential through circuits which serve as integrating circuits for the square waves, whereby to round off the attack to produce or lead toward sawtooth wave shapes. Groups of diodes also are provided which are switched on simultaneously, and are connected to the previously mentioned diodes for playing preselected groups of notes simultaneously to simulate a chimes effect.

3,569,605
PLURAL CHANNEL TONE COLORING SYSTEM WITH COMMON MIXER FOR ELECTRONIC MUSICAL INSTRUMENT

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed Jan. 14, 1969, Ser. No. 791,088
Claims priority, application Japan, Jan. 18, 1968, 2793
Int. Cl. G10b *1/06*
U.S. Cl. 84—1.22 **6 Claims**

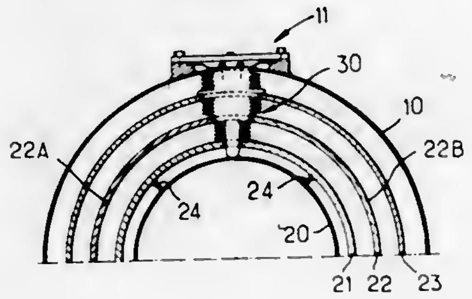
A tone coloring system for an electronic musical instrument simulates an accordion or harmonica sound, which consists in mixing a fundamental tone signal emitted from an accurately tuned first tone generating circuit and having the tone colors of string voice or reed voice with a signal obtained from a second tone generating circuit which has a frequency difference of 3 to 10 Hz. as compared with the fundamental tone signal, a voltage corresponding to 3 to 6db. lower than that of said fundamental signal and is capable of



producing the tone color of the like voice as represented by said fundamental tone signal and using these mixed signals as the musical tone signals of an electronic musical instrument to be played.

3,569,606
ELECTRICAL CONNECTING DEVICE

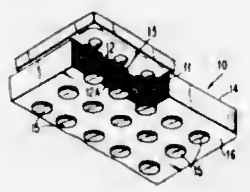
Michel Clin, Rueil Malmaison (Hauts De Seine), France, assignor to L'Electro Entreprise, S.A., Paris, France
Filed Oct. 7, 1968, Ser. No. 765,312
Claims priority, application France, Oct. 19, 1967, 125 023
Int. Cl. H01b *9/04*
U.S. Cl. 174—16 **25 Claims**



An electric power installation has connection between units such as an alternator and transformer, made by hollow, cylindrical phase conductors of different diameters which are coaxially aligned. The cylinders are enclosed by an outer sheath, the conductors and sheath being isolated from one another by a fluid insulant and held spaced apart by insulators having corrugated surfaces to provide long leakage paths. Each insulator extends between the sheath and inner conductor and is withdrawable through a port in the sheath. The conductors are in joined sections which may include expansion joints.

3,569,607
RESOLDERABLE CONNECTOR

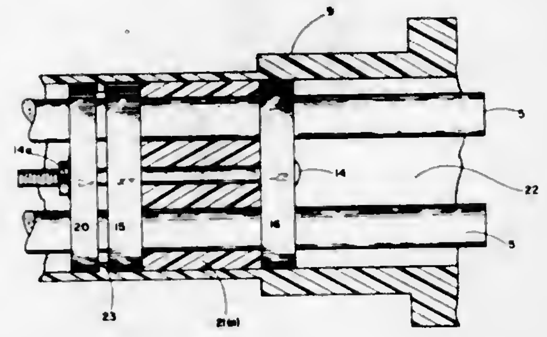
John E. Martyak, Beacon; Morton D. Reeber, Shrub Oak, and Charles Wurms, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 1, 1969, Ser. No. 846,836
Int. Cl. H05k *1/18, 3/32*
U.S. Cl. 174—68.5 **20 Claims**



This patent discloses a resolderable connector particularly adapted for interconnecting multilayer modules with circuit boards and the like, but not limited thereto, the multilayer modules including a monolithic ceramic body with interconnected electrical conductors bonded to the ceramic. The modules include conductive terminations on at least one of the external surfaces of the ceramic body. Connected to these external conductive terminations are cuplike receptacles having a good solder wettable interior and a poor solder wettable exterior, the cuplike receptacles being connected to the conductive terminations as by brazing, but at any rate by a means having a higher melting temperature than conventional lead-tin solder so that bringing the receptacles to a temperature to heat the solder so that they may receive pins from projecting circuit boards does not cause release of the receptacles from the ceramic body.

3,569,608
SPLICE CASE ASSEMBLY

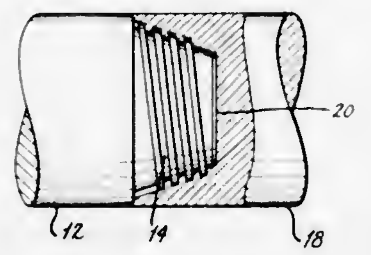
Louis Ance, Hickory, N.C., assignor to Superior Continental Corporation, Hickory, N.C.
Filed Sept. 3, 1968, Ser. No. 757,047
Int. Cl. H02g *15/08*
U.S. Cl. 174—93 **20 Claims**



Disclosed herein is a cable splice assembly in which a stripped end portion of the cable is enclosed in a plastic domelike container, said domelike container being in sealing engagement by means of a first type seal with a sealing chamber. This sealing chamber encloses not only the unstripped portion of said cable but also a plasticlike substance within a closed space to form a second type seal. Provisions are made for producing compressive forces on such plasticlike substance, to drive it thoroughly into engagement with the unstripped cable surfaces as well as the interior surfaces of the sealing chamber that encloses such plasticlike substance so as to produce a tight and gasproof seal of a second type against the unstripped cable surface and the inner surface of the sealing chamber enclosure. By means of such a two seal assembly, ready access can thus be had to the stripped cable portion through said first seal means without breaking the last mentioned seal.

3,569,609
ELECTRODE JOINT

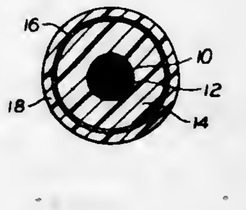
Timothy J. Fowler, Webster Groves, and Donald R. Frikken, Hazelwood, Mo., assignors to Monsanto Company, St.Louis, Mo.
Filed July 14, 1969, Ser. No. 841,631
Int. Cl. H02g *15/08*
U.S. Cl. 174—94 **1 Claim**



Electrode joints comprising a resilient, conductive gasket, compressed between the apex of a tapered, threaded pin and the bottom of a tapered, threaded socket in an electrode member have improved electrical conductivity and greater freedom from thermally induced stresses.

3,569,610
ETHYLENE-PROPYLENE RUBBER INSULATED CABLE WITH CROSS-LINKED POLYETHYLENE STRAND SHIELDING

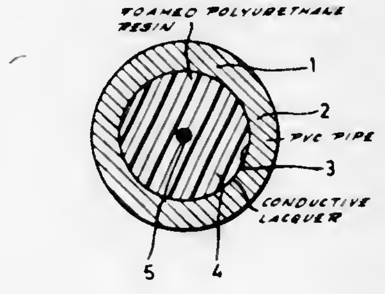
Oscar G. Garner, Riverside, Conn.; George S. Eager, Jr., Upper Montclair, N.J., and Louis A. Bopp, Fair Haven, N.J., assignors to General Cable Corporation, New York, N.Y.
Filed Oct. 15, 1969, Ser. No. 866,611
Int. Cl. H01b *11/06*
U.S. Cl. 174—102 **10 Claims**



A high-tension cable is made with a strand shield of cross-linked, conductive polyethylene compound and with insulation that is a proprietary compound of ethylene-propylene rubber. The insulation is approximately 48 percent ethylene-propylene amorphous copolymer; approximately 12 percent crystalline polyethylene homopolymer; and reinforcing fillers to provide adequate physical properties. The shield and insulation are extruded and cured simultaneously to obtain void-free bonding.

3,569,611
HIGH VOLTAGE LINE

Werner Berends, Hamburg, Germany, assignor to U. S. Philips Corporation, New York, N.Y.
Filed Dec. 18, 1968, Ser. No. 784,630
Claims priority, application Germany, Jan. 13, 1968, M76,911
Int. Cl. H01b *7/18*
U.S. Cl. 174—107 **8 Claims**

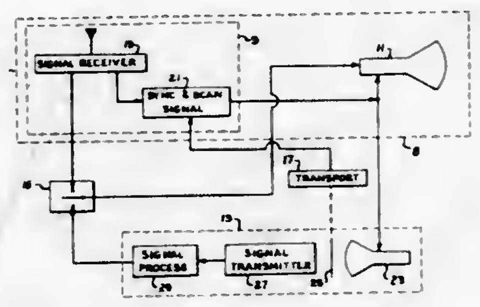


A high voltage cable comprising an insulating pipe coated on its inner surface with a conductive layer of lacquer. An inner conductor is coaxially mounted in the pipe and is supported within a core of nondeformable synthetic resin foam that fills the pipe. The inner conductor is conductively connected to the conductive layer of lacquer.

3,569,612
COLOR IMAGE DISPLAY SYSTEM

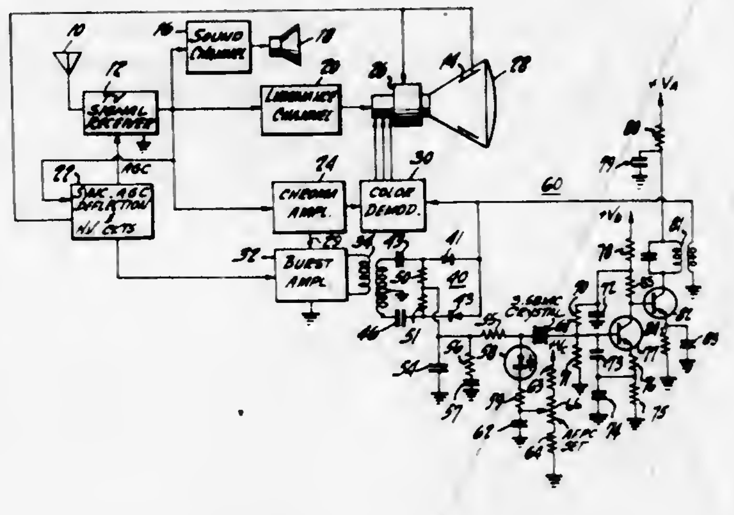
Donald John Cross, Tonawanda; Charles Bailey Neal; William Daniel Schuster, and Benton Boyd Scott, Batavia, N.Y., assignors to Sylvania Electric Products Inc.
Filed Dec. 30, 1968, Ser. No. 787,963
Int. Cl. H04n *9/44*
U.S. Cl. 178—5.2 **15 Claims**

A system for providing a color image display derived from color television signals and photographic film includes a color image reproducer; first signal source means responsive to color television signals to provide signals representative of luminance, chrominance and synchronizing information; second signal source means responsive to light-scanned photographic film to provide signals representative of luminance and chrominance information; transport means for effecting conveyance of a film through said second signal source means and synchronization of said film conveyance and said first signal source means; and switching means for selective coupling of signals representative of luminance and chrominance information from said first and second signal source means to said color image reproducer.



3,569,613
COLOR SUBCARRIER OSCILLATORS

John M. Kresock, Fort Wayne, Ind., assignor to RCA Corporation
Filed May 22, 1968, Ser. No. 731,164
Int. Cl. H04n *9/46*
U.S. Cl. 178—5.4 **11 Claims**

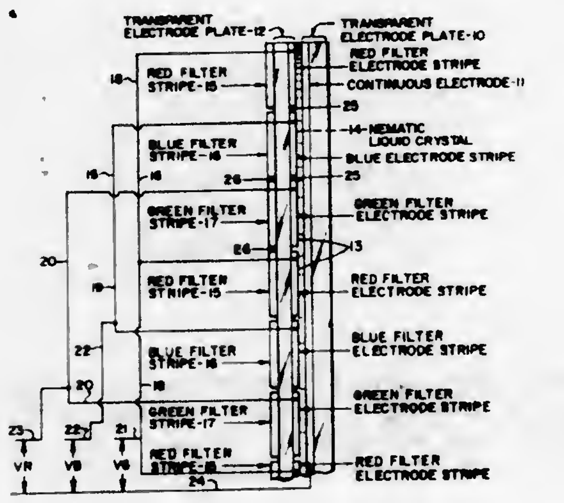


A color subcarrier oscillator for a television receiver uses a transistor and a feedback network which serves to maintain oscillations in the transistor. The network is selected to provide a feedback signal of a magnitude sufficient to cause the transistor to cease conduction for a portion of a cycle at the frequency of oscillation and further serves to substantially eliminate transistor impedance variations from effecting the frequency of oscillation. In this manner the frequency is determined by a resonant circuit comprising a piezoelectric crystal and a variable reactance device. A transistor output stage operated in a class B mode receives both AC and DC bias from the collector electrode of the oscillator transistor. A high-Q tank in the collector of the class B stage converts current variations therein to sinusoidal voltage fluctuations which are monitored by a phase detector together with the color bursts to provide a control voltage used to synchronize the transistor oscillator via the variable reactance device.

3,569,614
LIQUID CRYSTAL COLOR MODULATOR FOR ELECTRONIC IMAGING SYSTEMS

Thomas F. Hanlon, 337 Tremont Ave., Fort Lee, N.J.
Filed Apr. 10, 1969, Ser. No. 814,941
Int. Cl. H04n *9/12*
U.S. Cl. 178—5.4 **6 Claims**

This invention utilizes the principle that a nematic liquid crystal, which is normally clear and transparent, is darkened upon application of a voltage thereto and can be darkened sufficiently to prevent light from passing therethrough. In a three color system, the instant color modulator blocks out two unselected colors by applying voltage to the liquid crystal behind the unselected color filters thus permitting the selected color to pass through the transparent liquid crystal behind its filter.


TRANSPARENT ELECTRODE PLATE-12
TRANSPARENT ELECTRODE PLATE-10
RED FILTER STRIPE-15
RED FILTER ELECTRODE STRIPE
CONTINUOUS ELECTRODE-11
14-NEMATIC LIQUID CRYSTAL
BLUE FILTER STRIPE-16
BLUE ELECTRODE STRIPE
GREEN FILTER STRIPE-17
GREEN FILTER ELECTRODE STRIPE
RED FILTER ELECTRODE STRIPE
BLUE FILTER ELECTRODE STRIPE
GREEN FILTER ELECTRODE STRIPE
RED FILTER ELECTRODE STRIPE
VR
VB
VG

3,569,615

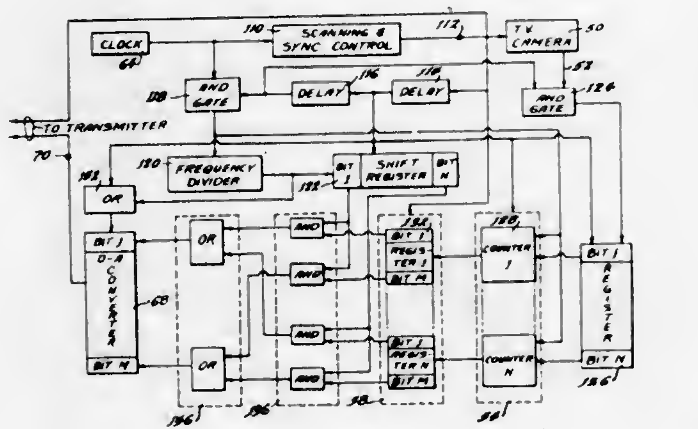
METHOD AND APPARATUS FOR TRANSMITTING VIDEO INFORMATION WITH AMPLITUDE REPRESENTATION OF POSITION INFORMATION

Peter E. R. Oberbeck, and Wolfgang J. Poppelbaum, Urbana, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 7, 1968, Ser. No. 750,789

Int. Cl. H04n *1/02, 1/40, 7/12*

U.S. Cl. 178—6 **6 Claims**



An encoding method and apparatus for transmitting sequences of video pulses produced by a television camera scanning graphic information of limited complexity, such as a line drawing, over a transmission medium having limited bandwidth, include encoding the time interval between video pulses into a voltage level having a predetermined time duration and having an amplitude proportional to the time interval between video pulses, transmitting the voltage levels, and decoding the voltage levels into the original sequence of video pulses.

3,569,616

HIGH RESOLUTION PPI SCAN CONVERTER

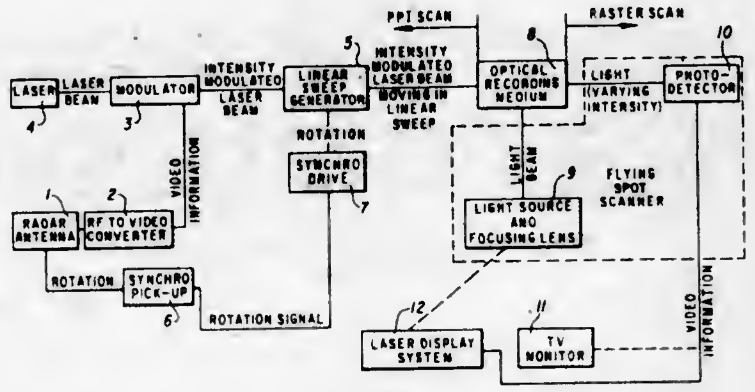
Charles E. Baker, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 29, 1967, Ser. No. 649,916

Int. Cl. H04n *5/02*

U.S. Cl. 178—6.8 **4 Claims**

A scan conversion system is disclosed in which a modulated laser beam "writes" an image on an optical-recording medium using one type of scan pattern and the image is "read" by a flying spot scanner or similar device operating on a different scan pattern.



3,569,617

GRAPHIC DISPLAY FACILITY FOR COMPUTING

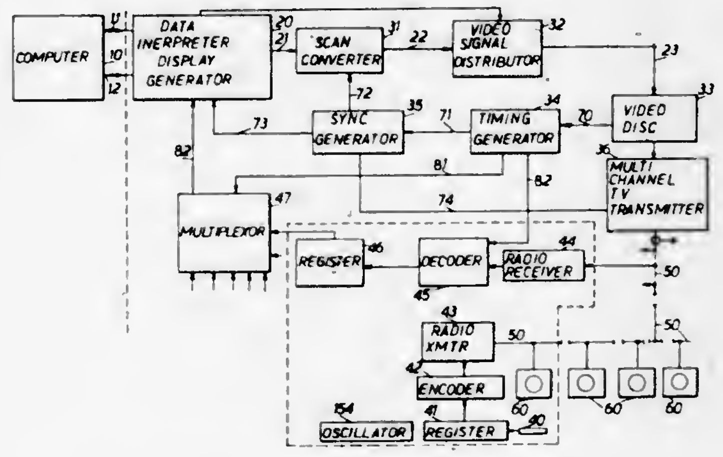
Murray W. Allen, Sydney, New South Wales (c/o School of Electrical Engineering, University of New South Wales, Baker Street Kensington, N.S.W. 2033); Malcolm Macaulay, (12 Jackson Street, Campbell, A.C.T. 2601), Canberra, and Gordon A. Rose, Brisbae, Queensland, Australia (c/o Department of Computer Science, University of Queensland, St. Lucia, Brisbane, Qld. 4067)

Filed Apr. 2, 1969, Ser. No. 812,752

Claims priority, application Australia, Apr. 5, 1968, 36073/68

Int. Cl. G09f *9/32;* **H04n** *7/10, 7/18*

U.S. Cl. 178—6 **1 Claim**



A graphic display facility for computing adapted to be connected to a computer wherein the input and output is effected and received by means of an ordinary television receiver used in connection with a light pen, there being a plurality of such television receivers and timing and synchronizing means in the system whereby each of the TV receivers may be used at will by a user to communicate with the computer.

3,569,618

SWITCHING DEVICE FOR MAGNETIC RECORDING/REPRODUCING APPARATUS

Masao Inaba, and Harunobu Nakamura, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan

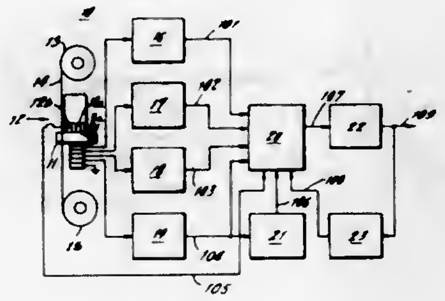
Filed Oct. 31, 1967, Ser. No. 679,322

Claims priority, application Japan, Nov. 4, 1966, 72,979

Int. Cl. H04n *1/38, 5/44, 5/78*

U.S. Cl. 178—6.6 **7 Claims**

The disclosure broadly teaches a switching device for rotary recording/reproducing systems preferably of the magnetic tape variety wherein signals picked up by the multiple rotating heads are composed by switching means into a continuous composite signal. Conventional switching apparatus of the alternating black-white ring and accompanying photocell reading assembly is employed for initially composing signals from selected heads into a partial composite signal. The partial composite signals are then composed into a final continuous composite signal by use of wave envelope detecting means for detecting the envelope of any one of the signals reproduced by the read heads and forming shaped pulses or combining the initially composed signals into a final composite continuous signal in a very high precision manner.



3,569,619

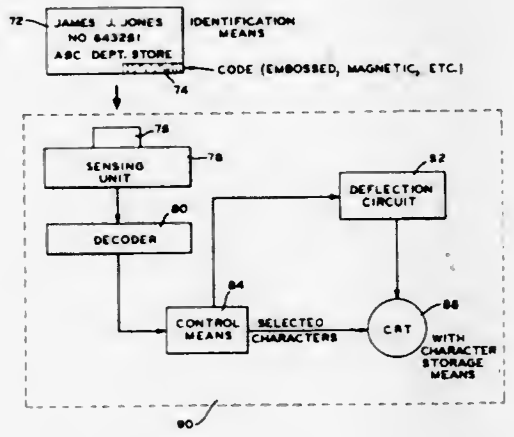
VERIFICATION SYSTEM USING CODED IDENTIFYING AND STORAGE MEANS

Luther G. Simjian, Laurel Lane, Greenwich, Conn. 06830

Filed June 27, 1968, Ser. No. 740,666

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **3 Claims**



A verification system for identifying means such as credit cards, charge plates, etc. includes a storage means storing an image of the rightful possessor of such card or characters from which such an image can be reproduced. Responsive to the presentation of such a card and insertion thereof in a sensing means, a display device coupled to the storage means provides a display of a respective image. A clerk is able to compare the appearance of the card bearer with the display and thereby verify whether the bearer and the identifying means are in agreement or whether submission of additional evidence is required.

3,569,620

AUTOMATIC VIDEO SIGNAL GAIN CONTROLLING APPARATUS

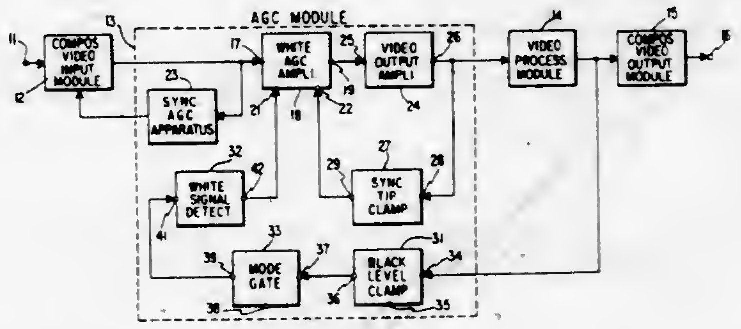
Leonard J. Baun, Cinnaminson, N.J., assignor to RCA Corporation

Filed Mar. 21, 1969, Ser. No. 809,248

Int. Cl. H04n *5/56*

U.S. Cl. 178—7.3 **14 Claims**

The synchronizing pulse components of a composite video signal are maintained at a desired level at the output of a video amplifier by means of a first automatic gain control (AGC) system associated with the video amplifier. The video amplifier output is further processed by means of an automatic video signal gain-controlling apparatus which maintains peak white video signal levels in substantially fixed relationship with respect to black level video signals substantially independently of average brightness of the image represented by the video signals.



3,569,621

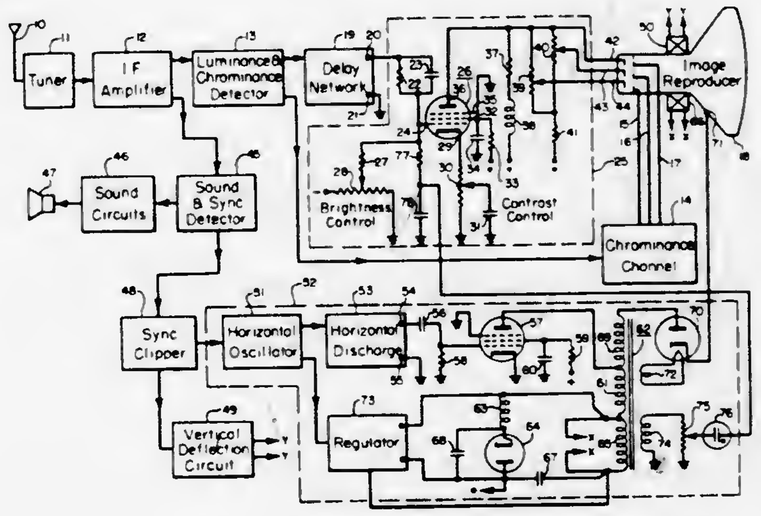
TELEVISION RECEIVER CONTROL CIRCUIT

Robert W. Krug, Janesville, Wis., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Nov. 29, 1968, Ser. No. 780,053

Int. Cl. H04n *3/18*

U.S. Cl. 178—7.5 **7 Claims**



A control circuit for preventing the application of accelerating potential in excess of a predetermined maximum value to the cathode-ray picture tube of a television receiver. Positive polarity pulses are amplitude related to the applied accelerating potential derived from the receiver horizontal deflection system and impressed on a neon bulb. When these pulses exceed a predetermined amplitude corresponding to the predetermined maximum value of accelerating potential, the bulb fires and causes a positive bias to be impressed on the control grid of the receiver luminance amplifier. This increases the beam current in the cathode-ray tube, heavily loading down the power supply and preventing the accelerating potential from remaining at an excessive level.

3,569,622

SIGNALLING CIRCUIT FOR INDICATING THE PRESENCE OF INFORMATION

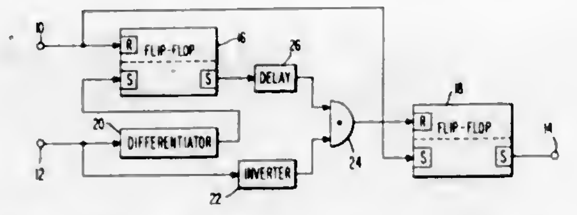
Carl M. Mengani, Brooklyn, N.Y., assignor to Burroughs Corporation, Detroit, Mich.

Filed June 24, 1964, Ser. No. 377,698

Int. Cl. G06k *9/00*

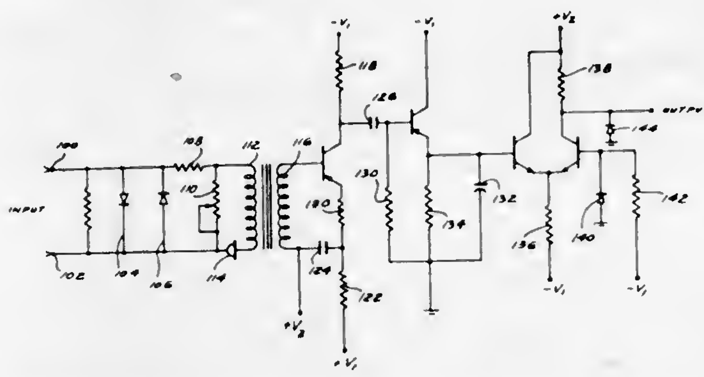
U.S. Cl. 178—7.7 **4 Claims**

A signalling circuit for indicating the beginning and end of symbol information in a character recognition system including a flip-flop which is set by the presence of the symbol information signals to provide an output control signal and is reset by the first retrace signal in the system after the information signals have terminated. This output signal indicates the time during which symbol information is present in the system and may be differentiated to provide start-of-character signals and end-of-character signals in the system.



3,569,623
ELECTRONIC SIGNAL CONVERTER

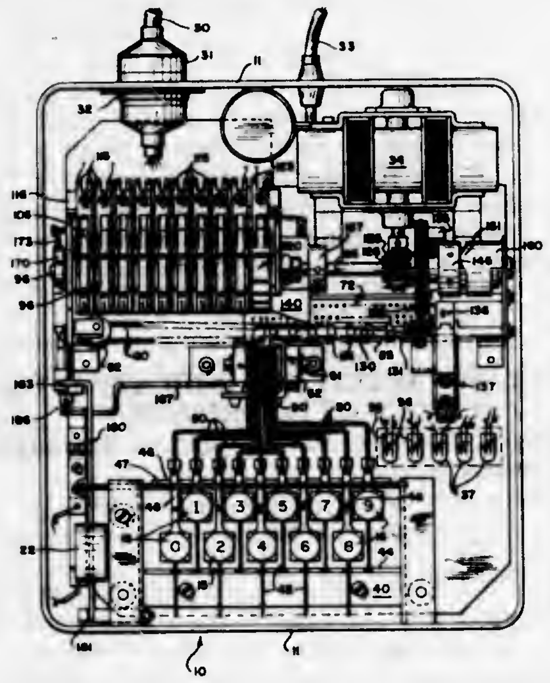
John P. Schnitzius, Cherry Hill, N.J., assignor to Ultronic Systems Corporation
Filed Nov. 25, 1968, Ser. No. 778,677
Int. Cl. H04l *15/24*
U.S. Cl. 178—17 **2 Claims**



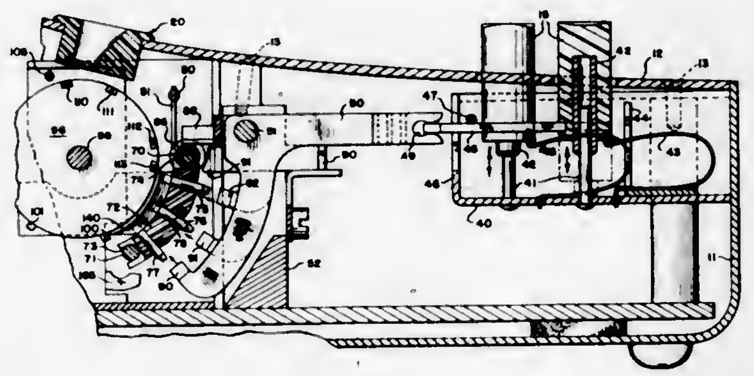
Apparatus for transforming standard polar or bipolar teletypelike signals as received from a telephone line into corresponding signals at different power levels for use with electronic equipment. In the apparatus, the received signals actuate and deactuate a tunnel diode oscillator. Oscillations thus produced are amplified, detected, integrated and thereafter processed to produce corresponding output signals at the desired power level.

3,569,624
INFORMATION VERIFICATION SYSTEM AND DIGITAL DATA INPUT UNIT

Robert H. Twyford, Falls Church, Va., assignor to Ultronic Systems Corporation
Filed Mar. 25, 1968, Ser. No. 721,543
Int. Cl. H04l *13/08*
U.S. Cl. 178—17.5 **23 Claims**

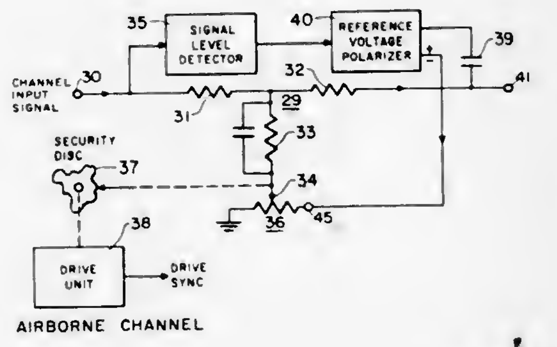


An inquiry unit for use with an information checking system adapted to receive by manual insertion a multidigit number, to visually display the number and to mechanically store the number. A manually operated sending key releases the stored number for processing and clears the unit to return same to normal standby to receive the next multidigit number.



3,569,625
TELEMETRY DATA TRANSMISSION SYSTEM

T. Burr Jackson, Riverside, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 27, 1961, Ser. No. 106,419
Int. Cl. H04l *9/02*
U.S. Cl. 178—22 **2 Claims**



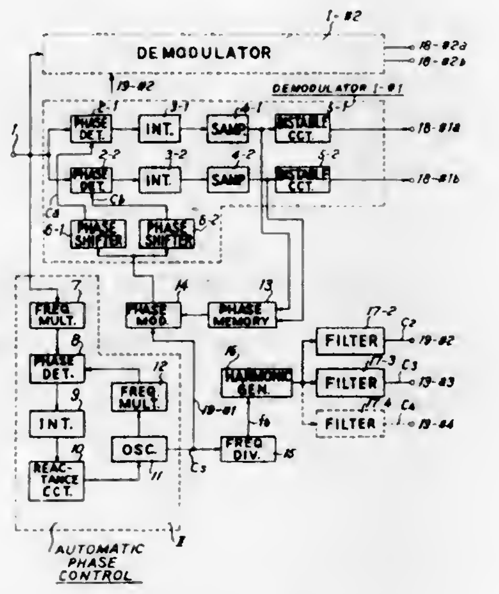
In a data transmission system the combination comprising:

a. a signal source representing a measured quantity;
b. a reversible polarity DC power supply;
c. a potentiometer connected to said reversible polarity DC power supply;
d. coded disc means operatively associated with the movable tap of said potentiometer for providing a predetermined reference voltage;
e. adding circuit means having a first input coupled to said signal source and a second input coupled to the movable tap of said potentiometer for adding said signal representing a measured quantity and the predetermined varying reference voltage;
f. signal level detector means coupled to said signal source and to said reversible polarity DC power supply for reversing the polarity of said power supply when said signal source is of a predetermined value;
g. means coupled to said adding circuit means for transmitting said combined signal to a receiving station;
h. means located at said receiving station for detecting the polarity and subtracting a voltage identical to said predetermined varying reference voltage from said transmittal signal; and

i. circuit means coupled to said subtracting means for utilizing the remaining portion of said transmittal signal.

3,569,626
REFERENCE CARRIER WAVE SYNCHRONIZING SYSTEM

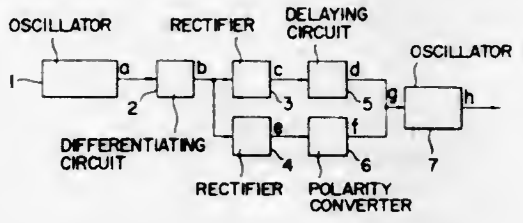
Hisakichi Michishita; Kazuo Kawai, Tokyo-to, and Sotokichi Shintani, Fukuoka-machi, Saitama-ken, Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan
Filed July 28, 1967, Ser. No. 656,840
Claims priority, application Japan, Aug. 1, 1966, 41-50109
Int. Cl. H04l *27/24*
U.S. Cl. 178—67 **7 Claims**



A reference carrier wave synchronizing system for synchronizing a plurality of receiving reference waves with a plurality of transmitted, phase-modulated telegraphic waves having harmonic frequencies of a standard low frequency and each assuming 2^n quantum phase positions in accordance with the number *n* of telegraph channels to be transmitted on each of the telegraphic waves; where the said synchronization is performed by compensating separately the fluctuations of instantaneous phase positions of the transmitted, phase-modulated waves caused in transmission medium and caused from the deviation in the phase or frequency of the standard low frequency.

3,569,627
TELEVISION VERTICAL SYNCHRONIZING SIGNAL GENERATOR

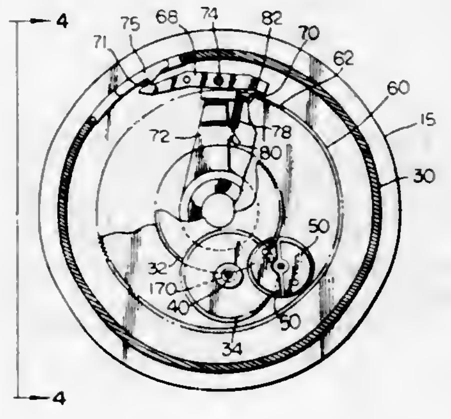
Takeshi Nishimura, Kodaira-shi; Tadaiku Yoneda, Kokubunji-shi, and Kan Otake, Tanashi-shi, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho and Hitachi Denshi Kabushiki Kaisha, Tokyo-To, Japan
Filed July 18, 1967, Ser. No. 654,095
Claims priority, application Japan, July 20, 1966, 41/47037
Int. Cl. H04n *5/06*
U.S. Cl. 178—69.5 **5 Claims**



A generator having a generator for producing rectangular waves having a period equal to 2N times a television horizontal scanning period and a 50-percent duty factor, a pulse generating circuit for generating from the rectangular waves two pulse trains respectively of a period of 2NH mutually differing in phase by NH, a delaying circuit for delaying one of the pulse trains by H/2, and a circuit for additively combining the two pulse trains to produce a composite pulse train which is used in conjunction with the horizontal synchronizing signal to accomplish interlaced scanning of a television picture.

3,569,628
FRICTIONAL DRIVE ARRANGEMENT FOR ARRANGEMENT FOR EFFECTING PHASE SYNCHRONIZATION OF FACSIMILE DEVICES

Ernest John Okleshen, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.
Filed Mar. 3, 1969, Ser. No. 803,701
Int. Cl. H04l *7/10*
U.S. Cl. 178—69.5 **6 Claims**



This invention relates to an improved clutch which is used for effecting synchronous phase operations between two facsimile transceivers.

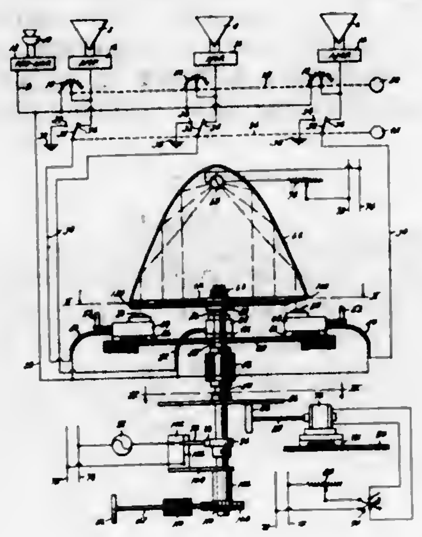
The invention consists of an index gear which is coupled to an electrically operated drive motor in the receiver device and a clutch arm which is frictionally carried with the index gear. The clutch arm carries a pivotally mounted toggle or latch having a detent which is engageable with teeth of the index gear and a second detent which engages a key of a drum in the receiving facsimile device. Synchronization occurs when the detent of the latch engages a correct one of the gear teeth on the index wheel. Electrical signals are provided from the sending facsimile device to effect periodic disconnection of the detent with the teeth of the index gear and also to effect angular displacement of the clutch arm relatively to the index gear until the detent eventually engages the proper gear tooth of the index gear and thereafter the two transceivers operate in synchronous relation, the toggle maintaining a drive connection between the drum and index gear of the receiving unit at synchronized phase orientation of the receiving facsimile transceiver.

The present invention is most directly concerned with the means for obtaining the optimum frictional loading between the clutch arm and the index gear which will enable the electrically operated means to perform the necessary adjustments which will eventually achieve synchronization of the sending and receiving transceivers.

3,569,629
PLURAL LOUDSPEAKER SOUND EFFECT SYSTEM

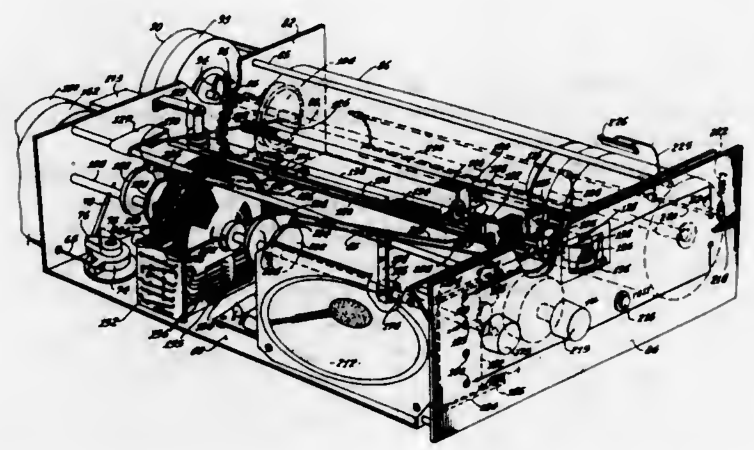
David L. Beatty, 4832 Adams, Shawnee Mission, Kans.
Filed Apr. 1, 1969, Ser. No. 812,195
Int. Cl. H04r *5/04*
U.S. Cl. 179—1 **13 Claims**

A sound effect system comprising a plurality of loudspeakers adapted to be spaced about a stage or platform on which performers are positioned, or about a listening area, a single source of electrical audio signal for all of said speakers, a photoresistive light cell in the source wire to each of said speakers, a light source directed at all of said cells, and means for interrupting the light to said cells in virtually any predetermined pattern or cycle.



3,569,630
CYCLICALLY CONTROLLED TELEPHONE ANSWERING DEVICE HAVING A SECTIONED RECORDING MEDIUM FOR INCOMING AND OUTGOING MESSAGES

Jerome Parks, Marina del Rey, and Donald D. Kane, Torrance, Calif.
Filed Dec. 9, 1966, Ser. No. 605,525
Int. Cl. H04m *1/64*
U.S. Cl. 179—6 **8 Claims**

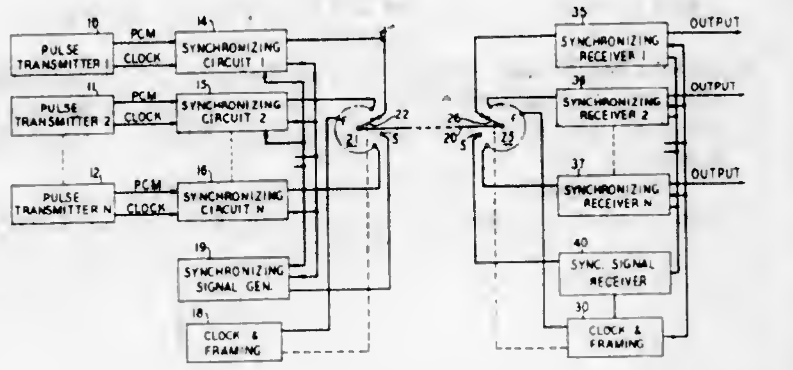


An electromechanical device for responding to the ringing of a telephone instrument by answering with a prerecorded message and then recording communications incoming over the telephone line. The device provides for manual control of the recording of the prerecorded message and the playback of the incoming communications as recorded.

3,569,631
PCM NETWORK SYNCHRONIZATION

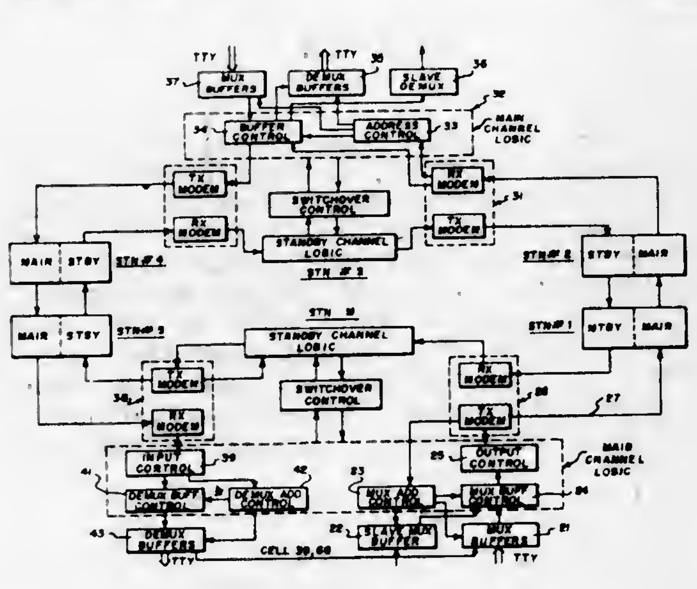
Virgil I. Johannes, Holmdel; John S. Mayo, Morris Township, and Richard H. McCullough, Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed May 7, 1968, Ser. No. 727,241
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 **5 Claims**

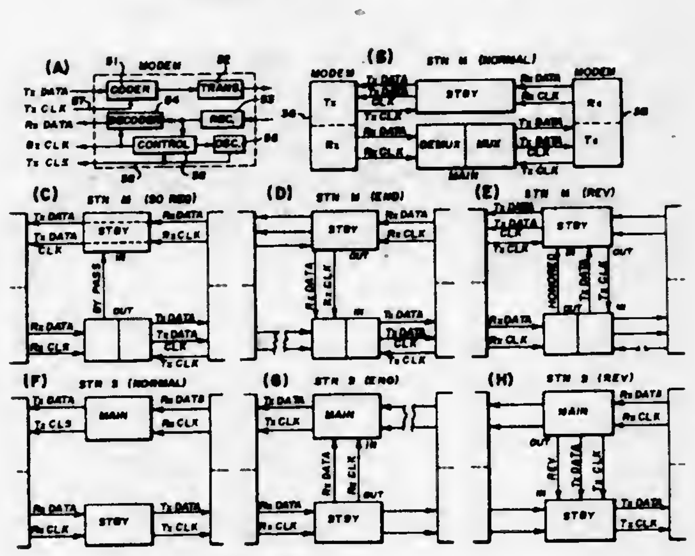
Pulse signals from a plurality of unsynchronized sources are time-division multiplexed on a high-speed pulse transmission system having a pulse repetition rate submultiples of which are approximately equal to the repetition rate of the signals to be multiplexed. Multiplexing is accomplished by inserting control pulses or deleting pulse information from the pulse sources when necessary so as to maintain the pulse signals at a predetermined repetition rate equal to a submultiple of the line rate. The presence and location of the control pulses and the fact that deletion has occurred as well as whether a pulse or a space has been deleted from a particular pulse source are signalled to the receiving apparatus by transmitting signaling information in a predetermined channel space enabling the receiving apparatus to delete the control signals and restore any deleted signals.



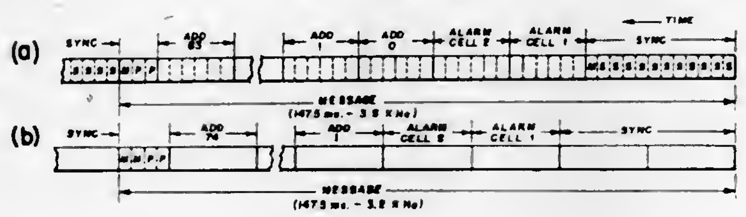
3,569,632
SYNCHRONOUS DIGITAL MULTIPLEX COMMUNICATION SYSTEM INCLUDING SWITCHOVER

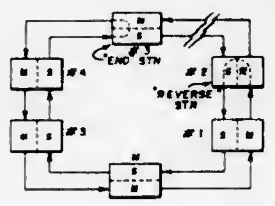
Peter W. Beresin, and Frank W. Sieracki, Philadelphia, Pa., assignors to Ultronic Systems Corp., Mount Laurel, N.J.
Original application Aug. 15, 1967, Ser. No. 660,696, now Patent No. 3,519,750. Divided and this application Jan. 16, 1970, Ser. No. 008,145
Int. Cl. H04j *3/08*
U.S. Cl. 179—15 **2 Claims**





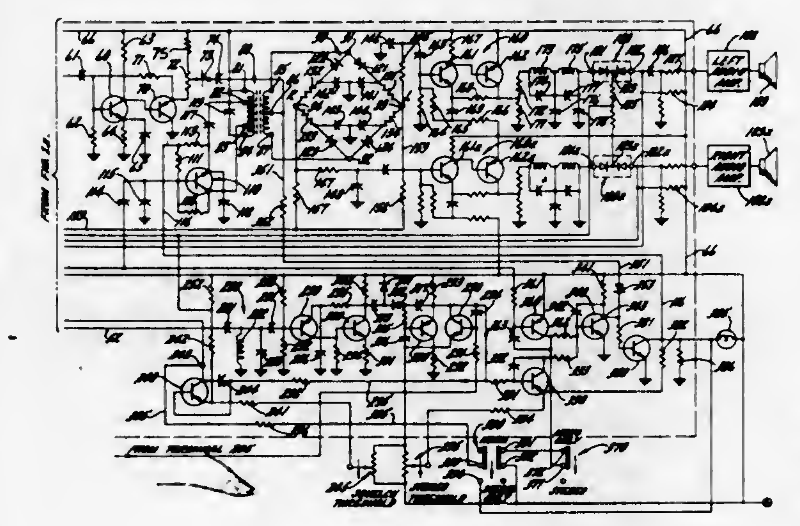
Multiplex messages are transmitted from a master station through a plurality of intermediate stations and back to the master via a main channel. A standby channel provides for transmission in the opposite direction. If a station detects received message failure in the main channel it initiates a switchover operation in which the preceding station switches received messages to the standby channel. The switched messages pass back through the master to the initiating station, and the initiating station returns them to the master via the main channel. Modem clock signals are switched to maintain synchronous operation and failure of a modem results in a switchover operation. Provision is made for operation alternatively at higher and lower bit transmission rates, while retaining the same message length. Special connections for predetermined message cells allow communication between intermediate stations.





3,569,633
FM STEREO RECEIVER HAVING AUTOMATIC THRESHOLD SWITCHING CIRCUITRY

Rodman S. Brahman, Berien Springs, Mich., assignor to Heath Company, St. Joseph, Mich.
Filed Dec. 21, 1967, Ser. No. 692,536
Int. Cl. H04h *5/00*
U.S. Cl. 179—15 **11 Claims**

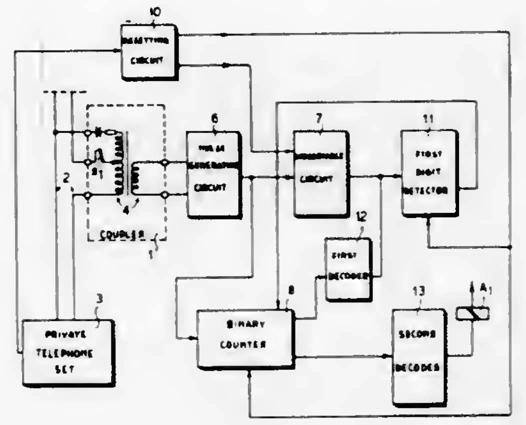


A FM stereo receiver circuit in which the reproduction is switched to the monophonic mode or cutoff entirely depending upon the amplitude of the high frequency noise superimposed upon the signal and depending upon the degree to which the signal is detuned.

3,569,634
BLOCKING CIRCUIT FOR TELEPHONE APPARATUS

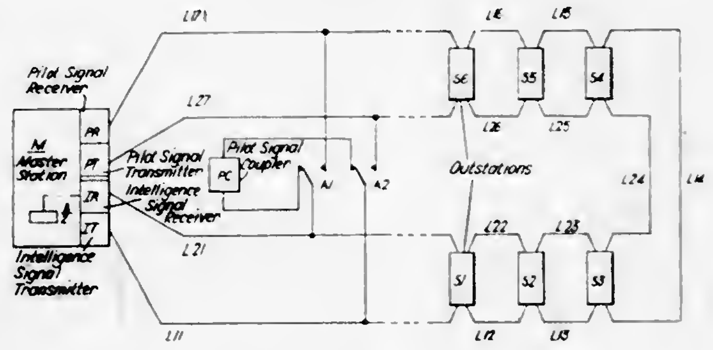
Claudio Amadasi, via Asellia, Milan, and Adriano Maj, via Mazzucchelli 3, Morazzone, Italy
Filed June 19, 1968, Ser. No. 738,172
Claims priority, application Italy, June 27, 1967, 52244A/67
Int. Cl. H04m *3/38*
U.S. Cl. 179—18 **5 Claims**

A telephone circuit which prevents unauthorized long-distance calls by disconnecting the line with the telephone exchange by means of a pulse counter and a series switch combination operating in response to the pulses given by the first dialed number.



3,569,635
A TELECOMMUNICATION SYSTEM WITH MEANS FOR DETECTING FAULTS AND REROUTING SIGNALS TO THE FAULT LOCATIONS

Cyril Ettienne Bloch, London, and Victor Teacher, Enfield, England, assignors to International Standard Electric Corporation
Filed Oct. 10, 1967, Ser. No. 674,304
Claims priority, application Great Britain, Oct. 28, 1966, 48370/66
Int. Cl. H04q *9/02*
U.S. Cl. 179—18 **11 Claims**

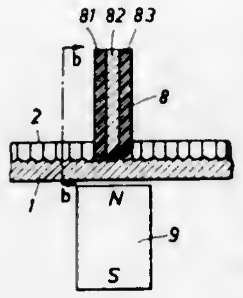


A telecommunications system includes a master station which is in communication with any one of a number of outstations via one or the other leg of the two legs of a closed loop cable linking all the outstations along the cable route. A pilot tone is transmitted around the loop (which may be a four-wire telephone circuit) to indicate the occurrence of a fault and simultaneously to initiate switching operations to switch outstations beyond the fault to a healthy leg and isolate the faulty section of the line.

3,569,636
RECORDING AT LEAST TWO SIGNAL CHANNELS IN A COMMON GROOVE OF A MAGNETIC RECORD CARRIER

Eduard Schuller, Berlin, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany
Filed Feb. 6, 1968, Ser. No. 703,430
Claims priority, application Germany, Feb. 7, 1967, T 33155
Int. Cl. G11b *11/20*
U.S. Cl. 179—100.2 **3 Claims**

Method and means for recording two separate signal channels, pertaining, for example, to the video and audio information of a television signal, in the walls of a recording carrier groove in the form of modulated carrier signals which are to be magnetically sensed for playback.

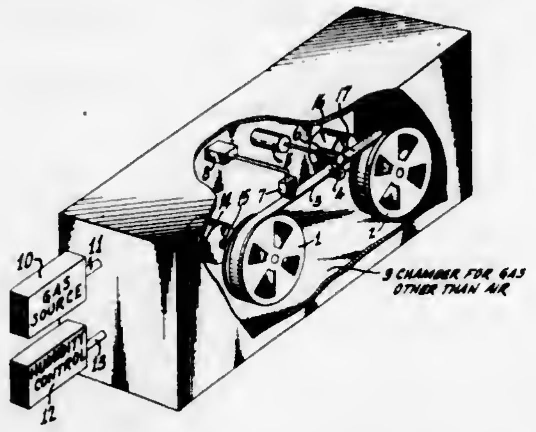


3,569,637

GAS ENVIRONMENT FOR RECORDER-REPRODUCER SYSTEMS

Harold Esten, Willingboro, N.J., assignor to RCA Corporation

Filed Oct. 14, 1968, Ser. No. 767,929
Int. Cl. G11b *5/00, 1/00, 5/10*
U.S. Cl. 179—100.2 **13 Claims**



A technique is disclosed for minimizing undesirable frictional effects at the transducer-record medium interface of a recorder-reproducer system. The recorder-reproducer system is provided at the transducer-record medium interface with a gaseous environment with adsorptive properties which exceed those of water vapor. The adsorptive properties of the gas result in a sufficient adsorption of the gas at the record medium to produce and sustain, upon desorption at the transducer-record medium interface, a friction reducing effect.

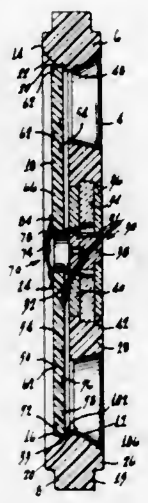
3,569,638

LOUDSPEAKER HAVING PLASTIC DIAPHRAGM WITH COMPLIANCE GROOVES

Herbert Schoengold, Mt. Vernon, N.Y., assignor to Electronic Research Associates, Inc., Cedar Grove, N.J.

Continuation-in-part of application Ser. No. 342,827, Feb. 24, 1965, now Patent No. 3,351,719. This application June 22, 1967, Ser. No. 648,089
Int. Cl. H04r *9/06*
U.S. Cl. 179—115.5 **7 Claims**

Sound reproducing equipment comprising a frame having a diaphragm supported at its peripheral edges by said frame. The frame and diaphragm are preferably formed of materials having acoustically compatible properties and the diaphragm is also preferably mounted on the frame in a manner to permit movement of the diaphragm as a complete entity at low frequencies. At the same time the diaphragm is provided with compliance grooves or corrugations containing a compliant material serving to reduce or eliminate "break-up" or the development of nodal points within the diaphragm. The diaphragm further may be provided with a high frequency propagator which cooperates with the diaphragm to increase the range of the vibrations produced by the equipment without introducing feedback or distortional characteristics during operation.

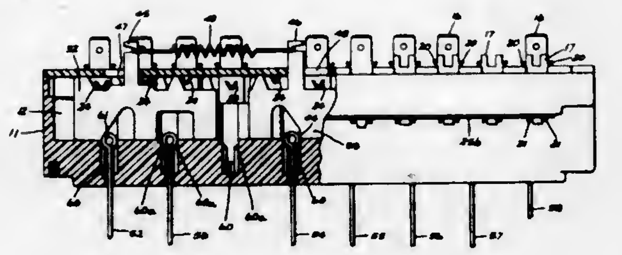


3,569,639

PUSHBUTTON SWITCH ASSEMBLY WITH MULTIPLE MOMENTARY ACTION

Steward A. Woodward, Stratford, Conn., assignor to General Electric Company

Filed Nov. 26, 1969, Ser. No. 880,005
Int. Cl. H01h *9/26*
U.S. Cl. 200—5 **10 Claims**



A pushbutton switch assembly including a plurality of movable switch elements, a plurality of main sliders for actuating and a plurality of main push rods for engaging the main sliders to actuate some of the switch elements. There also are two movably mounted momentary sliders for actuating two corresponding switch elements and two momentary push rods for engaging the momentary sliders to selectively actuate corresponding switch elements. Each of the momentary push rods moves one of the momentary sliders away from the other momentary slider. A spring interconnects the momentary sliders to return each of them to its original position.

3,569,640

LIMIT SWITCH ASSEMBLY FOR PRESS SLIDE ADJUSTMENT

Robert G. Suntheimer, Hastings, Mich., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed June 9, 1969, Ser. No. 831,629
Int. Cl. H01h *21/28*
U.S. Cl. 200—47 **5 Claims**

A limit switch assembly for use in positioning a press slide. The press is of the type in which the slide is raised or lowered by means of one or more adjusting screws. Connected to one of the adjusting screws is a rack bracket having a rack end spaced from the screw and oriented generally parallel with

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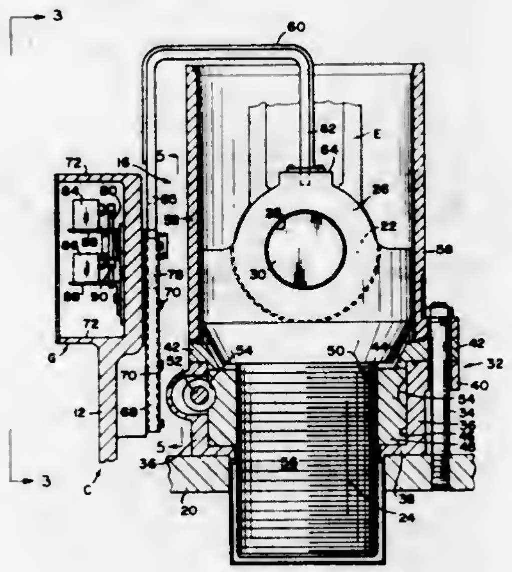
movement of the slide. The latter supports a pinion which engages the rack end and is rotated with movement of the slide relative the adjusting screw. Rotatable with the pinion is a cam which engages one of two limit switches.

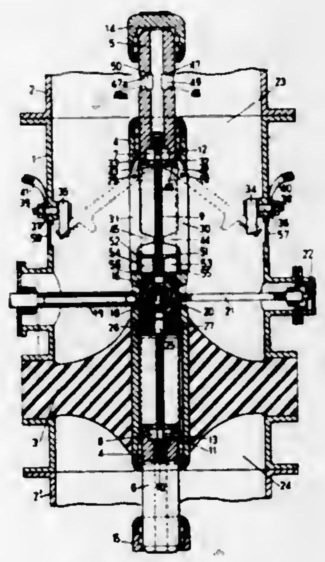


3,569,641

METAL-CLAD ISOLATOR SWITCHES COMPRISING EARTHING DEVICES

Rintje Boersma, Harmelen, and Gijsbert W. Irik, Bilthoven, Netherlands, assignors to N.V. "COQ", Kanaalweg, Netherlands

Filed Oct. 20, 1969, Ser. No. 867,745
Claims priority, application Netherlands, Jan. 3, 1969, 6900061
Int. Cl. H01h *9/20*
U.S. Cl. 200—50 **8 Claims**



A metal-clad isolator switch for high voltage, comprising fixed contacts, movable switching contacts cooperating with said fixed contacts and at least one earthing switch, of which the fixed contact is attached to the envelope of the isolator switch and the movable contact is carried by the holder of the movable switching contacts of the isolator switch, said movable earthing contact being directly mechanically driven and directly mechanically locked in either end position by a movable switching contact of the isolator switch.

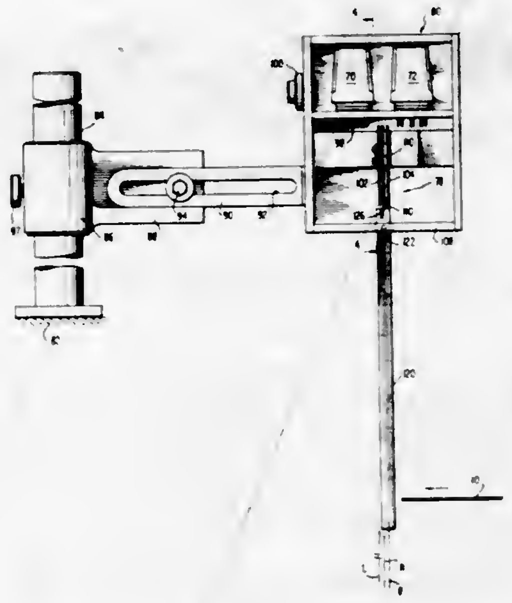
3,569,642

CONTROL FOR SHEET FEEDING APPARATUS

William B. Grover, Rte. 1, Box 25 XB, Sumter, S.C.

Filed Jan. 26, 1968, Ser. No. 700,867
Int. Cl. H01h *9/02*
U.S. Cl. 200—61.13 **8 Claims**

In a conveyor for feeding sheet material of variable width, a control mechanism for automatically adjusting the conveyor laterally of the sheet in accordance with the width of the sheet. The control mechanism includes an arm engageable with the edge of the sheet to sense its width, a motor for laterally adjusting the conveyor towards or away from the sheet, and a switch mechanism including relays actuated by the control arm for energizing the motor.

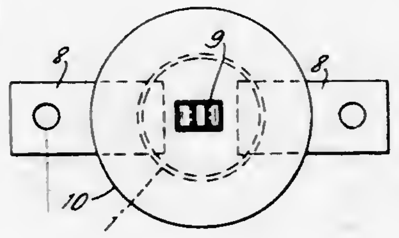


3,569,643

INERTIA SWITCH HAVING RELEASABLE LATCH MEANS

Walter Wilson Hugh Clarke, and Terence Alexander Riley, 17, Hey Houses Lane, Surrey, England, assignors to C. B. Associates Limited, London, England

Filed Sept. 2, 1969, Ser. No. 854,377
Claims priority, application Great Britain, Sept. 3, 1968, Nov. 19, 1968, 41796/68;54919/68
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.53 **10 Claims**



The invention provides an inertia switching device defining a seating, an operating mass of magnetic material normally retained in the seating by means of a magnet positioned adjacent the seating and an actuating member slidably mounted within the housing and displaceable from a first to a second position by the magnetic-operating mass upon dislodgement thereof from the seating upon application of an external perturbation to make or break an electrical circuit, and means mounted on or adjacent the actuating member and coacting with the housing to maintain said member in its second position.

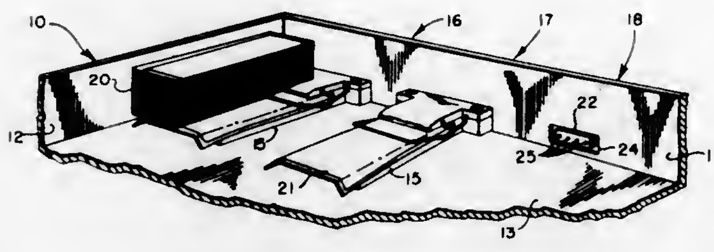
3,569,644

BILL TRAP

Richard D. Brugger, and Neal B. Fourspring, Erie, Pa., assignors to Elgin Electronics, Inc., Waterford, Pa.

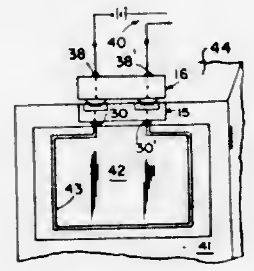
Filed July 14, 1969, Ser. No. 841,379
Int. Cl. G08b *21/00;* **H01j** *39/12*
U.S. Cl. 200—61.61 **6 Claims**

A device for detecting the removal of the last bill in a stack of paper currency for signalling or alarm purposes consisting of a magnet assembly supported in a "set" position by the last bill, which drops under the influence of gravity upon removal of the bill, to a position adjacent a pair of reed switches, causing their actuation and closure of electrical circuits. In one embodiment a double torsion spring is utilized to aid in "setting" the magnet assembly and to restrain the bill against accidental removal.



3,569,645
TAMPER-PROOF SWITCH DEVICES FOR BURGLAR ALARM SYSTEMS, AFFORDING CORDLESS CONNECTIONS ACROSS PROTECTED STATION SEPARATIONS

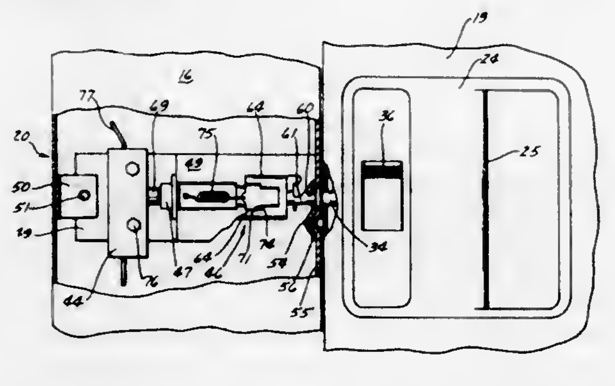
Lawrence N. Lea, (1683 University Ave., Bronx, N.Y. 10053), New York, N.Y.
Filed Oct. 29, 1968, Ser. No. 771,390
Int. Cl. H01h *3/16*
U.S. Cl. 200—61.62 2 Claims



The fundamental switch unit interposed in a conductor included in the circuit, comprises a permanent magnet carried for example on a door, and an armature carried on a door frame, so when the door is closed, the magnet attracts the armature thereto into contact therewith, thus providing a current path through said conductor. Said switch components are relatively movable from a normal rest position, independent of door movement. Use of two switch units eliminates need of a door cord. Use of four units can serve to break the lead-in and the leadout wires at the protected opening. With a small addition, a unit can include a normally closed switch, which assembly can serve in protective circuits which are either or a combination of open and closed circuit systems.

3,569,646
LID LATCH AND SWITCH OPERATING MECHANISM

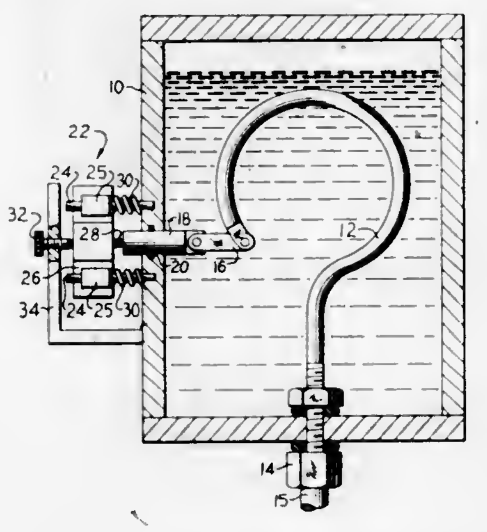
Thomas R. Smith, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa
Filed Aug. 4, 1969, Ser. No. 847,202
Int. Cl. H01h *3/20*
U.S. Cl. 200—61.68 12 Claims



A control mechanism for a laundry machine includes a switch device responsive to the unlatching of a lid-mounted lid latch or to excessive unbalance vibrations for deenergizing the laundry machine. The control mechanism is further operable, upon unlatching and relatching of the lid latch following deenergization caused by the unbalance vibrations, for automatically resetting and then reenergizing the laundry machine.

3,569,647
BOURDON TUBE ACTUATED ELECTRICAL SWITCH

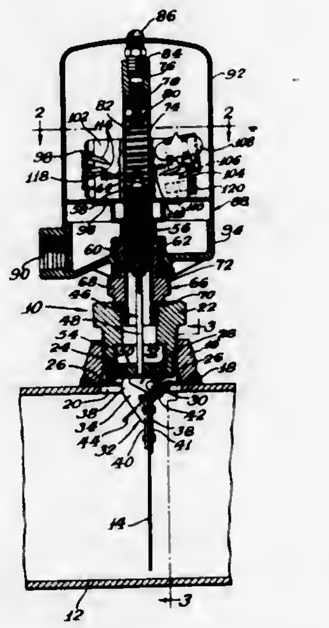
Jozef Kiwalle, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed June 23, 1969, Ser. No. 835,414
Int. Cl. H01h *35/36*
U.S. Cl. 200—81.8 3 Claims



A Bourdon tube connected with a microswitch for closing it upon the event of predetermined pressure in a fluid circuit with which the tube is associated. The tube is contained in a liquid tight housing and immersed in a damping fluid to prevent actuation by momentary pressure variations. The switch is adjustable and disposed outside the housing to permit convenient adjustment and add to its useful life by isolating it from the damping fluid.

3,569,648
FLUID PRESSURE MAGNETICALLY OPERATED SWITCH WITH IMPROVED FLOW-RESPONSIVE ACTUATOR MEANS

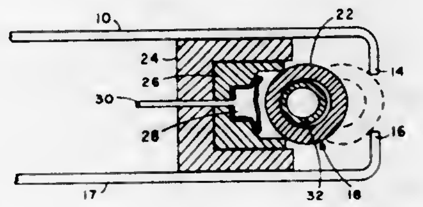
Roy W. De Meyer, Mount Prospect, Ill., assignor to Schaub Engineering Company, Inc.
Filed Feb. 7, 1969, Ser. No. 797,410
Int. Cl. H01h *35/40*
U.S. Cl. 200—81.9 5 Claims



A flow-switch assembly for use in connection with a substantially horizontally disposed fluid-carrying line. The assembly includes a bushing for mounting the assembly on the line. A vane is pivotally carried by the bushing and, under no-flow conditions in the line, it normally extends vertically into the line. A magnetic member is vertically slidable in a housing mounted on the bushing. A cam is provided on the vane and a cam follower responsive to movement of the cam is connected to the magnetic member. A magnet is carried on an arm which pivots towards the magnetic member as it moves into a position of proximity with the magnet, after the cam follower is moved to a raised position by the cam. A mercury-type switch is responsive to the movement of the magnet for opening or closing electrical contacts.

3,569,649
ELECTRICAL SWITCH CONTACT STRUCTURE WITH IMPROVED INFLATABLE BLADDER ACTUATING MEANS

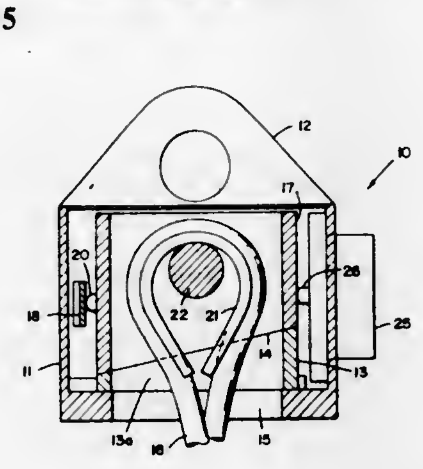
Arnold A. Spielbauer, Richardson, Tex., assignor to Collins Radio Company, Dallas, Tex.
Filed Jan. 31, 1969, Ser. No. 795,559
Int. Cl. H01h *15/00, 35/40, 1/00*
U.S. Cl. 200—83 3 Claims



An electrical switch for large amperage currents including R.F. currents, which includes first and second contacts and a shorting means comprising a plurality of disks.

3,569,650
LOAD LIMIT SWITCH

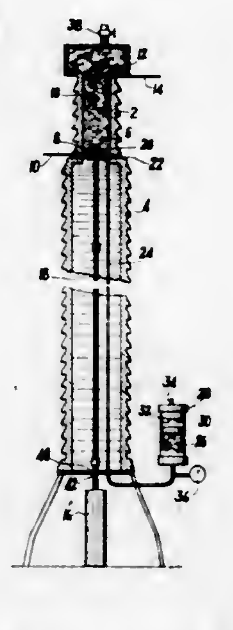
Robert E. Chubbuck, 10902 S. Shoemaker Ave., Santa Fé Springs, Calif.
Filed Feb. 17, 1969, Ser. No. 799,854
Int. Cl. H01h *13/16*
U.S. Cl. 200—85 10 Claims



A load limit switch for interposition between lifting machinery and a suspended cable including a housing connected to the lifting machinery, an inclined plane rigidly mounted in the housing, and a block slidably positioned on the inclined plane within the housing. The block includes means for suspending therefrom the cable for supporting weights, and a biasing spring is positioned between the housing and block, biasing the block with a preselected force at a position on the inclined plane. When the weight on a cable suspended from the block exceeds a predetermined level, the lateral component of force from the block overcomes the biasing spring force. The block translates on the inclined plane and activates a switch opening an electrical circuit which controls the lifting machinery.

3,569,651
CIRCUIT BREAKER HAVING PRESSURIZED LIQUIFIED GAS CONTINUOUSLY MAINTAINED ABOVE INSTANTANEOUS VAPOR PRESSURE

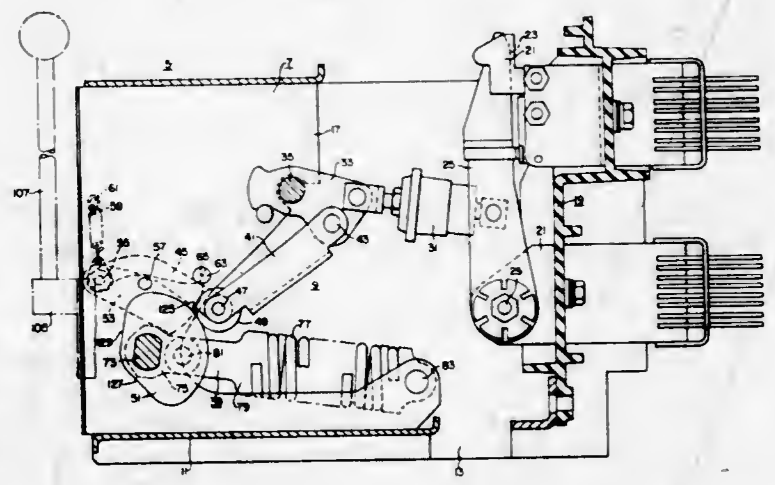
Jean Louis Gratzmuller, Neuilly-sur-Seine, Hauts-de-Seine, France
Continuation of application Ser. No. 521,852, Jan. 20, 1966, now abandoned. This application Oct. 20, 1969, Ser. No. 867,959
Int. Cl. H01h *33/68*
U.S. Cl. 200—148 11 Claims



A circuit breaker having a circuit interrupting chamber containing a liquefied dielectric gas with a fixed contact member disposed so as to lie in the liquefied gas and a movable contact member disposed in the chamber so as to have its contact making surface within the liquefied gas for all of its positions relative to the fixed contact, and having means, such as a hydraulic accumulator or a compressed gas compartment communicating with the circuit interrupting chamber; i.e., other than the gaseous phase of the liquefied dielectric gas for continuously maintaining the liquid pressure above the critical pressure of the dielectric gas.

3,569,652
CAM OPERATED CIRCUIT BREAKER WITH SINGLE STROKE MANUAL SPRING CHARGING MEANS

Richard Hauser, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 24, 1968, Ser. No. 770,295
Int. Cl. H01h *3/30, 3/42*
U.S. Cl. 200—153 10 Claims

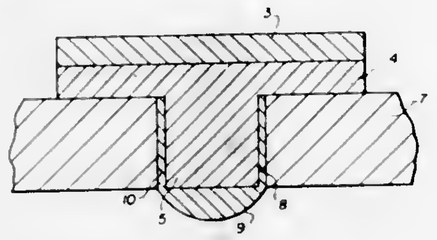


A circuit breaker comprises improved means for manually operating the breaker from the open position to the closed position. The circuit breaker comprises a spring-closing mechanism, and interlock means is provided to prevent operation of the spring-closing mechanism when the contacts are in the closed position.

3,569,653

ELECTRICAL CONTACT AND CONTACT ASSEMBLY

John R. Cockshutt, Red Bank, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Newark, N.J.
Filed Jan. 31, 1969, Ser. No. 795,476
Int. Cl. H01h *1/02*
U.S. Cl. 200—166 **3 Claims**

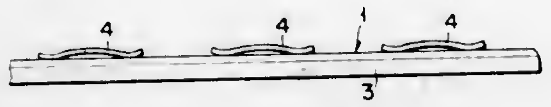


A contact assembly including a rivet type contact having a metal head and a metal shank with a portion of the shank at the free end thereof composed of a metal solder having a lower melting point than the metal of the head and the metal of the remaining portion of the shank. The shank of the contact passing through an aperture of a support arm and staked into an abutment relationship therewith. A portion of the solder from the staked portion extending into the aperture of the arm between the shank and the aperture wall forming a solder joint therebetween.

3,569,654

CONTACT BUS BAR

Shinichi Murakami, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed Sept. 4, 1969, Ser. No. 855,165
Claims priority, application Japan, Sept. 13, 1968, Utility Model 79153/68
Int. Cl. H01h *1/06*
U.S. Cl. 200—166 **4 Claims**



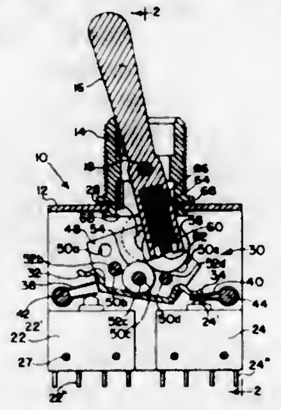
A contact bus bar utilized as a common stationary contact element cooperating with a plurality of movable contact elements comprises an elongated body and a plurality of contacting chips disposed on the body lengthwise thereof at regular intervals in correspondence with the respective movable contact elements. Each of said chips is spot-welded to said body at positions apart from the contact point of the corresponding movable contact element.

3,569,655

ROLLER ACTUATED SWITCH OPERATING ASSEMBLY

Alexander J. Jakubauskas, 8501 W. Higgins Road, Chicago, Ill. 60631
Filed Dec. 1, 1969, Ser. No. 881,048
Int. Cl. H01h *13/28*
U.S. Cl. 200—172 **12 Claims**

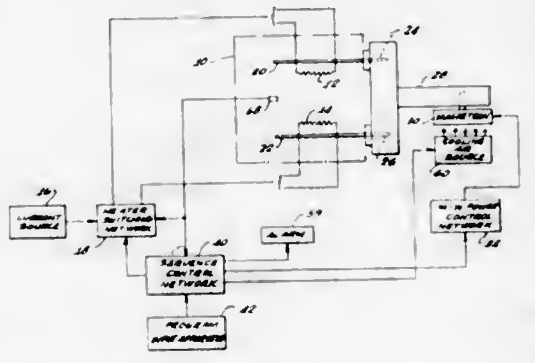
Actuator assembly for actuating a plurality of pushbutton switches from a single toggle lever having a roller mounted thereon includes a pivoted rocker member having switch-button-actuating portions on its ends and a pair of opposed side flanges which are pivotally mounted to a support. Each of the side flanges includes a series of five holes spaced in a curved path along its length and adapted to receive and support one or more rod or roller members which may engage the lever-mounted roller for nonteasable actuation of the switches. By selectively mounting rods in one or more sets of opposed holes, the toggle lever can be alternatively caused to have nonteasable maintained contact at both ends of its movement, momentary contact at both ends, or maintained contact at one end and momentary contact at the other. In addition, where the assembly is to provide a maintained contact at both ends of its movement, it can be assembled so as to have a center "off" position if desired.



3,569,656

AUTOMATIC COOKING CYCLE CONTROL SYSTEM FOR MICROWAVE OVENS

Edward A. White, Fort Wayne, Ind., and Arthur Parnes, Tarzana, Calif., assignors to Bowmar Tic, Inc., Newbury Park, Calif.
Filed July 24, 1969, Ser. No. 844,364
Int. Cl. H05b *9/06, 5/00*
U.S. Cl. 219—10.55 **8 Claims**



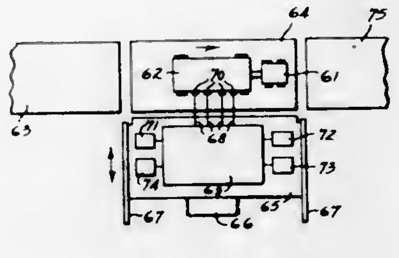
A microwave oven is shown with a pair of antenna elements in the oven cavity for radiating microwave energy throughout the cavity. In different embodiments, the cavity is thermally heated via separate heaters and via the antenna elements. Programming controls establish predetermined cycles for microwave energy and thermal heat, and a control network selectively operates the magnetron and one or both heaters in the sequence determined by the programming controls. Program input apparatus is illustrated which includes pushbuttons and a card data reader for selecting different programs, and sequence control networks with timing and relay networks are illustrated for automatically cycling the microwave energy and thermal heating on and off for each program selected.

3,569,657

METHOD OF PROCESSING AND TRANSPORTING ARTICLES

Melvin L. Levinson, 1 Meinzer St., Avenel, N.J.
Continuation-in-part of application Ser. No. 497,851, Oct. 19, 1965, now Patent No. 3,469,053. This application Sept. 16, 1969, Ser. No. 858,462
Int. Cl. H05b *9/06, 5/00*
U.S. Cl. 219—10.55 **14 Claims**

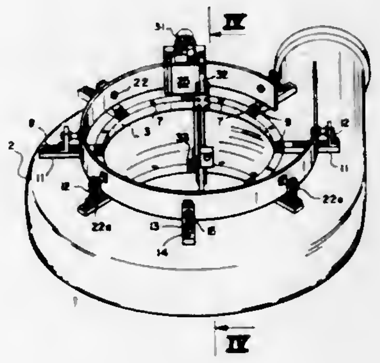
A method of processing and transporting articles from a first location to a second location, the articles being initially loaded in a movable transport vehicle, such as a tractor trailer, having a body portion which includes a microwave oven and an access opening capable of receiving microwave energy therethrough. The vehicle is transported to at least one microwave energy station whereat at least microwave energy is emitted through the access opening to heat the articles and where equipment can be employed to monitor and control the processing. The vehicle is then moved from the microwave generator station to a second location whereat the body portion is either stored or the heated articles removed therefrom.



3,569,658

APPARATUS FOR APPLYING WELD METAL TO THE INTERIOR SURFACE OF A HOUSING FOR A DREDGE PUMP OR THE LIKE

Ralph E. Moore, Hattiesburg, Miss., assignor to Teledyne, Inc., Los Angeles, Calif.
Filed Apr. 9, 1968, Ser. No. 719,879
Int. Cl. B23k *9/04*
U.S. Cl. 219—76 **6 Claims**

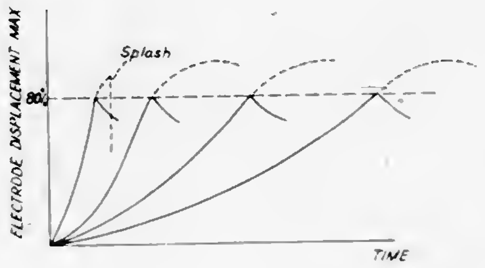


Apparatus for applying weld metal to the interior surface of a housing for a dredge pump or the like at least a portion of which is noncircularly curved comprising a guideway extending substantially parallel to the surface and welding means movable along the guideway and adapted during such movement to apply weld metal to the surface. Adjustable brackets are preferably provided for mounting the guideway whereby all increments of the length of the guideway may be disposed substantially equidistant from the respective corresponding increments of the length of the surface. The guideway is preferably flexible enabling it to be bent or sprung into position substantially parallel to the surface. The guideway preferably has spaced apart means such as openings therein for attachment of the brackets thereto. The brackets may be adjustable in a direction toward and away from the surface and also transversely of that direction. The housing has a side opening and the brackets are preferably mounted on the housing at the edge of the side opening. The housing has bolt holes at the edge of the side opening and the brackets are preferably bolted to the housing through the bolt holes. When weld metal is being applied to the interior surface of the housing the housing is preferably disposed in position lying on its side with the side facing upwardly open and with the welder stationed within the housing. The structure is such that the space over the welder's station is unobstructed affording the welder rapid and easy egress in the event of an emergency.

3,569,659

RESISTANCE WELDING

David B. Benton; Richard G. Newling, and Malcolm D. Hannah, Cambridge, England
Filed Apr. 7, 1969, Ser. No. 813,839
Claims priority, application Great Britain, Apr. 10, 1968, 17287/68
Int. Cl. B23k *9/10*
U.S. Cl. 219—117 **12 Claims**

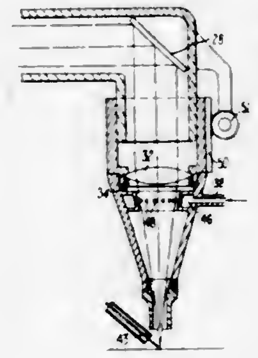


The progress of a resistance welding process is ascertained by reference to the expansion of the workpieces and to avoid the difficulty of accurately detecting the maximum expansion, in the region of which the expansion/time curve is flattened, a sensing device indicates when the expansion has a selected value between 60 percent and 90 percent of the maximum expansion which would result if the current were allowed to continue. The welding current is switched off at this time or a predetermined interval thereafter. Methods of increasing the size of the weld nugget are described, including reinitiating the flow of welding current after the workpieces have contracted to some extent, this further pulse of current being again terminated when the expansion reaches a selected value before the flattened portion of the expansion/time curve.

3,569,660

LASER CUTTING APPARATUS

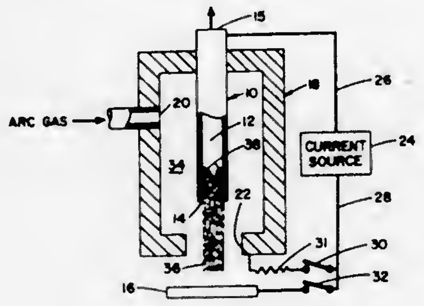
Peter T. Houldcroft, Royston, England, assignor to National Research Development Corporation, London, England
Filed July 29, 1968, Ser. No. 748,418
Int. Cl. B23k *27/00*
U.S. Cl. 219—121 **11 Claims**



A workpiece is cut or gouged by moving a concentrated laser beam along its surface and directing on to the moving region of the workpiece, at which the laser beam is concentrated, a jet of gas; a material which is different from the material of the workpiece is also introduced in this region. The additional material assists the cutting or gouging in that it has a fluxing action with the material of the workpiece and/or an exothermic reaction with the gas.

3,569,661
METHOD AND APPARATUS FOR ESTABLISHING A CATHODE STABILIZED (COLLIMATED) PLASMA ARC

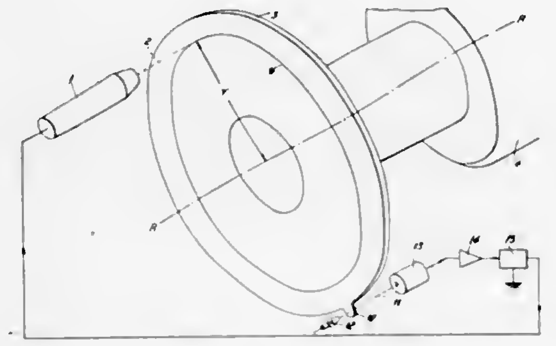
Robert W. Ebeling, Jr., Maxatawny, Pa., and George A. Klasson, Port Washington, N.Y., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Filed June 9, 1969, Ser. No. 831,319
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 **11 Claims**



Disclosed is a method and apparatus for establishing a cathode stabilized (collimated) plasma arc. The invention is characterized in that by utilizing a hollow tubular cathode and causing the cathode arc spot to locate on the inside wall of the cathode electrode the plasma arc becomes collimated and stabilized.

3,569,662
CONTROL APPARATUS FOR USE WITH AN ELECTRIC MOTOR

Alan John Thomas, Skipton, England, assignor to Rolls-Royce Limited, Derby, England
Filed Aug. 13, 1968, Ser. No. 752,291
Claims priority, application Great Britain, Aug. 24, 1967, 39072/67
Int. Cl. B23k *37/04;* **H02p** *7/06*
U.S. Cl. 219—124 **6 Claims**

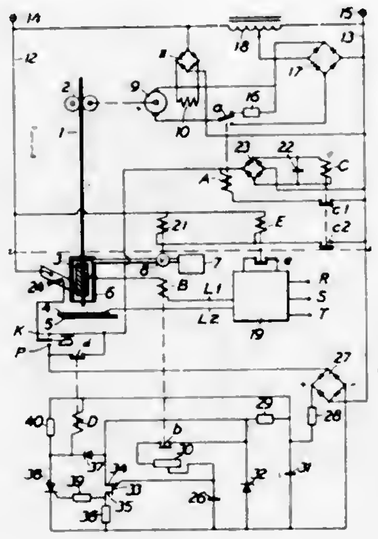


Control apparatus e.g. for welding machines, for use with an electric motor includes a circuit having a negative feedback amplifier of adjustable input amplitude and gain, its output being passed to the motor to control its rotational speed. The input side of the circuit has a variable resistor and a potentiometer the settings of which determine the rotational speed of the motor. In an alternative, the amplifier output drives a meter, the input voltage being derived from a tachogenerator driven by the motor and being thus proportional to motor speed.

3,569,663
APPARATUS FOR AUTOMATIC ARC SPOT WELDING

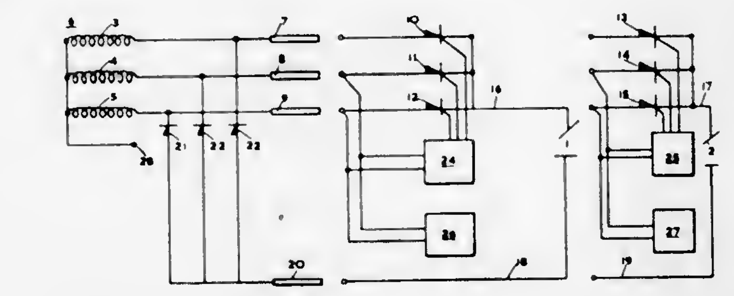
Klas Bertil Weman, Laxa, Sweden, assignor to Elektriska Svetsningsaktiebolaget, Goteborg, Sweden
Filed Jan. 31, 1969, Ser. No. 795,626
Claims priority, application Sweden, Feb. 8, 1968, 1638
Int. Cl. B23k *9/10*
U.S. Cl. 219—127 **9 Claims**

An arc spot welding operation initiated and sustained by feeding a fusible electrode towards a workpiece at substantially constant speed while supplying to the electrode a welding voltage provided by a constant-potential source. A DC current flows in a capacitor circuit for the duration of the welding current only (or, alternatively, for the duration of the welding arc only). The DC current is interrupted during transient interruptions of the welding current or during transient extinctions of the welding arc, and the electrode advancement is interrupted as soon as the capacitor voltage has reached a predetermined level.



3,569,664
WELDING POWER SOURCES

Richard A. A. Newman, and Brian C. Doxey, Welwyn, Hertfordshire, London, England, assignors to The British Oxygen Company Limited, London, England
Filed July 31, 1967, Ser. No. 657,104
Claims priority, application Great Britain, Aug. 9, 1966, 35603/66
Int. Cl. B23k *9/10*
U.S. Cl. 219—131 **8 Claims**



A power source for electric welding equipment comprising a central current source and two or more remote operator sets, has at the central source at least one half-wave rectifier which is common to all the remote operator sets.

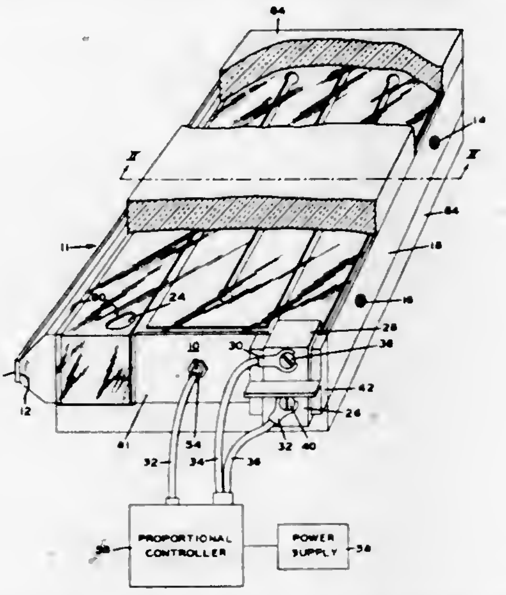
A second rectifier is provided for each of the operator sets which include a power control means for individually controlling the power to each of the operator sets. The combined first and second rectifiers provide full-wave rectification with each individual combination of first and second rectifiers having a power capability different than the individual power capability of each of the other rectifier combinations.

3,569,665
FIXED TEMPERATURE, RAPID RESPONSE, HIGH ENERGY HEATING DEVICE

Nathaniel E. Hager, Jr., Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
Filed Mar. 28, 1969, Ser. No. 811,539
Int. Cl. H05b *1/00;* **F24h** *9/02*
U.S. Cl. 219—200 **8 Claims**

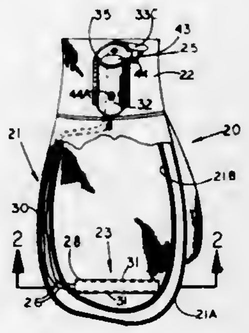
A rapid response heating device employing a heat funneling principle combined with minimal thermal resistances for attaining heat fluxes up to 50 kw/ft² and for maintaining a fixed temperature at the output working surface despite large

changes in thermal load. The device is heated with an electric foil heater having its power input regulated by a control device responsive to temperature changes within said device and has a large heat input area as compared with a small heat output area.



3,569,666
SELF CONTAINED LOW VOLTAGE BATTERY OPERATED GLOVE

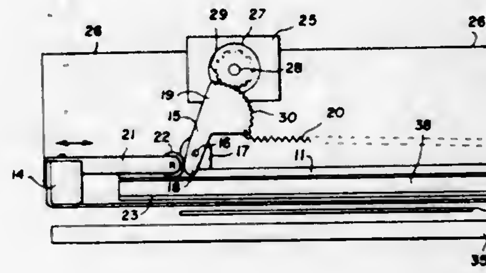
Dennis J. Murphy, Poughkeepsie, and Charles F. Balz, Beacon, N.Y., assignors to Timely Products Corporation
Filed July 22, 1969, Ser. No. 843,710
Int. Cl. H05b *3/36*
U.S. Cl. 219—211 **2 Claims**



A self contained low-voltage battery operated glove in which a pocket is located on the back of the wrist portion of the glove for supporting a small low voltage battery directly thereon. A low voltage heater connected in circuit with the battery is located within the glove adjacent the fingertip portion on the palm side.

3,569,667
CONTROL FOR ELECTRIC STRIP HEATER

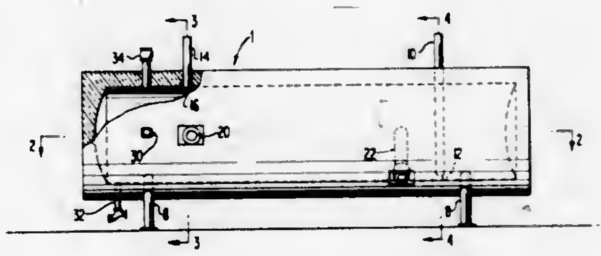
Edward L. Ryswick, Rochester, N.Y., assignor to Varispace Industries, Inc., East Rochester, N.Y.
Filed July 11, 1969, Ser. No. 841,006
Int. Cl. H05b *1/00*
U.S. Cl. 219—243 **17 Claims**



A control for a strip heater supported on a frame uses a lever pivoted on the frame to have a short lever arm engaged by a carriage carrying the movable end of the strip and a long lever arm coupled to an adjustable element in an electric circuit having a variable power output for energizing the strip.

3,569,668
WATER HEATING AND STORAGE TANK

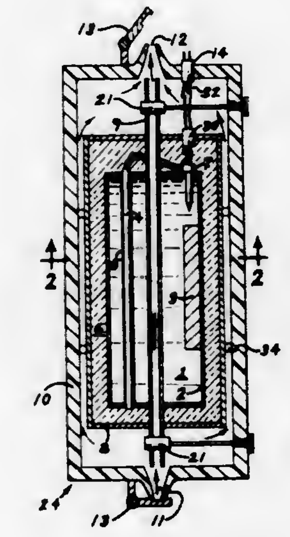
Carl B. Carlisle, 8716 Hurst Ave., Savannah, Ga.
Filed July 22, 1969, Ser. No. 843,722
Int. Cl. H05b *1/00*
U.S. Cl. 219—316 **2 Claims**



A liquid heater, typically a household hot water heating and storage tank, is of cylindrical shape, horizontally disposed, with an inlet near the bottom at one end and an outlet near the top at the opposite end, and with heating means, either electrical or gas-burner, between the inlet and outlet, in or on a lower side quadrant of the tank interior, so as to generate circulation of the liquid by convection currents around the inside tank wall surface.

3,569,669
PORTABLE HEAT STORAGE UNIT

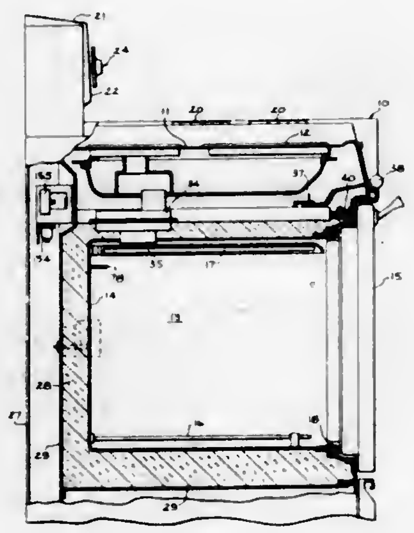
Frank A. March, 1913 N. Ode St., Arlington, Va. 22209
Filed Feb. 12, 1969, Ser. No. 798,614
Int. Cl. B63c *11/28;* **F24h** *7/04;* **H05b** *1/00*
U.S. Cl. 219—378 **9 Claims**



A system is provided for heating suits of free-swimming divers subjected to cold water. The system includes a heat storage unit that utilizes a combination of the latent heat of fusion and the sensible heat of a heat storage material having a latent heat of fusion of at least 35 cal./gm. and a melting point of at least 50° C. stored in a watertight container to heat at a desired rate a heat transfer fluid that is circulated between compartments in the diver's suit and the heat storage unit. An insulated envelope surrounds the container and defines with the container a conduit for passing heat transfer fluid in heat transfer relationship with the heat storage material. Heating means connectable to an external source are provided for initially heating the storage material. Control means are provided for increasing the effective heat transfer area and the overall heat transfer coefficient of the container after the latent heat of fusion has been extracted from the heat storage material so that the sensible heat can be extracted from the material at the desired rate.

3,569,670
SAFETY DOOR LATCHING SYSTEM FOR SELF-CLEANING OVEN HAVING HYDRAULIC THERMOSTAT WITH CAM-ACTUATED AUXILIARY SWITCH

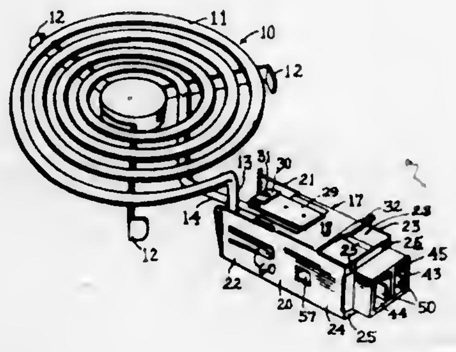
Christian A. Eff, Louisville, Ky., assignor to General Electric Company
Filed Aug. 4, 1969, Ser. No. 847,350
Int. Cl. F27d *11/02*
U.S. Cl. 219—413 **12 Claims**



A hydraulic oven thermostat for use with a baking oven having a high temperature self-cleaning oven cycle where the thermostat is furnished with an auxiliary switch and camming means interposed between the thermostat knob and the auxiliary switch for coordinating them in both the cooking position and an oven cleaning position as a function of the setting of the thermostat. The auxiliary switch is associated with an oven door latching mechanism, an automatic locking means for the latching mechanism as well as a release means for the locking means to insure that the oven door is locked before the heat-cleaning cycle is initiated as well as insuring that the oven door may not be unlocked until the oven temperature returns to the cooking temperature range.

3,569,671
PLUG-IN ELECTRICAL HEATING UNIT

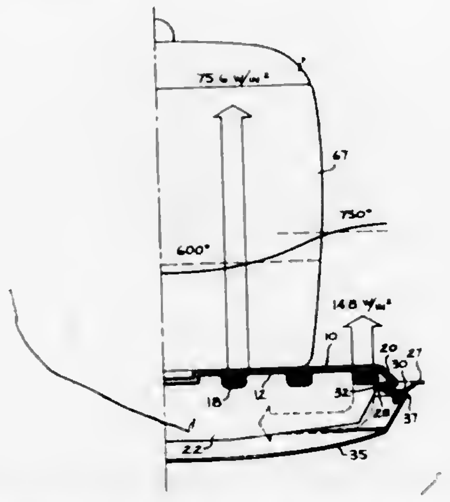
Harold O. Henning, and Harvey Levine, Evanston, Ill., assignors to Trigometer, Inc., Evanston, Ill.
Filed May 29, 1969, Ser. No. 829,034
Int. Cl. H05b *3/08, 3/68*
U.S. Cl. 219—451 **3 Claims**



A surface electrical heating coil unit for electric ranges having an electrical receptacle and plug-in contacts insertable into the receptacle normally positioned beneath and to one side of the unit. The receptacle includes a mounting bracket by which the parts thereof are held in an assembled relation and are connected in place relative to the heating unit.

3,569,672
LOW THERMAL MASS, PLATE SURFACE HEATING UNIT

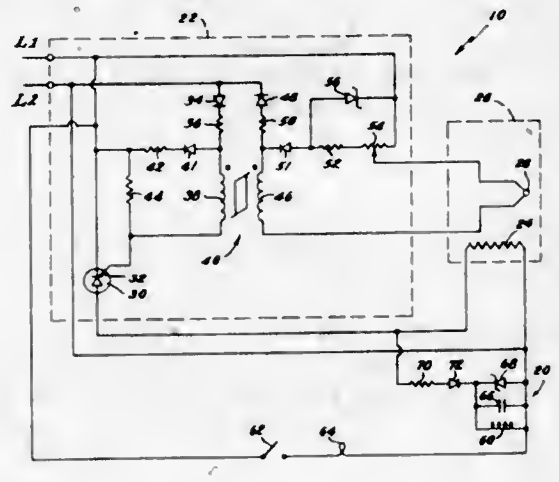
Bohdan Hurko, Louisville, Ky., assignor to General Electric Company
Filed May 1, 1969, Ser. No. 820,904
Int. Cl. H05b *3/68*
U.S. Cl. 219—464 **14 Claims**



A light weight solid plate surface heating unit of low thermal mass having a top plate of high thermal conductive material for distributing the heat rapidly and uniformly over the plate. The top plate is of composite sheet material with a center core selected from the group of high thermal conductivity materials such as copper, silver and aluminum, and an outer skin selected from the group of corrosion and oxidation resisting materials such as stainless steel, nickel and chromium. There is a heating means for the plate in the form of a metal sheathed electrical resistance heating element of coiled configuration adapted to be held against the underside of the plate. It is important that the top plate remain as flat as possible at all times so as to reduce the formation of gaps between the surface of the top plate and the bottom surface of cooking utensils carried thereon. Reinforcing means are provided for the top plate to prevent warpage due to thermal stresses. A thermal reflecting member is positioned beneath the heating unit to redirect the heat in an upward direction. The heating unit may be held in an opening in the cooktop by providing an adjustable tension member joining the reinforcing member of the heating unit with the reflecting member such that the edge of the opening in the cooktop is clamped by the interaction of the top plate and the reflecting member.

3,569,673
TEMPERATURE CONTROL AND INDICATING SYSTEM

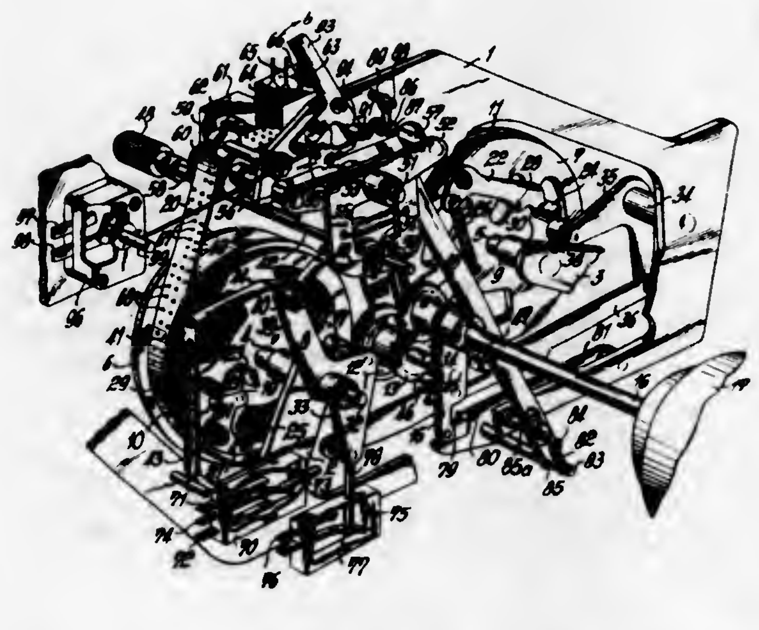
Donald P. Clark, South Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Mar. 3, 1969, Ser. No. 803,769
Int. Cl. H05b *1/02*
U.S. Cl. 219—501 **9 Claims**



A temperature control system is disclosed in which the energization of a heating element is selectively varied in order to control the temperature of a zone whose temperature is being maintained within preselected limits, while the power supplied to the heating element is monitored by an indicating system coupled to the heating element to provide a display representative of the amount of heat being supplied by the heating element. A silicon controlled rectifier (SCR) is utilized as a switch element for selectively energizing the heating element by varying the phase angle of triggering of the SCR. Triggering of the SCR is in turn dependent upon temperature sensed in the zone being heated. In instances where somewhat more accurate control of the temperature limits are desired a pair of silicon controlled rectifiers are provided for controlling the power supplied to the heating element during respective alternate half cycles of applied alternating current power. The indicating system includes at least one voltage responsive switch energizing means coupled to the heating element and to a switch, which, when energized by the voltage responsive means, effects energization of a suitable indicating device, such as an indicator light, to provide an indication of the temperature of the zone being controlled.

3,569,674
READING DEVICE

Willy Becker, Behringersdorf near Nurnberg, and Hans Hueser, Nurnberg, Germany, assignors to Diehl, Nurnberg, Germany
Filed Apr. 21, 1967, Ser. No. 634,055
Claims priority, application Germany, Apr. 26, 1966, Aug. 11, 1966, D49951;D50823
Int. Cl. G06k *7/015;* **B65h** *25/12, 75/34*
U.S. Cl. 235—61.11 **10 Claims**

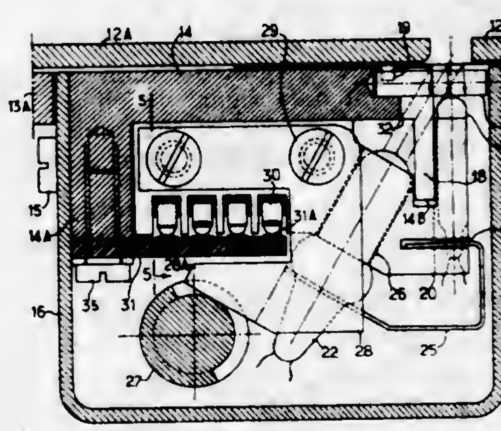


Reading device for a coated tape having two reels on which the tape is mounted and drive means engageable with one or the other of the reels to drive the tape in advancing or return directions past a reading head with control means responsive to drive of the tape to shift the drive means from one reel to the other or to halt it in an intermediate position of disengagement from both reels.

3,569,675
APPARATUS FOR READING MARKS ON OR PERFORATIONS IN RECORD CARDS

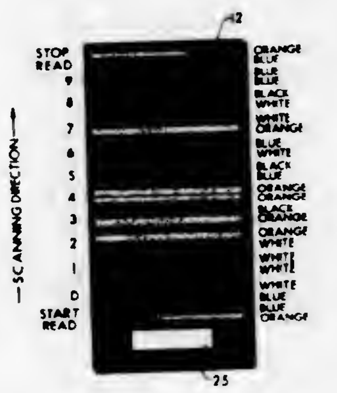
Bernardus Stegeman, Amsterdam, Netherlands, assignor to Bull General Electric (Nederland) N.V., Amsterdam, Netherlands
Filed May 22, 1969, Ser. No. 826,871
Claims priority, application Netherlands, June 13, 1968, 6808283
Int. Cl. G06k *7/14;* **G01n** *21/30*
U.S. Cl. 235—61.11 **5 Claims**

In a record card sorting machine the cards comprise a plurality of columns for recording data by means of perforations and/or marks of dark color and a card is fed through a card passage in a direction parallel to the columns. A reading apparatus comprises a support for fixing a certain number of elongate cylindrical lenses in such manner that each lens is aligned and parallel with a location for reading a corresponding column. Below the support, a movable carriage supports a scanning device with a light source and a photoelectric cell, and may be successively brought into a number of stop positions by a driving mechanism, whereby the scanning device may be aligned with each of the cylindrical lenses.



3,569,676
LABEL FOR A MARK SENSING SYSTEM

Francis H. Stites, 8 Bennett Road, Wayland, 01778, and Bradstreet J. Vachon, 32 Prior Drive, Framingham, Mass. 01701
Filed July 17, 1968, Ser. No. 745,585
Int. Cl. G06k *19/00*
U.S. Cl. 235—61.12 **4 Claims**

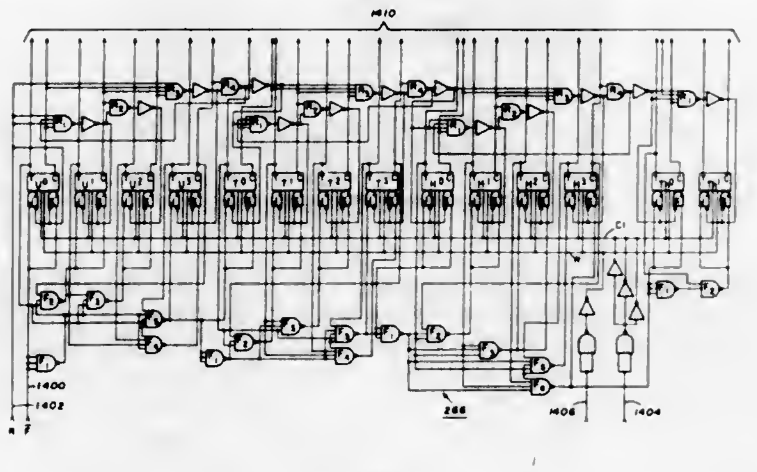


A coded retroreflective label for use in an automatic vehicle identification system. The label comprises a vertical array of rectangular orange, blue, white, and black retroreflective stripes arranged in selected paired combinations whereby to represent in a two-position base-four code format information pertaining to a vehicle on which the label is affixed. Distinguishable coded START and STOP stripe-pairs are provided at opposite ends of the array to respectively initiate and terminate processing of the data content of the label. Each white stripe paired with an orange or a blue stripe is masked with a plurality of black nonreflecting dots to reduce the reflectivity thereof to approximate that of the orange or blue stripe paired therewith. A black nonretroreflective border is also provided to isolate the stripes from the background on which the label is disposed.

3,569,677
DATA READOUT SYSTEM

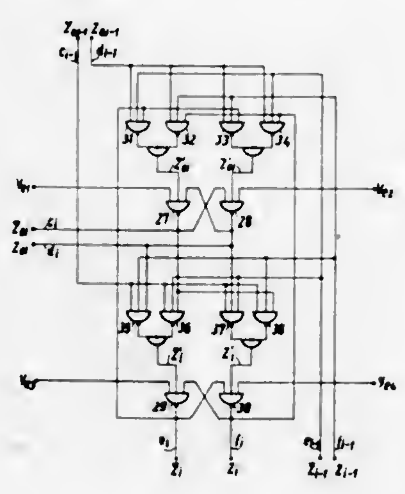
William E. Bray, and Julian C. Hart, Houston, Tex., assignors to Texas Instruments Incorporated, 13500 North Central Expressway, Dallas, Tex.
Filed Dec. 7, 1965, Ser. No. 512,154
Int. Cl. G06m *3/08, 3/14;* **G06f** *7/02*
U.S. Cl. 235—92 **21 Claims**

A system for automatically making substantially any static or dynamic test on a multilead integrated circuit. The system includes a test station having a plurality of DC bias supplies, a plurality of pulse generators for producing repetitive pulse waveforms, a socket for receiving the integrated circuit, switch means for selectively connecting any DC bias supply and/or any pulse generator to any lead or leads of the integrated circuit, and sensing means for selectively connecting any lead of the integrated circuit to either a static measuring unit or a dynamic measuring unit. The dynamic measuring unit makes either time or amplitude measurements on the signal at any lead of the integrated circuit and produces a pulse train and a count data signal which are collectively representative of the magnitude of the time or amplitude measurement. The static measuring unit makes either static voltage or current measurements on the signal at any selected lead of the integrated circuit and produces a pulse train signal the frequency of which is representative of the magnitude of the measurement. A data readout system counts the pulses either from the dynamic measuring unit during the count data signal, or the pulses from the static measuring unit during a predetermined reference time period to indicate the results of the measurement. A programmable control means automatically operates the total system to make substantially any selected amplitude, time, voltage or current measurement on the signal occurring at or between substantially any lead or leads of the integrated circuit.



3,569,678
STATIC COUNTER

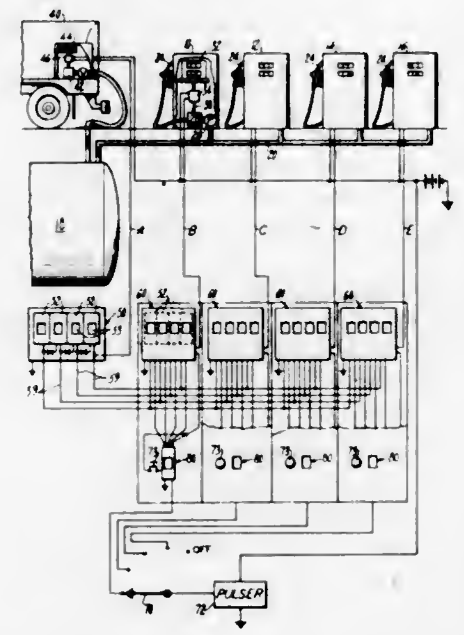
Günter Emde, Neublberg, Germany, assignor to Bolkow G.m.b.H., Munich, Germany
Filed Apr. 28, 1967, Ser. No. 634,617
Int. Cl. G06m *3/04;* **H03k** *21/16*
U.S. Cl. 235—92 **9 Claims**



A static counter for forward and backward counting comprises a plurality of counting stages each of which includes a prestorage portion and a main storage portion. In advance of the counter for the first binary digit, there is connected an input gate circuit which indicates any change of state of the counting signal for the first binary digit, that is, whether the counting is to be changed from forward to backward or vice versa. The binary digit stages succeeding the first binary digit stage are controlled by the storage state of the respective immediately preceding counting stage.

3,569,679
COUNTING SYSTEM

Donald A. Bly, West Simsbury, Conn., assignor to Veeder Industries Inc., Hartford, Conn.
Filed Oct. 5, 1967, Ser. No. 673,041
Int. Cl. G06m *1/12, 3/11*
U.S. Cl. 235—92 **13 Claims**

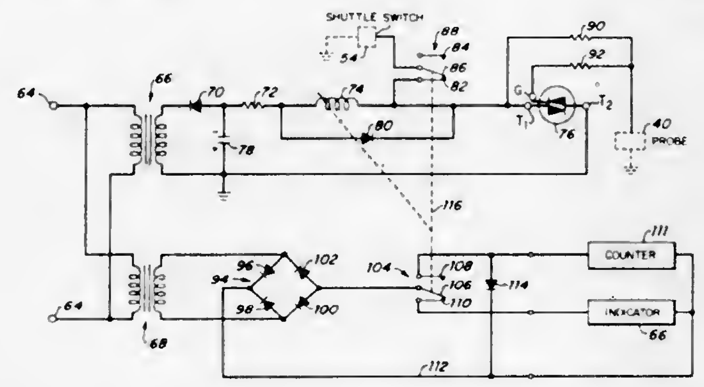


A counting system for a gasoline service station for accounting for the amount of fuel remaining in the station storage tank. In the embodiment of FIGS. 1 and 2 a register is employed for each of the service station pumps to provide an accounting of the amount of fuel delivered by the respective pump, and a separate inventory register is provided for registering the amount of fuel delivered to the underground storage tank. The pump registers and the inventory register comprise conventional single wheel magnetic counters and the count of each of the pump registers is adapted to be subtracted from the count of the inventory register as the pump register is reset to zero by adding the complement of the count of the pump register to the count of the inventory register.

In the embodiments of FIGS. 3 and 4 the pumps are connected in parallel to a single subtracting inventory register. A separate tank register is provided for recording the amount of fuel delivered to the storage tank and this amount is adapted to be added to the inventory register as the tank register is reset to zero by subtracting the complement of the count of the tank register from the count of the inventory register. The embodiment of FIG. 3 provides circuitry for diminishing the counting error due to overlapping electrical pulses received from two or more pumps and the embodiment of FIG. 4 provides circuitry for eliminating such errors altogether.

3,569,680
ARTICLE-COUNTING APPARATUS

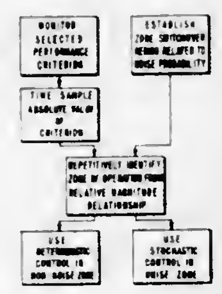
Clement F. Cox, Bronx, N.Y., assignor to Industrionics Controls, Inc., New York, N.Y.
Filed June 4, 1969, Ser. No. 830,385
Int. Cl. G06m *7/00*
U.S. Cl. 235—92 **10 Claims**



A counter control circuit which requires two separate signals generated by first and second sensors to cause the counter to register a count. The circuit comprises a relay controlled by a thyristor-type semiconductor switch which is turned on and off by signals from the two sensors, and means controlled by the relay for operating the counter.

3,569,681
METHOD AND SYSTEM FOR ADAPTIVE CONTROL

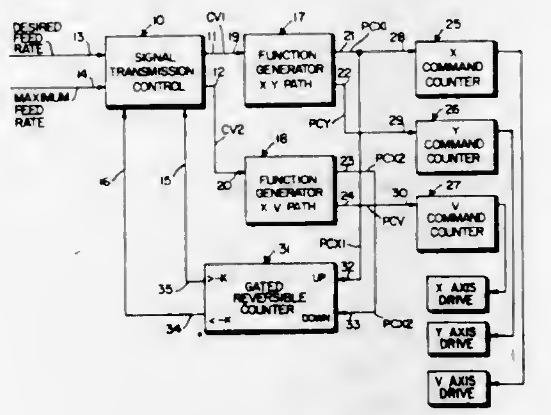
Richard W. Koepcke, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 15, 1967, Ser. No. 646,273
Int. Cl. G05b *13/02*
U.S. Cl. 235—150.1 **9 Claims**


MONITOR SELECTED PERFORMANCE CRITERION
ESTABLISH ZONE SWITCHOVER NEEDS RELATED TO NOISE PROBABILITY
DETERMINISTIC CONTROL IN NON NOISE ZONE
STOCHASTIC CONTROL IN NOISE ZONE

Adaptive control methods and systems are provided that utilize the relationship between at least one operative criterion of system performance and at least one reference to control the use of one of at least two control laws which establish different operative zones, which are stochastic and deterministic in character. The different control laws used in these two zones provide wide bandwidth under conditions of large signal excursion (deterministic zone), and stability and linearity when the system is at or near the set point (stochastic zone). The error signal may comprise the chosen system performance criterion, and the chosen control laws may differ by using different controller coefficients or by using different samples of system operation. Preferably the switchover point is set with respect to a given multiple of the standard deviation of the noise terms in an equation descriptive of the system, such that the signal excursion is identified with a high degree of probability as being of non-noise origin.

3,569,682
MULTIPLE PATH NUMERICAL CONTROL SYSTEM

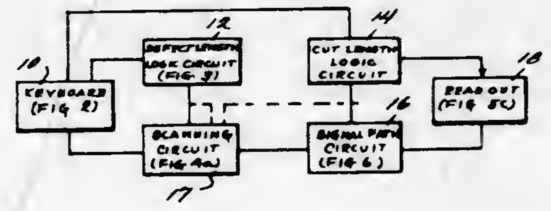
James P. Tipton, Waynesboro, and Donald L. Logerwell, Alexandria, Va., assignors to General Electric Company
Filed Feb. 2, 1968, Ser. No. 702,697
Int. Cl. G05 *11/26, 19/36*
U.S. Cl. 235—151.11 **14 Claims**



A control system is described for commanding motion of a machine movable member along two paths having a common axis in response to the generation of first and second feedrate signals indicative of the desired rate of travel of the machine along the two paths. First and second function generators convert the first and second feedrate signals into first and second command signals, each of which includes a component signal which commands motion of the machine movable member along the common axis. A gated reversible counter is connected to each of the function generators, the magnitude and direction of its count being indicative of the rates of generation of each of the common axis component command signals. A logic network is connected to the output of the gated reversible counter and to the inputs of the function generators and functions to stop the transmission of either of the feedrate signals in response to an output from the gated reversible counter indicative of a predetermined count therein.

3,569,683
APPARATUS FOR DETERMINING THE OPTIMUM COMBINATION OF ONE OR MORE OF A SET OF SUBLENGTHS FOR A GIVEN OVERALL LENGTH

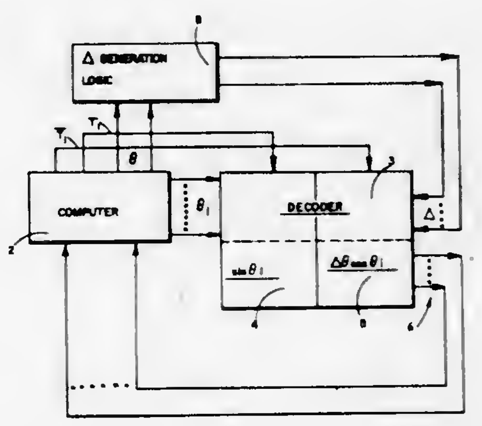
Charles D. Pugh, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.
Filed Mar. 14, 1968, Ser. No. 712,984
Int. Cl. G06f *15/46*
U.S. Cl. 235—152 **17 Claims**


10
12
14
16
17
18
KEYBOARD (FIG 2)
DEFECT LENGTH LOGIC CIRCUIT (FIG 3)
CUT LENGTH LOGIC CIRCUIT
READ OUT (FIG 5C)
SCANNING CIRCUIT (FIG 4a)
SIGNAL PATH CIRCUIT (FIG 6)

The following specification discloses a computing apparatus for automatically determining the optimum combination of one or more of a set of *M* sublengths for a given overall length comprised of a selected one of said *M* sublengths and a selected one of a set of *N* incremental lengths such that the sum of the elements of the optimum combination is the largest possible value less than the overall length.

3,569,684
SINE-COSINE GENERATOR COMPRISED OF A DIODE ARRAY

Gerald J. Burnett, Anaheim, Calif., assignor to North American Rockwell Corporation
Filed Mar. 23, 1967, Ser. No. 625,395
Int. Cl. G06q 7/22
U.S. Cl. 235—152 **7 Claims**



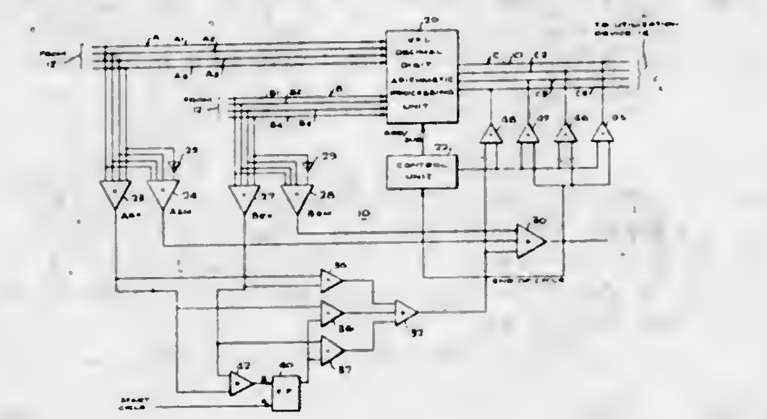
A sine-cosine generator comprised of a diode array forming a fixed memory for storing binary values of the sines of angles and an array integral with the memory array for addressing locations within said memory. The preferred embodiment uses a diode array to mechanize an interpolation scheme for reducing the storage requirements when high accuracy sine-cosine values are required.

3,569,685
PRECISION CONTROLLED ARITHMETIC PROCESSING SYSTEM

Gilman D. Chesley, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.

Filed July 11, 1968, Ser. No. 744,184
Int. Cl. G06f *7/48*

U.S. Cl. 235—156 **16 Claims**



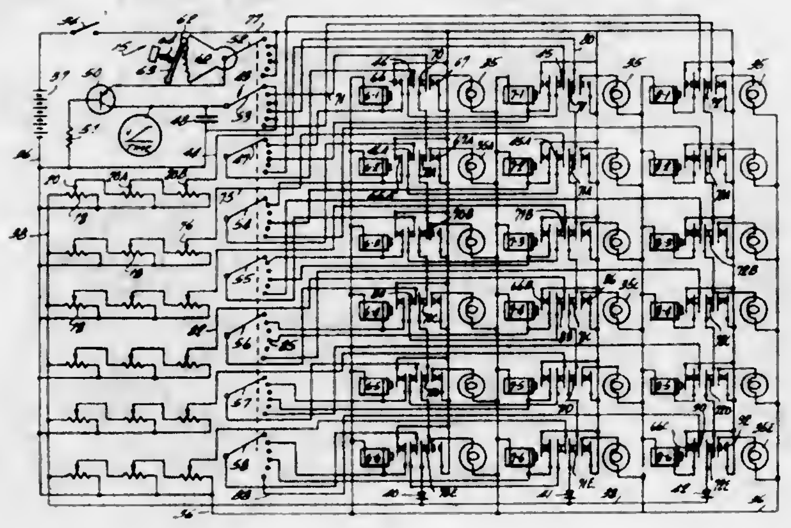
A precision-controlled arithmetic processing system uses a variable field length technique to perform arithmetic operations on multidigit numbers of predetermined precision, and generates a resultant output whose precision is determined by the precision of each of the input numbers and the type of arithmetic operation being performed. Only those digits within the output degree of precision are retained. Digits outside this degree of precision are discarded, thereby eliminating the problem of accumulated digits in variable field length processing.

3,569,686
CALCULATOR FOR COMPETITIVE EVENTS

Leo Comorau, Long Island City, N.Y.

Filed Aug. 28, 1968, Ser. No. 755,887
Int. Cl. G06g *7/00, 7/48*

U.S. Cl. 235—193 **6 Claims**



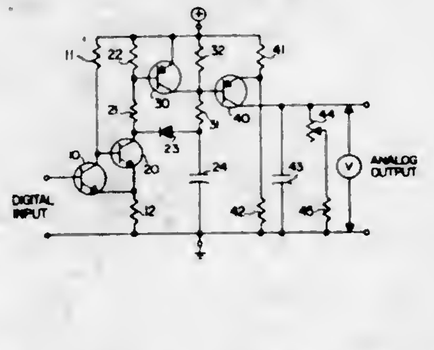
A calculator for determining the probable results of any competitive event such as a horse race. A calculating circuit is provided for each entry and a terminal voltage is provided which is responsive to at least three known ratings of the entry. The rating values are entered into each calculating circuit by an operator and, when all the circuits have been adjusted, a dial switch is turned and a relay system lights three lamps, indicating which entry will probably win the event. Second and third ratings are also shown.

3,569,687
PULSE RATE TO ANALOGUE CONVERTER PRODUCING AN ANALOGUE OUTPUT SIGNAL PROPORTIONAL TO THE PRODUCT OF TWO INPUT PULSE RATES

Edward H. Dinger, Waynesboro, Va., assignor to General Electric Company

Filed Apr. 24, 1968, Ser. No. 723,659
Int. Cl. G06j *7/16, 1/02*

U.S. Cl. 235—194 **12 Claims**



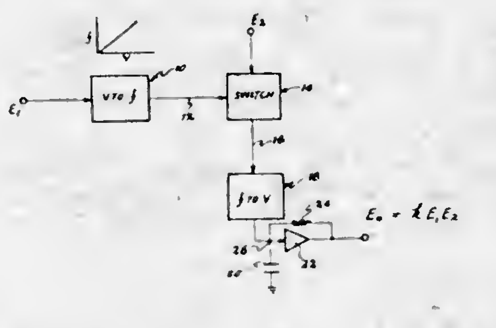
Circuitry for converting a plurality of pulses into an analogue signal having a magnitude representative of the number of pulses supplied.

3,569,688
A MULTIPLIER IN WHICH A CAPACITOR IS CHARGED AT A RATE PROPORTIONAL TO THE PRODUCT OF TWO ANALOG INPUTS

Thomas A. Brendle, Hamburg, N.Y., assignor to Audn Corporation, Hamburg, N.Y.

Filed Dec. 24, 1968, Ser. No. 786,723
Int. Cl. G06j *7/16, 1/00*

U.S. Cl. 235—194 **9 Claims**



A capacitor is charged by a train of pulses derived from a pair of analog input signals and a feedback amplifier is connected to the capacitor to discharge it at the same rate as it is being charged so that the voltage across the capacitor is held at some fixed level to cause the voltage drop across the feedback path to be proportional to the product of the analog input signals. One analog input signal is converted to a digital signal whose frequency is linearly related to the amplitude of the analog input signal and the other analog input signal is passed to a pump diode circuit at such frequency whereby a capacitor of the pump diode circuit is charged as stated. Multiplication, division, square root extraction and the sum of plural products are some of the functions which may be performed.

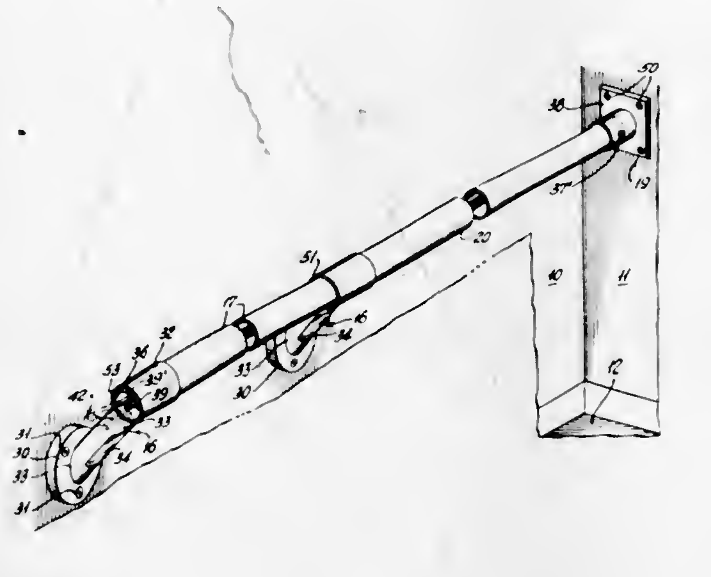
3,569,689
CONTINUOUSLY ILLUMINATED GRAB BAR

Frederick Leonard Nestrock, Avon, Conn., assignor to Union Manufacturing Company, New Britain, Conn.

Filed June 17, 1968, Ser. No. 737,422
Int. Cl. F21v *33/00*

U.S. Cl. 240—2 **13 Claims**

A grab-bar or handrail system not only incorporates its own spaced directional illumination sources but also its complete electrical cabling. Thus, installation of the system requires virtually no special electrical cabling or conduit within the wall, such ducting being limited to that required for a single end connection, or to bridge a discontinuity in the handrail, as where the wall is interrupted for a doorway, window, or the like opening. Illumination sources are provided within and as part of each supporting bracket, and individual electrical connection thereof to the supply cabling is made adjacent each support and within the grab-bar. Provision is made for automatic transfer from house voltage supply to standby storage supply, in the event of power failure, thus assuring the maximum safety that constant illumination can provide.

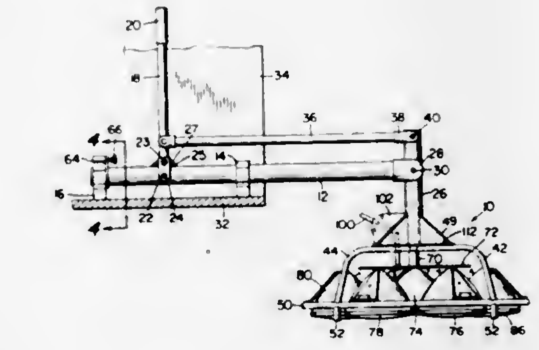


3,569,690
CLUSTER LIGHT SUPPORT AND CONTROL MECHANISM

Donald A. Nelson, Ventura, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Aug. 15, 1968, Ser. No. 753,039
Int. Cl. B64d *47/02*

U.S. Cl. 240—7.7 **3 Claims**



A number of light units are arranged in a cluster on a common support. Means is provided for tilting and aiming the cluster. The alignment of the light units relative to each other can be varied so as to create either converging or diverging beams.

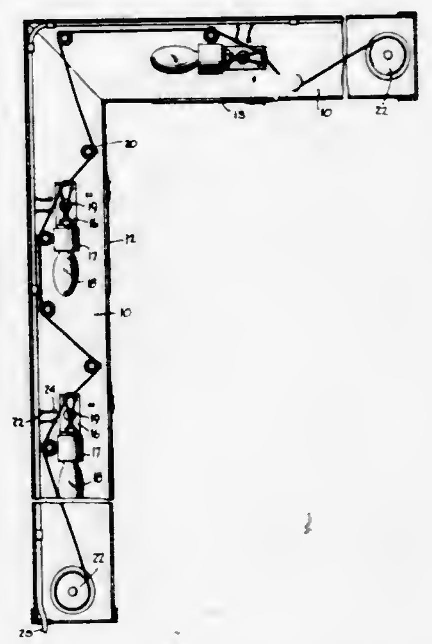
3,569,691
ASSEMBLY FOR LIGHTS

Robert F. Tracy, 30 Longview Ave., Mount Freedom, N.J.

Filed July 23, 1968, Ser. No. 746,923
Int. Cl. F21p *1/02*

U.S. Cl. 240—10 **3 Claims**

An assembly for hiding or exposing lights can be readily mounted around a building, forming an integral part thereof. This assembly comprises a channel base fitted with a cover and having a plurality of openings to allow light bulbs to swing in and out. The bulbs are attached to sockets which are, in turn, mounted on swivel bases secured to the channel base. The swivel bases are connected to a pulley assembly which operates to swing the bases through the openings.

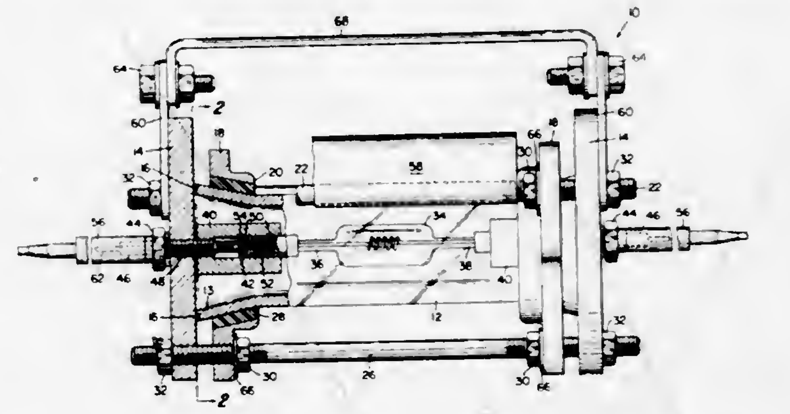


3,569,692
UNDERWATER FLOODLIGHT FIXTURE

Louis A. Johnson, 350 B Kern St., and William C. Ramsey, 3030 Merced Place, Oxnard, Calif. 93030

Filed Jan. 29, 1968, Ser. No. 701,357
Int. Cl. F21v *31/00*

U.S. Cl. 240—26 **1 Claim**



An underwater electric light fixture which includes an elongated transparent tube sealed at each end and provided with an electric bulb positioned therein. Each end of the bulb is received in an adjustable socket located at opposed axial ends of the transparent tube. Widely spaced apart connectors attached to the outer ends of opposed bulb sockets allow replacement of the entire light fixture by a simple unplugging action without power shutoff and without arcing between the unplugged connectors. An external reflective member may be provided adjacent the transparent tube to enhance visibility.

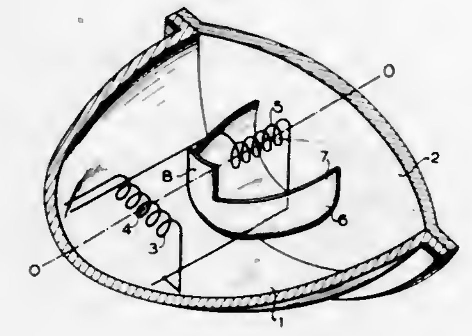
3,569,693
HEADLIGHT FOR AUTOMOTIVE VEHICLES

Gerhard Lindae, Leonberg; Richard Mueller, Stuttgart, and Helmut Gaissert, Pforzheim, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Apr. 18, 1969, Ser. No. 817,375
Claims priority, application Germany, Apr. 20, 1968, P 17 72 256.4
Int. Cl. F21v *7/09*

U.S. Cl. 240—41.35 **10 Claims**

The low beam filament of a headlight for automotive vehicles is flanked from below and at both sides by a glare-eliminating light reflecting shield having a specific cross-sectional configuration in a plane at right angles to the optical axis of the reflector as well as in a plane which includes the optical axis. The shield has a projection which is located between the low beam filament and the high beam filament.



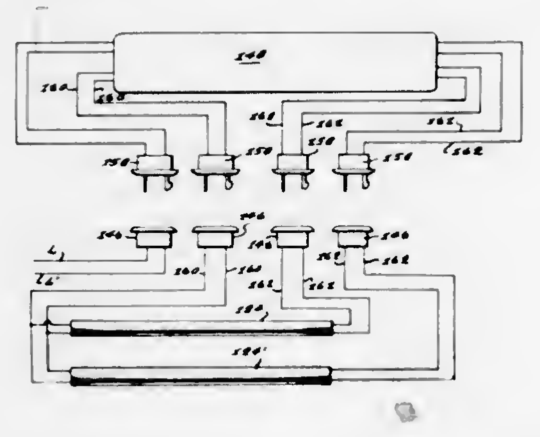
3,569,694
LIGHTING FIXTURE WITH DETACHABLE BALLAST

Oscar Lawrence Comer, and Wyndell G. Muse, Americus, Ga., assignors to Metalux Corporation, Americus, Ga.

Filed Aug. 1, 1968, Ser. No. 749,530

Int. Cl. H05b *33/00, 33/08*

U.S. Cl. 240—51.11 **3 Claims**



A fluorescent lighting fixture incorporating a receptacle provided with a readily replaceable ballast unit that may be safely connected to and disconnected from the circuit of the fixture while it is energized. A two-part electrical connector unit is provided in the circuit, one part being fixed to the receptacle and the other part mounted together with the ballast as a replaceable component arranged to engage and disengage the connector unit parts as an incident of installation and removal of the replaceable component. Preferably, the connector unit parts comprise a male plug and complemental female socket specially arranged to cause the respective high voltage contacts thereof to become engaged prior to, and disengaged subsequent to, engagement of the respective low voltage contacts thereof during installation and removal of the replaceable component.

3,569,695
RAILROAD CAR AXLE BEARING OVERHEAT INDICATOR

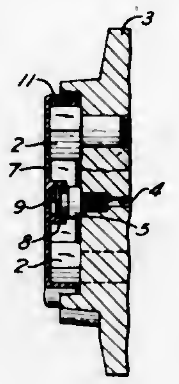
Ralph M. McLean, St. Louis, Mo., assignor to Schaefer Equipment Company, Pittsburgh, Pa.

Filed July 22, 1969, Ser. No. 843,494

Int. Cl. B61k *9/04*

U.S. Cl. 246—169D **5 Claims**

The roller bearing cover mounted on each end of a railroad car axle is provided with a projecting grease fitting. Tightly gripping the outer end of this fitting is the socket of a cap that covers at least part of the bearing cover. At least a portion of the outer surface of the cap is a predetermined color that will change to another color if the cap is heated to a predetermined temperature by overheating of the bearing and axle.



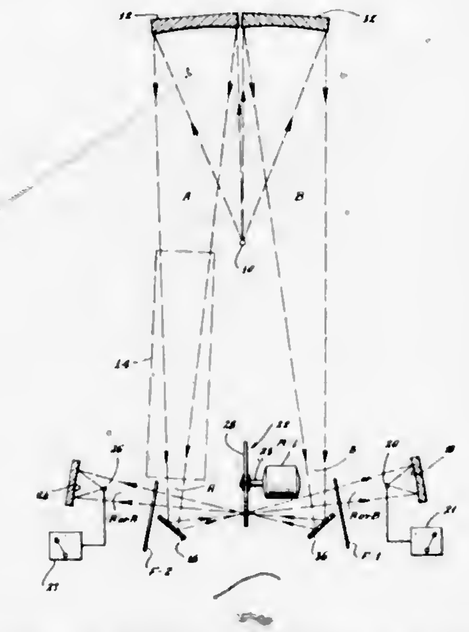
3,569,696
METHOD AND APPARATUS FOR MEASURING SIMULTANEOUSLY A PLURALITY OF COMPONENTS OF A TEST SAMPLE

Eskil L. Karlson, Stamford, Conn., assignor to Pollution Control Industries Inc., Stamford, Conn.

Filed Oct. 8, 1968, Ser. No. 765,921

Int. Cl. G01n *21/26*

U.S. Cl. 250—43.5 **5 Claims**



The amounts of two or more gases in a test sample of a mixture of gases from an internal combustion engine exhaust are measured simultaneously by splitting a source of radiant energy into two beams, employing one beam as a control beam, and employing the other beam as a test beam and passing it through the sample, and thereafter directing both beams from opposite sides of the plane of a rotating chopper, which has a mirror surface on both sides, alternately to two band-pass filters having transmission corresponding respectively to the absorption bands of the gases being measured, and directing the radiation passing said filters respectively to detector means.

3,569,697
THERMOLUMINESCENT DOSIMETER FOR PROVIDING A TOTAL RADIATION MEASURE OF RADIO-ACTIVITY IN A FLUID MEDIUM TO WHICH THE DOSIMETER IS EXPOSED

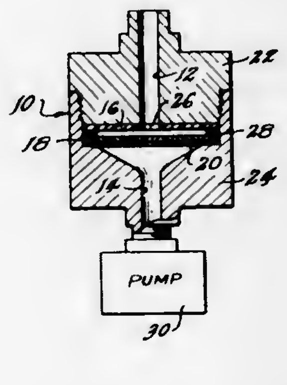
David E. McCurdy, Fort Collins, Colo., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 11, 1969, Ser. No. 798,284

Int. Cl. G01t *1/11, 1/20*

U.S. Cl. 250—43.5 **3 Claims**

The present dosimeter includes a cylindrical housing having an intake port at one end and an exhaust port at the opposite end. A thermoluminescent disc and a radioactivity filter are coaxially and spatially mounted with respect to each other within the housing, with the thermoluminescent disc being mounted adjacent the intake port and having an aperture therethrough coaxially aligned with the intake port. The radioactivity filter is sealed to the interior walls of the housing. A pump draws a fluid medium through the ports of the housing to effect deposition of radioactive material of the fluid medium on the radioactivity filter. Energy from the radiation emitted by the ionizing radioactive material is absorbed by the thermoluminescent disc and stored. A heat source is provided to excite the thermoluminescent disc, the emitted light intensity therefrom being a measure of the detected radiation.



3,569,698
PARTICLE-BEAM APPARATUS PROVIDED WITH A PHASE-SHIFTING FOIL WHICH CORRECTS FOR WAVE ABERRATIONS

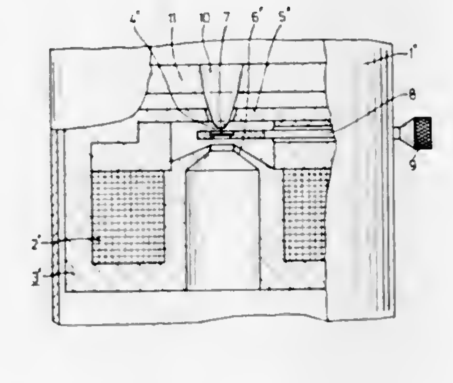
Karl-Heinz Herrman, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed June 18, 1969, Ser. No. 834,316

Claims priority, application Switzerland, June 28, 1968, 9724/68

Int. Cl. H01j *37/26*

U.S. Cl. 250—49.5 **4 Claims**



A particle-beam apparatus has a beam axis and a beam generator for issuing particle beams along the axis including a primary beam coincident with the axis. An electron-optical lens for focusing an image on an image plane causes wave aberrations that shift the respective phases of the particle beams. A foil is disposed in the path of the beams and shifts the phases of the beams with respect to the phase of the primary beam in dependence upon their respective radial distances from the axis so that the phases are shifted to correct for the shift caused by the wave aberrations. The foil has concentric discontinuities in its thickness at which the phase-shifting effect of the foil decreases in steplike fashion in radial distance, by values which correspond to whole number multiples of the wavelength of the particle beam, each adjacent pair of the discontinuities enclosing an annular foil portion having a thickness which increases continuously in radial direction.

3,569,699
A DEVICE FOR DETECTING CRYSTALLOGRAPHIC DEFECTS IN SEMICONDUCTOR CRYSTALS

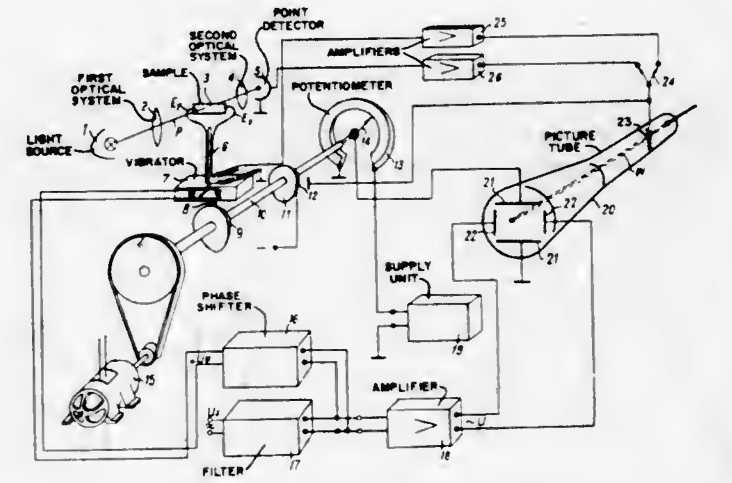
Andrzej Cielecki, ul. Polna 54m50, Warsaw, Poland

Filed June 14, 1968, Ser. No. 737,203

Claims priority, application Poland, June 14, 1967, P. 121,133

Int. Cl. G01n *21/00*

U.S. Cl. 250—52 **8 Claims**



A device is provided for detecting crystallographic defects in semiconductor monocrystals and the device comprises a stationary light source, an optical system and a detector, in that order. A sample semiconductor to be tested is movably mounted between the light source and the detector with respect to a stationary light ray produced by the source. The sample is supported on an arm of a vibrator, which in turn is supported on a cam mounted on a rotary shaft. A potentiometer has a slider connected to the rotary shaft and to the vertical plates of a picture tube, whose horizontal plates are connected by means of an amplifier of a time base voltage to the output of a filter which is also used to supply the actuating mechanism of the vibrator via a phase shifter.

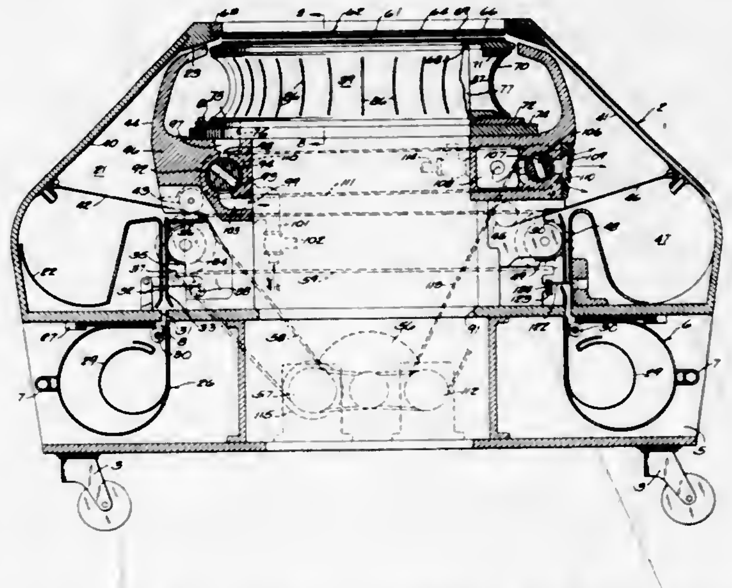
3,569,700
RAPID RADIOGRAPHIC ROLL FILM CHANGER HAVING A PRESSURE PLATEN ACTUATED BY AIR PRESSURE

Joseph G. Quinn, Milwaukee, Wis., assignor to General Electric Company

Filed Aug. 21, 1969, Ser. No. 851,881

Int. Cl. G03b *41/16*

U.S. Cl. 250—66 **7 Claims**

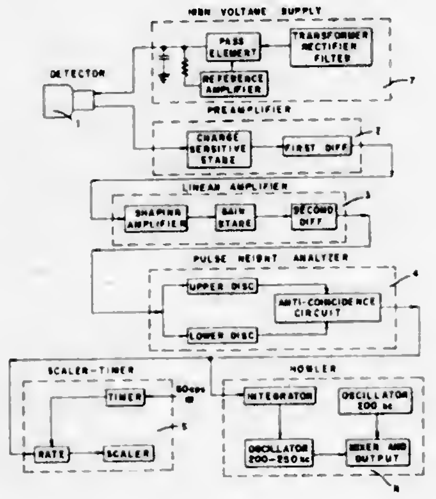


X-ray film is cyclically compressed, exposed, decompressed and advanced in a path between a platen and a film compression chamber and two intervening intensifying screens. A diaphragm on the chamber distends when subjected to air pressure and produces the contact pressure. A two-port rotary valve pressurizes the chamber, allows time for an exposure and exhausts the chamber for releasing the film. Another synchronously driven rotary valve has a port for projecting a pulse of air against the released film to form a loop in it and advance it from a preformed loop on the input side. A motor driven toothed-wheel forms the input loop from film in a feed magazine and advances the film output loop into a takeup magazine.

3,569,701
PREREGULATION OF HIGH VOLTAGE SUPPLY CIRCUIT FOR A MEDICAL NUCLEAR SPECTROMETER

Marion M. Satterfield, and George R. Dyer, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 7, 1969, Ser. No. 805,262
Int. Cl. G01t *1/17*
U.S. Cl. 250—71.5 **4 Claims**

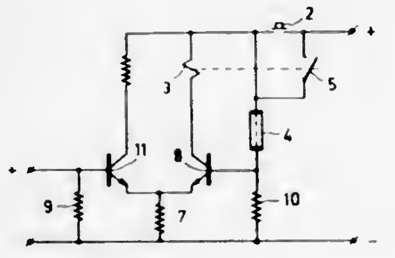


A modular, all transistorized, direct-coupled, pulse-height spectrometer for use in nuclear medical measurements is provided with means for the specific control of noise level, overloads, linearity and voltage regulation, together with compactness. These features make the present spectrometer substantially superior to the prior art tube-type spectrometers.

3,569,702
THERMOLUMINESCENT DOSIMETER WITH CONTROLLED HEATING

Raymond Georges Schayes, Bruxelles, Belgium, assignor to Manufacture Belge De Lampes Et De Materiel Electronique en Abrege M.B.L.E., Brussels, Belgium

Filed Feb. 19, 1968, Ser. No. 706,237
Claims priority, application Netherlands, Feb. 22, 1967, 6702652
Int. Cl. G01t *1/11*
U.S. Cl. 250—71.5 **14 Claims**

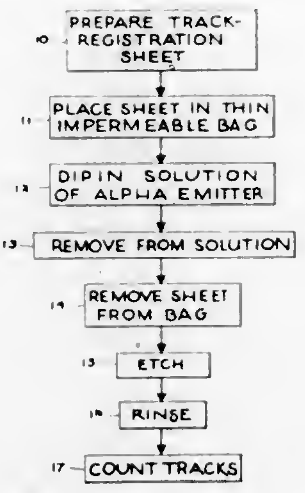


A thermoluminescent dosimetery system in which the dosimeter heating current is automatically interrupted as a given function of the resistance of the dosimeter heating element.

3,569,703
SYSTEM FOR ASSAYING SOLUTIONS CONTAINING ALPHA-EMITTING ISOTOPES USING TRACK-REGISTRATION MATERIAL

Henry Ward Alter, Danville, Calif., assignor to General Electric Company

Filed Feb. 26, 1968, Ser. No. 708,255
Int. Cl. G01t *1/04*
U.S. Cl. 250—83 **7 Claims**

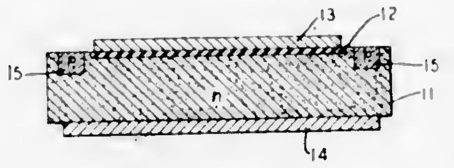

10 PREPARE TRACK-REGISTRATION SHEET
11 PLACE SHEET IN THIN IMPERMEABLE BAG
12 DIP IN SOLUTION OF ALPHA EMITTER
13 REMOVE FROM SOLUTION
14 REMOVE SHEET FROM BAG
15 ETCH
16 RINSE
17 COUNT TRACKS

A method for determining the quantity of an alpha-emitting ingredient in a solution. A sheet of track-registration material is brought into close proximity to the solution, held there for a given period of time, and then removed. This material has the characteristic of forming damage tracks along paths traversed by alpha particles. These paths may be enlarged and made visible by treatment with a suitable etchant which enlarges the tracks. The number of tracks formed in a given area is an indication of the quantity of the alpha-emitting ingredient present in the solution.

3,569,704
RADIATION DOSIMETER

John P. Mitchell, Summit, N.J., granted to U.S. Atomic Energy Commission under the provisions of 42 U.S.C. 2182

Filed Aug. 15, 1968, Ser. No. 752,940
Int. Cl. G01t *1/02*
U.S. Cl. 250—83.3 **5 Claims**



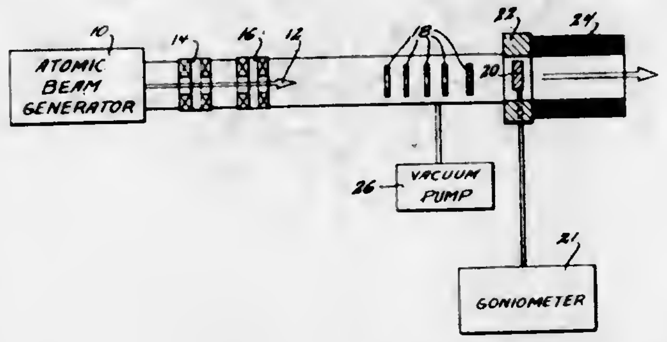
A dosimeter for measuring high energy ionizing radiation utilizes a metal-oxide-semiconductor (MOS) structure as the sensing element. Advantageously, the MOS structure comprises a silicon wafer a portion of one surface of which is oxidized and then provided with an aluminum electrode. In one embodiment, provision for heating the MOS structure and for measuring its temperature is incorporated in the MOS structure. After exposure to ionizing radiation the MOS structure is heated with an ammeter connected between the silicon wafer and aluminum electrode. The integrated current flow is then a measure of the radiation dose received by the structure.

3,569,705
METHOD FOR PRODUCING POLARIZED ATOMS

Manfred S. Kaminsky, Hinsdale, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 1, 1969, Ser. No. 846,788
Int. Cl. H01j *37/00*
U.S. Cl. 250—84 **6 Claims**

A polarized beam of atoms is generated by passing in a partial vacuum a collimated atomic beam through a magnetically saturated monocrystalline material parallel to a lattice channel of said foil. The monocrystalline material effects a charge-transfer reaction with the atomic beam to produce a

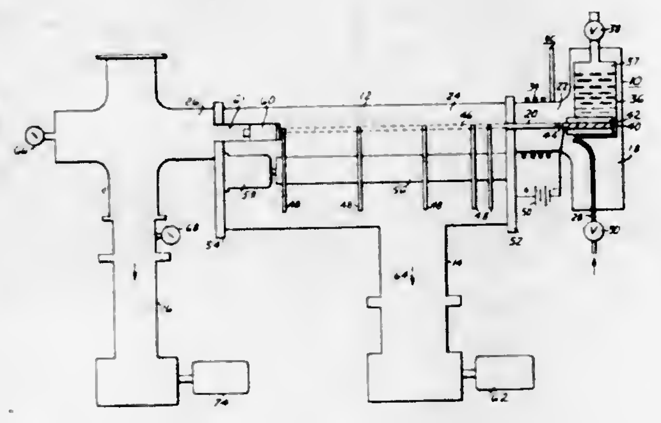


polarized atomic beam, the nuclei of which are subsequently polarized by hyperfine interaction in a weak external magnetic dipole field.

3,569,706
METHOD AND APPARATUS FOR GENERATING A CONTINUOUS BEAM OF NEUTRAL ATOMS

Benjamin B. Meckel, La Mesa, and Bernd H. Richelmann, San Diego, Calif., assignors to Physics Technology Laboratories Inc., La Mesa, Calif.

Filed Oct. 22, 1965, Ser. No. 500,580
Int. Cl. H01j *37/00*
U.S. Cl. 250—84 **5 Claims**



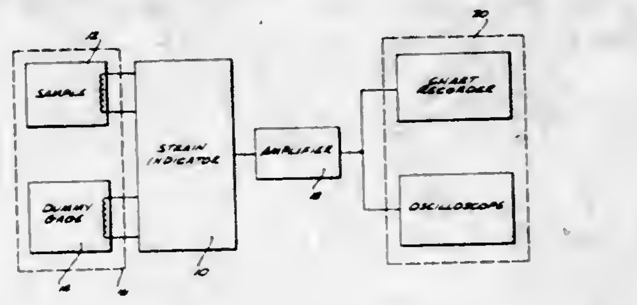
Method and apparatus for generating a continuous beam of sputtered neutral atoms that are sputtered from metallic members, condensed layers of gases, single crystals and condensed layers of gases on single crystals, and which continuous beam passes through an aperture providing a directed beam that may be restricted to neutral atoms having a monovelocity by a velocity selector means.

3,569,707
SYSTEM FOR MEASURING PULSED RADIATION BY MEANS OF STRAIN GAUGE TECHNIQUE

Daniel Binder, Santa Ana, and Willard M. Peffley, Fullerton, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Apr. 7, 1967, Ser. No. 629,205
Int. Cl. G01b *15/06*
U.S. Cl. 250—83.3 **3 Claims**

This is a system for measuring the energy absorbed by a material subject to pulsed nuclear radiation by detecting the

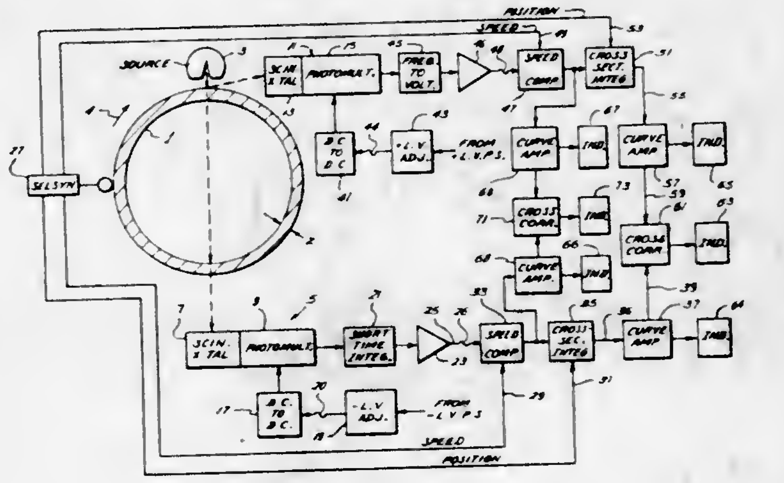


thermal expansion of the material with strain gauge techniques.

3,569,708
STRAIGHT THROUGH AND BACKSCATTER RADIATION INSPECTION APPARATUS FOR TUBULAR MEMBERS AND METHOD

Hillel Weinbaum, and Michael H. Badger, Houston, Tex., assignors to American Machine & Foundry Company, New York, N.Y.

Filed July 26, 1967, Ser. No. 656,088
Int. Cl. G01t *1/20*
U.S. Cl. 250—83.3 **37 Claims**



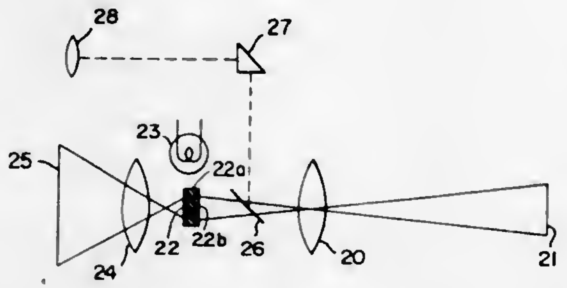
This invention pertains to a combination straight through and backscatter inspection of pipe wall thickness in a rotating arrangement. The source is located outside the pipe, one detector is located thereopposite and the other detector is located to receive backscatter emissions. Each detector and related circuit comprises a scintillation crystal, a photomultiplier controlled by a DC-to-DC converter and adjustable low voltage source, an electrical speed compensation circuit, a cross section integrator and a curve fitting amplifier. The two detector circuit outputs are correlated to increase sensitivity. The speed determining and position sensing means may be a selsyn motor. The speed compensating circuit may be a field effect transistor having its drain-source resistance variable with the speed voltage and included in a time constant circuit, thereby making the output independent of the speed of rotation.

3,569,709
THERMAL IMAGING SYSTEM UTILIZING LIQUID CRYSTAL MATERIAL

Martin R. Wank, Mountain View, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Mar. 27, 1968, Ser. No. 732,230
Int. Cl. G01j *1/48*
U.S. Cl. 250—83.3 **11 Claims**

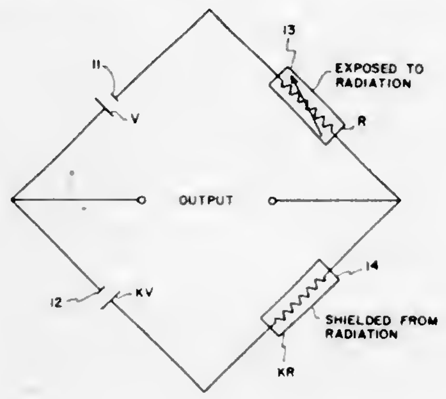
A thermal imaging system wherein an infrared transmitting lens forms an image of an object from infrared rays emitted by the object and projects the image on a film of liquid crystal material having a thermally responsive color spectrum. The film of liquid crystal material is heat biased to the characteristic temperature range at which the material exhibits thermally sensitive optical scattering properties to accentuate the thermally evoked image.



3,569,710
METHOD FOR IMPROVING THE SIGNAL-TO-NOISE RATIO OF THE WHEATSTONE BRIDGE TYPE BOLOMETER

Antony Jalink, Jr., Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 1, 1968, Ser. No. 764,252
Int. Cl. G01j *5/24*
U.S. Cl. 250—83.3 **1 Claim**



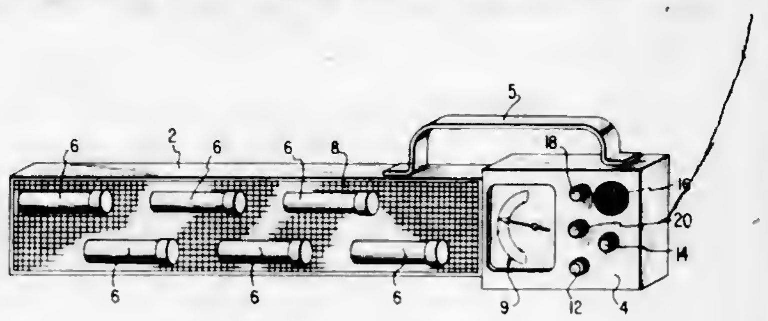
An improvement in the signal-to-noise ratio of a Wheatstone bridge type radiation measuring instrument. The improvement consists of replacing the shielded element in the bridge by an identical element except that it is K times as large and has K times as much resistance and replacing the voltage source adjacent to the replaced element by a power source producing K times as many volts where K is greater than one.

3,569,711
METHOD AND APPARATUS FOR MEASURING RADIATION WITH A PLURALITY OF DETECTORS AND DETERMINING SOURCE OF HIGHEST RADIATION EMANATING FROM A SURFACE AREA SUCH AS THE SCREEN OF A COLOR TELEVISION SET

Richard K. Stoms, Fort Thomas, Ky., and Edward Kuerze, Cincinnati, Ohio, assignors to the United States of America as represented by the Secretary of the Department of Health, Education and Welfare

Filed June 11, 1968, Ser. No. 736,146
Int. Cl. G01t *1/18*
U.S. Cl. 250—83.6 **11 Claims**

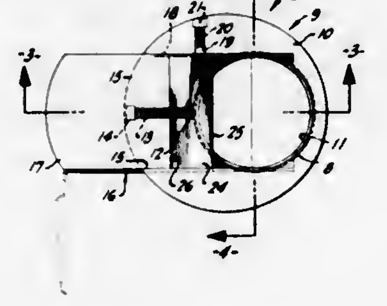
A method and apparatus for detecting radiation is disclosed, the method and apparatus having particular utility in determining X-ray emission from a surface area such as the screen of a television set. A multiple detector radiation measuring instrument is provided having a plurality of radiation sensors thereon. Novel circuitry is disclosed such that a readout is provided representing the radiation sensor having the highest output, this output signaling the presence of undesired radiation from some location on the screen surface. All except one of the plurality of radiation detectors or sensors are capable of being disabled such that the undesired source of radiation can be localized on the screen surface.



3,569,712
FILTRATION HEAD FOR X-RAY MACHINE WHICH IS REMOVABLY AND ROTATABLY SUPPORTED ON THE X-RAY COLLIMATOR

Edward A. Avakoff, 2320 Valdivia Way, Burlingame, Calif.

Filed May 31, 1968, Ser. No. 733,652
Int. Cl. G03b *41/16*
U.S. Cl. 250—86 **5 Claims**



A filtration head adapted for attachment to a tubular collimator on an X-ray machine or cephalometer in the form of a ray-absorbent filter of varying thickness adjustable to produce an image clearly defining the hard and soft tissues of the head or body along and adjacent to profiles of the head or portion of the body under examination to different distances from said profiles.

3,569,713
THYROID GLAND X-RAY PROTECTOR

William F. Via, Jr., 15 Clark Drive, Hartford, Conn.

Filed Feb. 5, 1969, Ser. No. 796,726
Int. Cl. G21f *1/12*
U.S. Cl. 250—108 **2 Claims**

The X-ray protector for the thyroid gland is in the form of a shield which covers the forward portion of the neck over and above the larynx for shielding the thyroid gland from primary and secondary rays from an X-ray machine. The material of the shield is formed from sandwiched layers of vinyl or other plastic, with a leaded layer therebetween.

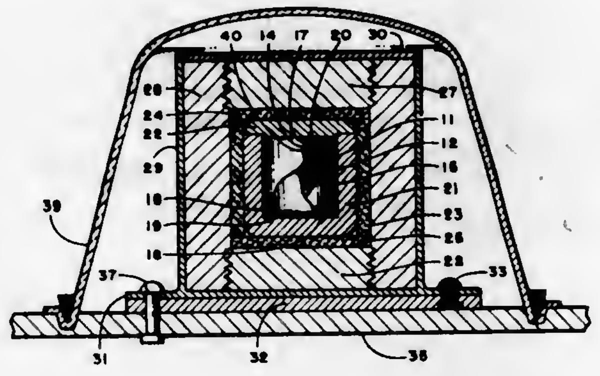
3,569,714
PROTECTED RADIOISOTOPIC HEAT SOURCE

Charles G. Anderson, Carlisle; Vincent L. Avona, Bellbrook, and Donald P. Kelly, Kettering, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 14, 1969, Ser. No. 876,932
Int. Cl. G21f *1/00*
U.S. Cl. 250—108 **7 Claims**

A radioisotopic heat source including a container with plurality of closed chambers cooperating to preserve integrity of

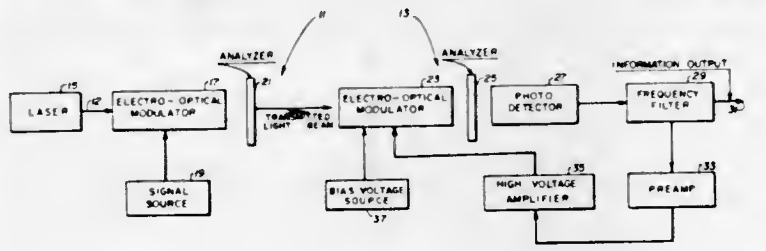
the contained radioactive heat source against impacts, projectiles, extreme temperatures, and other various environmental conditions pertaining to missiles for carrying the heat source into outer space and landing it on the moon.



3,569,715
ELECTRO-OPTICAL TELEMETRY SYSTEM RECEIVER UTILIZING NEGATIVE FEEDBACK TO ELIMINATE ATMOSPHERICALLY INDUCED LOW FREQUENCY LIGHT BEAM INTENSITY VARIATIONS

Robert R. Horning, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 5, 1968, Ser. No. 757,657
Int. Cl. H04b *9/00;* **G02f** *1/16*
U.S. Cl. 250—199 **5 Claims**



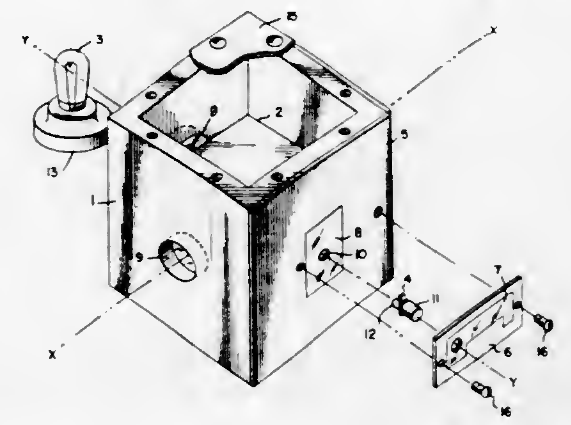
An electro-optical telemetry system wherein a light beam is modulated with high frequency information signals for transmission to a receiver that includes a photodetector for transducing the modulated light beam to electric information signals, a frequency filter connected to the output of the photodetector for extraction of low frequencies that are induced in the transmitted beam by atmospheric turbulence, and a light modulator at the receiver input to which the extracted low frequencies are negatively fed back to substantially eliminate the atmospherically induced variations in the received light beam.

3,569,716
OPTO-ELECTRONIC LIQUID LEVEL SENSOR FOR MAINTAINING A STABLE REFERENCE

Virgil Dennis Lewis, Beltsville, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed June 3, 1968, Ser. No. 734,063
Int. Cl. G01j *1/32*
U.S. Cl. 250—218 **5 Claims**

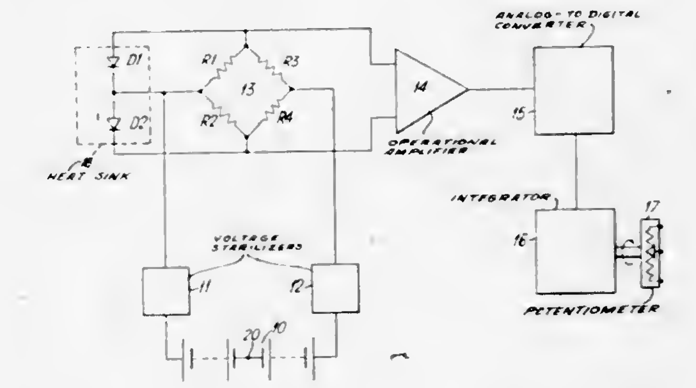
An opto-electronic sensor which maintains a stable condition relative to a reference. The sensor utilizes a mercury pool contained in a steel box having relatively small dimensions. Holes in each of the four sides of the box each contain an optical glass window. Photosensitive diodes are mounted outside the windows on two adjacent sides of the box and light sources are similarly mounted on the remaining two sides so that a light source is opposite each diode. The mercury pool is adjusted to a height so as to partially block the light going from each light source to its respective diode. Tilting the box along one axis or the other will increase or decrease the light reaching one or the other of the photosensitive diodes and vary the diode electrical output which can be used to control a self-leveling servo control system.



3,569,717
RADIATION MEASURING AND INTEGRATING DEVICE

Oluyinka A. Awojobi, and Paul M. Dunachie, Glasgow, Scotland, assignors to D-Mac Limited

Filed Oct. 14, 1969, Ser. No. 866,278
Claims priority, application Great Britain, Nov. 7, 1968, 52,754/68
Int. Cl. H01j *39/12;* **G01j** *1/42*
U.S. Cl. 250—209 **7 Claims**



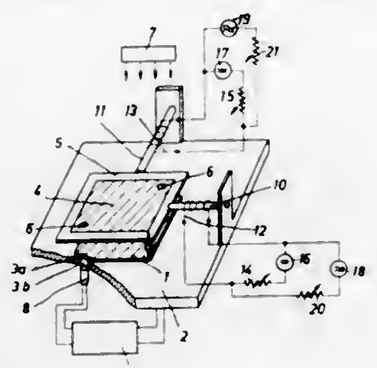
A radiation measuring device applicable to the measurement of direct radiation incident over a time interval and particularly applicable to the measurement of the net radiation, e.g. solar radiation, absorbed by a surface over a time interval. In the latter application, radiation sensitive devices are exposed to direct radiation and radiation reflected from the surface, respectively. A bridge circuit becomes unbalanced and supplies a signal to an analogue-digital converter. The output of the converter is integrated in an integrator to give a signal proportional to the net radiation absorbed over a time interval.

3,569,718
DEVICE FOR THE FINE ADJUSTMENT OF PHOTOMASKS WITH RESPECT TO SEMICONDUCTOR ELEMENTS

Manfred Borner, Ulm, (Danube), Germany, assignor to Telefunken Patentverwertungsgesellschaft m. b. H., Ulm, (Danube), Germany

Filed June 28, 1967, Ser. No. 649,593
Claims priority, application Germany, July 1, 1966, T31500
Int. Cl. G01n *21/30*
U.S. Cl. 250—201 **7 Claims**

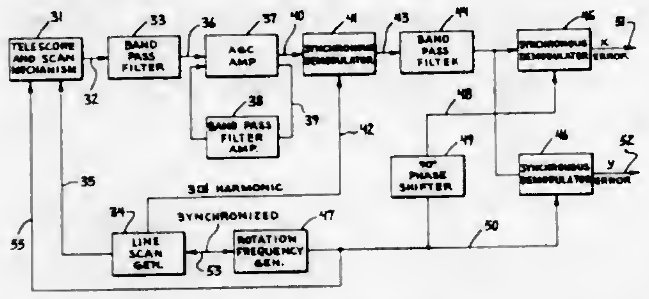
In the manufacture of semiconductor devices with the aid of photomasks, the correct position of the photomask with respect to the semiconductor body to be processed is adjusted by the use of rod-shaped electromechanical transducers which are connected to the photomask and which, when energized vary their length and so displace the photomask in relation to the semiconductor body.



3,569,719
INFRARED TRACKER ERROR SIGNAL GENERATION AND PROCESSING SYSTEM

Eugene H. Dryden, San Marino, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 10, 1968, Ser. No. 698,096
Int. Cl. G01j *1/20*
U.S. Cl. 250—203 **6 Claims**

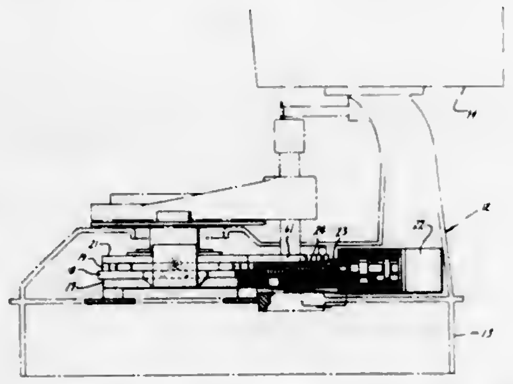


An infrared tracker error signal generator having a telescope containing a mirror and a scanning mechanism, the action of the latter producing on the mirror an image of an assumed point target object at infinity, which image is scanned across the surface of a detector element in a pattern prescribed by the input commands to the scanning mechanism to produce detector outputs each time the image crosses the detector, the detector outputs being processed in circuitry to develop horizontal and vertical error signals for the tracker system to bring the center of scan to the center of the detector band in the telescope.

3,569,720
PHOTOELECTRIC LIMIT SENSING ASSEMBLY AND SYSTEM

Thorbjoern Roland Fredriksen, Sunnyvale, Calif., assignor to Electroglas, Inc., Menlo Park, Calif.

Filed Jan. 6, 1969, Ser. No. 789,281
Int. Cl. G06m *7/00*
U.S. Cl. 250—219 **7 Claims**

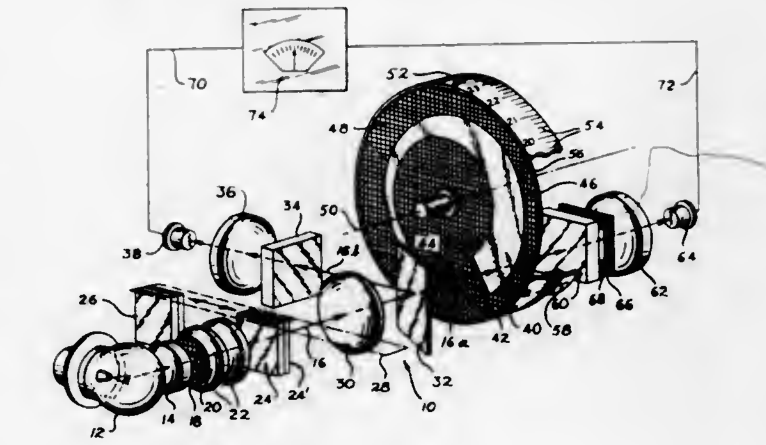


Photoelectric limit sensing assembly and system having photoelectric elements and logic arranged so that movement beyond a predetermined acceptable region is detected and which only permits movement in the proper direction to bring movement into the acceptable region.

3,569,721
MEASURING BILIRUBIN IN BLOOD USING LIGHT AT TWO WAVELENGTHS

Herbert E. Goldberg, Concord, and Michael L. Polanyi, Webster, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Jan. 13, 1969, Ser. No. 790,551
Int. Cl. G01n *2/26*
U.S. Cl. 250—218 **10 Claims**

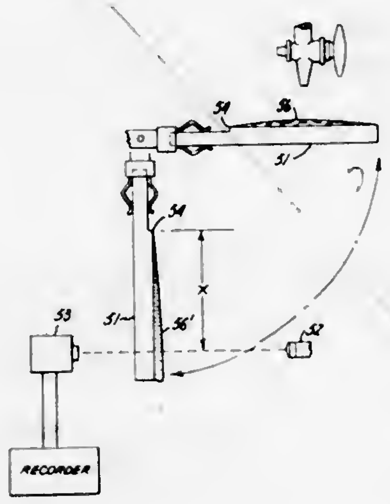


Measuring the concentration of bilirubin in unmodified blood serum by defining the light transmission of a microsample of the serum in terms of bilirubin concentration at two preselected specific wavelengths of light wherein the effect of hemoglobin on transmission through the sample is eliminated.

3,569,722
APPARATUS FOR MEASURING THE THICKNESS OF A LIQUID DRAINING FROM A VERTICALLY DISPOSED SURFACE

Costel D. Denson, Schenectady, N.Y., assignor to General Electric Company

Original application June 5, 1968, Ser. No. 734,739, now Patent No. 3,495,445, dated Feb. 17, 1970. Divided and this application June 25, 1969, Ser. No. 836,396
Int. Cl. G07n *23/12*
U.S. Cl. 250—218 **10 Claims**

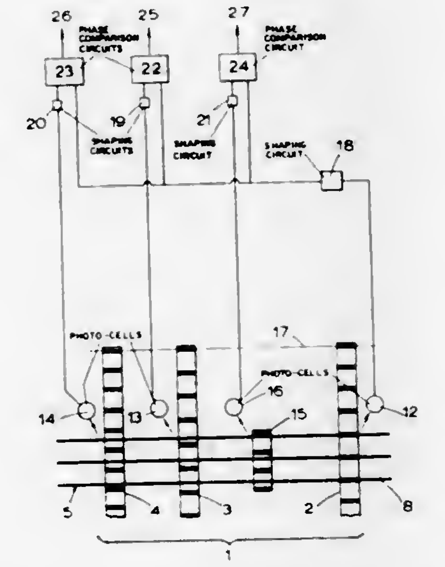


An apparatus for determining the thickness of a draining liquid film having a wave energy source and a wave energy detector. The liquid is supported on a vertical substrate between the wave energy source and the detector. The energy transmitted through the liquid at any time is a function of the thickness of the film.

3,569,723
MEASURING APPARATUS FOR DETERMINING THE RELATIVE POSITION OF TWO COMPONENTS

David G. Brake, Welwyn Garden City, and Geoffrey Thompson, Letchworth, England, assignors to British Aircraft Corporation Limited, London, England

Filed July 29, 1968, Ser. No. 748,344
Claims priority, application Great Britain, Aug. 4, 1967, 35876/67
Int. Cl. G01d *5/34*
U.S. Cl. 250—231 **20 Claims**

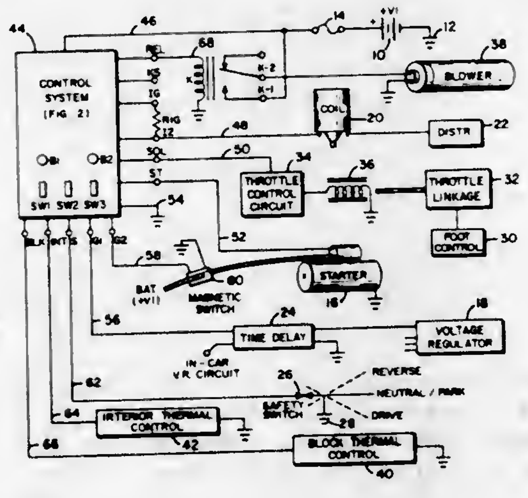


Measuring apparatus comprising a scale and a reading head movable over the scale. The scale includes a reference pattern track of a reference number of pattern line pitches per unit length and one or more measurement pattern tracks having a number of pattern line pitches per such unit length equal to the reference number plus a small fraction of a pitch, with the fractions being arranged in a decreasing size progression when there is more than one measurement pattern track. The reading head comprises an index for scanning the pattern tracks on the scale, the index having a pattern of approximately the reference number of pattern line pitches per such unit length to form alternating fringes between the index pattern and the scale patterns. Means are provided for individually detecting the variation of fringes formed by the cooperation of the index pattern and each of the pattern tracks on the scale.

3,569,724
ENGINE STARTER AND TEMPERATURE CONTROL SYSTEM

Andrew Kuehn, III, St. Paul, Minn., assignor to Systematics, Inc., St. Paul, Minn.

Filed Sept. 2, 1969, Ser. No. 854,631
Int. Cl. F02n *11/08*
U.S. Cl. 290—37 **15 Claims**

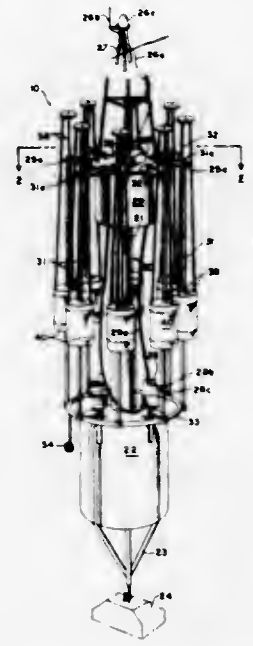


An improved automatic engine starter and control system is described, wherein the control system utilizes temperature sensing apparatus for determining when an engine should be started for warming either the engine, or some controlled area. The automatic starter system utilizes an electronic control system having a holding circuit for providing standby power, an indicator circuit for indicating the selection of the temperature condition that is controlling, an electronically controlled master relay circuit, and a starter control relay circuit for initiating starter action in response to the signals provided from the master relay circuit. Additionally, an electronic timer circuit is provided for limiting the total amount of time that the starter will be activated should the engine fail to start, with the timer circuit deactivating the holding circuit and disengaging the starter should the nonstarting time period exceed the predetermined amount. An electronic control circuit is also provided for controlling the activation of a heating or cooling device in response to a signal indicating that the engine has been started. Electronic time delay circuits are also shown for providing a predetermined time delay following engine die-out before restarting can again be initiated in order to assure the engine has slowed nearly to a stop for preventing damage to the starting mechanism. An electronic safety switch is also described for completely deactivating the control system in the event the gear selection lever is moved out of the neutral or park position. Circuitry is also described for determining when the engine is self-running for removing control of the automatic control system. Circuits are also described for controlling the throttle setting during starting and idling periods.

3,569,725
WAVE-ACTUATED POWER GENERATOR-BUOY

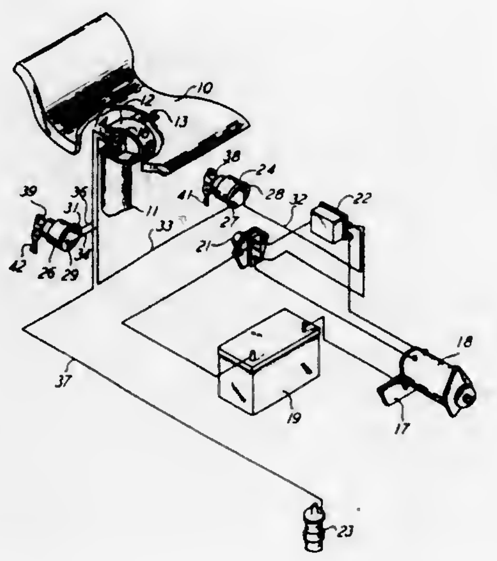
Edgar N. Rosenberg, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Feb. 9, 1970, Ser. No. 9,709
Int. Cl. F03b *13/12*
U.S. Cl. 290—53 **7 Claims**



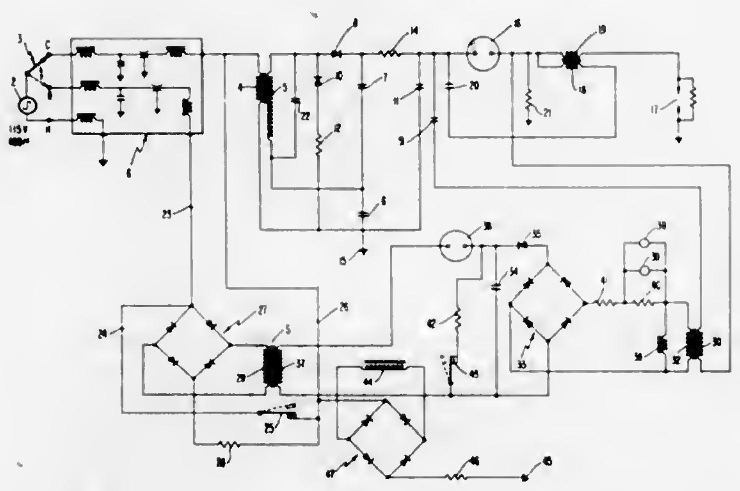
An oceanographic buoy having a self-sustaining power supply includes an elongate framework provided with a flotation section and a ballasting section predetermined to maintain the buoy in a vertical position. A pressure chamber carried on the buoy is fed water by a plurality of equaldistantly, circumferentially disposed pumping assemblies and passes the water, under pressure, to a hydroelectric transducer driving a transmitter. The transmitter relays information, representative of a monitored phenomena, or, merely radiates high energy electromagnetic signals enabling the precise location of the buoy by a remotely disposed tracking station. High reliability stems from the overall simplicity of the oceanographic buoy which is primarily dependent on the configuration and orientation of the several pumping assemblies that individually require a minimum amount of sealing and linkage elements.

3,569,726
IGNITION SAFETY SYSTEM FOR GARDEN TRACTORS
Morris W. Reid, and Harry E. Kline, Racine, Wis., assignors to J. I. Case Company, Racine, Wis.
Filed June 26, 1969, Ser. No. 836,916
Int. Cl. H02g *3/00*
U.S. Cl. 307—10 **4 Claims**



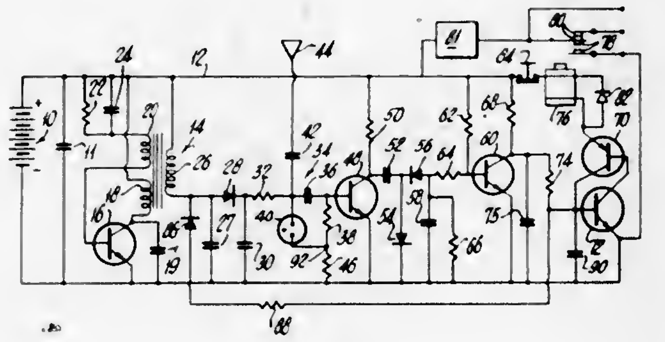
An ignition safety system for garden tractors, with an electric circuit including a battery, a generator, and an ignition coil. A plurality of electric switches are connected in the circuit, and a weight-responsive tractor seat has one of the switches thereunder for closing when the operator sits in the seat. There are two more of the said switches which are manually operated, preferably by keys, with one of the two switches being in series connection with the seat-operated switch, and with the other of the two switches being in parallel connection with the seat-operated switch to electrically bypass the seat-operated switch, all at the discretion of the operator.

3,569,727
CONTROL MEANS FOR PULSE GENERATING APPARATUS
Rattan Aggarwal, and Louis H. Segall, Sidney, N.Y., assignors to The Bendix Corporation
Filed Sept. 30, 1968, Ser. No. 763,569
Int. Cl. H03k *3/00*
U.S. Cl. 307—106 **19 Claims**



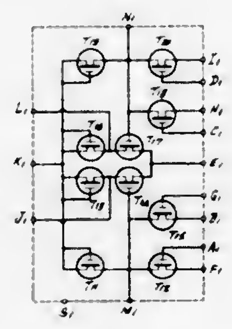
A condenser discharge type electrical pulse generating circuit, such as for a combustion engine ignition system, in combination with means for automatically disabling said circuit after operation for an interval within a predetermined range, the combination being such that the disabling means may be selectively bypassed and such that recycling of said means may be effected following an interruption of power input.

3,569,728
CAPACITANCE-RESPONSIVE CIRCUIT
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation
Filed Apr. 16, 1969, Ser. No. 816,648
Int. Cl. H01h *35/00*
U.S. Cl. 307—116 **10 Claims**



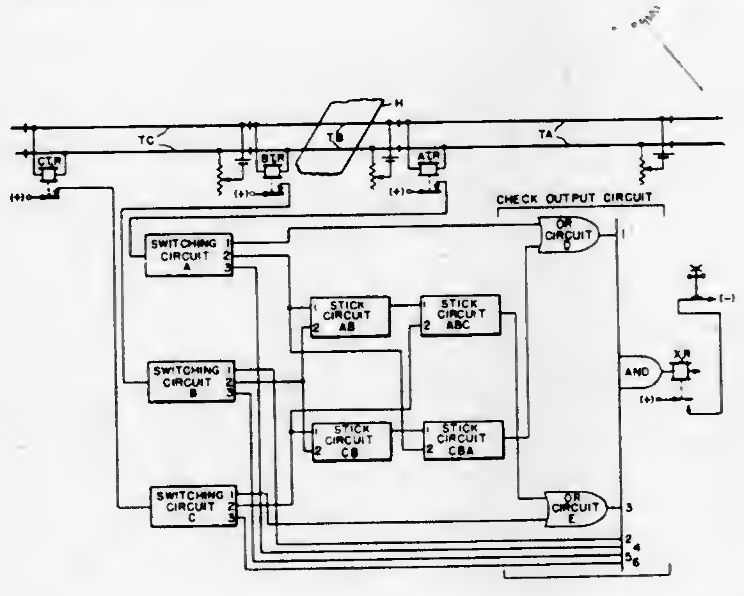
A capacitance responsive circuit employing a blocking oscillator to convert low voltage direct current power into high frequency bursts of alternating power is disclosed. The output of the blocking oscillator is rectified and then applied to a low-frequency relaxation oscillator, the output of which varies with the capacitance sensed by an antenna connected to one of its branches. The output of the low-frequency relaxation oscillator controls the energization of a relay by means of intermediate solid state switching circuitry. A latching circuit maintains the relay in an energized state until a reset button is manually actuated. The blocking oscillator consumes only a small amount of standby power so that the device can be operated continually.

3,569,729
INTEGRATED FET STRUCTURE WITH SUBSTRATE BIASING MEANS TO EFFECT BIDIRECTIONAL TRANSISTOR OPERATION
Isamu Washizuka, Osaka-shi; Hitoshi Hanahara, and Kunio Yoshida, Yamatokoriyama-shi, Japan, assignors to Hayakawa Denkikogyo Kabushiki Kaisha, Osaka-shi, Osaka-Fu, Japan
Filed June 27, 1967, Ser. No. 649,248
Claims priority, application Japan, July 5, 1966, 41/44305
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 **4 Claims**



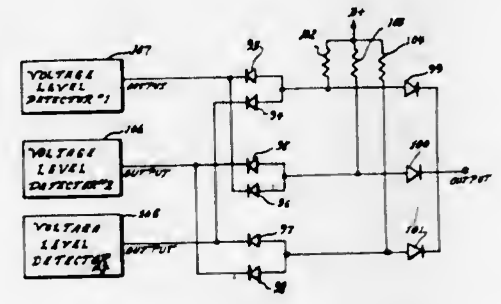
An integrated semiconductor circuit wherein a plurality of field effect transistors are formed on a single substrate, terminals are connected to selected electrodes of said transistors and to said substrate and means are provided for biasing the substrate relative to the electrodes of the transistors so that modifying the biasing of the substrate relative to the transistor electrodes will enable bidirectional operation of the transistors.

3,569,730
LOGIC CIRCUITRY FOR RAILROAD CROSSING SYSTEMS
Arthur W. Wetmore, Ormond Beach, Fla., assignor to General Signal Corporation, Rochester, N.Y.
Original application Oct. 23, 1969, Ser. No. 677,139, now Patent No. 3,471,687. Divided and this application May 21, 1969, Ser. No. 844,229
Int. Cl. H03k *19/20*
U.S. Cl. 307—216 **8 Claims**



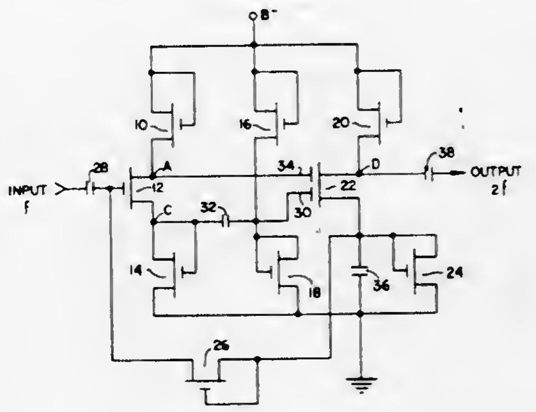
Logic circuitry utilizing transistorized switching circuits arranged to provide a check on their own proper operation. Each switching circuit monitors a single track section and provides three electrical outputs indicating respectively, train absence, train presence, and the proper functioning of the device itself. These outputs are fed into other transistorized circuit elements consisting of stick circuits, AND circuits and OR circuits logically arranged so as to activate a motorist warning system when a train is approaching a crossing from either direction, when a train is traversing the crossing, or when a circuit failure occurs and to deactivate the warning system as soon as a train has cleared the crossing.

3,569,731
VOLTAGE LEVEL DETECTOR
Horacio E. Gavira, Lakewood, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 20, 1968, Ser. No. 754,062
Int. Cl. G06f *11/08*
U.S. Cl. 307—219 **3 Claims**


VOLTAGE LEVEL DETECTOR #1
VOLTAGE LEVEL DETECTOR #2
VOLTAGE LEVEL DETECTOR #3
OUTPUT
B+

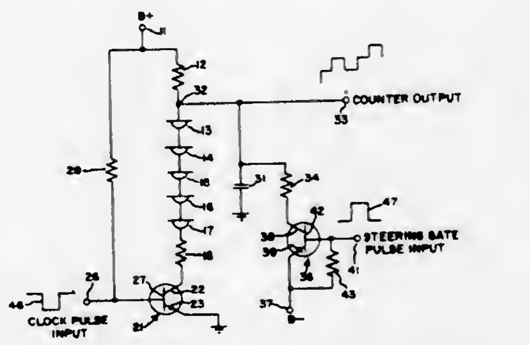
The invention comprises a voltage level detector having a "dead band" between its set and reset points. The critical level or significant end of the "dead band" is desensitized to temperature variations and drift by positive and negative feedback in combination with a circuit adapted to compensate for variations of the voltage amplifier transistor transconductance. Significant system components include a feedback circuit between the detector's differential amplifier and voltage amplifier, a temperature compensation circuit associated with the voltage amplifier, and a time delay circuit. The invention also comprehends a voltage monitoring system employing three such voltage level detectors in combination with a "majority voting" logic circuit.

3,569,732
INDUCTANCELESS IGFET FREQUENCY DOUBLER
Alton O. Christensen, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Dec. 15, 1969, Ser. No. 884,848
Int. Cl. H03k *21/00*
U.S. Cl. 307—220 **8 Claims**



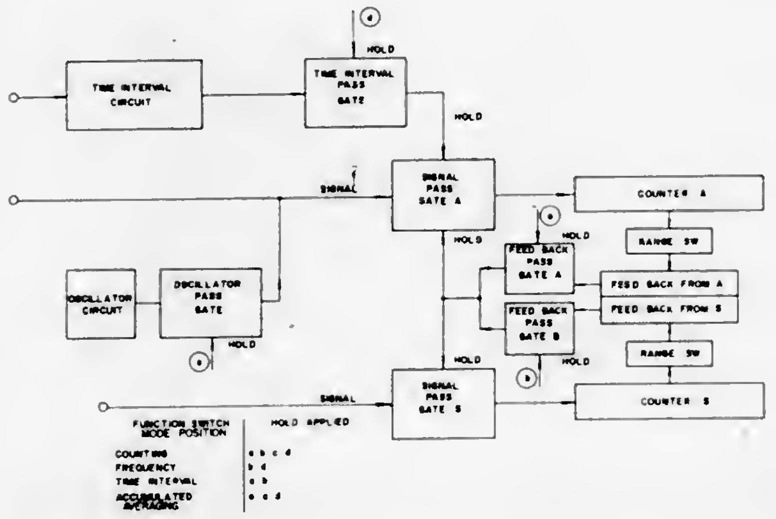
An IGFET frequency doubler is provided by connecting across a bias voltage source a two-gate output IGFET in series with one or more resistance-connected IGFET's. The two gates of the output IGFET are connected, respectively, to the source and drain electrodes of an input IGFET connected in series with, and between, a pair of resistance-connected IGFET's across the bias voltage source. By applying an alternating-current input signal to the gate electrode of the input IGFET, the "on" resistance of the input IGFET is varied. By proper choice of the operating points of the IGFET devices, any departure of the input IGFET "on" resistance in either direction from a predetermined center value results in a decrease of the "on" resistance of the output IGFET. Consequently, an output signal having double the frequency of the input signal appears at the junction between the output IGFET and the bias IGFET in series with it.

3,569,733
REVERSIBLE COUNTER CIRCUIT UTILIZING TUNNEL DIODES
Richard C. Weischedel, Camillus, N.Y., and Robert A. Lux, Toms River, N.J., assignors to General Electric Company
Filed Dec. 28, 1967, Ser. No. 694,282
Int. Cl. H03k *23/16*
U.S. Cl. 307—222 **6 Claims**



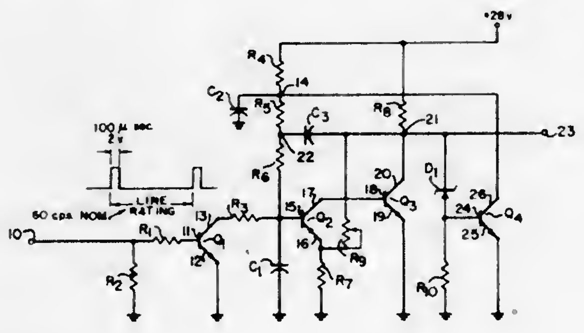
A reversible counter circuit (sometimes called an up-down counter) is disclosed, utilizing a plurality of tunnel diodes connected in series with an upcount pulse switch in a constant current path, in parallel with a count capacitor. A downcount pulse switch is connected, in a constant current path, across the count capacitor. The voltage charge on the count capacitor shifts up or down in incremental steps in response to the occurrence of the upcount pulses and the downcount pulses, and the proper number of tunnel diodes automatically turn "on," upon the occurrence of each count pulse, so as to fix the voltage on the count capacitor at accurately determined values representative of the counts. The count voltage thus always varies in accurately fixed incremental steps and is immune to any cumulative errors in count values.

3,569,734
PULSE AND FREQUENCY COUNTER
Gary L. Samuelson, and David C. Aillon, Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah
Filed Mar. 27, 1969, Ser. No. 811,021
Int. Cl. H03k *21/16*
U.S. Cl. 307—225 **5 Claims**



A compact, multipurpose counter is constructed by interconnecting two, solid state, decimal counters with a solid state switching circuit constructed of inverting NOR gates.

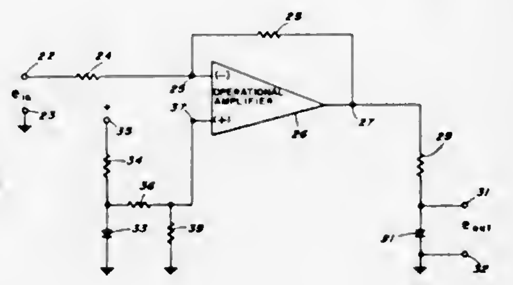
3,569,735
CONSTANT AMPLITUDE SAWTOOTH GENERATOR
Wendell E. Lavender, Ridgefield, Conn., assignor to the United States of America as represented by the Secretary of the Army
Filed Sept. 24, 1968, Ser. No. 762,046
Int. Cl. H03k *4/50*
U.S. Cl. 307—228 **4 Claims**



This invention relates to a constant amplitude sawtooth generator. The circuit of the generator comprises a charging capacitor that is discharged through a transistor when an input pulse is applied to the base of the transistor. The sawtooth is linearized by the use of a bootstrap circuit comprising two transistors. A fourth transistor in conjunction with a zener diode is used to sample and control the peak output of the generator. If the output of the generator exceeds the breakdown voltage of the zener diode, the fourth transistor will conduct and lower the charging voltage of the charging capacitor.

3,569,736
TEMPERATURE COMPENSATED LOGARITHMIC CONVERTER UTILIZING THE EXPONENTIAL TRANSFER FUNCTION OF A SEMICONDUCTOR DIODE JUNCTION
John Tschinkel, Great Neck, N.Y., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 29, 1968, Ser. No. 780,136
Int. Cl. G06g *7/12*
U.S. Cl. 307—230 **2 Claims**

A logarithmic converter circuit for providing an output voltage proportional to the logarithm of an applied input voltage, having novel temperature compensation means for stabilizing the effects of ambient temperature upon a semiconductor diode utilized as the nonlinear converting element. The converter is comprised of a PN-junction semiconductor diode arranged to utilize its exponential forward impedance characteristic for providing the desired logarithmic transfer function in a manner well known in the art, and a



novel temperature compensating arrangement including a second, matched semiconductor diode and an operational amplifier having unity gain and at least one noninverting input terminal coupled in circuit with the diode converting element to control its biasing voltage in such manner that the undesired effect of ambient temperature upon its forward impedance characteristic is practically eliminated

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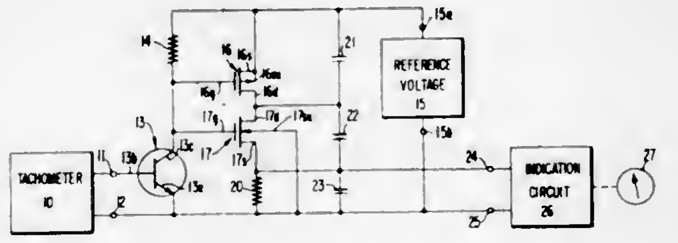
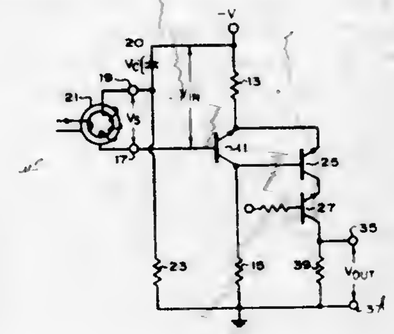
3,569,737
FREQUENCY TO D-C CONVERTER
Douglas M. Bauer, Danvers, and Gerfried M. Gozemba, Marblehead, Mass., assignors to General Electric Company
Filed July 17, 1968, Ser. No. 745,421
Int. Cl. H03k *5/20*
U.S. Cl. 307—233 **5 Claims**



A frequency to D-C converter. A frequency input signal alternately switches complementary field effect transistor gate electrodes between two reference voltages. Alternate conduction of the field effect transistors causes two series-connected capacitors, each in parallel with one field effect transistor, to be alternately charged and discharged. Charging currents are converted to D-C voltages proportional to frequency in a resistive filter network and are coupled to an indication circuit.

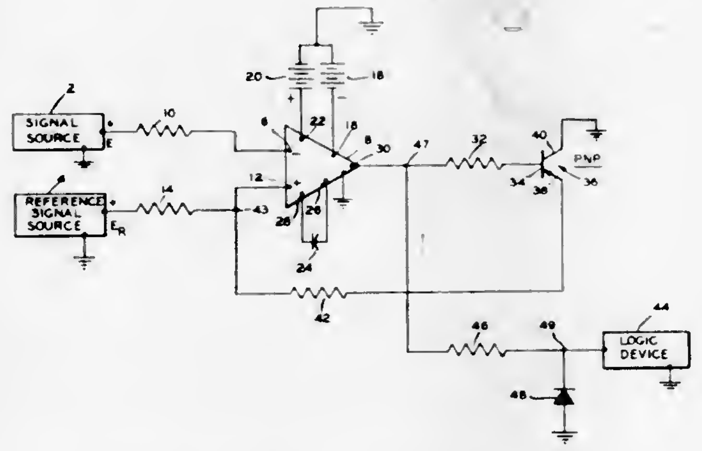
3,569,738
THRESHOLD SENSE AMPLIFIER FOR SMALL SIGNAL INPUT
Thomas E. Osborne, San Francisco, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 8, 1968, Ser. No. 765,875
Int. Cl. H03k *5/20*
U.S. Cl. 307—235 **5 Claims**

A transistor is responsive to small bipolar pulses superimposed on a relatively large common mode signal. An input network for the transistor rejects the common mode signal, and a biasing circuit biases the transistor in saturation at an operating point near its saturation breakpoint. The transistor amplifies and threshold detects the small input pulses and provides output pulses having a high signal-to-noise ratio. The output pulses are direct-coupled from a DC voltage source, so that DC restoration is not required. Another



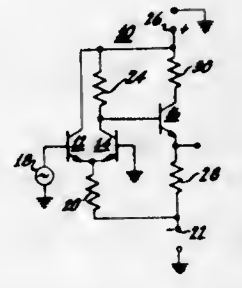
transistor provides feedback control of the input bias voltage and thereby stretches the output pulses.

3,569,739
VARIABLE LEVEL DETECTOR NETWORK HAVING CONSTANT PERCENTAGE HYSTERESIS
Steven D. Stolman, North Bergen, N.J., assignor to The Bendix Corporation
Filed Dec. 18, 1967, Ser. No. 691,376
Int. Cl. H03k *5/20*
U.S. Cl. 307—235 **5 Claims**



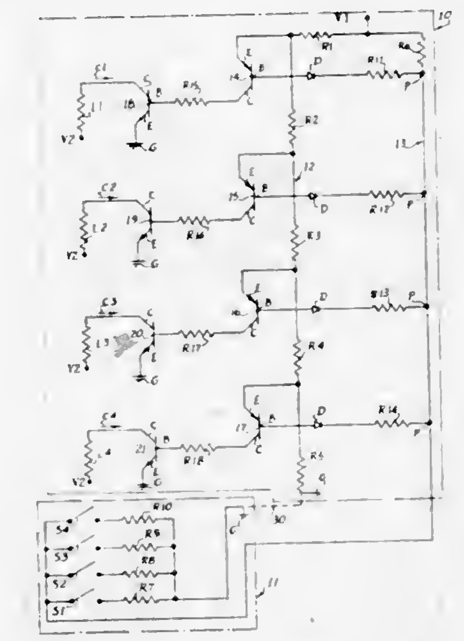
A level detector network including means for comparing an unknown signal to a variable reference signal and switching means connected to the comparing means for affecting said means so that the output therefrom is at one logic level when the unknown signal is greater than the reference signal and at another logic level when the unknown signal is less than the reference signal. The device has a constant percentage voltage hysteresis, and which hysteresis is independent of the reference signal.

3,569,740
SIGNAL TRANSLATING SYSTEM PROVIDING AMPLIFICATION AND LIMITING
Jack Avins, Princeton, N.J., assignor to RCA Corporation
Filed Dec. 27, 1966, Ser. No. 604,977
Int. Cl. H03k *5/08*
U.S. Cl. 307—237 **11 Claims**



A limiter-amplifier circuit including first and second emitter coupled transistors and an emitter follower (third) transistor having its input direct coupled to the output (collector) of the second transistor. The first transistor is operated as a base input, common collector stage while the second transistor is operated as an emitter input, common base stage. A resistor connected in common to the emitters of the first and second transistors is substantially one-half the value of a resistor connected to the collector of the second transistor. Output load resistance is coupled to the emitter of the emitter follower transistor and an additional resistor is coupled to the collector of the emitter follower to provide substantially symmetrical limiting of input signals supplied to the base of the first transistor.

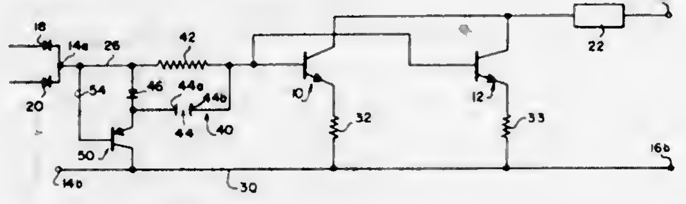
3,569,741
CONTROL MEANS FOR RECORDING DEVICE
Fred C. Bolick, Jr., and James B. Godwin, Atlanta, Ga., assignors to Lanier Electronic Laboratory Incorporated, Atlanta, Ga.
Filed Mar. 9, 1968, Ser. No. 727,877
Int. Cl. H03k *17/30*
U.S. Cl. 307—244 **11 Claims**



A control means for controlling the operation of a recording device having a plurality of modes of operation in response to a plurality of control currents. The control means provides for control of the recording device from one or more operating stations and the control means includes a plurality of current means for providing a plurality of control currents in response to a plurality of potential differences between a plurality of first voltages provided by a circuit means and a variable second voltage provided by a selecting means. The variable second voltage is selectively varied at the recording device from an operating station with substantially no flow of current between the recording device and the operating station and with a minimum number of wires required between the recording device and the operating station. Thus, the control means is reliable because it is independent of fluctuations of current between a recording device and an operating station and is relatively inexpensive because of the small number of wires required between a recording device and an operating station.

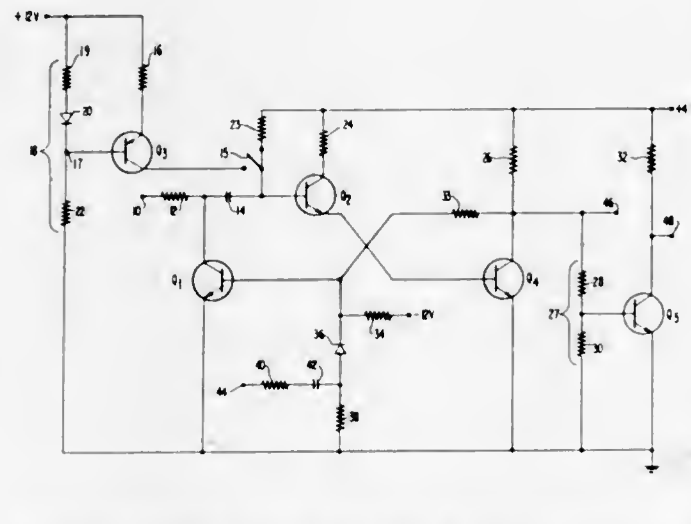
3,569,742
TRANSISTOR SWITCHING CIRCUIT
George F. Schroeder, West Wayne, N.J., assignor to General Precision Systems Incorporated, Little Falls, N.J.
Filed Aug. 23, 1968, Ser. No. 754,841
Int. Cl. H03k *17/60*
U.S. Cl. 307—254 **6 Claims**

A transistor switching circuit having a capacitor connected between a switching transistor and an input. A second transistor is provided to connect the capacitor to discharge in the reverse direction through the emitter base junction of the switching transistor to decrease its turning off time.



3,569,743
LINEAR MONOSTABLE MULTIVIBRATOR

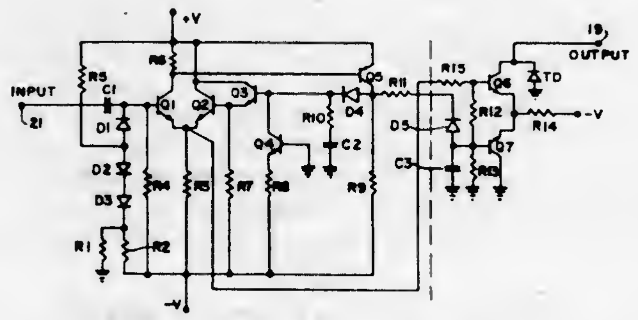
Lee R. Baessler, Torrance, Calif., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Filed July 1, 1968, Ser. No. 741,708
Int. Cl. H03k *3/26*
U.S. Cl. 307—273 **4 Claims**



A three transistor linear monostable multivibrator in which the time duration of the unstable condition thereof is linearely responsive to an applied control potential from which value a capacitor is charged from a constant current source to the potential at which the multivibrator switches to its stable condition.

3,569,744
RESETTABLE MONOSTABLE PULSE GENERATOR

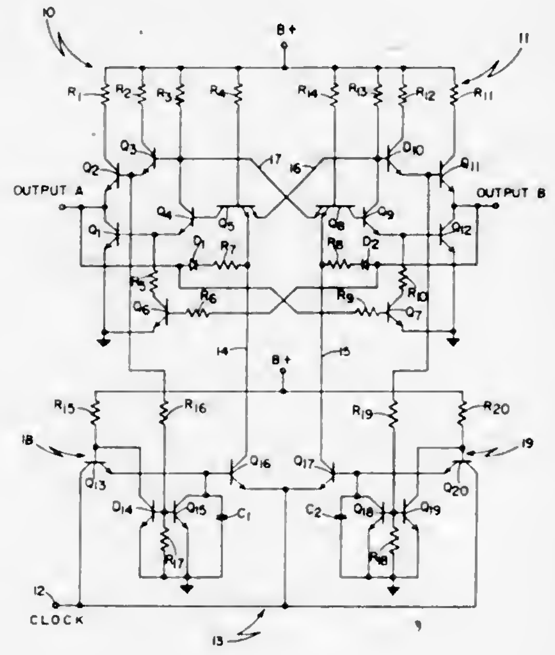
Norman M. Garrahan, Silver Spring, Md., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 30, 1968, Ser. No. 756,511
Int. Cl. H03k *3/284*
U.S. Cl. 307—273 **12 Claims**



This disclosure describes a resettable monostable pulse generator including a charge rundown-timing circuit. The charge rundown-timing circuit includes a capacitor that is charged to a peak value by a random pulse from a constant amplitude pulse source. After being charged, the capacitor immediately starts to discharge toward zero. In addition, an output pulse generator starts to generate an output pulse as soon as the capacitor is charged to its peak value and continues to generate the output pulse until the charge drops to a predetermined level. If a second pulse from the constant amplitude pulse source occurs during this rundown period, the capacitor is again charged to its peak value. This "reset" pulse prevents termination of the output pulse and recycles the termination time of the output pulse (pulse width) to be measured from the inception of the last reset pulse. Each time a "reset" pulse occurs during a rundown period, the capacitor is recharged to its peak value; hence, the output pulse can exist for a short or long period of time depending on the occurrence of random reset pulses.

3,569,745
TRANSISTOR LOGIC CIRCUIT

John J. Kardash, Acton, Mass., assignor to Sylvania Electric Products Incorporated
Filed Nov. 6, 1968, Ser. No. 773,916
Int. Cl. H03k *3/286*
U.S. Cl. 307—291 **12 Claims**



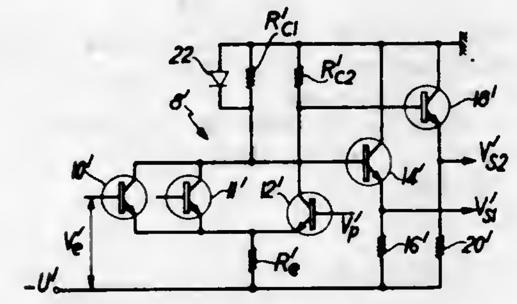
Bistable transistor-transistor logic circuit in which the turn-on and turnoff times of a saturated output transistor are decreased by the operation of a bypass circuit which diverts a portion of the output transistor driving current away from the transistor after it has been driven into saturation. The bistable logic circuit is triggered from one state to the other by a clock pulse applied to a control circuit having an input transistor connected directly to the clock pulse terminal and to a capacitance. During the clock pulse the input transistor conducts and charges the capacitance. Upon termination of the clock pulse the stored charge is employed to initiate switching.

3,569,746
HIGH SPEED NONSATURATING LOGIC CIRCUIT

Jacques Lacour, Grenoble, and Pierre Rousseau, Sayssinet-les-Iles, France, assignors to Commissariat A L'Energie Atomique, Paris, France
Continuation-in-part of application Ser. No. 630,722, Apr. 13, 1967, now abandoned. This application Feb. 6, 1970, Ser. No. 007,411
Int. Cl. H03k *19/08*
U.S. Cl. 307—296 **3 Claims**

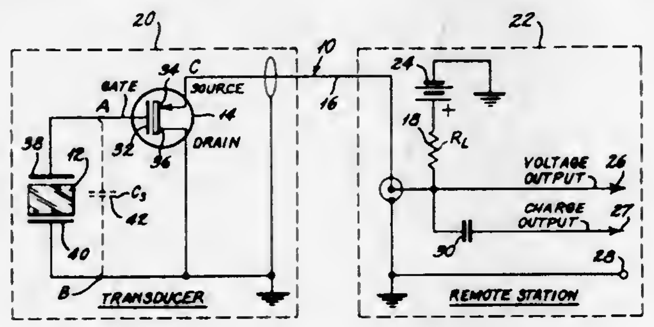
A clamping diode is provided in parallel with the load resistance located in the common collector circuit of the input transistors of a conventional emitter coupled nonsaturating logic circuit for OR/NOR operation.

In a modified embodiment using several input blocks a clamping diode is also provided in parallel with the load resistance located in the collector circuit of the bias transistors. The modified embodiment may be used as half adder.



3,569,747
PIEZOELECTRIC TRANSDUCER

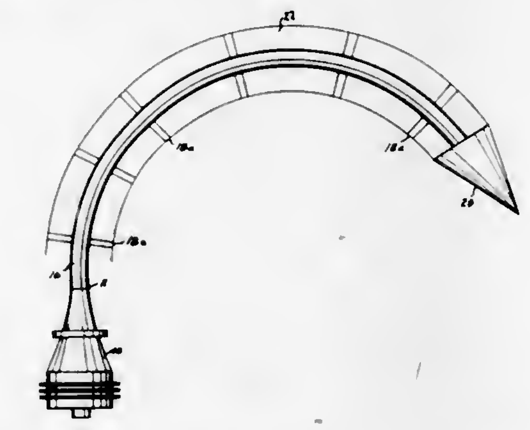
Vernon H. Siegel, Clarence, N.Y., assignor to Kistler Instrument Corporation
Continuation of application Ser. No. 471,934, July 14, 1965, now abandoned. This application July 9, 1968, Ser. No. 746,700
Int. Cl. H01v *7/00*
U.S. Cl. 310—8.1 **8 Claims**



Disclosed is a transducer incorporating a piezoelectric device for converting physical forces into an electrical signal. A high input impedance, low output impedance voltage operated amplifying device, preferably in the form of a P-channel enhancement MOS transistor, is combined with the piezoelectric element and supplied over a conventional single coax or two-wire cable from a remote power supply. The MOS transistor may be connected to the coaxial cable through a junction transistor.

3,569,748
SONIC CURVED TRANSMISSION LINE UTILITY DEVICE

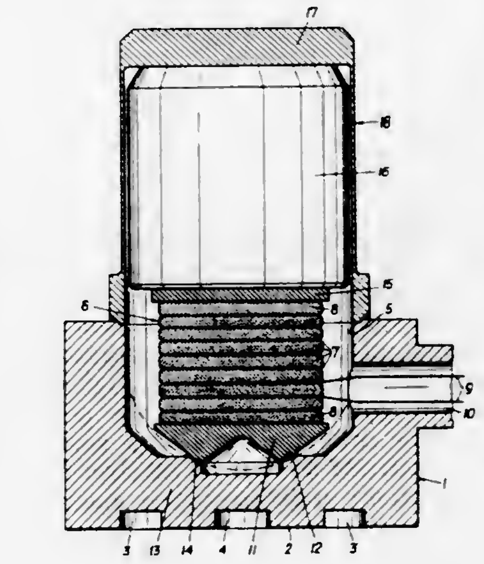
Hildegard M. Minchenko, Reynoldsburg; Robert C. McMaster, and Fred A. DeSaw, Columbus, Ohio, assignors to The Ohio State University, Columbus, Ohio
Filed June 13, 1969, Ser. No. 833,100
Int. Cl. H01v *7/00*
U.S. Cl. 310—8.2 **6 Claims**



This invention relates generally to electromechanical transducers having a high-Q and an improved structural arrangement capable of delivering from a source—and for given lengths—extremely high power outputs with only a minimum power loss. Specifically, the transmission of ultrasonic energy is through extended curved transmission lines. At the end of the transmission line opposite to that of the power source is coupled a work function utilization device. Theoretical data is correlated with actual data for different conditions in the transmission of ultrasonic energy through extended curved transmission lines.

3,569,749
PIEZOELECTRIC ACCELEROMETER WITH AN INTERNAL SPHERICAL BEARING

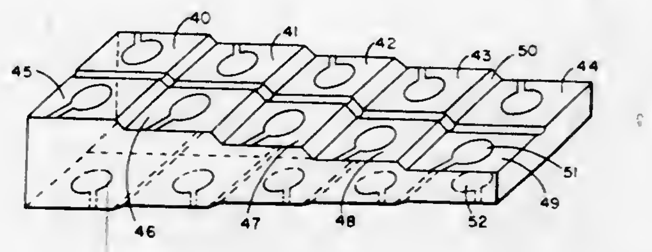
Rudolf Zeiringer, Graz, Austria, assignor to Hans List, Graz, Austria
Filed Nov. 3, 1969, Ser. No. 873,319
Claims priority, application Austria, Nov. 6, 1968, A10806/68
Int. Cl. H04r *17/00*
U.S. Cl. 310—8.4 **6 Claims**



A piezoelectric accelerometer having a measuring element consisting of superimposed discs of piezoelectric material and a convex pressure-transmitting spacer located between a seismic mass and a concave seat on a housing, a prestressing element abuts the seismic mass at one end, and is secured to the housing at its other end.

3,569,750
MONOLITHIC MULTIFREQUENCY RESONATOR

William D. Beaver, Costa Mesa, Calif., assignor to Collins Radio Company, Dallas, Tex.
Filed Nov. 29, 1968, Ser. No. 779,909
Int. Cl. H01v *7/00*
U.S. Cl. 310—9.5 **4 Claims**



A multifrequency resonating device comprising a single, piezoelectric quartz crystal plate having a plurality of different thickness plateaus formed thereon and separated, one from the other, by sections of beveled surface areas which create acoustic impedance mismatches between the plateaus. Each plateau has coated upon both sides thereof conductive electrodes and suitable terminal leads extending therefrom. Each plateau is resonant at a different frequency without the necessity of separate crystal blank holders or separate temperature compensation circuits.

3,569,751

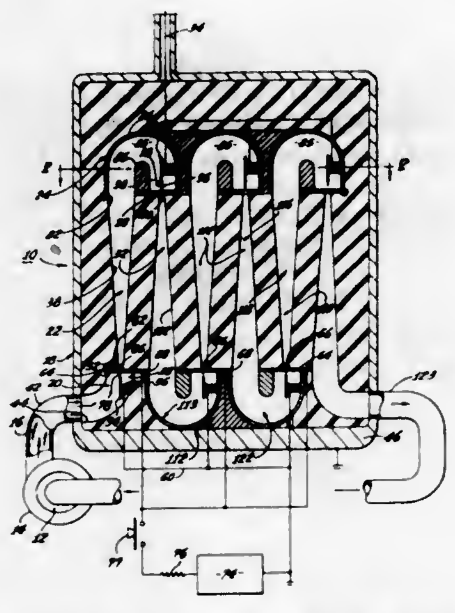
HIGH VOLTAGE GENERATOR

Lothar H. Ruhnke, Honolulu, Hawaii, assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Dec. 5, 1967, Ser. No. 688,112

Int. Cl. H02n *3/00*

U.S. Cl. 310—10 **13 Claims**



An ionized, dielectric fluid flows into a series of ion transport passageways which extend adjacent to each other and which taper outwardly in the direction of fluid flow. The passageways are fabricated from material which is slightly electrically conductive to preclude charge build up on the passageway walls. Ions arriving at the high voltage electrode are collected by collector without the use of an external power supply. The collector has a large surface area relative to an emitter electrode so that an electric field is developed between the collector and the emitter electrode for producing ions of the opposite sign in the fluid. The oppositely ionized fluid flows into the next passageway where the ion collection process is repeated. A high potential which builds up on the emitter electrode renders the device useful as a high voltage generator.

3,569,752

LIQUID-COOLED DYNAMOELECTRIC MACHINE ROTOR

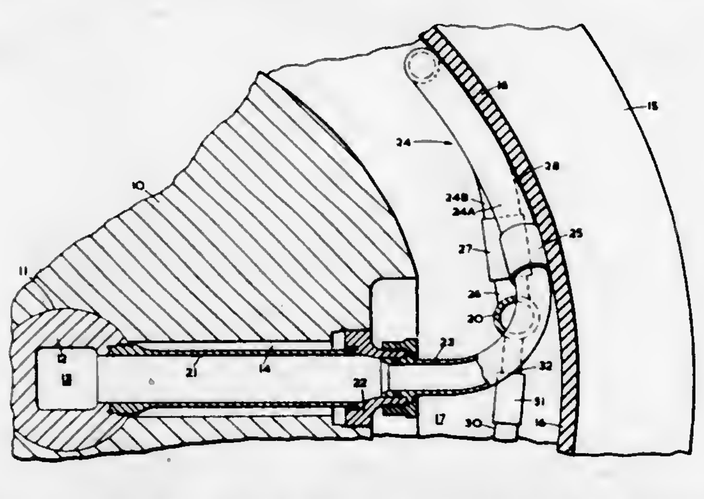
John Morgan Tomlinson, Stafford, England, assignor to The English Electric Company Limited, London, England

Filed Aug. 21, 1969, Ser. No. 851,927

Claims priority, application Great Britain, Aug. 21, 1968, 40017/68

Int. Cl. H02k *9/19*

U.S. Cl. 310—54 **6 Claims**



The specification describes a dynamoelectric machine rotor in which cooling liquid is conveyed to and from the rotor windings by way of ducts in the rotor shaft ends and a plurality of cooling liquid manifolds, each such manifold is disposed in the annular space between the outer surface of the rotor shaft end and the inner faces of the rotor winding end turns and is supported against packing members supported by the rotor winding end turns. Flexible elbow pipes which convey the liquid between the shaft end and the rotor winding end turns accommodates for the relative movement between the shaft end and the end turns.

3,569,753

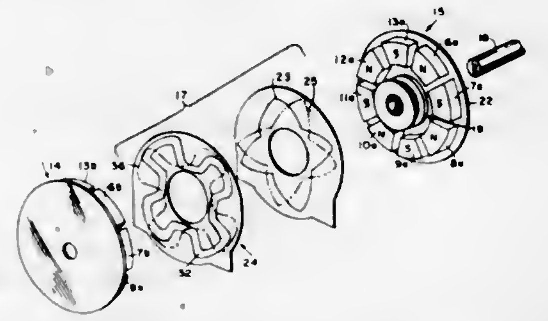
SELF-STARTING SINGLE PHASE MOTOR

Jirair A. Babikyan, Providence, R.I., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed July 2, 1968, Ser. No. 742,002

Int. Cl. H02k *11/00*

U.S. Cl. 310—68 **13 Claims**



A permanent magnetic motor is provided having main and angularly displaced auxiliary windings and means for detecting the direction of rotation of the motor's permanent pole rotor and for producing control signals to cause the motor to rotate in a desired direction. The structure for detecting the rotor rotational direction comprises two separate electrical windings which inductively couple with the magnet pieces of the rotor so that when the rotor rotates, voltages are induced in both of the windings, which voltages are compared to determine whether the rotor is moving in a clockwise or counterclockwise direction of rotation. If the desired direction of rotation is detected, then the input signal applied to the main winding is not altered. If the direction of rotation is opposite to the desired rotation, then a signal of opposite polarity is applied to the main windings. In the event no signal output is detected from the two electrical windings, indicating that the motor did not start, then a pulse of either polarity is applied to the auxiliary winding, such that it initiates rotation, and then direction is sensed and controlled, as above. Thus, the motor may be started and once started may be rotated in a selected direction of rotation.

3,569,754

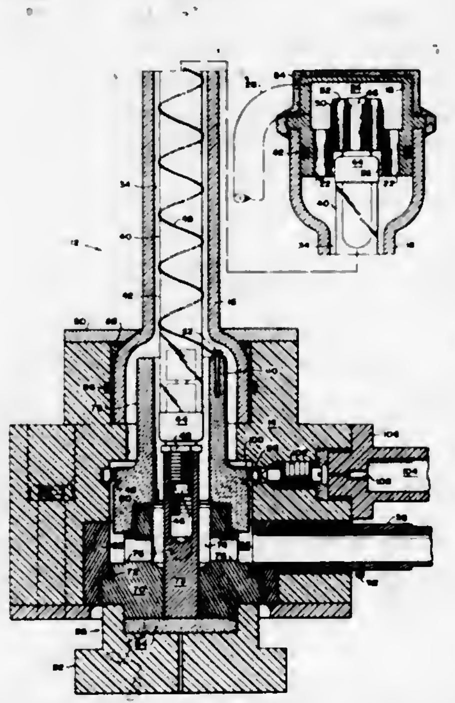
FLASH SOURCE

Richard G. Priebe; Harold L. Neuman, and Michael L. Rishton, Reading, Mass., assignors to Dyonics, Inc., Stoneham, Mass.

Filed June 19, 1968, Ser. No. 738,158

Int. Cl. H01j *1/02*

U.S. Cl. 313—12 **10 Claims**



A flash source comprises a mutually spaced lamp and lamp shield mounted between a lamp socket and an electrode head each having perforations for circulating cooling fluid communicating with the space between the lamp and shield. The socket has an insulator upon the surface of which an electrical connection to a helical spring trigger wire is fused and plated. The block supporting the socket also resiliently supports an external fluid conductor connected to the electrode head. The lamp is electrically connected by means of spring contact fingers engaging the electrode head inwardly of its perforations.

3,569,755

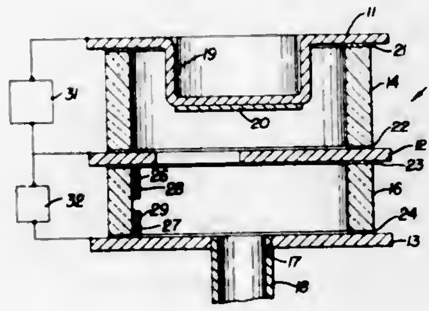
VACUUM TUBE AND METHOD OF MAKING IT

Lowell A. Noble, Hillsborough, Calif., assignor to Varian Associates

Filed Aug. 9, 1960, Ser. No. 48,504

Int. Cl. H01j *17/00*

U.S. Cl. 313—61 **14 Claims**



This invention relates to vacuum tubes, particularly to tubes having vacuum-tight envelopes in which energized ions form nuclear reactions with matter.

3,569,756

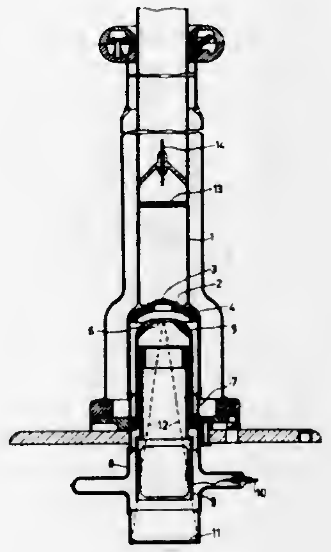
ION SOURCE HAVING A PLASMA AND GRIDLIKE ELECTRODE

Otto Reifenschweiler, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of application Ser. No. 480,416, Aug. 17, 1965, now abandoned. This application June 28, 1967, Ser. No. 649,543

Int. Cl. H05h *1/02, 1/18*

U.S. Cl. 313—63 **4 Claims**



An ion source employing a plasma and a gridlike electrode forming part of the wall of a space in which ions are produced, the ions being accelerated by an accelerating electrode having an aperture the diameter of which is at least equal to half the diameter of the gridlike electrode and the resistance thereof to gas flow is so low that the pressure on each side is equal and so low that the ion flow is saturated. The gridlike electrode has an aperture of at least 1 mm. in diameter through which electrons accelerated against the ion flow may be collected in the plasma space.

3,569,757

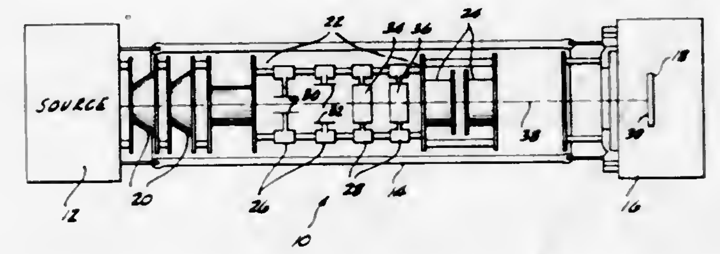
ACCELERATION SYSTEM FOR IMPLANTING IONS IN SPECIMEN

George R. Brewer, Malibu, and Charles R. Buckey, Canoga Park, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 4, 1968, Ser. No. 765,125

Int. Cl. H05h *5/00;* **H01i** *23/09*

U.S. Cl. 313—63 **1 Claim**



A two-dimensional double deflection system for ion implantation of semiconductor devices comprises deflecting an ion beam in orthogonal directions such that the ion incidence angle is always constant with respect to a target. The beam is first deflected in a direction away from a reference axis and thereafter is redeflected along a path which lies parallel to the reference axis. The second double deflection is similarly performed but orthogonal to the first double deflection. The beam can thus be swept over the entire target for uniform device implantation characteristics.

3,569,758

SEMICONDUCTOR PHOTO-ELECTRIC CONVERTING DEVICES HAVING DEPRESSIONS IN THE SEMICONDUCTOR SUBSTRATE AND IMAGE PICKUP TUBES USING SAME

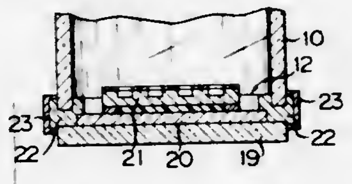
Shigeharu Horiuchi, Yokohama-shi, and Shigeo Tsuji, Fujisawa-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd, Kawasaki-shi, Japan

Filed Apr. 15, 1969, Ser. No. 816,210

Claims priority, application Japan, Apr. 18, 1968, 43/25,519

Int. Cl. H01j *31/28;* **H01l** *15/00*

U.S. Cl. 313—66 **12 Claims**



A semiconductor target for use in a pickup tube includes a semiconductor substrate, on one side of which is formed arrays of a plurality of depressions and which has a corresponding number of PN junctions formed along the depressions.

3,569,759

SHADOW MASK FRAME OF SINTERED MATERIAL FOR COLOR TUBES

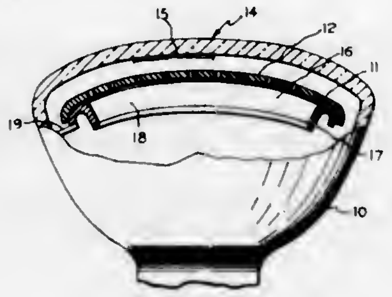
Jay H. Johnson, Owensboro, Ky., assignor to Kentucky Electronics Inc., Owensboro, KY

Filed July 15, 1968, Ser. No. 744,987

Int. Cl. H01j *31/20, 29/02, 29/06*

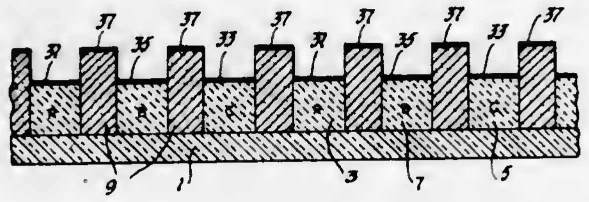
U.S. Cl. 313—85 **4 Claims**

A frame that rims and mounts a shadow mask in a color television picture tube is fashioned by casting in integral form, and is preferably sintered from a powder metal base to provide a porous metallic material easily degassed and light in weight. The rim member has a cross section of varying thickness and shape disposed in a general L-shaped pattern and may have strengthening gussets disposed at predetermined positions about the periphery. Optionally integral mounting members such as brackets may be formed at selected positions about the periphery, or they may be affixed by conventional methods to a simple rim member comprising a closed loop of framing material around the periphery of the mask.



3,569,760
COLOR TUBE WITH PHOSPHOR STRIPS SEPARATED BY GUARD BANDS

George F. Fargher, 1697 Webeek Way, Bloomfield Hills, Mich. 48103
Filed Oct. 26, 1967, Ser. No. 678,369
Int. Cl. H01j *29/32*, *29/30*; **H04n** *9/26*
U.S. Cl. 313—92 **7 Claims**



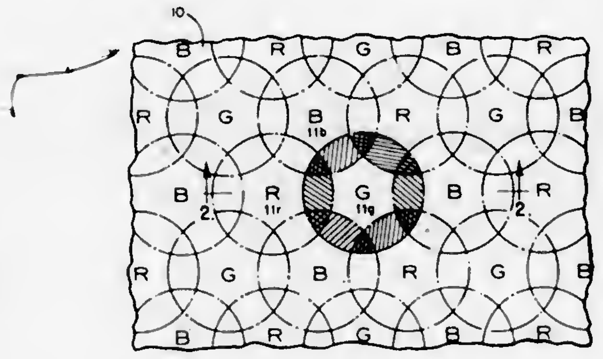
The subject matter of this invention is a single gun color TV tube having a means for generating a beam of electrons such as an electron gun, and a means for sequentially receiving red, green, and blue color information in a predetermined order for modulating the electron beam, such as a control electrode. The target area of the tube includes a plurality of spaced red, green, and blue phosphor strips generally vertically disposed and arranged in a predetermined order. On the electron receiving face of each phosphor strip there is deposited a conductive coating. In operation the coatings on the strips corresponding to the color information modulating the beam have applied thereon a positive potential while a lower or negative potential is being applied to the coatings on the other phosphor strips for focusing the electron beam. A guard band preferably having a height greater than that of the phosphor strips is disposed between adjacent phosphor strips, each of which has deposited thereon a conductive coating for receiving a fixed positive potential so as to attract stray electrons generally due to secondary emission.

3,569,761
COLOR PHOSPHOR ELECTROLUMINESCENT SCREEN WITH FILTERS FOR COLOR CATHODE-RAY DISPLAY TUBES

Howard G. Lange, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed June 4, 1969, Ser. No. 830,288
Int. Cl. H01j *29/26*
U.S. Cl. 313—92 **8 Claims**

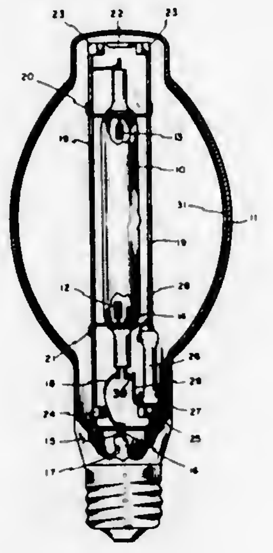
The screen of a three gun shadow mask type of color cathode-ray tube is formed of three interleaved sets of filters, with the filters of each set predominantly transmissive of an assigned one of the primary colors green, blue and red. The filters are circular and are of such diameter that their outer peripheral portions overlap, leaving a central section of each filter free to accept a phosphor that emits light of a wavelength for which the associated filter is predominantly transmissive. The screen, in effect, has a multiplicity of elemental picture areas grouped to form color triads and individually surrounded by a filter that attenuates substantially all visible light.

Screening is accomplished with photosensitive coatings that are selectively exposed by actinic energy projected through the shadow mask. Each such exposure develops an image of one set of filters which is then developed. This process is conducted for each of the three colors to form three sets of filters with overlapping peripheral portions. Thereafter or essentially at the same time, the phosphor materials are deposited with the emission of each phosphor material properly correlated colorimetrically with the filter over which it is superposed.



3,569,762
ELECTRON DISCHARGE LAMPS WITH RARE EARTH PHOSPHOR COATING

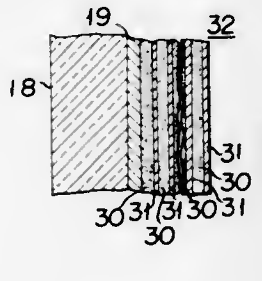
Albert K. Levine, Beechhurst, Queens, and Frank C. Palilla, Maspeth, N.Y., assignors to General Telephone and Electronics Laboratories, Inc.
Continuation-in-part of application Ser. No. 334,565, Dec. 30, 1963. This application July 1, 1964, Ser. No. 379,577
Int. Cl. H01j *1/62*, *63/04*
U.S. Cl. 313—109 **13 Claims**



A fluorescent electric discharge lamp comprising (a) an arc tube discharge source, (b) a transparent outer envelope surrounding said discharge source, and (c) a phosphor coating on the inside surface of said outer envelope, said phosphor being composed of a host crystal consisting essentially of a vanadate of a trivalent metal selected from the group consisting of yttrium, gadolinium and lutetium, said host crystal being activated by a trivalent rare-earth element selected from the group consisting of europium and samarium.

3,569,763
MULTILAYER PHOTOCONDUCTIVE DEVICE HAVING ADJACENT LAYERS OF DIFFERENT SPECTRAL RESPONSE

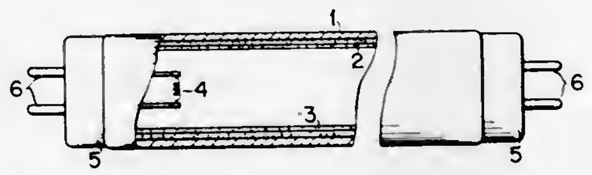
Yuji Kiuchi, Yokohama-shi, Shigeo Tsuji, Fujisawa-shi, and Hiroo Hori, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Feb. 7, 1967, Ser. No. 614,436
Claims priority, application Japan, Feb. 14, 1966, Feb. 25, 1966, 41/8334/66;41/11,043;41/11,044;41/11,045
Int. Cl. H01j *31/26*, *39/14*
U.S. Cl. 313—65 **7 Claims**



A photoconductive structure includes first layers of a photoconductive material having one spectral response region and second layers of a different photoconductive material having a different spectral response region laminated one on another either alternately or in a predetermined order at least two times, the thickness of each layer being such that light penetrates therethrough, i.e., less than 2 μ. Low-resistivity photoconductive materials can be used to provide multilayer structures having a high sensitivity to a predetermined range of wavelengths of light, for example, to the red-light region and a wide spectral region.

3,569,764
FLUORESCENT LAMPS OF IMPROVED COLOUR RENDITION

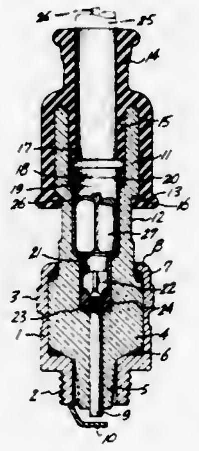
Teizo Hanada, Saitama-ken, and Tomohiko Kobuya, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co. Ltd., Kawasaki-shi, Japan
Filed Jan. 30, 1969, Ser. No. 795,150
Claims priority, application Japan, Feb. 3, 1968, 43/6454
Int. Cl. H01j *61/44*
U.S. Cl. 313—109 **4 Claims**



A fluorescent lamp is provided on the inner wall surface of a sealed envelope with a first fluorescent layer including at least one fluorescent material selected from a group consisting of manganese activated magnesium fluorogermanate and manganese activated magnesium arsenate. On the first fluorescent layer is deposited a second fluorescent layer comprising a mixture of at least one fluorescent material selected from a group consisting of magnesium tungstate, calcium tungstate and antimony activated calcium halophosphate and at least one fluorescent material selected from a group consisting of tin activated strontium-magnesium-barium orthophosphate, tin activated calcium-strontium orthophosphate and calcium halophosphate activated with antimony and manganese. The thicknesses of the first layer and the second layer are respectively 21 ± 5 microns and 9 ± 5 microns.

3,569,765
SPARK PLUG WITH CUP LIKE CENTER ELECTRODE

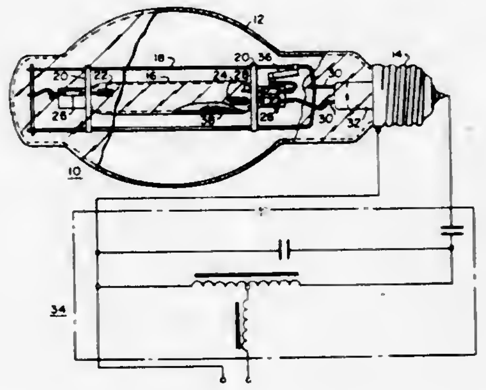
Forest J. Moray, 1513 Brooks St., Seattle, Wash. 98055
Filed Jan. 10, 1969, Ser. No. 790,298
Int. Cl. H01t *13/34*
U.S. Cl. 313—136 **9 Claims**



The central electrode of a spark plug has a receptacle cup buried in an open cavity of a ceramic body to receive a plug terminal of a connecting wire. The electrode and cup are made separately and are secured together by a welded joint between the cup and the edges of radial vanes on the inner end of the electrode or by the inner end of the electrode being butt-welded to the bottom of the cup or by the electrode inner end and a portion of the cup interfitting telescopically and being bonded together or by the inner end of the electrode and the cup being connected through interposed sealing material having good electricity-conducting properties.

3,569,766
METAL VAPOR DISCHARGE LAMP

Daniel A. Larson, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 3, 1969, Ser. No. 803,925
Int. Cl. H01j *61/18*
U.S. Cl. 313—229 **5 Claims**

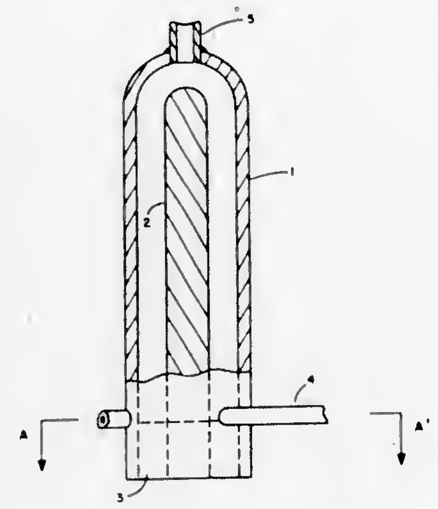


A high-pressure mercury vapor discharge lamp of the additive type which includes in the discharge sustaining fill selected quantities of thallium iodide, dysprosium bromide and mercury and which, while evidencing qualities of luminous efficiency and color rendition comparable to similar lamps, exhibits superior lamp maintenance.

3,569,767
FLOW IONIZATION CHAMBER

Royal H. Benson, 1522 19th Ave. North, Texas City, Tex.
Filed Dec. 7, 1967, Ser. No. 688,836
Int. Cl. H01j *17/26*
U.S. Cl. 313—231 **9 Claims**

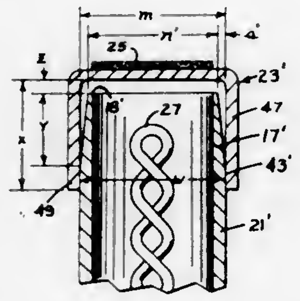
A flow ionization chamber having reduced dead volume and improved peak resolution comprising an outer electrode having a cylindrical section adjoined at one end to a converging end section and an inner electrode concentrically mounted within the outer electrode, means for introducing a gas tangentially to the inside wall of the outer electrode and a gas outlet means located on the converging end section.



3,569,768
CATHODE SLEEVE EFFECTING MAXIMUM HEAT TRANSFER TO TOP OF CATHODE CAP AND MINIMUM TO CAP WALL

David Benda, Geneva, N.Y., assignor to Sylvania Electric Products Inc.

Filed Nov. 21, 1968, Ser. No. 777,571
Int. Cl. H01j *1/94, 19/48*
U.S. Cl. 313—270 **5 Claims**



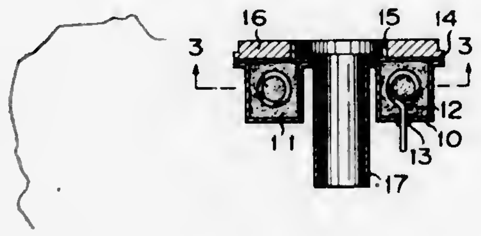
A cathode assembly for use in an electron discharge device wherein one end of the cathode sleeve is closed by a cap having electron emissive material exteriorly disposed thereon. The end portion of the sleeve underlying the sidewall of the cap is formed as a shield to provide a space between the sleeve and the cap except for limited seating and bonding contact therebetween at substantially the rim portion of the cap. Since the cathode assembly so formed provides limited heat conduction and radiation between the sleeve and the cap, the emissive cap area receives the major portion of its operational heat by direct radiation from the heater oriented within the cathode sleeve.

3,569,769
CATHODE WITH ELONGATED HEAT DISSIPATING AND SUPPORTING MEMBER

Yukio Takanashi, Hiratsuka-shi, Japan, assignor to Tokyo Shibaura Electric Co. Ltd., Kawasaki-shi, Japan

Filed Dec. 23, 1968, Ser. No. 786,112
Claims priority, application Japan, Dec. 27, 1967, 42/108,604
Int. Cl. H01j *1/14, 19/06*
U.S. Cl. 313—346 **14 Claims**

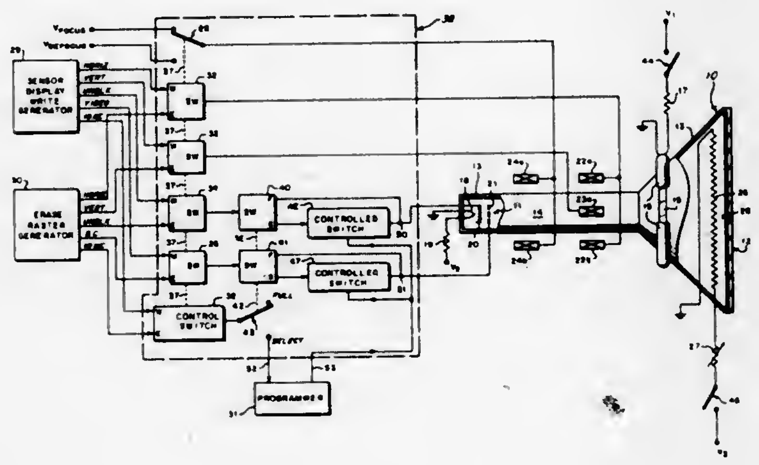
This dispenser cathode having a good heat efficiency consists of a round cylindrical envelope having an annular hollow chamber and accommodating a heating coil electrically insulated therefrom, an electron emitting layer mounted on the outer peripheral portion of the top wall of the envelope and a metallic cylindrical member fitted to the envelope in concentrical relationship therewith in such a manner that the outer circumferential wall of said cylindrical member is spaced at a prescribed interval from the inner circumferential wall of the envelope.



3,569,770
SELECTIVE FAST ERASE DARK TRACE SCAN CONVERTER

Walter R. Gustafson, Furlong, and William H. McMillen, Perkasie, Pa., assignors to the United States of America as represented by the Secretary of the Navy

Filed May 28, 1968, Ser. No. 732,600
Int. Cl. H01j *29/41*
U.S. Cl. 315—12 **9 Claims**



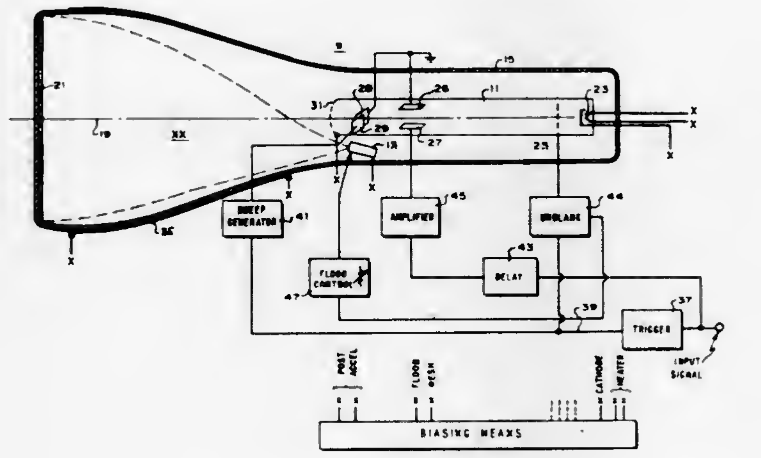
A dark trace tube and selective write/selective erase system therefor, the tube having a P-10 target for long storage of information written thereon. An electron gun provides a beam which is utilized to either write or erase an image on the P-10 target, depending upon the intensity of the beam. Erasure is effectuated by defocusing and increasing the beam energy to generate heat and may be caused to occur rapidly to erase either the entire raster or selected areas thereof. Additionally, a heater is provided about the inner periphery of the P-10 target for slow, controlled erasure capability. Means are also provided both to selectively write upon the P-10 target and to enhance the contrast of the written image.

3,569,771
CATHODE RAY DISPLAY TUBE

James R. Pettit; David E. Chaffee, and James R. Ashley, Colorado Springs, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 24, 1969, Ser. No. 801,529
Int. Cl. H01j *29/50*
U.S. Cl. 315—13 **5 Claims**

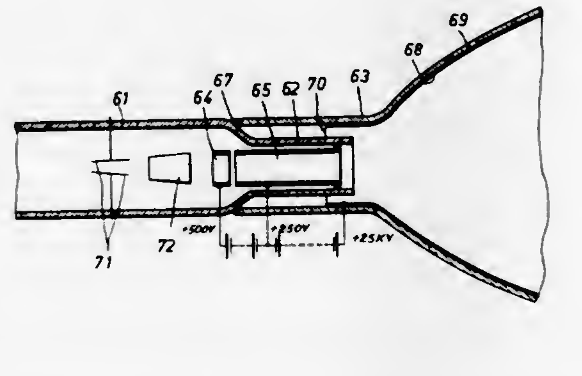
A cathode ray tube for a high frequency oscilloscope includes a flood gun disposed within the tube to excite the phosphor material in the display screen for improved electron beam writing rates and for postfogging photographic film used to record signal traces written on the display screen. Flood gun control circuitry activates the flood gun intermittently in timed relationship to the operation of the electron beam which produces the signal trace on the display screen.



3,569,772
CATHODE RAY TUBE HAVING AN ELECTROSTATIC ACCELERATING LENS

Klaus Schaffernicht, Traminerweg, and Adolf Eckert, Ulm(Danube), Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

Filed Jan. 24, 1967, Ser. No. 611,274
Claims priority, application Germany, Jan. 28, 1966, Mar. 3, 1966, T30344;T30571
Int. Cl. H01j *29/46, 29/56*
U.S. Cl. 315—16 **16 Claims**



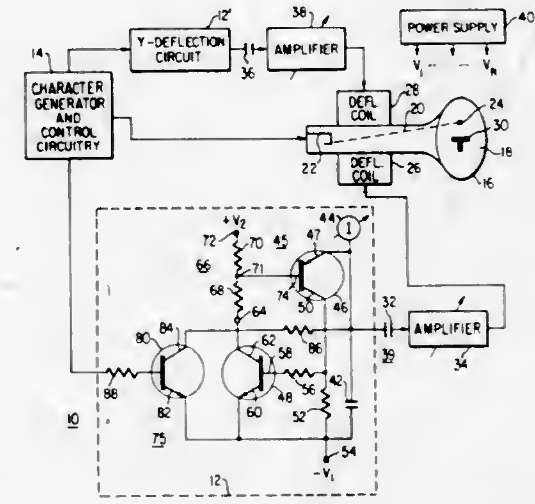
A tube envelope having a neck portion, a faceplate carrying a target electrode, and a large-diameter portion disposed between the neck portion and the target electrode and joined to the neck portion at an intermediate point along the length thereof so that a part of the neck portion extends into the space enclosed by the large-diameter portion, the tube being provided with an accelerating lens system composed of a first electrode disposed in the neck portion and a second electrode disposed in the large-diameter portion, with the first and second electrodes overlapping one another in the direction of the tube axis and the second electrode being disposed closer than the first electrode to the target electrode.

3,569,773
AUTOMATIC RETURN-TO-CENTER DEFLECTION CIRCUIT

Gus Filson Carroll, Saugus, Calif., assignor to RCA Corporation

Filed June 30, 1969, Ser. No. 837,541
Int. Cl. H01j *29/70*
U.S. Cl. 315—19 **7 Claims**

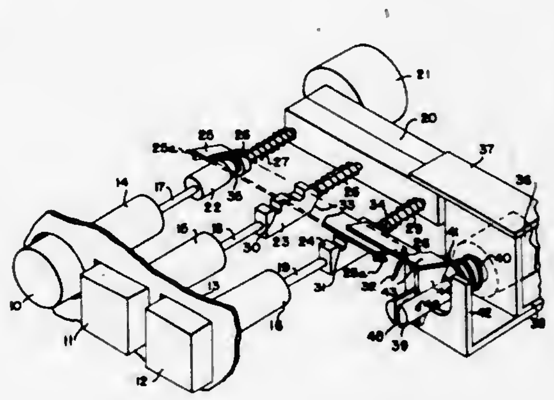
An automatic return-to-center deflection circuit develops a deflection signal that linearly increases from a minimum value to a maximum value and deflects a scanning beam in a display device from a first extreme position to a second extreme position. When the deflection signal reaches its predetermined maximum value, the scanning beam is automatically retraced to the center or midpoint position between the first and second extreme positions. The scanning beam is then retraced in a second step to the first extreme position when a new scanning cycle is initiated.



3,569,774
VEHICLE LIGHT CONTROL SYSTEM WITH MEMORY SWITCHING CIRCUIT

William Weigl, 11033 Greenhaven Parkway, Brecksville, Ohio 44141

Filed June 18, 1969, Ser. No. 834,349
Int. Cl. B60q *1/02*
U.S. Cl. 315—77 **10 Claims**



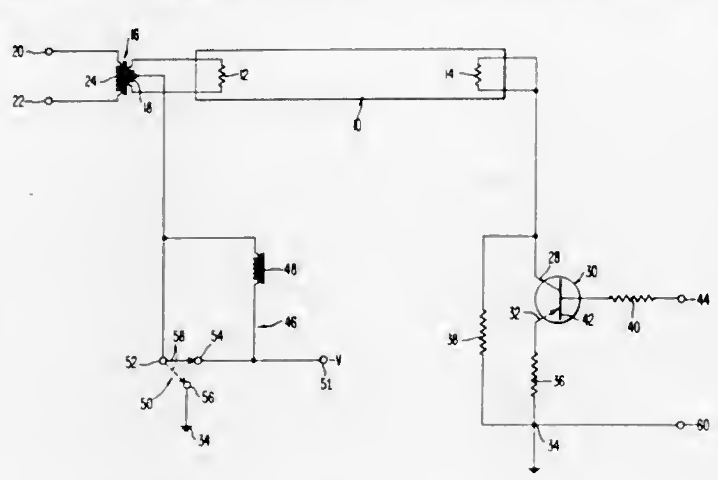
A pushbutton-operated light switch of a motor vehicle is automatically turned off in response to opening of an ignition switch and can, if desired, be operated to again energize the lights. A second pushbutton is capable of being manually operated to extinguish the lights, whether the ignition is on or off. A memory circuit is provided to enable automatic shutoff from the ignition switch only when both the ignition switch and the lights are on, and is independent of the order in which they were turned on.

3,569,775
APPARATUS FOR STARTING AND OPERATING ELECTRIC DISCHARGE DEVICES

Charles P. Halsted, Orland, and Daniel J. Soltz, Norristown, Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed Aug. 29, 1968, Ser. No. 756,163
Int. Cl. H05b *39/00*
U.S. Cl. 315—105 **2 Claims**

A transistor drives a fluorescent discharge lamp with unidirectional current. By suitably pulsing and controlling the current, various lighting effects are obtained. An impedance element conducts current so as to keep the fluorescent lamp in a fired condition whenever the transistor is not driving current. After firing the fluorescent lamp, a ballast coil in a starting circuit is short-circuited, resulting in minimum DC loss in the starting circuit during normal operation.



3,569,776
A STARTER CIRCUIT FOR A DISCHARGE LAMP HAVING PREHEATED ELECTRODES

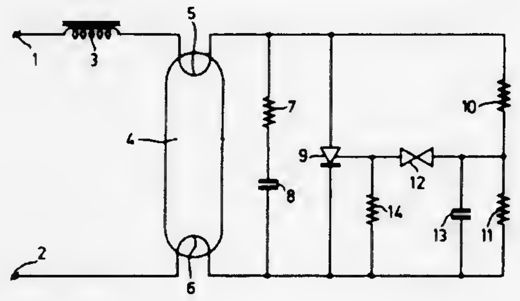
Jozef Cornelis Moerkens, and Hilbert Palmers, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 18, 1968, Ser. No. 760,451

Claims priority, application Netherlands, Sept. 30, 1967, 6713336

Int. Cl. H05b *41/23, 41/392*

U.S. Cl. 315—102 **5 Claims**



A starter circuit for a discharge lamp includes an inductor in series with the lamp across the AC input terminals and an SCR in shunt with the lamp and in series with the lamp electrodes. A resistor and capacitor are connected in series across the lamp. The impedance of the capacitor is 40 times to 150 times the lamp-operating impedance and is approximately 95 percent of the impedance of the series RC circuit. A control circuit ignites the SCR between 30° and 135° after the zero crossing of the AC supply voltage.

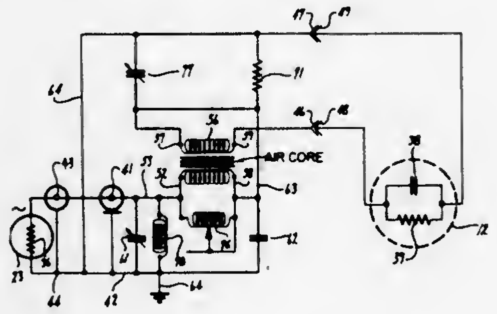
3,569,777
IMPEDANCE MATCHING NETWORK FOR PLASMA GENERATING APPARATUS

Harvey James Beaudry, Fremont, Calif., assignor to International Plasma Corporation

Filed July 28, 1969, Ser. No. 845,352

Int. Cl. H01j *7/24, 11/00*

U.S. Cl. 315—111 **6 Claims**



A passive impedance-matching network specifically designed to provide an interface between a fixed radio frequency power output of a generator and the capacitive electrodes of the gaseous plasma chamber of a plasma generating apparatus, the network having the particular characteristic of providing a close impedance match over a relatively wide changing impedance range of the plasma in accordance with a known program.

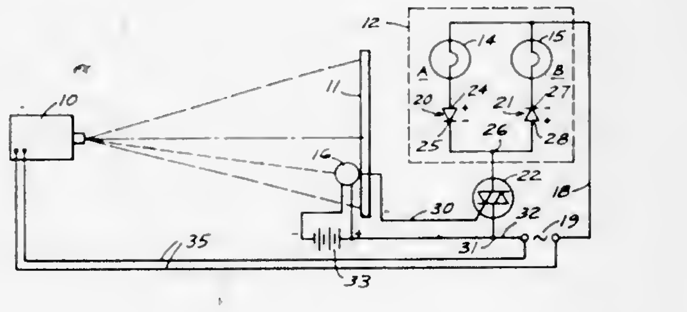
3,569,778
ELECTRICAL DISPLAY SYSTEMS

Robert J. Leverte, Elmont, N.Y., assignor to Douglas Leigh Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 556,145, June 8, 1966. This application May 22, 1969, Ser. No. 826,995

Int. Cl. H05b *37/00*

U.S. Cl. 315—153 **7 Claims**



The apparatus comprises an outdoor advertising sign composed of a multiplicity of electric lamps arranged in a given design and operated to provide a plurality of light effects by a multiplicity of alternating current bidirectional triode thyristors known as Triacs, whose operations are controlled by a motion picture film, a motion picture projector and a multiplicity of photocells connected to the Triacs and arranged to receive light rays from the projector.

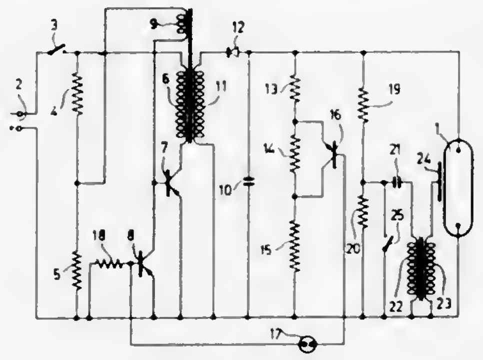
3,569,779
HIGH VOLTAGE POWER SUPPLY FOR A FLASH DISCHARGE LAMP

Meerten Luursema, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 23, 1968, Ser. No. 786,297

Int. Cl. H02m *3/28;* **H05b** *41/22, 41/32*

U.S. Cl. 315—183 **10 Claims**



A power supply for a flash discharge lamp includes a capacitor and a voltage divider in parallel. A gas discharge tube is in parallel with a first part of the voltage divider and a controlled switching element is in parallel with a second part thereof. The gas tube is connected to the switching element so that at a given voltage across the capacitor, the gas tube ignites and causes the switching element to change state. This in turn abruptly alters the voltage distribution across the voltage divider in a sense to reduce the voltage across the gas tube to a level close to its operating voltage. The charge current to the capacitor is then interrupted. A relatively small discharge of the capacitor causes the gas tube to turn off, thereby allowing the capacitor charge current to flow again. The capacitor voltage variation is thus held within a narrow range.

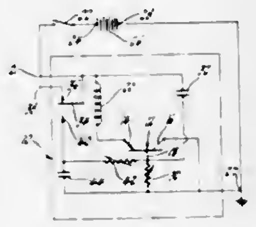
3,569,780
TRANSISTORIZED FLASHER CIRCUIT

Kenneth R. Skinner, Anderson, and Myrneth L. Woodward, Lapel, Ind., assignors to General Motors Corporation, Detroit, Mich.

Substitute for application Ser. No. 130,157, Aug. 8, 1961, now abandoned. This application Feb. 24, 1964, Ser. No. 346,905

Int. Cl. H05b *37/02*

U.S. Cl. 315—209 **16 Claims**



A transistorized flasher circuit having a set of normally closed relay contacts in series with a lamp load across a voltage source. The relay contacts are periodically opened and closed to flash the load by an oscillator which includes a relay coil which controls the relay contacts and includes the emitter and collector electrodes of a transistor connected in series. The base electrode of the transistor is connected between a capacitor and a resistor which are in series across the source. A discharge path is provided for the capacitor when the relay coil is energized. The transistor is turned on to energize the coil when the capacitor is charged and is turned off to deenergize the coil when the capacitor is discharged, whereby the source is periodically connected directly to the lamp load for flashing the lamps as the capacitor is periodically charged and discharged.

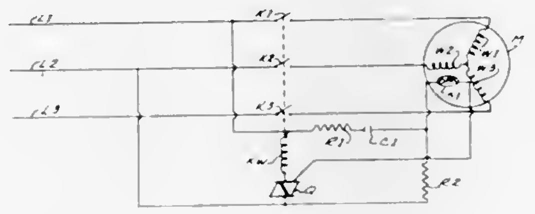
3,569,781
MOTOR PROTECTION CIRCUIT

Richard W. Strachan, Providence, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,644

Int. Cl. H02h *5/04*

U.S. Cl. 317—13 **16 Claims**



Apparatus controls the energization of an electrical load and is responsive to overheating of the load for protective deenergization thereof. The apparatus includes a gate triggerable semiconductor current switching device interconnected with means for energizing the electrical power load in response to conduction between the main terminals of the device. A thermistor thermally coupled to the load is interconnected with the gate terminal of the device for controlling the flow of triggering current thereto. Means is provided which is interconnected with the thermistor for initially supplying triggering current to initiate conduction between the main terminals of the device and then to supply a triggering current to latch the device in a conductive state. The thermistor reduces the triggering current to the device thereby to deenergize the load if heated above a predetermined threshold by overheating of the load.

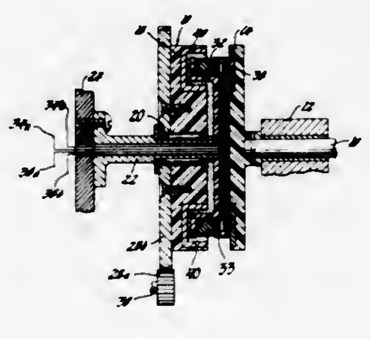
3,569,782
FREQUENCY OF COMBINING APPARATUS

Jalal T. Salihi, Birmingham, and George J. Spix, Clawson, Mich., assignors to General Motors Corporation, Detroit, Mich.

Original application June 30, 1967, Ser. No. 650491, now Patent No. 3,471,764, dated Oct. 7, 1969. Divided and this application May 6, 1969, Ser. No. 822,187

Int. Cl. H02k *17/42, 17/30*

U.S. Cl. 317—6 **4 Claims**



In a preferred form, a frequency-combining device is provided with two rotational members including complementary magnetic elements which are respectively rotated adjacent to an inductance coil by a main motor and an auxiliary motor to vary the coil inductance. The coil is connected in a tuned resonant circuit and the relative rotating magnetic elements periodically align to form low reluctance paths in the magnetic field of the coil to thereby modulate the impedance of the resonant circuit at a frequency proportional to the sum or difference of the speeds of the two motors and the number of magnetic elements. Pulse signals produced in the resonant circuit are suitable for controlling the frequency and timing of signals applied to an AC induction motor whereby the speed of the auxiliary motor controls predetermined slip frequencies in the induction motor.

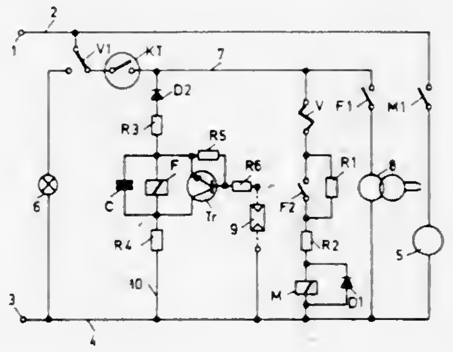
3,569,783
A.C. FED SWITCHING MEANS FOR THE FLAME MONITORS OF HEATING SYSTEMS

Holger Nicolaisen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed July 16, 1969, Ser. No. 842,184

Int. Cl. H02h *7/085;* **F23n** *5/24*

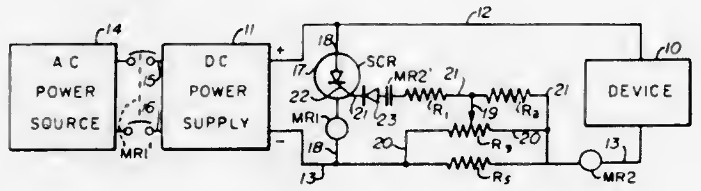
U.S. Cl. 317—13 **1 Claim**



The invention relates to A.C. fed switching means for the flame monitor of a heating system. A D.C. motor relay is connected in series with the heating coil of a safety switch and with a photoelectrically operated switch. The photoelectrically operated switch is bridged by a resistor and the motor relay is bridged by a rectifier.

3,569,784
SOLID STATE CROWBAR CIRCUIT

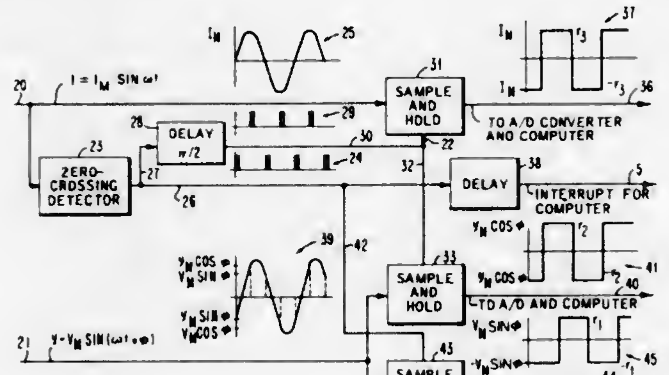
Douglas G. Carroll, and Jack E. Menick, San Jose, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 21, 1968, Ser. No. 777,759
Int. Cl. H02h *3/08*
U.S. Cl. 317—16 **5 Claims**



A fast-acting electronic switch, known as an electronic crowbar circuit, used to divert large quantities of electrical current from an electronic device in the event of a current fault or arc until a contractor can remove the power thereto, to prevent damage to the device as a result of excessive current. This is accomplished by the utilization of a silicon controlled rectifier and associated circuitry which will sense an arc or excessive current and switch practically all of the fault energy from the device to the crowbar in a time on the order of 1 microsecond, there being no auxiliary power source required for operation of the circuit.

3,569,785
POWER SYSTEM PROTECTIVE RELAYING BY TIME-COORDINATED SAMPLING AND CALCULATION

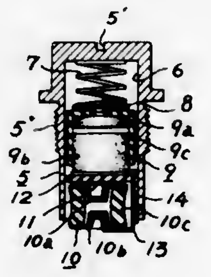
Robert C. Durbeck, Los Gatos, and Patrick E. Mantley, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 9, 1968, Ser. No. 743,420
Int. Cl. H02h *3/40*
U.S. Cl. 317—27 **7 Claims**



A method of controlling the operation of a breaker in a transmission line by first monitoring the current and if the current exceeds a prescribed limit, measuring a sampling of the voltage on the line when the current is at zero and dividing this value by the maximum current on the line to obtain a first quantity which is added to a second quantity obtained by measuring a sampling of the voltage when the current is at its maximum value and dividing this voltage by the maximum current. The previous calculations will provide a measure of impedance since the voltage when the current is zero is equal to V_m sin Φ while the voltage when the current is at maximum is equal to V_m cosine Φ and impedance in a rectangular coordinate representation is: $z=R+jX=V_m \text{ cosine } \Phi/I_m+j(V_m \sin \Phi/I_m)$. This apparent impedance is then compared against relay characteristics which are implemented in a programmed general purpose computer and in the event the apparent impedance lies within the relay characteristic zone, the associated breaker is tripped.

3,569,786
HIGH VOLTAGE ARRESTER

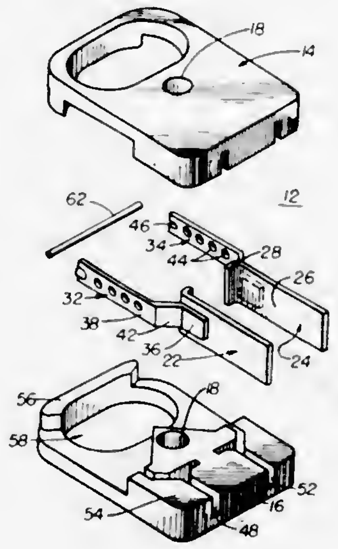
Takashi Kunugi, Tokyo, Japan, assignor to Kabushike Kaisha Sankosha, Tokyo, Japan, represented by Yolo Takeuchi
Filed Jan. 13, 1969, Ser. No. 790,776
Int. Cl. H01t *3/00*
U.S. Cl. 317—31 **1 Claim**



A safety device for safeguarding communications equipment and other electrical machines and instruments when an abnormal voltage is impressed on a system of lines lightening or other phenomena. The safety device comprises two arresters of different capacities for withstanding discharge contained in an arrester casing as a unit and connected in parallel between a line and ground whereby the safety device can cope with a wide range of abnormal voltages.

3,569,787
ELECTRICAL IGNITOR FOR FUEL IGNITION

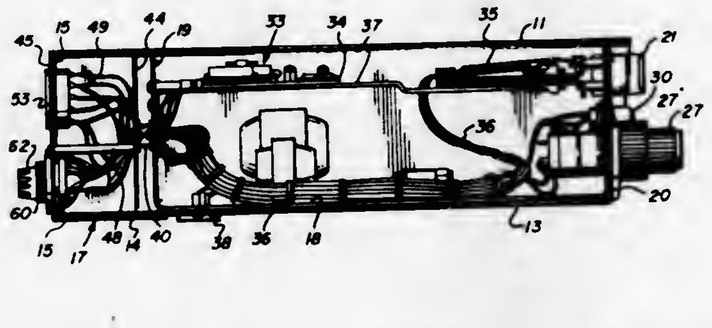
Reed A. Palmer, Glendale, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 3, 1969, Ser. No. 795,815
Int. Cl. F23g *7/24*
U.S. Cl. 317—98 **1 Claim**



An electrical ignitor for fuel appliances formed of a mounting block of insulating material having an opening therein. An ignitor element having fragile properties is exposed to the opening in the mounting block. A pair of buss terminals are rigidly secured at one end to the mounting block and the ignitor element is mounted between the other ends of the buss terminals. The ends of the buss terminals to which said ignitor element is mounted can expand and contract with temperature changes so as to prevent the ignitor element from breaking. The ignitor element may be formed of molybdenum disilicide which is soldered or otherwise attached to the buss terminals.

3,569,788
MULTIPLE FUNCTION CONTROL DEVICE FOR CONTROLLING EMERGENCY EQUIPMENT IN MOTOR DRIVEN VEHICLES

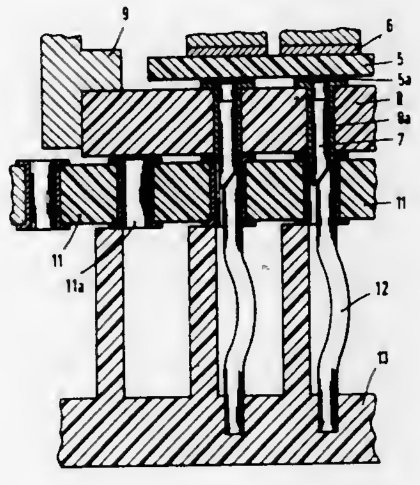
Dennis L. Niblack, 4860 E. 18th Ave., Denver, Colo.
Filed Mar. 28, 1969, Ser. No. 811,419
Int. Cl. H02b *1/04*
U.S. Cl. 317—101 **7 Claims**



A multiple-function control device for installation in emergency vehicles for controlling special lights, sirens, radio communications equipment, radio teletype equipment, horns bells and other alerting devices, comprising a compact control unit accessible to the operator of the vehicle and a separate adapter unit, both removably mounted in a portable housing. The adapter serves as a universal separable connector between the control unit and the various emergency equipment controlled thereby and permits alternations, substitutions and replacements of the emergency equipment by quick plug-in connection to the adapter. The control means may be altered to meet the requirements of the emergency equipment without disturbing the adapter unit.

3,569,789
PLUG-IN TYPE CONNECTOR HAVING SHORT SIGNAL PATH

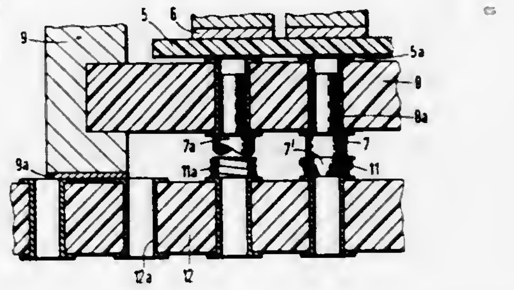
Franz Jenik, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed May 26, 1969, Ser. No. 827,695
Claims priority, application Germany, May 30, 1968, P 17 65 506.0
Int. Cl. H05k *1/12*
U.S. Cl. 317—101 **5 Claims**



A connector for releasably connecting lines of a first conductor plate carrying modules with lines of a multilayered wiring plate at prescribed raster points in which contact pins having beveled ends extend from the first conductor plate and are receivable into cooperable openings in the other conductor plate and wherein springs having mating beveled ends are positioned in the openings for being wedged with the pins and for exerting a force thereon in a direction perpendicular to the first conductor plate.

3,569,790
PLUG-IN TYPE CONNECTOR HAVING SHORT SIGNAL PATH

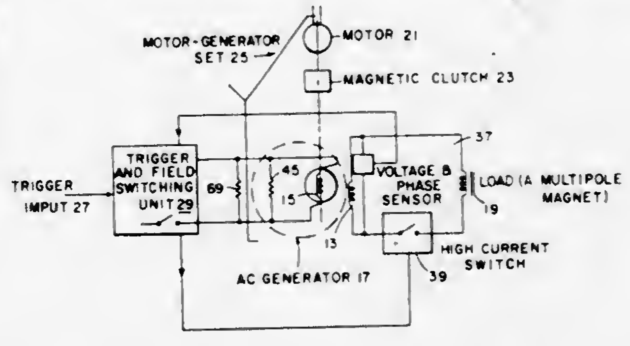
Franz Jenik, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed May 27, 1969, Ser. No. 828,322
Claims priority, application Germany, May 30, 1968, P 17 65 507
Int. Cl. H05k *1/12*
U.S. Cl. 317—101 **6 Claims**



A plug-in type connector for use in electronic systems with high component density and, in particular, systems involving impulse processing in the subnanosecond range, in which the conductive path across the connector structure is reduced to a minimum, employing contacting elements which comprise a contact pin and a hollow resilient cooperable contact element, such as a coiled spring, constructed to resiliently receive the free end of the pin, with the latter being formed to expand said cooperable element and conductively engage the same.

3,569,791
REMANENT-FREE PULSING MAGNETS

Uriel Vogel, Patchogue, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 22, 1969, Ser. No. 868,441
Int. Cl. H01f *7/18*
U.S. Cl. 317—123 **8 Claims**

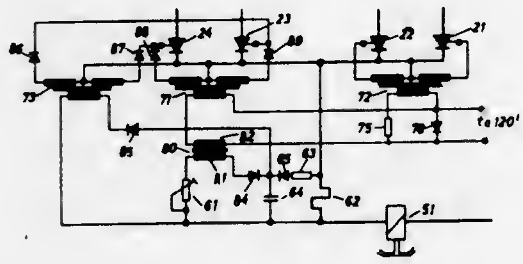


Alternating current generator system for pulsing and demagnetizing a multipole magnet for focusing charged particles in a high energy accelerator beam by switching off the field coil of an AC generator and switching the generator output into the magnet whereby the inertia of rotation of the generator supplies energy to the magnet with low leakage inductance in the generator.

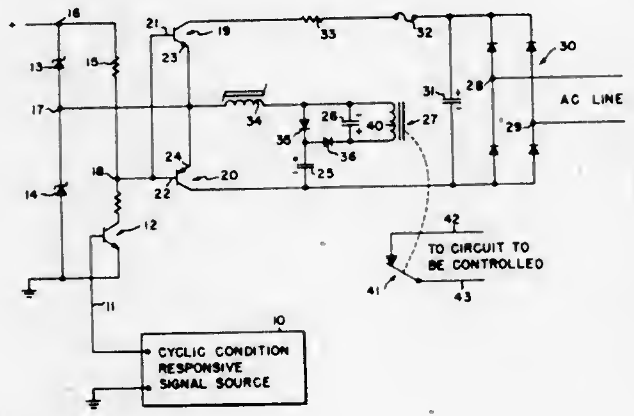
3,569,792
METHOD AND CIRCUIT FOR RAPID FIELD EXCITATION CONTROL OF ELECTROMAGNETIC DEVICES

Heinz Schaffersmann, 4805 Brake; Ernst Tuchen, 4930 Jerxen-Orbke, and Friedel Twellsiek, 4801 Milse, Germany, assignors to Binder Magnete KG, Villingen/Schwarzw., Germany
Continuation of application Ser. No. 647,171, June 19, 1967, now abandoned. This application Mar. 6, 1970, Ser. No. P 15 14 725.8
Int. Cl. H01h *47/32*
U.S. Cl. 317—123 **13 Claims**

The method for rapid field excitation control of an electromagnetic device, which includes converting an alternating multiphase voltage into several mutually superimposed unidirectional voltages of respectively different maximal amplitudes to obtain a resultant unidirectional fluctuating excitation voltage, temporarily impressing the fluctuating excitation voltage upon the electromagnetic device during at least one of the magnetic field buildup and decay periods of the device, applying the resultant fluctuating excitation voltage during the buildup period and maintaining the resultant voltage until the current through the device attains a value above that of the continuous energization, terminating the energization by disconnecting the normal operating voltage from the device, impressing upon the device a deenergizing equally poled voltage in response to a first change occurring in the load circuit of the device as a result of the disconnection, said deenergizing voltage being opposed to that of the device and being higher than the operating voltage, and removing the deenergizing voltage in response to a second change occurring in the circuit.



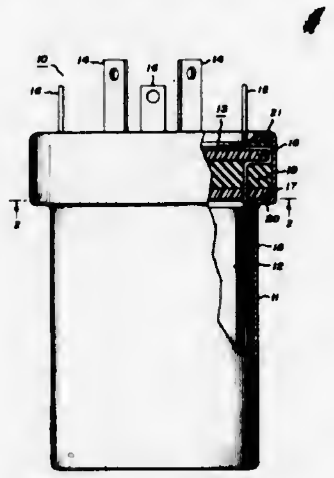
3,569,793
FAIL SAFE CIRCUIT WHICH DETECTS THE PRESENCE OR ABSENCE OF A CYCLIC SIGNAL OF REVERSIBLE POLARITY
Balthasar H. Pinckaers, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed June 18, 1969, Ser. No. 834,426
Int. Cl. H01h *47/00*
U.S. Cl. 317—123 **10 Claims**



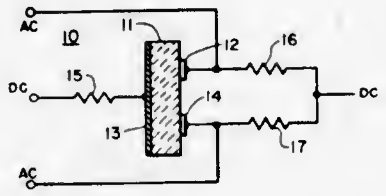
Two opposite conductivity type transistors are controlled by a cyclic signal of reversible polarity. The first transistor controls a first series circuit to charge a first capacitor by means of a current which flows in a first direction through a saturable reactor. The second transistor controls a second series circuit to discharge the first capacitor into a second capacitor by means of a current which flows in the opposite direction through the saturable reactor. The reactor limits the upper frequency of cyclic signal which will produce a sufficient or usable charge on the second capacitor.

3,569,794
CAPACITOR COVER SEALING MEANS
John W. Carino, Columbia, S.C., assignor to General Electric Company
Filed May 22, 1968, Ser. No. 731,229
Int. Cl. H01g *9/10*
U.S. Cl. 317—230 **8 Claims**

An improved electrolytic capacitor cover is disclosed which includes inner and outer relatively rigid supporting disc members and an intermediate disc member of a rubbery or easily sealable material. The supporting disc members contain a number of slots therein for the passage of capacitor leads therethrough, and these slots are in registry with slits in the rubbery sealing material. The inner disc member includes a chordwise slot therein in registry with a chordwise slit in the rubbery seal material. In the assembly of the capacitor a soft cathode foil tab or riser is easily passed through the chordwise slit by a slicing action therein.

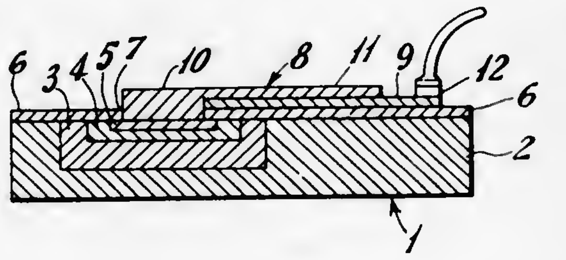


3,569,795
VOLTAGE-VARIABLE, FERROELECTRIC CAPACITOR
Emanuel Gikow, West Long Branch, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed May 29, 1969, Ser. No. 829,079
Int. Cl. H01g *1/16, 9/14*
U.S. Cl. 317—231 **5 Claims**



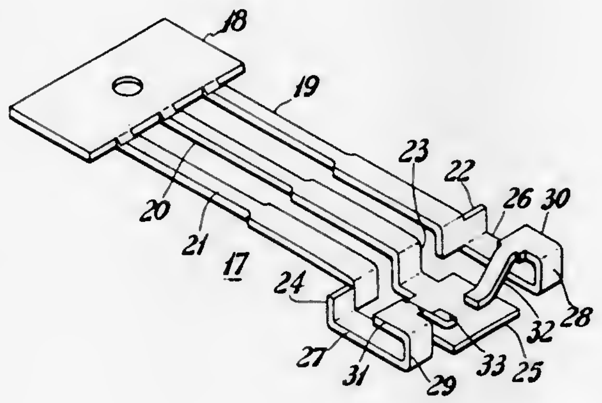
This disclosure discusses voltage-variable capacitors, including ferroelectric, ceramic-dielectric capacitors that are variable by control of the potential gradients within their dielectric material. This disclosure describes voltage-variable, dielectric capacitors that have a plurality of electrodes spaced throughout the dielectric with control-voltage potentials of alternately opposing polarity to achieve a higher potential gradient within the dielectric than would be possible from a given control voltage supply to a single pair of electrodes on opposing sides of the dielectric.

3,569,796
INTEGRATED CIRCUIT CONTACT
Charles D. Mulford, Jr., Union, N.J., assignor to Solitron Devices, Inc., Tappon, N.Y.
Filed May 10, 1968, Ser. No. 728,213
Int. Cl. H01l *1/14*
U.S. Cl. 317—234 **5 Claims**



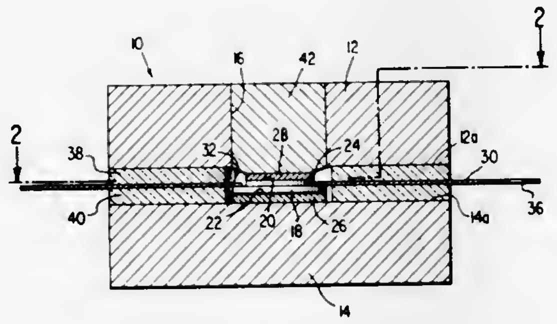
An integrated circuit contact assembly which utilizes an innerface metal over the oxide between the element contact and the connecting wire.

3,569,797
SEMICONDUCTOR DEVICE WITH PREASSEMBLED MOUNTING
George Simmons, Morganville, N.J., assignor to The Bendix Corporation
Filed Mar. 12, 1969, Ser. No. 806,643
Int. Cl. H01l *1/02, 5/02*
U.S. Cl. 317—234 **9 Claims**



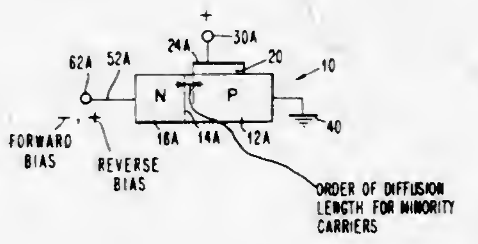
A semiconductor device in which the active element is isolated from the housing by a thermally conducting material and having the leads formed to provide spring contact with the active element and also serve as an inserting and positioning fixture.

3,569,798
DOUBLE HEAT SINK SEMICONDUCTOR DEVICE
Robert Amantea, Princeton; Hans Werner Becke, Morristown, and Paul Joseph Del Priore, Raritan, N.J., assignors to RCA Corporation
Filed May 13, 1969, Ser. No. 824,225
Int. Cl. H01l *1/12*
U.S. Cl. 317—234 **7 Claims**



A semiconductor device comprising a pair of flat metal disks arranged in overlapping, spaced relation. A semiconductor element having a contact at each end thereof and a third contact between its ends is mounted between the disks with one of the end contacts being electrically and thermally connected to one of the disks. A metal plug extends through an opening in the other disks and is electrically and thermally connected to the other end contact of the semiconductor element. A thin metal contact plate is mounted between the disks and projects beyond the edges of the disk. The contact plate engages the third contact of the semiconductor element. A pair of annular washers of an electrical insulating material are mounted between the metal disks with each washer being between the contact plate and a separate one of the metal disks. The washers are secured to the contact plate and the metal disks to secure the assembly together.

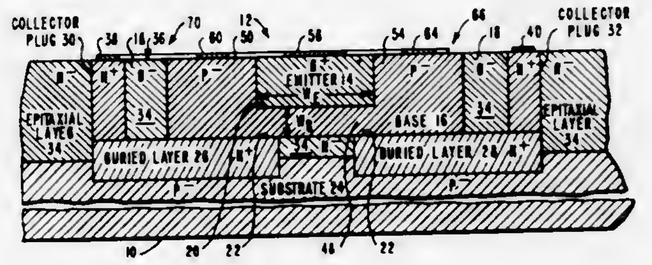
3,569,799
NEGATIVE RESISTANCE DEVICE WITH CONTROLLABLE SWITCHING
Frank F. Fang and Alan B. Fowler, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 13, 1967, Ser. No. 609,113
Int. Cl. H01l *11/00*
U.S. Cl. 317—235 **9 Claims**



This disclosure provides a control feature for a solid state device which has a negative resistance characteristic in the current-voltage curve due to an insulator in the current path. A negative resistance device is fabricated by planar technology to have an insulator layer interposed between a semiconductor layer and a metal layer in the negative resistance current path. The control feature is provided through a control electrode which has a lateral junction in the semiconductor layer and near to the current path through the insulator layer.

Control voltage pulses of opposite polarities applied to the control electrode obtain switching between stable states of the device in both directions without a requirement of turning off the current.

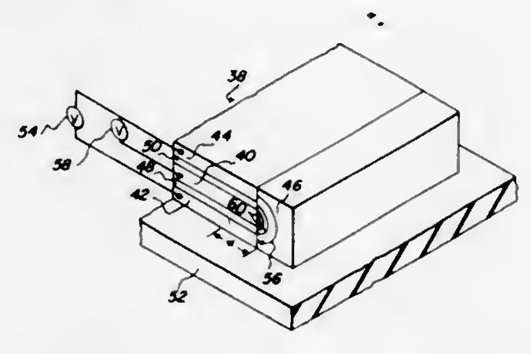
3,569,800
RESISTIVELY ISOLATED INTEGRATED CURRENT SWITCH
Thomas W. Collins, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 4, 1968, Ser. No. 757,440
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 **10 Claims**



An integrated circuit is provided in which highly conductive collector current paths within the transistors of a logical current switch are formed by heavily doped buried layers extending into contact with a common base and heavily doped collector plugs extending between the buried layers and the various collector contacts. A lightly doped epitaxial layer surrounds the collector plugs and buried layers to resistively isolate the current switch from external circuit elements and to resistively isolate the collector current paths from one another. The current from the common emitter is crowded through the common base and into selected ones of the collector current paths in accordance with the relative voltages applied to distinct regions of the base electrically separated from one another by a relatively thin central region thereof.

3,569,801
THIN FILM TRIODES AND METHOD OF FORMING

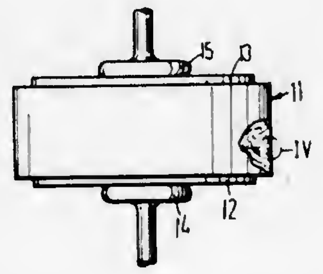
Ivar Giaever, Schenectady, N.Y., assignor to General Electric Company
Filed June 2, 1969, Ser. No. 829,322
Int. Cl. H01l *13/00*
U.S. Cl. 317—235 **14 Claims**



A thin film structure is described having two metal electrodes separated by a 50 to 500A. thick insulating layer of a material, e.g. aluminum oxide, having a sufficiently large band gap to negate current flow therethrough. At least a portion of one edge of the structure is separated from a control electrode by a semiconductive layer, e.g. vacuum deposited CdS, and tunneling current flow between the metal electrodes through the semiconductive layer is regulated by application of a suitable biasing voltage to the control electrode. In an alternate structure, the control electrode is positioned between and insulated from, the metal electrodes by thin films of a large band gap insulating material. A semiconductive layer overlies one edge of the laminar structure and tunneling current between the exterior electrodes through the semiconductive layer is controlled by a potential applied to the control electrode.

3,569,802
DIELECTRIC CAPACITORS WITH INNER BARRIER LAYERS AND LOW TEMPERATURE DEPENDENCE

Horst Brauer, Munich, and Renate Kuschke, Kreis Freising, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Sept. 16, 1968, Ser. No. 762,220
Claims priority, application Germany, Sept. 20, 1967, 1,614,605
Int. Cl. H01l *3/06, 3/22*
U.S. Cl. 317—238 **15 Claims**



Dielectric capacitor structures (and method of making the same) comprising a plurality of bound together crystallites having a barium-titanate peroyskite lattice structure of the general formula:

$$(Ba_{1-x}M_x^{II})O\cdot z(Ti_{1-y}M_y^{IV})O_2$$

which includes at least two different doping substances, one of which predominantly effects N-conductivity in the interior of the crystallites and the other which predominantly effects P-conductivity on the surface of the crystallites. M^{II} is selected from the group consisting of Ca, Sr, Pb, Mg and mixtures thereof; M^{IV} is selected from the group consisting of Zr, Sn and mixtures thereof; *x* and *y* are numerals ranging up to one; *z* is a number ranging from 1.005 to 1.05 the first doping substance is selected from the group consisting of Bi, Ce, La, Nb, Nd, Pr, Sb, Sm and Ta; and the second doping substance is selected from the group consisting of Cu, Fe and Mn.

3,569,803
ELECTROPHOTOGRAPHIC PROCESS UTILIZING FRICTION CHARGING

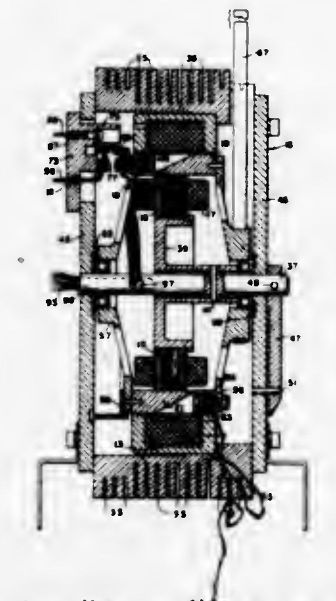
Masamichi Sato; Satoru Honjo, and Masaaki Takimoto, Saitama, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Ashigaria-Kamigun, Kanagawa, Japan
Filed Aug. 14, 1968, Ser. No. 752,472
Claims priority, application Japan, Aug. 15, 1967, 42/52318
Int. Cl. G03g *15/02, 13/02*
U.S. Cl. 317—262 **5 Claims**

A method for electrostatically charging the surface of a photoconductive insulative layer which is formed by dispersing an inorganic *n*-type photoconductive powder in a binder, which is primarily a vinyl chloride-vinyl acetate copolymer, which comprises rubbing the insulative layer with a friction material so as to produce a negative charge on the surface of the insulative layer. Representative photoconductors, such as ZnO, and friction materials, such as a cotton velvet cloth, are set out in the specification.

A modification of the process entails producing the friction by rubbing the insulative layer while a highly insulative liquid is maintained on its surface.

3,569,804
DIRECT CURRENT MOTOR WITH STATIONARY ARMATURE AND FIELD

Philip A. Studer, Silver Spring, Md., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 20, 1968, Ser. No. 754,019
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **8 Claims**

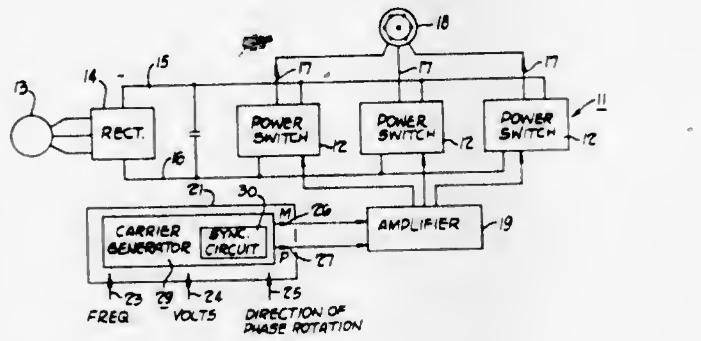


This disclosure describes a direct current (DC) motor structure having stationary (immovable) field and armature windings. A rotor formed of a material having high magnetic permeability and having a plurality of salient poles is rotatably mounted adjacent to the field winding so that the field winding electromagnetically induces magnetic flux in the poles. The armature windings are also mounted adjacent to the rotor. In operation, the magnetic flux induced in the poles interacts with the current passing through the armature windings. The current flow in the armature windings is controlled by a solid-state commutator in a manner normally associated with brushless DC motors. By controlling the magnitude of the current supplied to the field windings, the speed of the motor is controlled. In addition, the windings can be connected in a series, shunt or compound configuration as desired.

3,569,805
SYNCHRONIZING CIRCUIT

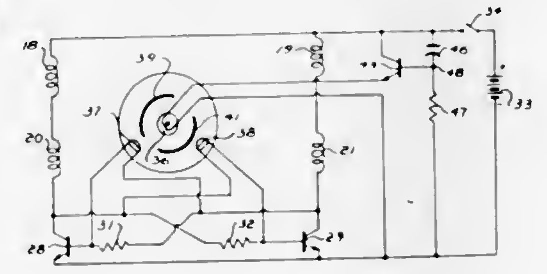
Peter W. Hammond, Cleveland, Ohio, assignor to Reliance Electric Company
Filed Aug. 28, 1968, Ser. No. 755,927
Int. Cl. H02p *5/40*
U.S. Cl. 318—227 **18 Claims**

A synchronizing circuit for use especially with a pulse width modulated inverter wherein a carrier establishes the pulsed conduction periods of the inverter in accordance with a reference voltage at a lower frequency which determines the fundamental frequency at which the inverter output voltage is supplied. This voltage may be supplied to an AC motor which runs at a speed corresponding to this fundamental frequency. The inverter may energize the motor at variable frequencies for variable speed hence the reference frequency is variable and the carrier frequency may not be an integral multiple thereof. Accordingly the present circuit shows a means to synchronize the reference with the carrier twice each cycle of the reference voltage. A shortened carrier period is provided so that this shortened carrier period plus a plurality of normal carrier periods equals a synchronizing interval; namely, one-half of the reference voltage cycle. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.



3,569,806
STARTING ARRANGEMENT FOR SOLID-STATE COMMUTATED MOTOR

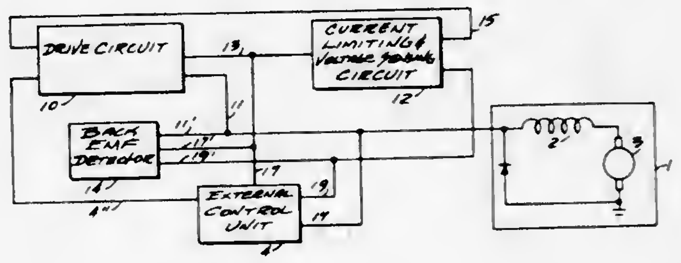
Harrison D. Brailsford, 670 Milton Road, Rye, N.Y. 10580
Filed Oct. 8, 1968, Ser. No. 765,873
Int. Cl. H02k *29/00*
U.S. Cl. 318—254 **6 Claims**



A circuit comprising a solid-state commutating means in an oscillatory circuit for a direct current motor. The circuit includes photosensitive means actuated by electric light means gated by the rotor and connected to modify the feedback as the amount of illumination striking the photosensitive means varies in response to the gating. The change in feedback controls the current in the circuit to provide proper starting and running currents. In particular the solid-state commutating means may be in the form of a circuit similar to a flip-flop with separate stator coils in series with the active elements of the flip-flop and with feedback resistors connecting the output of one part of the flip-flop to the input of the other. The photosensitive means include photoconductive cells connected to change the effective impedance of the feedback resistors and means may be included so that, after the motor has gotten started, the amount of current through the electric light may be reduced to a value too low to cause incandescence or the current may even be turned off entirely.

3,569,807
MOTOR SPEED CONTROL SYSTEM

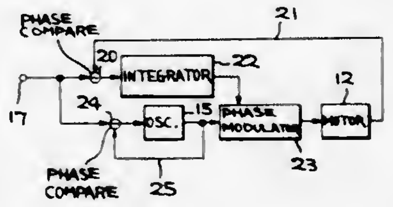
Thomas J. Ulrich, Binghamton, N.Y., assignor to National Electro-Mechanical Systems, Inc., Binghamton, N.Y.
Filed Feb. 27, 1969, Ser. No. 802,792
Int. Cl. H02k *23/08;* **H02p** *5/06*
U.S. Cl. 318—308 **5 Claims**



This disclosure described a motor speed control system for a direct current series field motor. The direct current series field motor is driven by a drive circuit that is current limited and actuated by a current-limiting voltage-sensing circuit; the direct current motor, the drive circuit, and the current-limiting and voltage-sensing circuit operates as a relaxation-type oscillator, aperiodically pulsing the direct current motor, switching the motor on and off at varying rates and ratios, to provide smooth, quiet and efficient motor operation.

3,569,808
SERVO SYSTEM FOR MAGNETIC RECORDING AND REPRODUCING APPARATUS

Kunio Goto, Tokyo, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan
Filed July 22, 1968, Ser. No. 746,528
Claims priority, application Japan, July 25, 1967, 42/47,397
Int. Cl. H02p *5/00*
U.S. Cl. 318—314 **4 Claims**

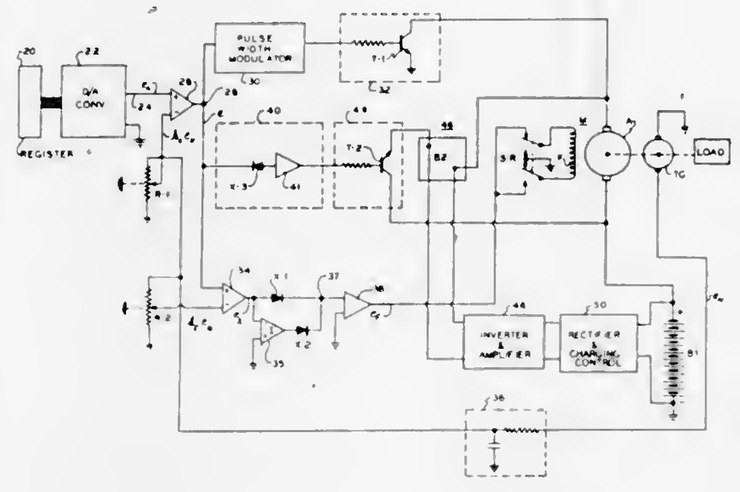


This invention provides a servo system for controlling a motor driving a rotary magnetic head assembly in a magnetic recording and reproducing apparatus. The motor is driven by an output signal from an oscillator. A first phase comparator produces a first control signal responsive to the phase difference between a signal which is synchronous with the rotation of the motor and a reference signal which is derived from a signal that is to be recorded. A second phase comparator produces a second control signal responsive to the phase difference between the output of the oscillator and the reference signal. The first and second control signals are added to control the oscillating frequency and phase of the oscillator and thereby maintain a proper rotation of the motor.

3,569,809
DC ELECTRIC MOTOR CONTROL SYSTEMS

Donald T. Comer, Los Angeles, Calif., assignor to Mobility Systems, Inc., San Jose, Calif.
Filed Jan. 22, 1968, Ser. No. 703,219
Int. Cl. H02p *5/06*
U.S. Cl. 318—338 **20 Claims**

A variable-speed direct current shunt motor control system having an increased torque at its upper speed range, in which motor speed is controlled by controlling voltage applied to the motor armature and in which field voltage is derived by summing a first voltage commensurate with the applied armature voltage and a feedback voltage commensurate with motor speed. A time-lag circuit delays application of the feedback voltage during acceleration from a low speed. A closed loop speed control system includes a regenerative braking circuit which charges an energy buffer during deceleration to reclaim energy expended during acceleration.



3,569,810

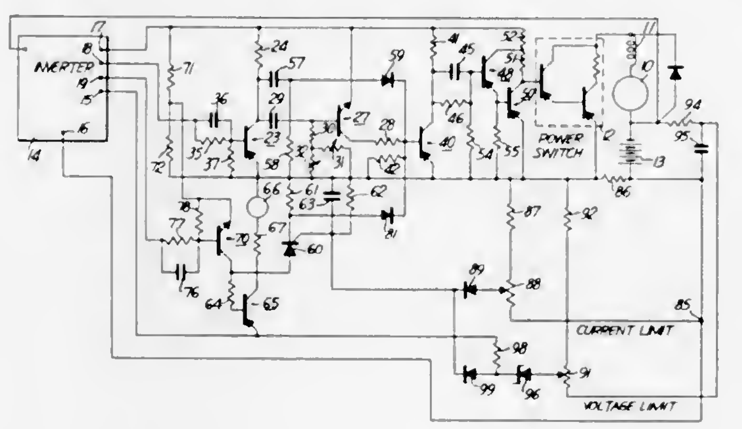
PULSE WIDTH MODULATOR WITH PULSE WIDTH LIMITING

Tom N. Thiele, Oconomowoc, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Continuation of application Ser. No. 232,462, Oct. 23, 1962, now abandoned. This application Nov. 20, 1968, Ser. No. 789,629

Int. Cl. H02p *5/06*

U.S. Cl. 318—341 **19 Claims**



A power control circuit for a battery-operated DC traction motor having an inverter providing a series of reference pulses defining periods therebetween, a pulse width modulator receiving said reference pulses and including a monostable multivibrator for generating a power pulse at sometime after the start of the period, power switch transistor means responsive to said power pulses to connect the motor with the battery source, and a pulse width limiting circuit including a controlled rectifier for prenaturely terminating the power pulse within the period in response to sensing of a predetermined overcurrent condition of the motor or power switching transistor means during said period.

3,569,811

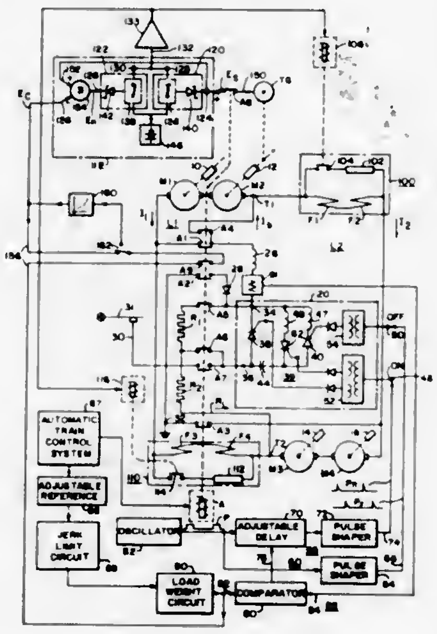
DYNAMIC BRAKING SYSTEM

Lalan G. Miller, and John M. Mills, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 24, 1969, Ser. No. 818,887

Int. Cl. H02p *3/06*

U.S. Cl. 318—381 **20 Claims**



There is disclosed an arrangement for controlling dynamic braking of a vehicle traction motor system wherein the effective average dynamic braking resistance is adjustable between predetermined minimum and maximum values, and wherein the motor field system is operated in full field mode or partial field mode, depending on whether commanded (requested) braking current at a given speed is greater or less than a predetermined value which for the given speed is at least that which would obtain in the full field mode and with the maximum effective average dynamic braking resistance in the circuit.

3,569,812

ELECTRIC WINDSCREEN WIPER SYSTEMS

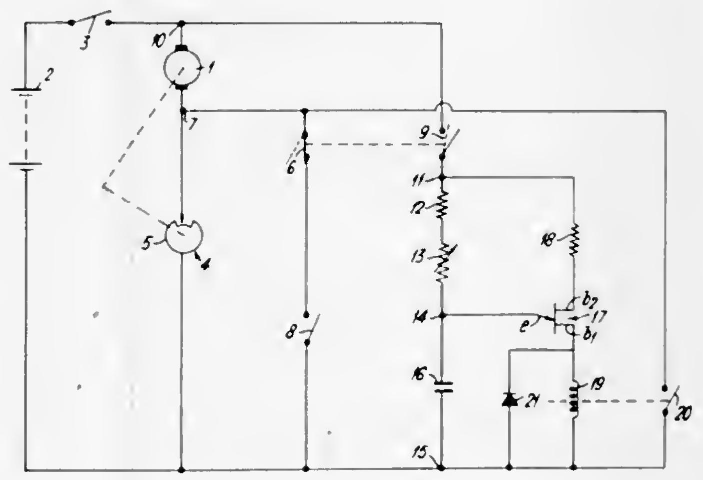
Trevor Bates, Dunstable, and Francis Stanley Griffin, Leighton Buzzard, England, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1968, Ser. No. 778,663

Claims priority, application Great Britain, Nov. 30, 1969, 54,491/67

Int. Cl. B60s *1/08*

U.S. Cl. 318—443 **2 Claims**



In an electric windscreen wiper system, pulsed operation of the wipers is obtainable by means of a circuit, in which the electric wiper motor is intermittently connectable to an electric power source by a relaxation oscillator circuit which includes a unijunction transistor.

3,569,813

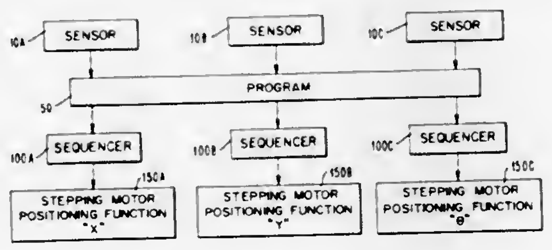
PROGRAM CONTROLLED POSITIONING DEVICE UTILIZING A STEPPING MOTOR

Kendall Clark; Joseph G. Drop, Poughkeepsie, N.Y., and Jean J. L. Godat, Neuchatel, Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 9, 1969, Ser. No. 831,448

Int. Cl. G05b *9/18*

U.S. Cl. 318—569 **11 Claims**


10A
SENSOR
10B
SENSOR
10C
SENSOR
PROGRAM
50
100A
SEQUENCER
100B
SEQUENCER
100C
SEQUENCER
150A
STEPPING MOTOR POSITIONING FUNCTION "X"
150B
STEPPING MOTOR POSITIONING FUNCTION "Y"
150C
STEPPING MOTOR POSITIONING FUNCTION "θ"

This patent discloses apparatus for locating a workpiece or work table along X and Y coordinates and for simultaneously orienting the work to precisely position the same in those three coordinates. The apparatus includes three separate positioning means each of which includes sensor means in which a plurality of sets of contacts have a source of power applied initially to the first of the sets. Adjacent the sets of contacts is sequencer means which include a plurality of rotary switches having make before break contacts each aligned with a set of contacts in the sensor means. Intermediate each of the rotary switches are counter-type gear boxes having a predetermined gear ratio which connects the rotary switches together so that there is a predetermined and precise turning ratio between each of the rotary switches. Intermediate the sequencer and sensor is common program means, in the present instance a punch card, which is operable to connect power from the first of the sets of contacts of each sensor to the switch contacts of its associated rotary switch until the program means interrupts the power applied to the first of the sets of contacts of the sensor. Connected to the rotary switches is stepping drive means operative to rotate the rotary switches, while the drive means are also connected to the work or workpiece which is to be positioned in accordance with the program. In addition, a plurality of electromechanical transducers are provided which correspond to the number of rotary switches, each of the transducers having switches which are operable between a first and second position, the switches being operable in a first position to actuate the stepping motor and cause rotation thereof, and in a second position to apply the source of power to the next succeeding set of contacts of the sensor means. As described, the transducers are actuable between their first and second positions in a serial manner, each transducer's actuation being effected by its associated rotary switch.

3,569,814

PROGRAMMED DIGITAL SERVO CONTROL INCLUDING REPEATED COMMAND UPDATING WHEREBY OUTPUT FUNCTION BECOMES SMOOTHLY VARYING

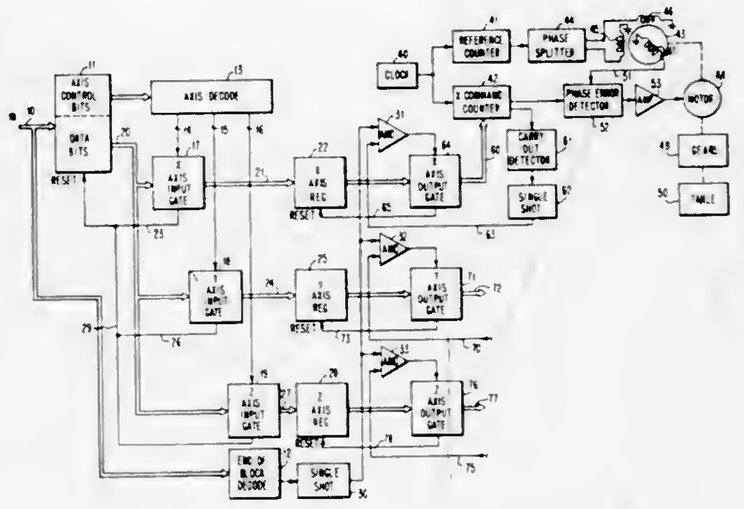
Jack Rosenberg, Pacific Palisades, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 17, 1969, Ser. No. 791,909

Int. Cl. G05b *19/24, 19/28*

U.S. Cl. 318—573 **14 Claims**

Digital numerical control for a machine tool. A plurality of digitally encoded signals or words, each representing an axis of the machine tool, are periodically supplied to a servo for each axis at a rate of less than 200 per axis per second. The digitally encoded signals update the servo by an amount equal to the value thereof to indicate a new desired position of the machine tool along that axis at that point in time. The servo continuously supplies an error signal representing the difference between the desired and actual position of the machine tool. A drive motor for each axis responds to the corresponding error signal to drive the machine tool along that axis. The error signal is updated at a sufficiently high rate that the inertia of the driven tool operates to smooth the motion thereof.



3,569,815

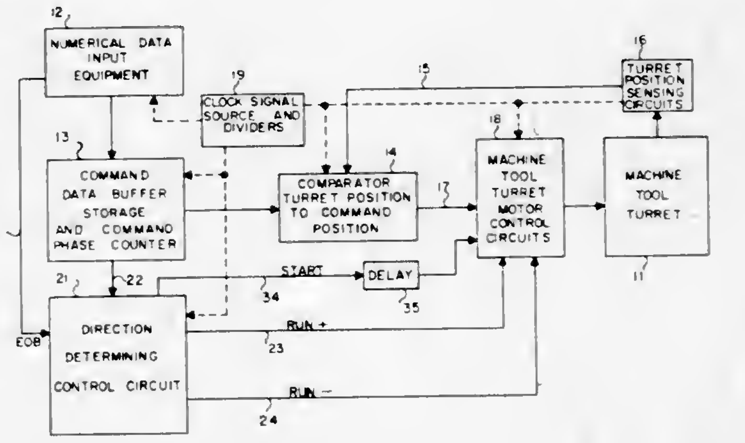
SERVO DRIVEN TURRET DIRECTION DETERMINATION CONTROL FOR NUMERICAL CONTROL SYSTEM

Lawrence S. McNaughton, Crimora, Va., assignor to General Electric Company

Filed July 24, 1968, Ser. No. 747,249

Int. Cl. G05b *19/28*

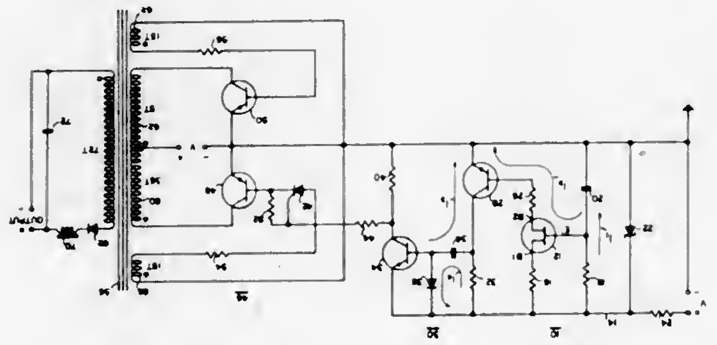
U.S. Cl. 318—601 **13 Claims**


12
NUMERICAL DATA INPUT EQUIPMENT
19
CLOCK SIGNAL SOURCE AND DIVIDERS
15
16
TURRET POSITION SENSING CIRCUITS
13
COMMAND DATA BUFFER STORAGE AND COMMAND PHASE COUNTER
14
COMPARATOR TURRET POSITION TO COMMAND POSITION
18
MACHINE TOOL TURRET MOTOR CONTROL CIRCUITS
MACHINE TOOL TURRET
11
32
21
22
START
34
DELAY
35
EOB
DIRECTION DETERMINING CONTROL CIRCUIT
RUN +
23
RUN −
24

A numerical control system for a numerically controlled endless recirculated and reversible machine tool of the rotatable turret type having a plurality of discrete working positions. The numerical control system comprises command data input equipment for reading in command data relating to new working positions for the numerically controlled machine tool turret. A machine tool position comparator circuit is controlled by the command data input equipment and with feedback signals representative of the actual position of the machine tool turret being controlled. The machine tool position comparator circuit serves to compare the actual position of the machine tool being controlled to a commanded new position and for deriving an output control signal indicative of any difference for use in driving the machine tool turret to the commanded new position. A machine tool motor control circuit is controlled by using the output error control signal developed by the comparator circuit and drives the machine tool turret to its commanded new position. A direction determining control circuit has an input coupled to the output from the command data input equipment for determining the optimum direction for running the machine tool turret in order to obtain the commanded new position for the turret with minimum movement. The direction determining control circuit derives output directional control signals which are indicative of the optimum direction to be moved and which are supplied to the machine tool turret motor control circuit for controlling the direction in which the motor control circuit rotates the machine tool turret in the optimum direction to its commanded new position with minimum movement.

3,569,816
CONSTANT OUTPUT VOLTAGE DC TO DC CONVERTER

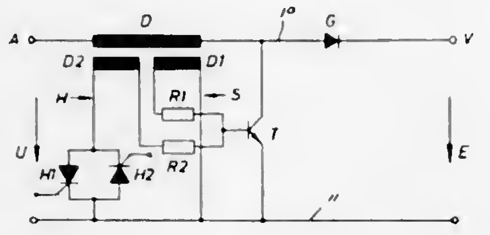
Joseph M. Marzolf, Falls Church, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 14, 1969, Ser. No. 815,707
Int. Cl. H02m *3/22;* **H03b** *3/14;* **H03k** *3/281*
U.S. Cl. 321—2 **8 Claims**



A DC to DC converter for producing a constant voltage DC output signal which includes an unbalanced square-loop magnetic core inverter, a single silicon controlled rectifier for initiating a single complete cycle of said inverter upon the receipt of an input pulse signal, and a constant frequency pulse oscillator coupled to a control input of the silicon controlled output signal, which is subsequently half-wave rectified and filtered, each cycle of which having a constant average voltage amplitude. The frequency of the pulse oscillator is lower than the free-running frequency of the inverter, thereby producing an output pulse train having a constant average amplitude regardless of input voltage.

3,569,817
DIRECT CURRENT TRANSMITTER

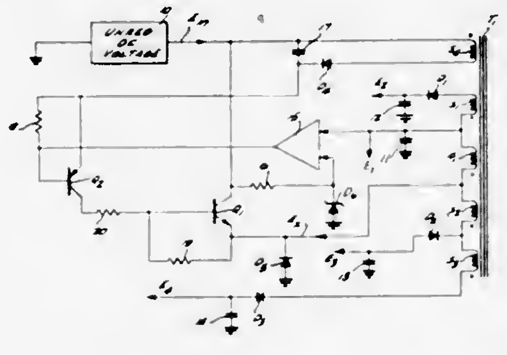
Andreas Boehringer, Friedrichshafen, Germany, assignor to Dornier System G.m.b.H, Friedrichshafen, Germany
Filed Sept. 24, 1969, Ser. No. 860,579
Claims priority, application Germany, Oct. 22, 1968, P 18 04 429.6
Int. Cl. H02m *3/32*
U.S. Cl. 321—2 **8 Claims**



The transmitter circuit is provided with a transformer with a primary winding to which direct current is applied and a secondary coil which has two secondary windings. One secondary winding connects over a resistance to a transistor bridging each of the supply lines of the consumer while the other secondary winding is in a circuit including a pair of thyristors connected in antiparallel and a resistance which connects to the base of the transistor.

3,569,818
MULTIPLE OUTPUT DC VOLTAGE REGULATOR

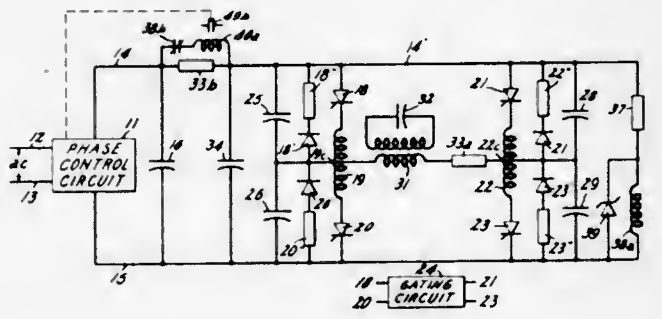
Rodney J. Dahlinger, Canoga Park, and Robert P. Farnsworth, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed July 22, 1969, Ser. No. 843,351
Int. Cl. H02m *3/28;* **G05f** *1/64*
U.S. Cl. 321—2 **18 Claims**



A transformer having a multiplicity of secondary windings is employed to provide a multiplicity of different regulated output voltages by turning on a transistor switch in series with the primary winding, the unregulated voltage and a selected one of the regulated output voltages whenever the selected output voltage, so driven, falls below a reference voltage. When the selected output voltage is driven above reference voltage, the transistor switch is turned off. Diodes rectify the secondary winding currents that result when the switch turns off, to charge filter capacitors. The primary or one of the secondaries, whichever is employed to provide regulation of the selected output voltage, is clamped during the off period to the previously driven voltage. This clamping action produces on all output terminals regulated voltages related to the clamping voltage by a transformer turns ratio. A separate boost winding may be provided on the transformer to cause the transistor switch to be operated in saturation during the on cycle.

3,569,819
RECOVERY SYSTEM FOR SHORT CIRCUITS THROUGH SWITCHING DEVICES IN POWER CIRCUITS

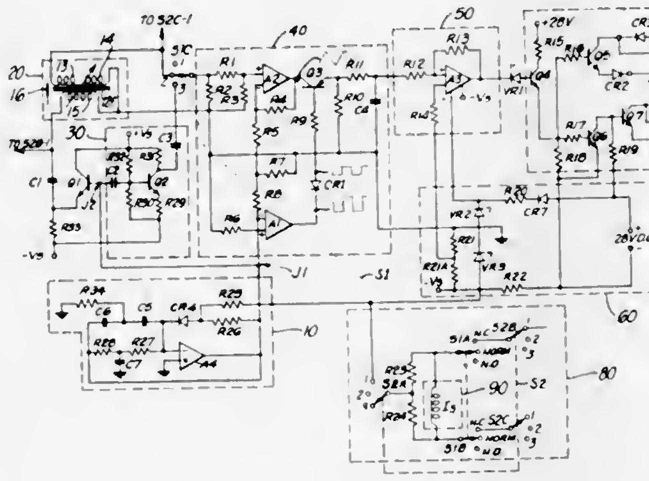
Francois D. Martzloff; William McMurray, and John P. Walden, Schenectady, N.Y., assignors to General Electric Company
Filed Jan. 16, 1969, Ser. No. 791,750
Int. Cl. H02m *1/18;* **H02h** *7/14*
U.S. Cl. 321—12 **8 Claims**



When a short circuit or shoot-through occurs in a power circuit having two thyristors in series with commutating circuit inductors, a shunt capacitor isolated from the DC power supply by an impedance automatically resonates with the inductors to turn off both thyristors. A second automatic recovery system for repeated short circuits that occur before the capacitor has recharged operates to temporarily disable the power supply. In a high-voltage inverter the impedance is a resistor functioning to dampen voltage overshoots and to implement a relay or solid state second recovery system.

3,569,820
PROXIMITY DETECTION SYSTEM

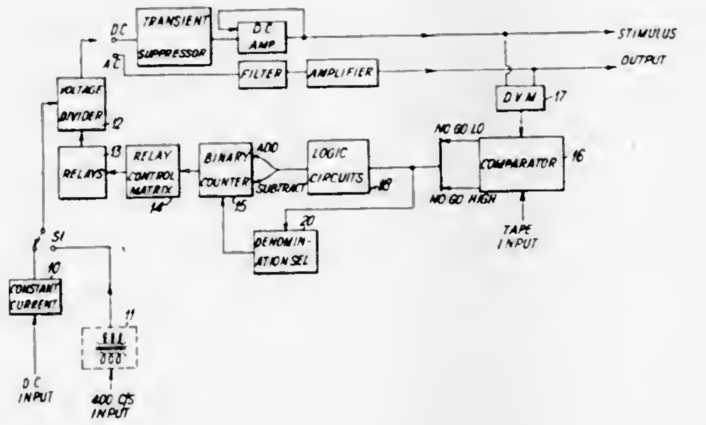
Robert K. Nishimuta, Pomona, Calif., assignor to Bourns, Inc.
Filed Feb. 24, 1969, Ser. No. 801,392
Int. Cl. H02p *13/10*
U.S. Cl. 323—51 **5 Claims**



A system to replace directly actuated electric switches in hazardous or other adverse environments, for example aircraft landing-gear-actuated switches, in which system movement of a magnetic target relative to an alternating magnetic field causes a phase shift or inversion in an AC signal which change is detected by a phase detector the output of which controls solid-state electric switches or controllers which may be remote from the adverse environment.

3,569,821
PROGRAMMABLE DIGITAL TO ANALOGUE CONVERTER SYSTEM

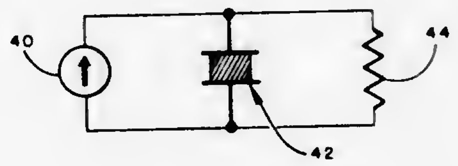
Ronnie Pepper, Luton, England, assignor to British Aircraft Corporation Limited, London, England
Filed Jan. 30, 1969, Ser. No. 795,307
Int. Cl. G05f *1/10*
U.S. Cl. 323—66 **3 Claims**



Automatic test equipment requires highly accurate test signals. The maintenance of a substantially constant input, accurately defined within precise limits, insures such a test signal. A digital comparator wherein the measured values of the responses to the test signals are compared with predetermined values available from a programmed tape is also employed to maintain the signal constant.

3,569,822
ANTIFERROELECTRIC VOLTAGE REGULATION

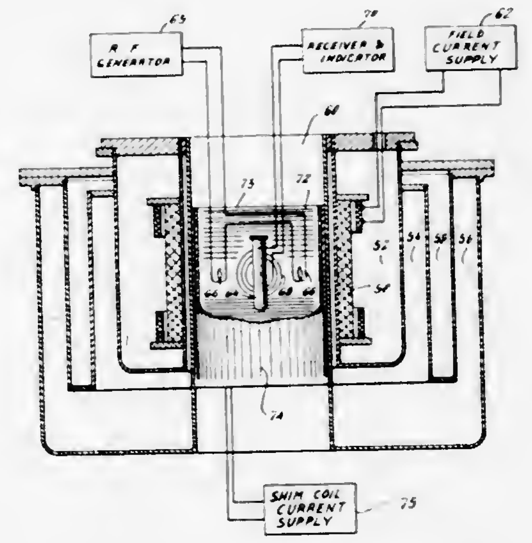
Frank W. Neilson, and Otmar M. Stuetzer, Albuquerque, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission.
Filed Apr. 11, 1969, Ser. No. 815,429
Int. Cl. H01g *7/06*
U.S. Cl. 323—93 **3 Claims**



Regulating of voltage from a power source to a load is achievable by disposing an antiferroelectric ceramic element between electrodes, the antiferroelectric element having a field-induced antiferroelectric to ferroelectric transition at desired voltage regulation level.

3,569,823
NUCLEAR MAGNETIC RESONANCE APPARATUS

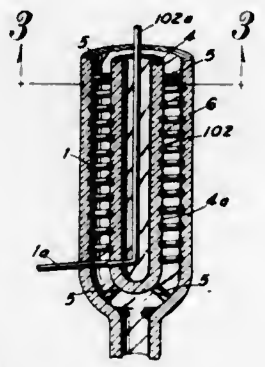
Marcel J. E. Golay, Rumson, N.J., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Oct. 18, 1968, Ser. No. 768,809
Int. Cl. G01n *27/78*
U.S. Cl. 324—0.5 **4 Claims**



An improved field homogenizing coil arrangement of a type having a generally tubular coil form extending about a test sample in an NMR apparatus is described. The coil arrangement includes a plurality of separate coils which are orthogonally related and which are formed of conductive segments positioned on opposite surfaces of the coil form and are conductively coupled through the form. The coils include arcuate-shaped segments positioned on one surface of the form and aligned normally with respect to a main polarizing field component, and rectilinear shaped segments positioned on an opposite surface of the form and extending in a direction substantially parallel to the main polarizing field component. The conductive segments are fabricated on the form by printed circuit techniques and the form is adapted to be rolled into a scroll-shaped configuration. With this arrangement, a relatively large number of field corrective coils are positioned on the form while overlapping rectilinear segments cancel undesired fields established by current return paths.

3,569,824
CONDUCTIVITY PROBE HAVING A PAIR OF HELICALLY WOUND ELECTRODES

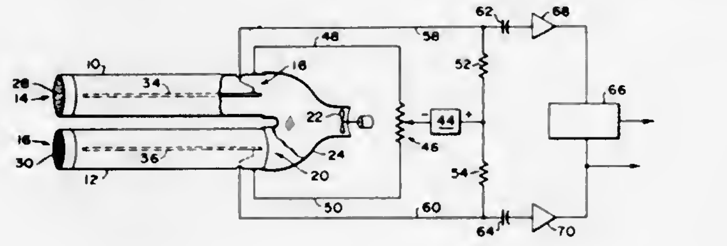
Alois Ruse, Stierstadt (Taunus), Germany, assignor to Hartmann & Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Sept. 26, 1967, Ser. No. 670,684
Int. Cl. G01n *27/42*
U.S. Cl. 324—30 **1 Claim**



A conductivity cell having one or two interior cylindrical walls enclosing the fluid. The coaxial helical electrodes are secured along their spaced convolutions to either one wall, or, each of the electrodes to respective opposite walls, the convolutions being of wire and embedded in the wall material to a depth of about half a diameter of the wire. The number of coils is at least two to the cell. The materials of the wire and wall have essentially the same coefficients of thermal expansion.

3,569,825
CORONA DISCHARGE PLASMA OSCILLATION GAS TRACE DETECTOR

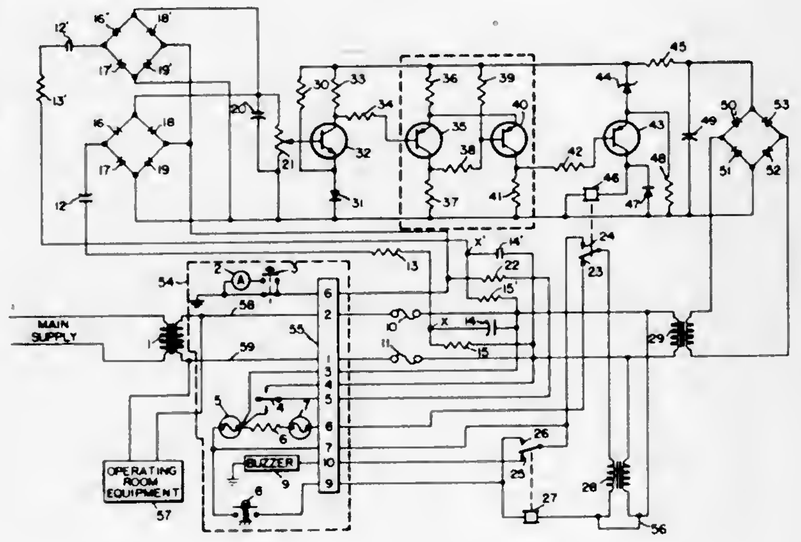
Pedro Lilienfeld, Lexington, Mass., assignor to GCA Corporation, Bedford, Mass.
Filed Feb. 6, 1969, Ser. No. 797,048
Int. Cl. G01n *27/00*
U.S. Cl. 324—33 **16 Claims**



A method and apparatus for sensing and measuring the presence and amount of a specific gaseous component in a volume of gas as well as measuring gas density over a range of densities. The gas under test is subjected to an inhomogeneous electric field to create a plasma having characteristic oscillation frequencies. By comparison with previously charted data or by comparison with the output of a simultaneously excited reference gas, the presence and concentration of the specific component may be evidenced by the plasma oscillation frequencies.

3,569,826
GROUND FAULT DETECTOR APPARATUS INCLUDING A PAIR OF COMPLEMENTARILY CONNECTED BRIDGE DETECTOR MEANS FOR ISOLATED ELECTRICAL POWER SYSTEMS

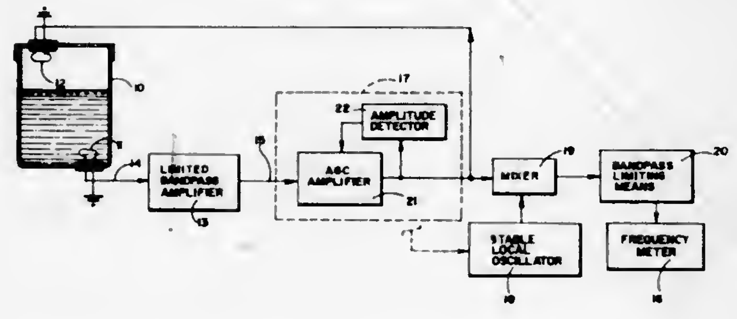
James H. Burnett, Wilton, N.J., assignor to Edwards Company, Inc., Norwalk, Conn.
Filed Jan. 7, 1969, Ser. No. 789,579
Int. Cl. G01r *31/02*
U.S. Cl. 324—51 **6 Claims**



An improved ground fault detector in which parallel dual phase sensitive bridge detectors are complementarily connected for indicating the level of the impedance to ground of the electrical line.

3,569,827
APPARATUS FOR DETECTING THE AMOUNT OF MATERIAL IN A RESONANT CAVITY CONTAINER

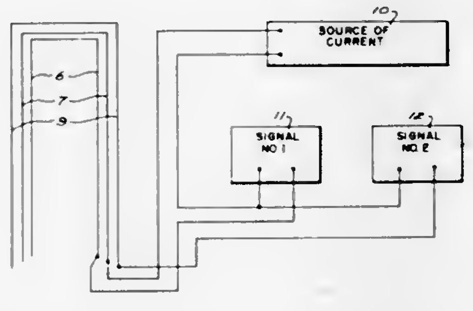
Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Jack C. Miller
Filed Nov. 16, 1965, Ser. No. 508,169
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 **7 Claims**



The mass of a dielectric material contained in an internal cavity of a metallic container, and therefrom the quantity of said material in said container, is determined by connecting the container as the positive feedback impedance of an amplifier. Losses are supplied to enable the arrangement to oscillate at the frequency of resonance of said container. This frequency varies with the mass of dielectric material in the container. Accordingly, from the resonant frequency, one can determine the amount of said material which is present.

3,569,828
ELECTRICAL APPARATUS FOR DETECTION OF THERMAL DECOMPOSITION OF INSULATION

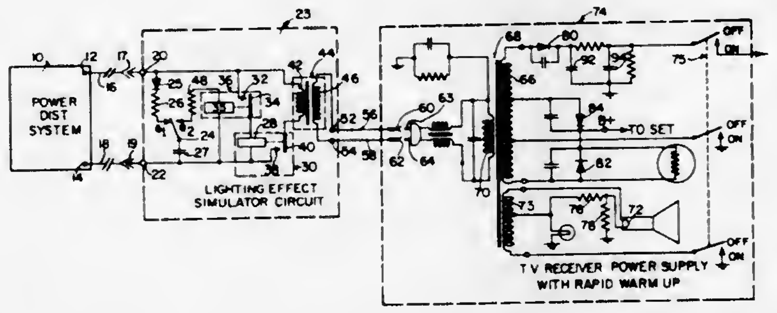
Borg Bernsen, Sacramento, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 5, 1968, Ser. No. 719,029
Int. Cl. G01n *27/02*
U.S. Cl. 324—65 **8 Claims**



This invention comprises an article of manufacture made up of alternating layers of electrically conductive rubber and electrically nonconductive rubber with power supplied to each of the electrically conductive rubber layers and a means for measuring any change in the rate of flow of electric current between any two electrically conductive rubber layers. This article is useful as a detector for thermal decomposition of insulation. This invention also includes the use of the subject apparatus, especially in rocket engines.

3,569,829
PRECISION POWER LINE TRANSIENT GENERATOR

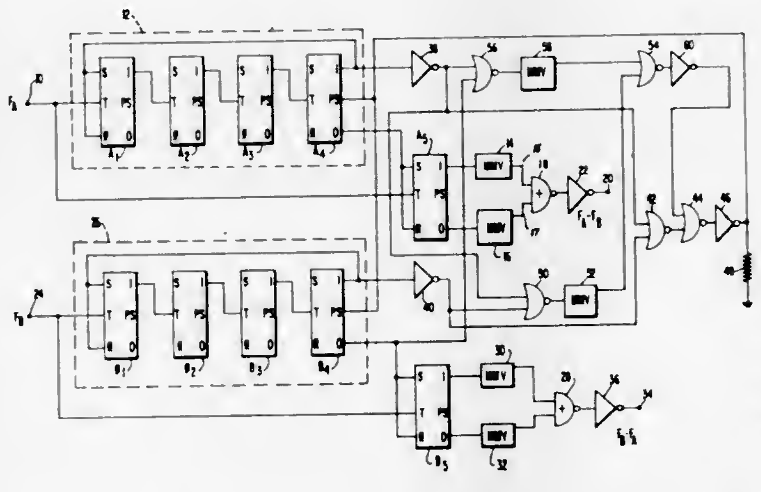
Donald E. Griffey, Skokie, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Nov. 6, 1968, Ser. No. 773,870
Int. Cl. G01r *31/02*
U.S. Cl. 324—72 **3 Claims**


POWER DIST SYSTEM
LIGHTING EFFECT SIMULATOR CIRCUIT
TO SET
B+
OFF
ON
OFF
ON
OFF
ON
T V RECEIVER POWER SUPPLY WITH RAPID WARM UP

An electronic-testing apparatus that can be operated to simulate and apply to a circuit under test, transient voltages similar in amplitude and duration to those induced by lightning in an electrical power distribution system having a time delayed means for transient voltage suppression.

3,569,830
FREQUENCY DIFFERENCE DETECTOR

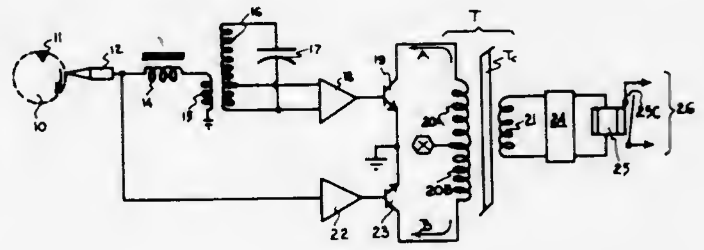
Edward W. Gass; Jack Hammond, and Paul Lorenzino, Jr., Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Apr. 21, 1970, Ser. No. 028,280
Int. Cl. G01r *23/02*
U.S. Cl. 324—78 **12 Claims**



Method and apparatus for determining the difference in frequency or pulse repetition rate between two input signals irrespective of the relative frequency, phase or synchronism in which a predetermined number of pulses in one input signal is stored and subsequent pulses counted until a predetermined number of pulses in the second input signal are accumulated, at which time the process is repeated.

3,569,831
OVER-FREQUENCY ALARM

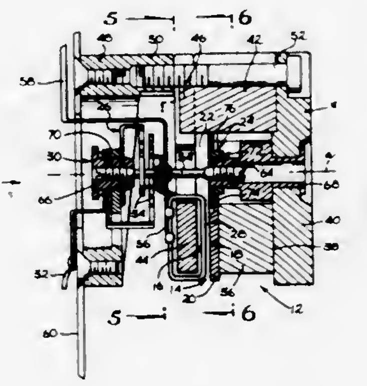
Richard K. Davis, Roanoke, Va., assignor to General Electric Company
Filed Aug. 28, 1968, Ser. No. 755,929
Int. Cl. G01r *23/02*
U.S. Cl. 324—78 **1 Claim**



An electrical circuit adapted to compare an externally sensed frequency with a reference frequency for giving an indication when the former exceeds the latter via voltage and current phase relationship utilizing a phase shifting inductance, a resonant circuit and a transformer having a core of square loop material, a dual primary winding and an alarm connected to its secondary winding.

3,569,832
ELECTRICAL CURRENT RESPONSIVE INSTRUMENT WITH MAGNETIC FLUX ADJUSTMENT

Henry Marusek, Tujunga, and Edwin L. Schwartz, Los Angeles, Calif., assignors to Rite Autotronics Corporation, Los Angeles, Calif.
Filed Jan. 6, 1969, Ser. No. 789,158
Int. Cl. G01r *1/20, 5/08*
U.S. Cl. 324—150 **4 Claims**

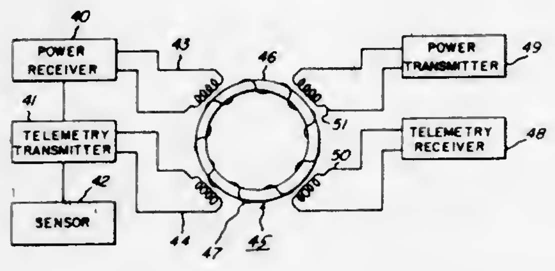


A current responsive mechanism for electrical instruments of the type having an armature mounted conductor means positioned within the air gap between a pair of spaced magnetic poles of opposite polarity, whereby current flow through the conductor means produces a driving force on the armature in one direction of its movement. The mechanism is provided with a magnetically permeable pole plate which seats against and is releasably secured to one magnet face in such a way that the plate may be adjusted in its edgewise direction to alter the magnetic flux distribution in the air gap for calibration purposes. The disclosed embodiment of the invention is a long scale vertical gap electrical indicating instrument, or meter, wherein the pole plate is adjustable to provide the meter with a linear current response throughout the range of armature rotation.

3,569,833

RESONANT RING COUPLING COMMUNICATIONS SYSTEM

Robert T. Milton, Burnt Hills, N.Y., assignor to General Electric Company
Filed Dec. 20, 1968, Ser. No. 785,636
Int. Cl. H04b *5/00, 3/60*
U.S. Cl. 325—26 **8 Claims**

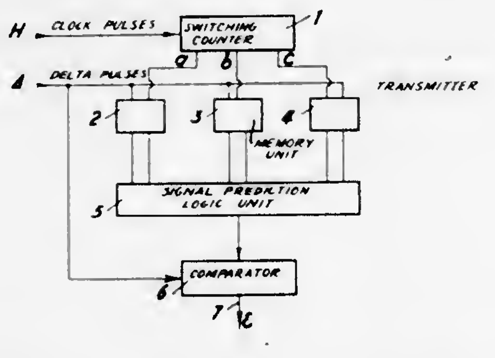


A waveguide loop having a circumference approximately an integer multiple of a wavelength at the signal-operating frequency and a directional coupler spaced-apart from the waveguide loop are utilized to effectuate power coupling without significant signal loss between a transmitter and a receiver in relative motion with respect to each other.

3,569,834

DELTA-MODULATED TRANSMISSION SYSTEM WITH PREDICTION OF VOICE DEVELOPMENT AND TRANSMISSION OF ONLY COORDINATION AND ERROR SIGNALS

Hubert P. Debart, Meudon, France, assignor to Societe Anonyme Societe Alsacienne De Constructions Atomiques De Telecommunications Et D'Electronique, Paris, France
Filed June 14, 1967, Ser. No. 646,072
Claims priority, application France, June 17, 1966, 66,017
Int. Cl. H03k *13/22;* **H03j** *3/04*
U.S. Cl. 325—38 **2 Claims**



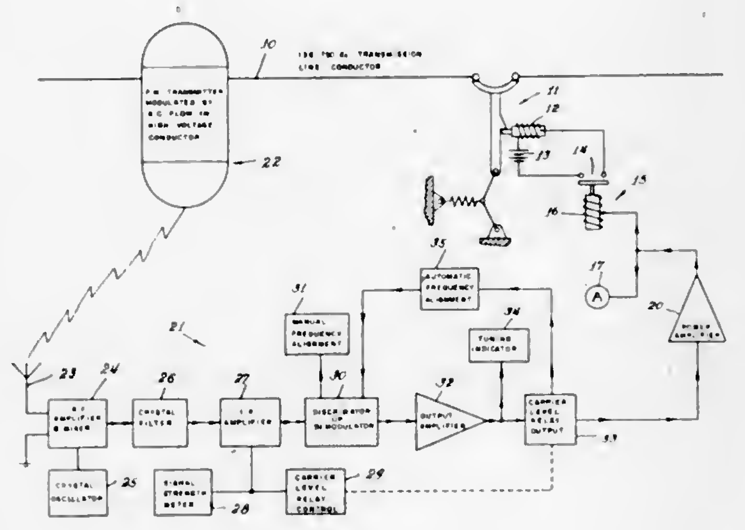
The invention concerns a method for reducing the bandwidth in a delta-modulated transmission system which consists in setting up a prediction table of future pulses, base upon the last pulses of the delta-modulated train of pulses, in setting up simultaneously at the transmission and at the reception ends, a second train of pulses of the same repetition rate as the first train, in feeding the receiver with an error signal each time the concordance between the predicted pulse and the corresponding delta pulse is not realized, in correcting consequently the train of pulses built at the receiving end for building up with accuracy the initial train of delta pulses and finally in deducing from it the signal, for example a vocal one.

3,569,835

CRYSTAL CONTROLLED RADIO RECEIVER FOR HIGH VOLTAGE ALTERNATING CURRENT SENSING USING FREQUENCY MODULATION WITH AUTOMATIC FREQUENCY AND OUTPUT CONTROL

Robert H. Harner, Park Ridge, Ill., assignor to S&C Electric Company, Chicago, Ill.
Filed Jan. 24, 1968, Ser. No. 700,275
Int. Cl. H02h *7/26*
U.S. Cl. 325—63 **15 Claims**

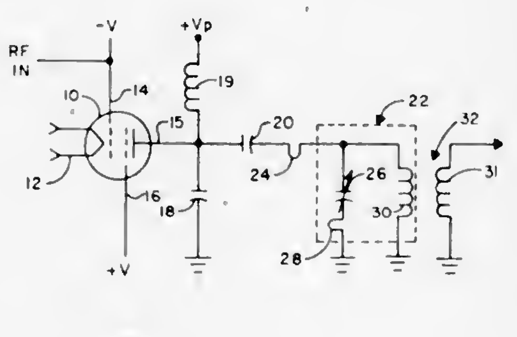
A radio receiver adjusts its center frequency according to the center frequency differential between the receiver and associated transmitter, maintains the correction for a time after transmission ceases, opens the circuit to the load driven by the receiver and grounds the load circuit.



3,569,836

METHOD OF REDUCING SIGNAL DISTORTION AND IMPROVING OPERATING EFFICIENCY BY SELECTIVELY SHIFTING PARASITIC RESONANT FREQUENCIES AWAY FROM HARMONICS OF OPERATING FREQUENCY

Glen W. Deen, Richardson, Tex., assignor to Collins Radio Company, Dallas, Tex.
Filed July 16, 1968, Ser. No. 745,275
Int. Cl. H03f *1/32*
U.S. Cl. 325—123 **3 Claims**



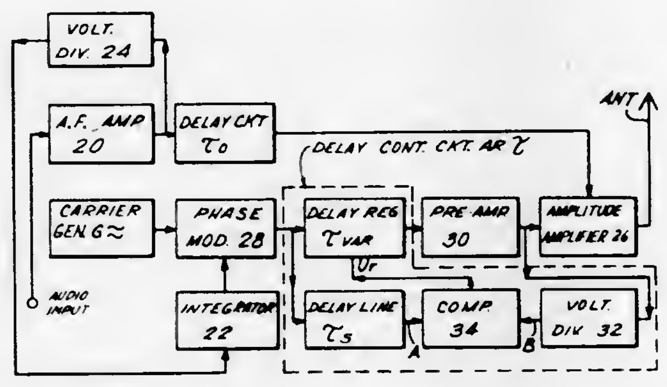
Operating efficiency of a high power radio transmitter is improved by selectively shifting the parasitic resonant frequency in the output network as a function of transmitter operating frequency. Inductance means is switchably inserted in the output network to accomplish the shift in parasitic resonant frequency.

3,569,837

SYSTEM FOR SUPPRESSING ONE SIDEBAND IN AMPLITUDE-MODULATED TRANSMITTER

Aleksander Makiedonski, 64 bl.4 m.2, Swierczewskiego, Michalin, Warsaw, Poland
Continuation-in-part of application Ser. No. 586,095, Oct. 12, 1966, now abandoned. This application July 18, 1969, Ser. No. 843,002
Int. Cl. H04b *1/68*
U.S. Cl. 325—137 **6 Claims**

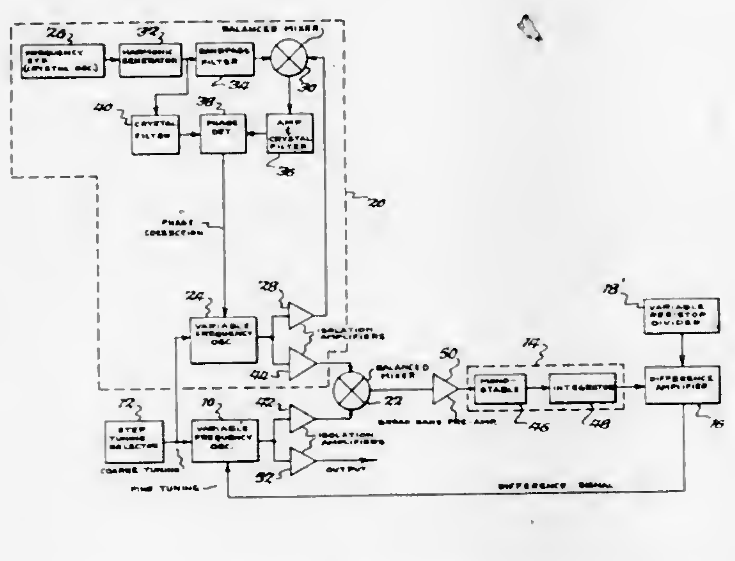
A system for suppressing one sideband in a radio transmitter having amplitude and phase modulation. The system comprises an integrator circuit receiving the signal to be transmitted from an amplitude-modulator amplifier output through a compensated voltage divider, the output of said amplifier being also applied to a delay line the output of which is coupled to a modulation stage of the transmitter. Input terminals of a high-frequency preamplifier of said transmitter are coupled to output terminals of a phase modulator of said transmitter through an automatic delay control circuit.



3,569,838

WIDE RANGE FREQUENCY SYNTHESIZER

David J. Blair, Snyder, and George H. Kam, Tonawanda, N.Y., assignors to Sylvania Electric Products Inc.
Filed Apr. 3, 1968, Ser. No. 718,532
Int. Cl. H04b *1/04*
U.S. Cl. 325—184 **7 Claims**



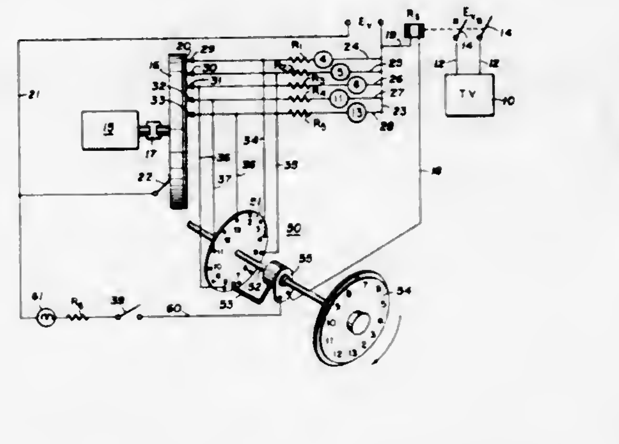
A frequency synthesizer particularly suitable for VHF applications comprising a pair of variable frequency oscillators adapted to be simultaneously tuned in coarse frequency steps, one of the oscillators being phase locked to a frequency standard, and the second oscillator being controlled by a tunable frequency lock loop referenced to the first oscillator to provide the synthesized frequency output. The tunable frequency lock loop includes a balanced mixer coupled at the outputs of the two oscillators for producing a difference frequency, a frequency discriminator for providing a voltage signal proportional to this difference frequency, a continuously or discretely variable tuning voltage, and a difference amplifier which compares the discriminator output with a selected tuning voltage and provides a difference signal for fine tuning the second oscillator.

3,569,839

PROGRAM SELECTOR

Robert K. Dyer, Rte. 1, Box 219A, Allen, Tex. 75002
Filed Dec. 18, 1967, Ser. No. 691,635
Int. Cl. H04b *1/06*
U.S. Cl. 325—396 **7 Claims**

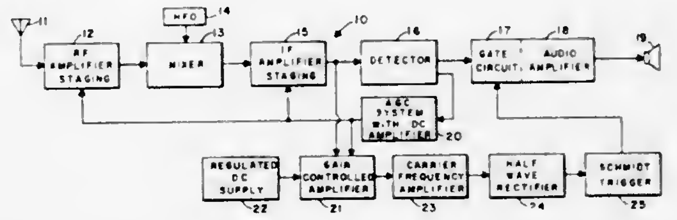
Disclosed are apparatus and methods for limiting reception and conversion of television broadcast signals. The apparatus includes clock-driven screening means which selectively interrupt current flowing through control lines, and switches for selectively interconnecting a control device in parallel with the control lines.



3,569,840

CARRIER SQUELCH SCHEME

Edward H. Tanaka, and James C. Riach, Toronto, Ontario, Canada, assignors to Collins Radio Company of Canada, Ltd.
Filed Oct. 4, 1968, Ser. No. 765,227
Int. Cl. H04b *1/16*
U.S. Cl. 325—402 **8 Claims**

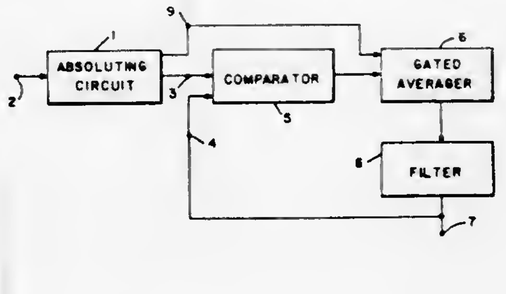


A carrier squelch system monitoring both an AGC voltage developed in a superheterodyne receiver and the signal level present in the receiver as represented by the IF carrier signal, with inverse variation of the gain of an AC amplifier in the squelch circuit under control of the AGC voltage, developed out of the IF section of the receiver, in the squelch circuit, and with the IF staging such that the receiver is normally in hard AGC with noise input alone. The additional stages of amplification through the squelch circuit are AC signal amplification stages with temperature change and supply voltage level change induced operational variations minimized.

3,569,841

HARMONIC-REJECTING AC-TO-DC CONVERTER

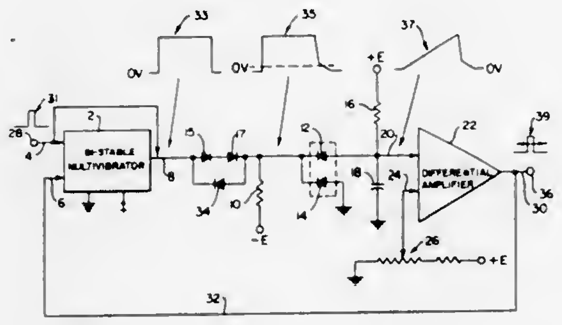
Peter L. Richman, 22 Barberry Road, Lexington, Mass.
Filed July 9, 1968, Ser. No. 743,558
Int. Cl. H03K *5/08;* **G01r** *15/10;* **H02b** *1/24*
U.S. Cl. 328—26 **8 Claims**



An AC-DC conversion system which reduces sensitivity of the conversion to selected harmonics of the input AC wave. The absolute value signal is formed of the input AC wave and compared with a DC level which is the output of the system to provide gating signals. The latter are used to time-gate the absoluted AC signal through an averaging device.

3,569,842
PULSE DELAY CIRCUIT

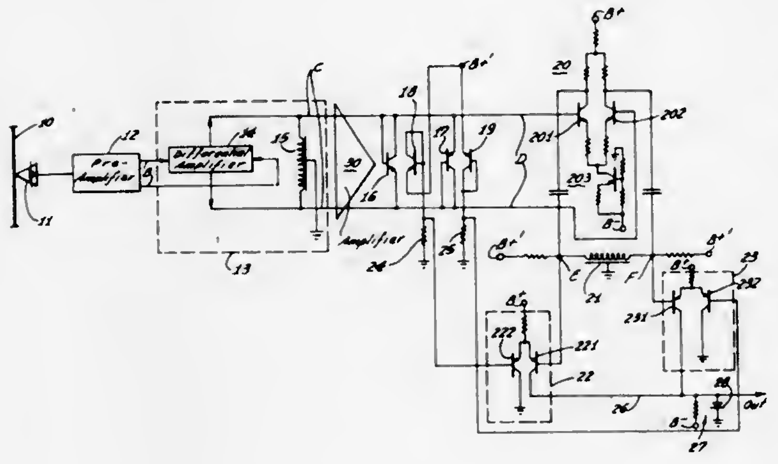
John R. Schroyer, Cincinnati, Ohio, assignor to The Bendix Corporation
Filed July 29, 1968, Ser. No. 748,445
Int. Cl. H03k *5/159*
U.S. Cl. 328—55 **7 Claims**



This disclosure describes an electronic solid state pulse delay circuit for producing an output pulse a predetermined time after the application of an input triggering pulse by having the input trigger pulse directly initiate the generation of a ramp voltage and simultaneously trigger a bistable device the function of which is to continue the generation of the ramp voltage after the cessation of the input signal.

3,569,843
ZERO CROSSING DETECTORS

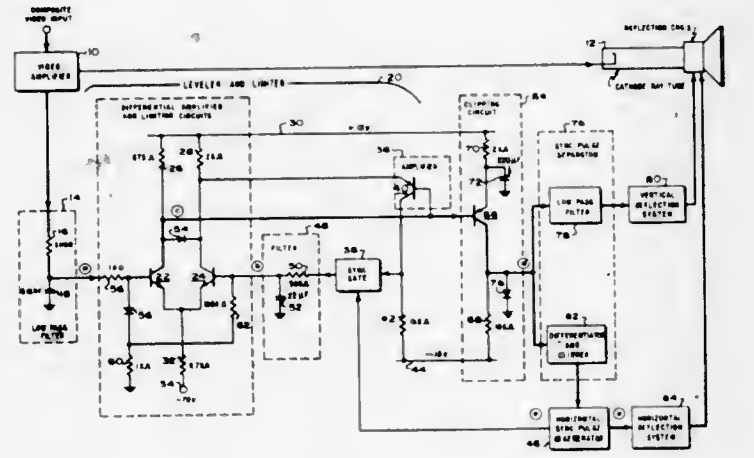
Forrest C. Meyer, San Diego, Calif., assignor to Systems Peripherals Division, San Diego, Calif.
Filed Mar. 24, 1969, Ser. No. 809,586
Int. Cl. H03k *17/00, 5/153*
U.S. Cl. 328—150 **12 Claims**



A readout signal processing circuit is disclosed wherein the read signal is provided by a transducer scanning a magnetic recording surface. The signal is delay-line-differentiated, doubly clipped and again delay-line-differentiated. A double-ended output of the second differentiator is separately connected to two differential-type amplifiers respectively receiving a reference derived from diodes duplicating the clipping levels. The outputs of the two amplifiers are coupled to provide a single output train, the pulses of which are alternatingly produced in the two amplifiers in representation of oppositely directed zero crossings in the differentiated transducer readout signals representing in turn magnetic flux reversals on the recording surface.

3,569,844
SYNC STRIPPER

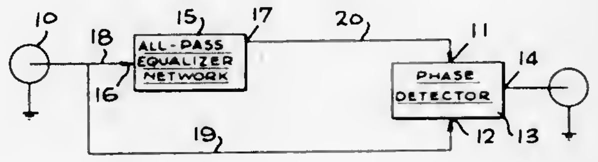
Robert E. Lynn, Somerville, N.J., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Mar. 19, 1968, Ser. No. 714,208
Int. Cl. H03k *5/00, 5/20*
U.S. Cl. 328—151 **11 Claims**



A video amplifier supplies an input composite video signal to the intensity control electrode of a cathode ray tube and through a low-pass filter to a differential amplifier. The sync tips of the filtered composite video signal are clamped to a fixed level in the output circuit of the differential amplifier by a closed loop feedback circuit. A diode connected in the output circuit of the differential amplifier limits the magnitude of the clamped composite video signal. This diode and a voltage divider connected to the input circuit of the differential amplifier increase the range of composite video signals that can be clamped to the fixed level. The picture signal is stripped from the clamped composite video signal by a clipping circuit. A sync separator separates the vertical field and horizontal line sync pulses from the stripped composite video signal and supplies them to vertical and horizontal deflection systems for controlling the vertical field and horizontal line scans of the electron beam of the cathode ray tube.

3,569,845
WIDE BAND FREQUENCY DISCRIMINATOR UTILIZING A CONSTANT AMPLITUDE EQUALIZER NETWORK

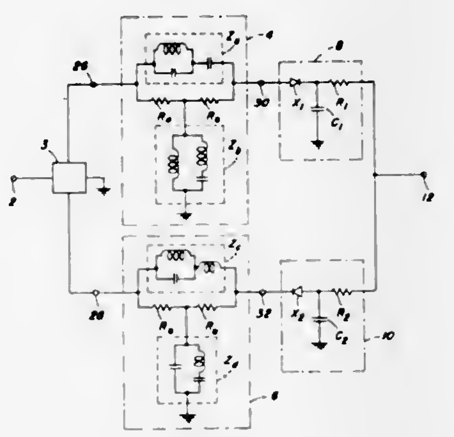
Richard Steinberg, Woodland Hills, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Feb. 2, 1967, Ser. No. 613,614
Int. Cl. H03d *3/00*
U.S. Cl. 329—110 **5 Claims**



A wide band frequency discriminator is disclosed wherein the signal whose frequency is to be detected is applied simultaneously to two parallel paths. One path leads directly into one input of a wide band phase detector, such as a diode switch circuit, and the other path leads through an all pass equalizer network to the other input of the phase detector. The all pass equalizer network is designed to provide a transfer function which shifts the phase of the input signal as a preselected function of the signal frequency but whose amplitude characteristic is independent of signal frequencies. Since the output of the all pass network is compared in phase to the original signal by the phase detector, its output is a direct current voltage the amplitude of which is a measure of the phase difference introduced by the equalizer network which is in turn a known function of signal frequency.

3,569,846
FREQUENCY DISCRIMINATOR APPARATUS

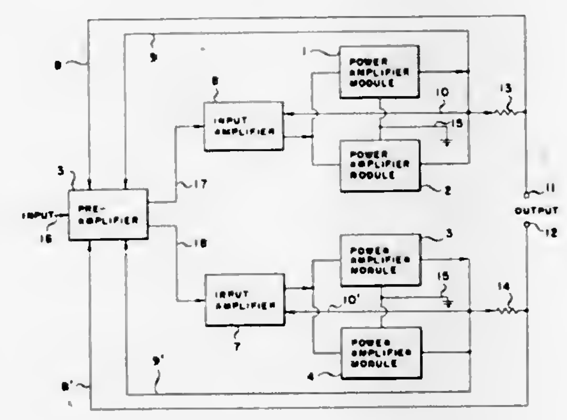
Teruaki Matsuura, Tokyo-To, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Nov. 27, 1968, Ser. No. 779,534
Claims priority, application Japan, Dec. 1, 1967, 42/77303
Int. Cl. H03d *3/26*
U.S. Cl. 329—140 **4 Claims**



Wide band frequency discriminator apparatus is provided in accordance with the invention wherein a plurality of two terminal network means are combined with other impedance means to form four terminal circuit means which exhibit constant resistance. The four terminal circuit means are then combined with detector means to form respectively the branching circuits of wide band frequency discriminator apparatus which manifests high demodulation sensitivity throughout the frequency range thereof.

3,569,847
AMPLIFIER SYSTEM FOR DRIVING SHAKER MOTORS

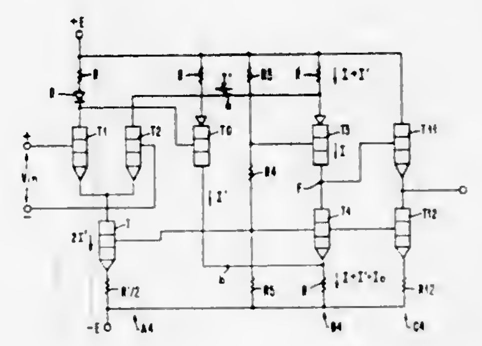
Robert H. Adams, Sun Valley, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed June 23, 1969, Ser. No. 835,344
Int. Cl. H03f *3/18*
U.S. Cl. 330—13 **6 Claims**



A modular bridge-type solid-state amplifier capable of delivering several kilowatts of audio-frequency power over a frequency range of zero to approximately 7,500 Hertz and which has an output impedance selectively variable from substantially zero to approximately 100,000 ohms. The amplifier employs both positive and negative feedback, with the selected output impedance being obtained by varying the amount of signal feedback to the preamplifier from the output terminals and an output current sensor. The amplifier may readily be expanded to obtain either voltage or current gain, or both, by adding appropriate modules in series and parallel arrangements, or combinations thereof.

3,569,848
UNCONDITIONALLY STABLE, OPEN LOOP OPERATIONAL AMPLIFIER

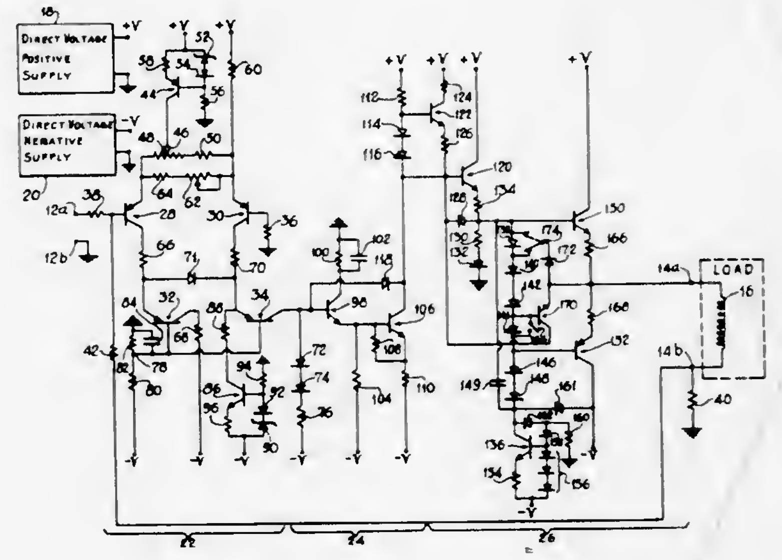
Daniel J. Esteban, La Cotiniere, France, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 12, 1968, Ser. No. 783,235
Int. Cl. H03f *3/18, 3/68*
U.S. Cl. 330—14 **2 Claims**



An open loop semiconductor operational amplifier having a differential amplifying input stage, an output stage having high input and low output impedance, and an intermediate stage interconnecting the input and output stage and having low input impedance and high output impedance. The three stages are collectively responsive to an applied input signal so as to maintain unconditional stability up to unity gain operation without external feedback circuitry.

3,569,849
DEFLECTION AMPLIFIER

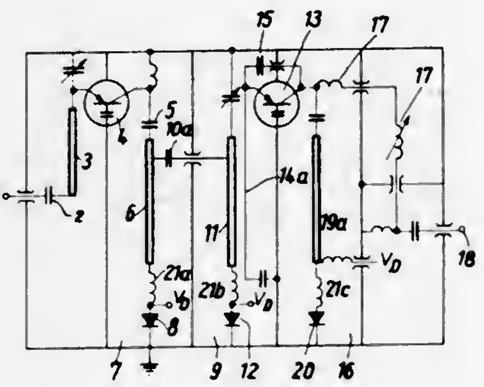
John J. Cassidy, Newton Centre, and Melvin F. Silverstein, Holbrook, Mass., assignors to Beta Instrument Corporation, Newton Upper Falls, Mass.
Filed June 11, 1968, Ser. No. 736,186
Int. Cl. H03f *3/04, 3/68*
U.S. Cl. 330—24 **20 Claims**


DIRECT VOLTAGE POSITIVE SUPPLY
DIRECT VOLTAGE NEGATIVE SUPPLY
LOAD
+V
-V

A semiconductor wide-bandwidth amplifier for driving the deflection coil of a cathode-ray tube or like electrical load employs an adjustably-coupled differential input stage and also has an electronic voltage-buffer circuit that makes efficient operation possible with the large supply voltage that drives the load. Two paths for operating power in the amplifier have complimentary effects to maintain a stable output signal when the supply voltage fluctuates. A push-pull output stage has quick bipolar limiting without semiconductor saturation and employs a constant bias to provide stable quiescent bias current during supply voltage variations.

3,569,850
HIGH FREQUENCY AMPLIFIER WITH LINE CIRCUITS

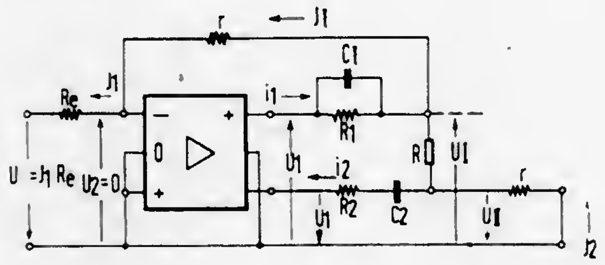
Rolf Wegener, Hannover; Werner Backnick, Bredenbeck, Hannover, and Werner Heitefuss, Hannover, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Danube, Germany
Filed Oct. 11, 1966, Ser. No. 585,838
Claims priority, application Germany, Oct. 13, 1965, June 8, 1966, T29565;T31320
Int. Cl. N03f *3/60*
U.S. Cl. 330—56 **10 Claims**



A high frequency amplifier has a line circuit which is resonant at some selected frequency, and which line circuit includes a variable capacitive diode means arranged to tune the line circuit, and a series resonant circuit which includes the said diode means and has a resonant frequency different from said resonant line circuit. The said series circuit includes an inductive means connected in series with said diode means.

3,569,851
ELECTRICAL FILTER CIRCUIT

Andreas Jaumann, Ebenhausen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Apr. 19, 1968, Ser. No. 722,601
Claims priority, application Germany, Apr. 20, 1967, S 109,429
Claims priority, application Switzerland, Jan. 26, 1968, 1,262/68
Int. Cl. H03f *3/52*
U.S. Cl. 330—109 **8 Claims**

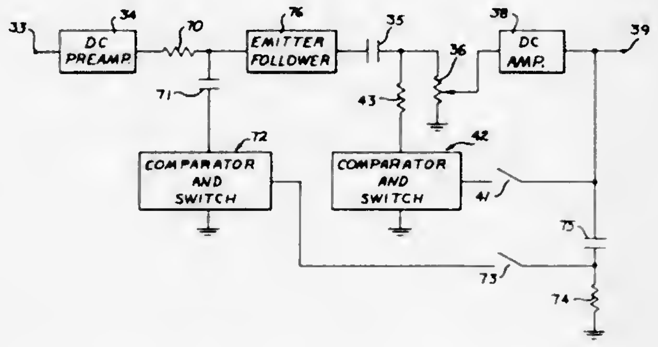


An electrical filter comprises an amplifier with a pair of push-pull terminals on its input and/or output side. A frequency-selective network forms a negative feedback from the output to the input of the amplifier. A bridge circuit constituted by circuit components of the network as well as by the pair of push-pull terminals, has branches whose respective reactive impedances differ from one another as regards their dependence upon frequency so as to conjointly define a pair of null points for the damping function of the transmitting attenuation of the filter.

3,569,852
FREQUENCY SELECTIVE VARIABLE GAIN AMPLIFIER

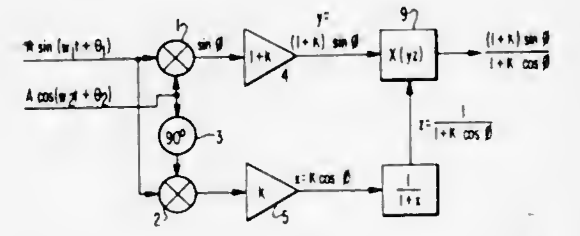
Barouh V. Berkovits, Newton Highlands, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed Jan. 23, 1969, Ser. No. 793,261
Int. Cl. H03f *1/26*
U.S. Cl. 330—132 **18 Claims**

An amplifier for an electrocardiographic monitoring system. The band-pass of the amplifier is such that ordinarily all frequency components of the ECG signal are amplified to the same extent. In the presence of a low frequency noise signal which causes the output voltage to exceed a maximum limit in either direction, the low frequency 3-db. point is raised from .05 Hertz to 1.0 Hertz. This is achieved simply by lowering the time constant of a high pass filter in the amplifier. The shorter time constant reduces the effect of low frequency noise on the output voltage. While some of the low frequency components in the ECG signal are attenuated, most of the usable information in the signal is retained. The shorter time constant also provides a faster recovery for the amplifier following large direct current voltage changes. This is especially beneficial when the patient electrodes of the monitoring system are switched and they induce a charge in the DC component of the ECG signal which might saturate the ECG preamplifier. Similarly, in the presence of high frequency noise signals the high frequency 3-db. point is lowered for a similar purpose.



3,569,853
PHASE-LOCK LOOP WITH TANGENT FUNCTION PHASE COMPARATOR

Chester J. Wolejsza, Jr., Rockville, Md., assignor to Communications Satellite Corporation
Filed July 1, 1969, Ser. No. 838,189
Int. Cl. H03b *3/04;* **H03d** *13/00*
U.S. Cl. 331—22 **6 Claims**

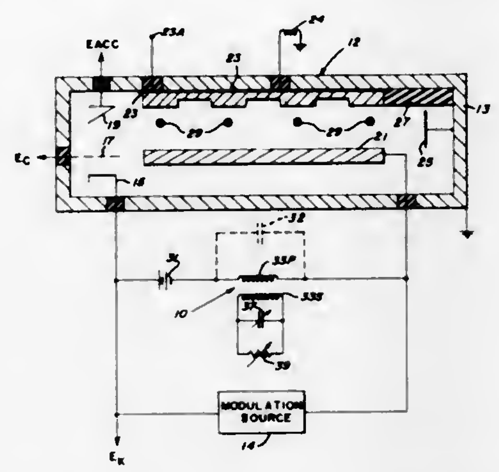


An improved tanlock phase-lock loop phase comparator generates the signals approximating $y = (l+k) \sin \Phi$ and $x = k \cos \Phi$ in response to a pair of input signals$A \sin (\omega_1 t + \Theta_1)$ and $A \cos (\omega_2 t + \Theta_2)$ where $\Phi = \Theta_1 - \Theta_2$. The signal $k \cos \Phi$ is operated on by a nonlinear circuit element having a transfer function approximating $1/1+x$ to produce a signal z. Signals y and z are multiplied to provide the desired output approximating the form $(1+k) \sin \Phi/1+k \cos \Phi$.

3,569,854
OSCILLATION SUPPRESSION CIRCUITRY

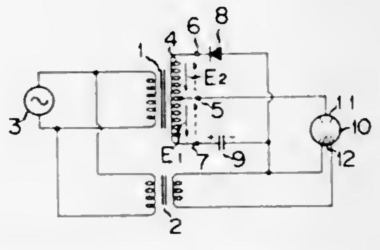
Merle R. Boyd, Auburndale, Mass., assignor to Raytheon Company, Mass.
Filed Apr. 15, 1969, Ser. No. 816,300
Int. Cl. H03b *1/04*
U.S. Cl. 331—82 **2 Claims**

An oscillation suppression circuit for use particularly with crossed-field traveling wave tubes used as backward wave oscillators, the preferred embodiment including a tuned circuit, resonant at the frequency to be suppressed, which is coupled to the sole electrode circuit.



3,569,855
POWER SUPPLY FOR HEATING MAGNETRON

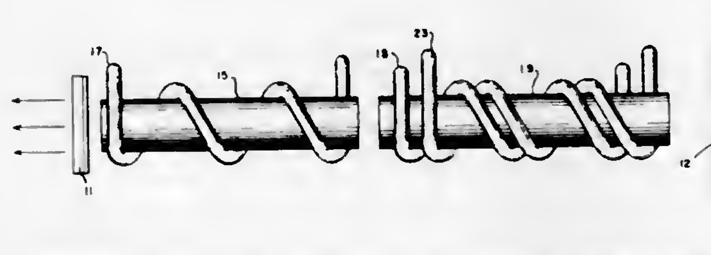
Tomimitsu Noda, Yokohama-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Jan. 3, 1969, Ser. No. 788,869
Claims priority, application Japan, Jan. 16, 1968, 43/2288;43/2289;43/2290;43/2291
Int. Cl. H03b *9/10*
U.S. Cl. 331—86 **5 Claims**



A high frequency magnetron apparatus for use in heating ovens with an improved powei source device which comprises a transformer for stepping up a source voltage, a magnetron disposed on the secondary side of the transformer, and a circuit positioned on said secondary side, consisting of a condenser and diode and arranged in such a manner that when there is supplied a voltage in one direction from the poser source provided on the secondary side of the transformer, the condenser is charged and that when there is supplied a voltage therefrom in the opposite direction, the secondary voltage of the transformer is combined with the charge voltage of the condenser to be impressed on the magnetron.

3,569,856
LASER FREQUENCY MODULATING SYSTEM

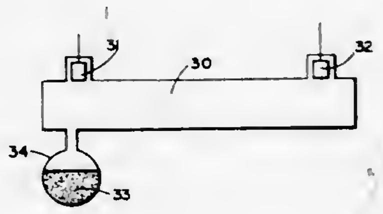
Stuart L. Ridgway, Princeton, N.J., assignor to TRW Inc., Redondo Beach, Calif.
Filed Feb. 8, 1968, Ser. No. 704,044
Int. Cl. H01s *3/10*
U.S. Cl. 331—94.5 **4 Claims**



The invention is directed to an optical laser of the Fabry-Perot resonant cavity type wherein at least one of the cavity reflectors is formed from an electro-optical material shaped as an echelon. An electric modulating field is applied to the electro-optical material by placing the material in a dielectric waveguide. The modulating field causes a proportional change in the optical path length of the resonant cavity which in turn frequency modulates the output of the optical laser.

3,569,857
METHOD AND MEANS FOR ACHIEVING CHEMICAL EQUILIBRIUM IN A SEALED-OFF CO_2 LASER

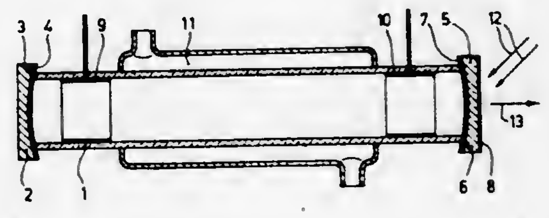
John A. Macken, Orange, Calif., assignor to North American Rockwell Corporation
Filed Mar. 13, 1968, Ser. No. 712,831
Int. Cl. H01s *3/22*
U.S. Cl. 331—94.5 **3 Claims**



Chemical equilibrium and optimum operation in a sealed-off CO_2 gas laser is maintained by replenishing the CO_2 lost by dissociation into CO and O_2 either directly by providing a source and getter arrangement inside the laser tube or by replenishing the O_2 lost by reaction with oxygen gettering surfaces in the laser cavity by placing an oxygen yielding compound in the laser cavity which will react with the CO to produce CO_2.

3,569,858
DEVICE FOR PRODUCING STIMULATED INFRARED EMISSION, AN IRASER

Wilhelmus Jacobus Witteman; Gerrit Van Der Goot, and Johannes Van Der Wal, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed May 31, 1968, Ser. No. 733,340
Claims priority, application Netherlands, June 1, 1967, 6707614
Int. Cl. H01s *3/05, 3/08, 3/22*
U.S. Cl. 331—94.5 **1 Claim**



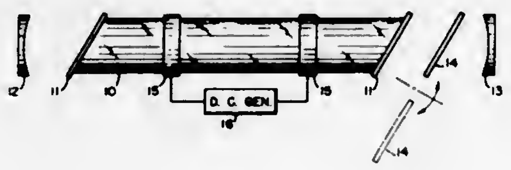
The invention provides for producing stimulated infrared emission, an iraser, by means of an electric discharge in a gas mixture partly consisting of carbon dioxide in which the discharge space is closed at one end by a concave metal mirror and at the other end by a coupling-out window which covers the whole cross section of the discharge space and also acts as a reflector, according to the invention, this window consists of a plate of zinc selenide which is coated on the discharge side with a few reflection-increasing layers and on the outer side with a reflection-decreasing material. The surface of the plate on the discharge side and the metal reflector at the other end of the discharge between the reflectors.

3,569,859

LASER SYSTEM OPERABLE AT DIFFERENT WAVELENGTHS

Wayne T. Whitney, Oxon Hill, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 13, 1969, Ser. No. 790,684
Int. Cl. H01s *3/10, 3/22, 3/02*
U.S. Cl. 331—94.5 **3 Claims**



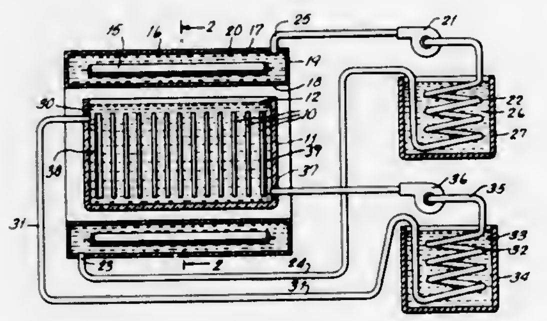
This disclosure is directed to a carbon dioxide laser which is modified to operate at a wavelength of 9.6 microns rather than at the normal wavelength of 10.6 microns. This modification is brought about by placing a selectively absorbing material within the cavity which allows the 9.6 micron transitions to dominate without any realignment of the laser cavity.

3,569,860

LASER STRUCTURE COMPRISING A PLURALITY OF LASER MATERIAL SEGMENTS FOR HIGH POWER DISSIPATION

Eugene T. Booth, Briarcliff Manor, N.Y., assignor to American Optical Corporation, Southbridge, Mass.

Continuation-in-part of application Ser. No. 384,115, July 21, 1964, now abandoned , which is a continuation-in-part of application Ser. No. 215,669, Aug. 8, 1962, now abandoned. This application Apr. 25, 1969, Ser. No. 821,165
Int. Cl. H01s *3/04*
U.S. Cl. 331—94.5 **9 Claims**



In a laser structure having means for establishing a predetermined laser light propagation direction, a series of thin parallel-faced plates of laser material disposed in closely spaced parallel relation to one another with their opposite faces positioned to be traversed by laser light travelling in the aforementioned propagation direction, and a fluid coolant occupying the space between each pair of adjacent thin plates of laser material. The described assembly may be disposed within a container for confining the fluid coolant and means may be provided for effecting circulation of the coolant through the container.

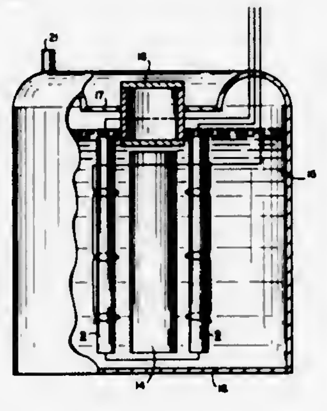
3,569,861

XENON FLASH LAMP FOR LASER PUMPING IN LIQUID NITROGEN

James W. Tucker, Alexandria, and James N. Bradford, Falls Church, Va., assignors to The United States of America as represented by the Secretary of the Navy

Original application Mar. 25, 1965, Ser. No. 442,838, now Patent No. 3,449,615, dated June 10, 1969. Divided and this application Mar. 14, 1969, Ser. No. 840,561
Int. Cl. H01s *3/04*
U.S. Cl. 331—94.5 **4 Claims**

This disclosure is directed to a laser system including therein a flashlamp which is operable at a temperature of about −180° C. and lower. The laser lamp may be immersed in the coolant fluid and optically coupled to the laser element which may be contained within the coolant.

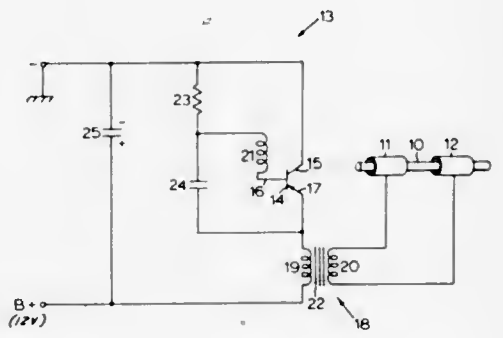


3,569,862

GAS LASER EXCITER

George R. Johnson, 23 Sir Williams Lane, Toronto, Ontario, Canada

Filed June 2, 1969, Ser. No. 829,217
Int. Cl. H01s *3/09*
U.S. Cl. 331—94.5 **2 Claims**



A gas laser having a power supply consisting of an overdriven oscillator of relatively low fundamental frequency with an output rich in harmonics. The harmonic content of the power supply output helps to initiate the excitation of the laser; after the gas has been excited the waveform of the power supply output becomes more nearly sinusoidal.

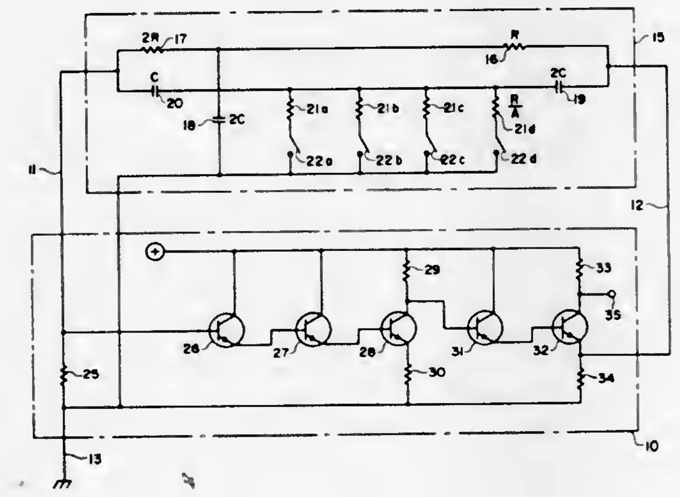
3,569,863

TWIN-T OSCILLATOR

Michael C. J. Cowpland, Ottawa, Ontario, and Harry J. Lajeunesse, Stittsville, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 13, 1968, Ser. No. 783,626
Int. Cl. H03b *5/26*
U.S. Cl. 331—110 **7 Claims**

A twin-T oscillator utilizing positive feedback in which the attenuation through the twin-T feedback network is reduced by unbalancing the components so as to provide a low impedance input side and a high impedance output side, thereby reducing the overgain requirements of the associated amplifier.

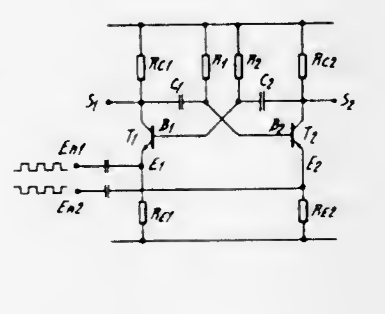


3,569,864

ASTABLE TRANSISTOR MULTIVIBRATOR FREQUENCY DIVIDER

Igor Scherrer, Colombier, Switzerland, assignor to S. A. Ebauches, Neuchatel, Switzerland

Filed Jan. 6, 1969, Ser. No. 789,205
Int. Cl. H03k *3/282, 21/00*
U.S. Cl. 331—113 **2 Claims**



A frequency divider is formed by an astable transistorized multivibrator of symmetrical construction comprising two parts. Rectangular input signals are applied symmetrically and in opposite phase to each part, and fed to the emitters of the transistors through a respective input capacitor. The multivibrator is a relaxation oscillator consisting of two NPN transistors coupled through two capacitors, so that the input of one transistor is actuated through the respective capacitor, by the output of the other transistor. The input signals may be supplied by an identical multivibrator.

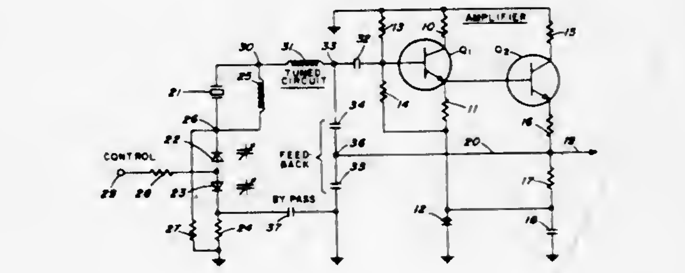
3,569,865

HIGH STABILITY VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

Daniel J. Healey III, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed June 12, 1969, Ser. No. 832,767
Int. Cl. H03b *5/36*
U.S. Cl. 331—116 **4 Claims**

A high stability voltage-controlled crystal oscillator having a series coupled emitter follower transistor amplifier with a regenerative feedback to a tuned circuit coupled to the base electrode of the amplifier, the tuned circuit having a narrow band-pass crystal filter in series with a variable capacity device and in parallel with a low Q inductance with a control voltage adapted to be coupled to the variable capacity device to vary the capacitive reactance of the tuned circuit to produce oscillations over a limited frequency range with high stability.

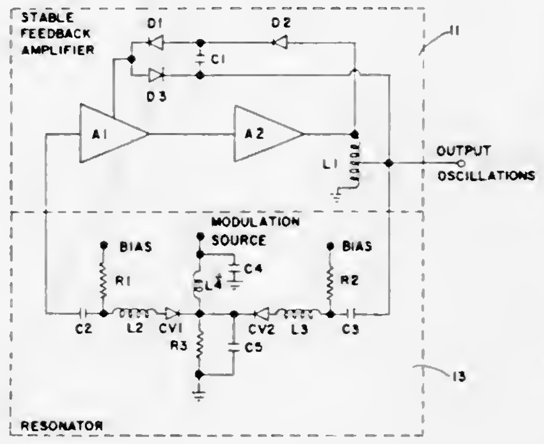


3,569,866

WIDEBAND VCO WITH HIGH PHASESTABILITY

Chase P. Hearn, Williamsburg, Va., assignor to the United States of America, as represented by the Administrator of the National Aeronautics and Space Administration

Filed Nov. 26, 1968, Ser. No. 779,024
Int. Cl. H03b *5/12*
U.S. Cl. 331—117 **3 Claims**



This disclosure describes a wideband voltage controlled oscillator with high phase stability. A resonator consisting of a number of identical L-C resonators reactively coupled to the input and the output of a highly phase stable amplifier is described. The resonant frequency of each resonator is controlled by applying a modulating signal to voltage variable capacitors which form a portion of the resonators. In addition, the amplifier has electrically-variable negative feedback which improves its phase stability and simultaneously provides a means for maintaining the oscillations nearly sinusoidal.

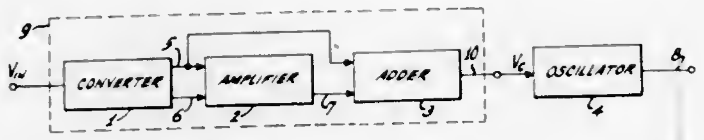
3,569,867

TEMPERATURE-COMPENSATED FREQUENCY-VOLTAGE LINEARIZING CIRCUIT

Robert L. Ernst, New Brunswick, N.J., assignor to RCA Corporation

Filed June 3, 1968, Ser. No. 733,955
Int. Cl. H03b *3/04*
U.S. Cl. 331—177 **4 Claims**

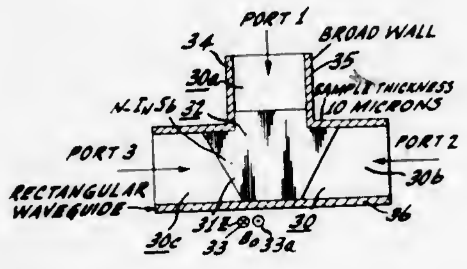
A technique is disclosed for providing a desired nonlinear output control voltage which has a continuous first derivative from a linear input command voltage. The output control voltage maintains its curvature and orientation in the presence of ambient temperature variations. This is accomplished by provision of a first circuit impedance which produces the desired nonlinear curvature as a function of a



linear input, while a second impedance negates impedance changes in the circuit semiconductor devices due to the temperature changes.

3,569,868
NONRECIPROCAL MICROWAVE DEVICES USING A SEMICONDUCTOR ELEMENT

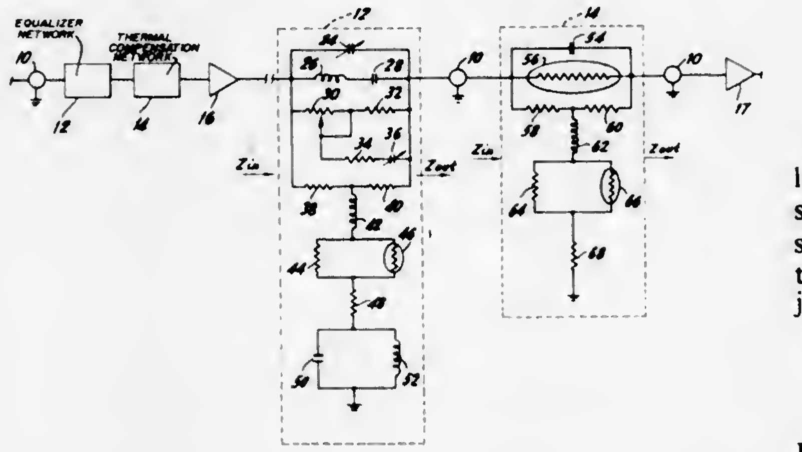
Kimio Suzuki, and Ryogo Hirota, Tokyo, Japan, assignors to RCA Corporation
Filed Feb. 25, 1969, Ser. No. 802,161
Int. Cl. H01p *1/32, 5/12*
U.S. Cl. 333—1.1 **7 Claims**



Nonreciprocal microwave devices operable at room temperature using semiconductor elements with decreased magnetic field bias in waveguides are provided herein by a reduced thickness of the semiconductor material.

3,569,869
THERMAL COMPENSATION FOR A RADIO FREQUENCY TRANSMISSION LINE

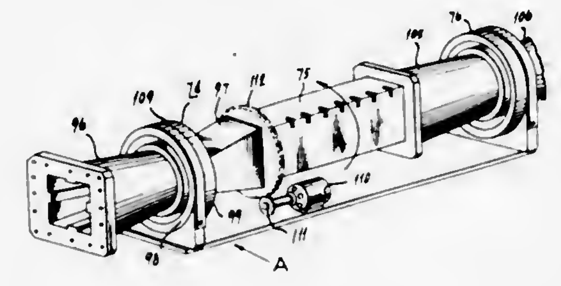
Walter O. Sutton, Jr., 20-25 Terrace Drive, Feasterville, Pa., and Norman Everhart, 440 Heaton Road, Hatboro, Pa.
Filed June 21, 1968, Ser. No. 738,918
Int. Cl. H04b *3/10, 3/14*
U.S. Cl. 333—16 **15 Claims**



An electric network is described for compensating a transmission line system for temperature variations. Two types of compensating networks are described, one varying in response to temperature; the other in response to a pilot signal provided for this purpose. A transmission line equalizer is described in conjunction with the thermal compensation network to show the advantages of separating thermal compensation from the equalization network.

3,569,870
FEED SYSTEM

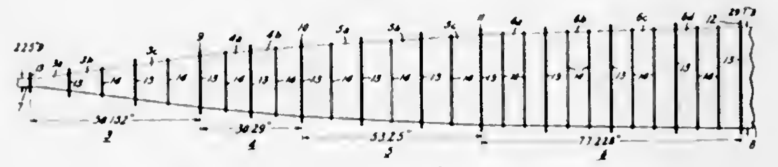
Peter Foldes, Montreal, Quebec, Canada, assignor to RCA Corporation
Original application Aug. 21, 1968, Ser. No. 754,373. Divided and this application June 11, 1969, Ser. No. 844,707
Int. Cl. H01p *1/16, 5/08*
U.S. Cl. 333—21 **5 Claims**



A feed system suitable for satellite communication earth station antennas and which includes a three-port polarizer assembly, multimode horn assembly and tracking difference mode circuitry is described. The three-port polarizer assembly is coupled to the horn assembly for providing full polarization mode flexibility for the sum modes. The multimode horn assembly provides excitation and control of both the sum and difference modes and inhibits the undesirable modes. The tracking difference mode circuitry is coupled to the multimode horn to process the difference modes and provide the azimuth and elevation information for monopulse tracking.

3,569,871
WAVEGUIDE TAPER OF MINIMUM LENGTH

Kiyo Tomiyasu, Scotia, N.Y., assignor to General Electric Company
Filed Aug. 22, 1968, Ser. No. 754,700
Int. Cl. H01p *1/16, 5/00*
U.S. Cl. 333—34 **7 Claims**

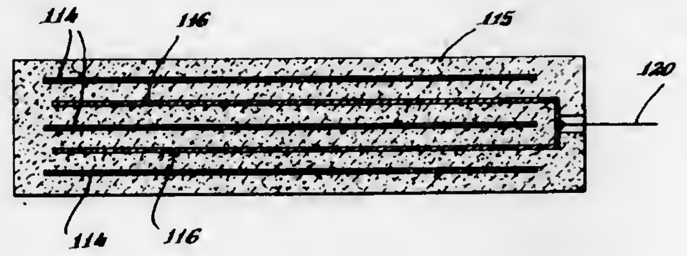


A low-cost waveguide taper for interconnecting two circular waveguides which differ substantially in size is constructed from a plurality of reinforced, thin-walled conical sections having predetermined taper angles and axial lengths to minimize the effects of spurious modes generated at the junctions of the conical sections.

3,569,872
ELECTRONIC COMPONENT

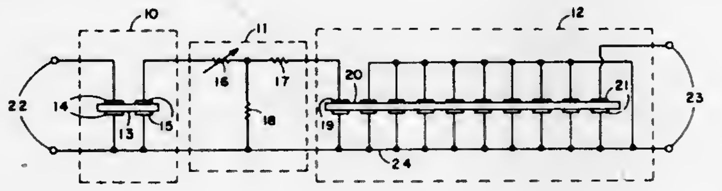
Irving Berlin, Dallas, Tex., assignor to Vitramon, Incorporated, Monroe, Conn.
Continuation-in-part of application Ser. No. 665,944, Sept. 1, 1967, now abandoned. This application Nov. 27, 1968, Ser. No. 820,687
Int. Cl. H03h *7/06*
U.S. Cl. 333—70 **6 Claims**

A distributed RC component wherein alternate layers of a resistive material and a conductive material are separated by and embedded within a dielectric material. The result is a monolithic body having both resistive and capacitive capabilities and which functions as a filter circuit, a second embodiment has one of the capacitive and resistive layers embedded on a surface of the dielectric.



3,569,873
INSERTION LOSS EQUALIZATION DEVICE

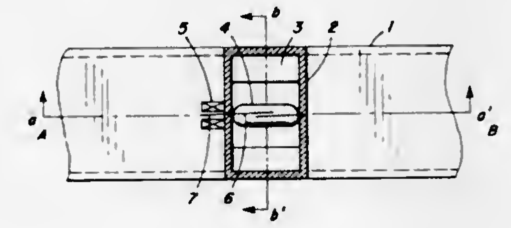
William D. Beaver, Costa Mesa, Calif., assignor to Collins Radio Company, Dallas, Tex.
Filed Nov. 18, 1968, Ser. No. 776,497
Int. Cl. H03h *9/00;* **H03h** *7/08*
U.S. Cl. 333—72 **9 Claims**



A loss equalization device comprising a piezoelectric quartz crystal plate with two pairs of metallic electrodes deposited thereon to form two coupled resonators. The structure is terminated in a resistance different from the midband impedance of the structure's passband so that there is more attenuation in the center of the passband than in the areas off the center. By cascading this device with a lossy, properly terminated filter, there is obtained a substantially flat frequency response curve.

3,569,874
MICROWAVE SWITCHING DEVICE EMPLOYING A REED SWITCH ELEMENT

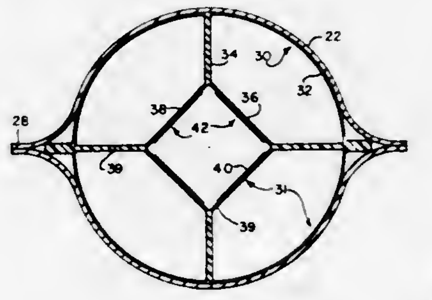
Takaji Kuroda, and Yoshimi Tagashira, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan
Filed Aug. 14, 1968, Ser. No. 752,636
Claims priority, application Japan, Aug. 28, 1967, 42/55,059
Int. Cl. H01p *1/10, 1/20, 7/04*
U.S. Cl. 333—73 **13 Claims**



A switching device for tuning a hollow waveguide transmitting microwave signals, including a resonator comprising a section of the waveguide, a reed switch disposed in a normally open state interiorly of the resonator section, and a solenoid mounted exteriorly on the waveguide in proximity of the reed switch, the solenoid energized by a switching signal for providing a magnetic field to actuate the reed switch to a closed state to tune the resonator to a mid-frequency of a first preselected frequency band of microwave signals to reflect the latter signals in the waveguide; the solenoid deenergized in response to a discontinuance of the switching signal for terminating the magnetic field to permit the switch to return to the normally open state to tune the resonator to a mid-frequency of a second preselected frequency band of microwave signals different from the first preselected band of microwave signals to transmit the latter signals in the waveguide.

3,569,875
COLLAPSIBLE ANTENNA BOOM AND TRANSMISSION LINE

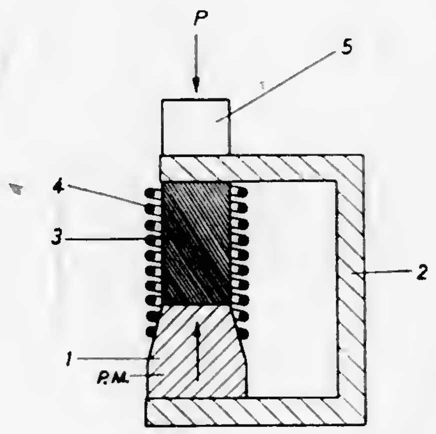
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Lawrence L. Rainwater, Huntsville, Ala.
Filed Feb. 10, 1969, Ser. No. 797,795
Int. Cl. H01p *3/06, 3/14;* **H01q** *1/22*
U.S. Cl. 333—96 **5 Claims**



A collapsible antenna boom and coaxial transmission line having an inflatable inner tube. The tubular outer casing is made of two sheets of thin sheet metal butted together and seam welded to form two protruding flanges at opposite sides of the casing. The inner tube, which provides considerable strength to the boom, has four compartments spaced around its outer circumference and a center compartment all interconnected by ports. Four parallel transmission line inner conductors are all equally spaced around the inner wall of the center compartment. The outer casing serves as the outer transmission line conductor. The design of the tubular outer casing and the inflatable inner tube permits the boom to be folded and rolled on a reel when not in use.

3,569,876
MAGNETIC-ELECTRIC SWITCH ELEMENT

Carl-Otto Leiber, Orplid Str. 11, 7 Stuttgart-Sonnenbery, and Gunther Heimke, Neckarhauser Str. 54, 68 Mannheim-Friedrichsfeld, Germany
Filed Apr. 7, 1969, Ser. No. 813,950
Claims priority, application Germany, Apr. 6, 1968, P 17 63 130.0
Int. Cl. H01b
U.S. Cl. 335—2 **9 Claims**

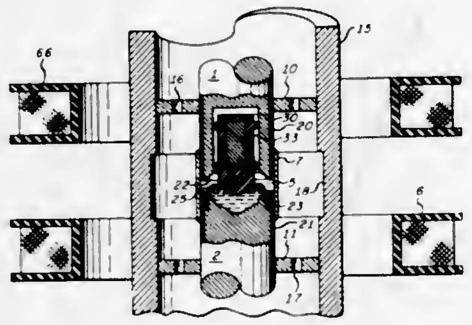


A magnetic electric switch element particularly appropriate as a component for projectile fuzes or similar uses.

A switch element having a magnetic field has a contact bridge serving as a switching relay inserted therein which can be loaded through pressure or when under pressure it can be unloaded, made of a metal alloy with a Curie temperature which varies through pressure and when applying a certain pressure it lowers the Curie temperature from ferromagnetic into a paramagnetic condition and inversely when decreasing the pressure while increasing the Curie temperature it changes from a paramagnetic condition into ferromagnetic.

3,569,877
HIGH FREQUENCY SWITCH

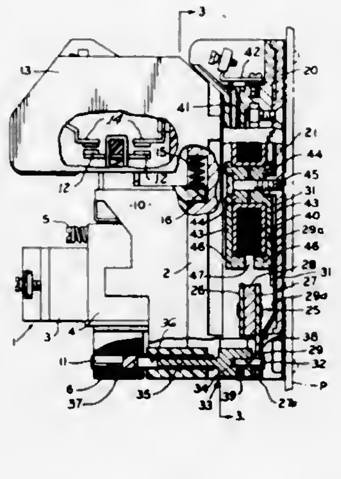
Kenneth W. Robbins, Wilmington, and Gerald F. Ross, Lexington, Mass., assignors to Sperry Rand Corporation
Filed July 23, 1969, Ser. No. 843,945
Int. Cl. H01h *67/24*
U.S. Cl. 335—5 **4 Claims**



A switch for conducting or interrupting the flow of current through spaced electrical conductors which introduce a minimum impedance discontinuity and insertion loss when operating in its current-conducting mode. Rapid initiation and termination of current flow is achieved by rapidly displacing a pool of electrically conducting liquid into and out of conducting position, respectively.

3,569,878
MAGNETIC LATCH ATTACHMENT WITH RELAYS

William E. Grass, Whitefish Bay, and Robert D. Boley, Brown Deer, Wis., assignors to Square D Company, Park Ridge, Ill.
Filed May 5, 1969, Ser. No. 821,614
Int. Cl. H01h *9/24*
U.S. Cl. 335—170 **9 Claims**



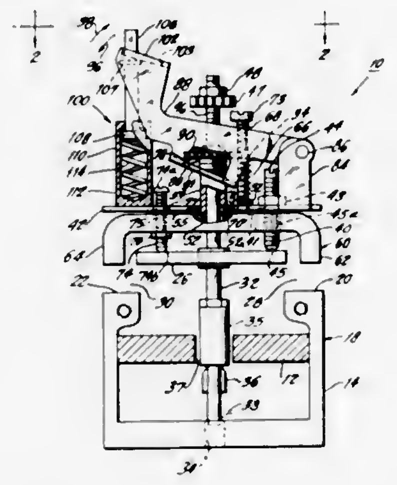
A permanent magnet latch attachment which magnetically latches an electromagnetically driven contact carrier of an electromagnetically operated switch device in an operating position against the force of a biasing spring which, when the latch attachment is rendered inoperative by energization of a release coil, returns the carrier to starting position.

A connecting pin is rotatable about an axis eccentric to its own axis adjusts the flux gap of the latch.

The latch attachment and release coil are mounted between the rear of the relay base and a mounting panel for the relay.

3,569,879
CIRCUIT BREAKER TRIP UNIT ASSEMBLY WITH AUXILIARY TIME DELAY ARMATURE

Carl E. Gryctko, Haddon Heights, N.J., assignor to I.T.E. Imperial Corporation, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 754,644, Aug. 22, 1968. This application Dec. 8, 1969, Ser. No. 883,176
Int. Cl. H01h *7/00*
U.S. Cl. 335—176 **7 Claims**



A circuit breaker magnetic trip unit assembly including a magnet core adjacent a conductor in the circuit being protected; a main armature which is separated by a predetermined air gap from the pole faces of the magnet core; the pole faces magnetically attract the main armature when the magnetic flux across the air gap elevates sufficiently; a separately movable auxiliary armature spaced away from the pole faces of the magnet and movable toward the pole faces upon the occurrence of magnetic attraction insufficient to move the main armature but sufficient to move the auxiliary armature; the auxiliary armature including an abutment for engaging and shifting the main armature toward the pole faces as the auxiliary armature moves until the magnetic attraction on the main armature is sufficient to pull the main armature to the pole faces; and a time delay device slowing the movement of the auxiliary armature thereby delaying tripping caused by shifting of the auxiliary armature.

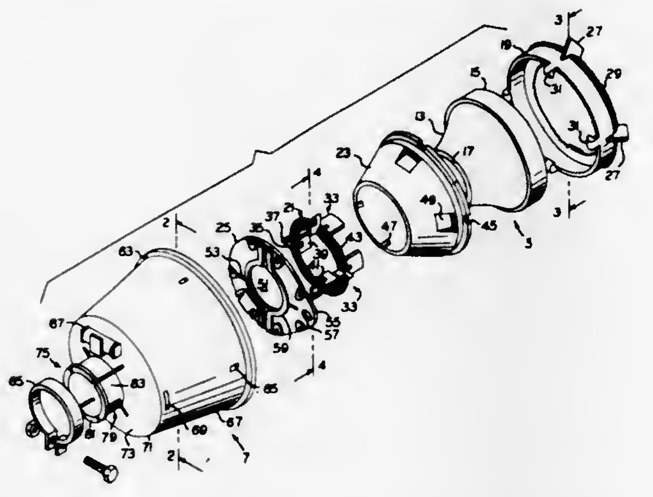
3,569,880
MAGNETICALLY OPERATED CURRENT SENSOR

Wallace W. Wahlgren, Oakland, Calif., assignor to The Rucker Company, Oakland, Calif.
Filed Sept. 16, 1968, Ser. No. 767,562
Int. Cl. H01h *51/28*
U.S. Cl. 335—204 **5 Claims**

Magnetically operated current sensor having a reed switch and a magnetic yoke for mounting the reed switch on a conductor so that the reed switch lies in the magnetic field created by current flowing in the conductor.

3,569,881
COMBINED DEFLECTION YOKE AND HOUSING

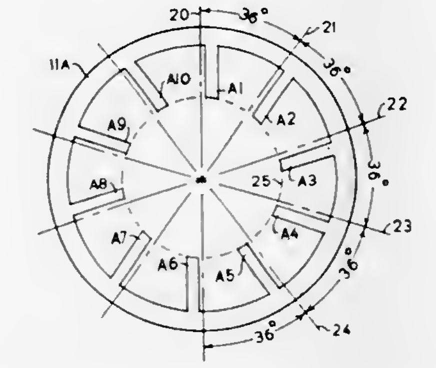
Charles Edward Torsch, Rochester, N.Y., assignor to Sylvania Electric Products, Inc.
Filed Aug. 19, 1969, Ser. No. 851,300
Int. Cl. H01f *7/00*
U.S. Cl. 335—210 **25 Claims**



In a cathode ray tube system a combined deflection yoke and housing includes an annular core member having first and second end portions with a first annular mounting ring having ear members and contacting the first end portion and a second annular mounting ring having tab members and contacting the second end portion with a shield member surrounding the core member and affixed to the first and second mounting rings, and a plurality of wire turns wrapped in toroidal fashion about the shield and core members and first and second mounting rings. A flexible plastic body member telescopes over the shield member and first and second mounting rings and includes a large diameter portion having peripheral slots formed for engagement with the ear members of the first annular mounting ring and a small diameter portion with a planar portion formed to provide an apertured mounting ring for engagement with the second annular mounting ring and the neck portion of a cathode ray tube.

3,569,882
ROTARY INDICATOR EMPLOYING ELECTROMAGNETIC STATOR HAVING RADIALLY OFFSET POLES

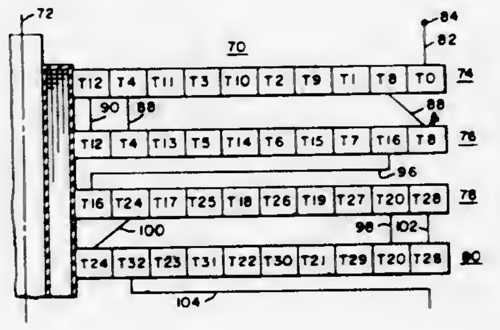
Richard C. Mc Comb, Newington, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.
Filed Aug. 15, 1969, Ser. No. 850,605
Int. Cl. H01f *7/14*
U.S. Cl. 335—272 **3 Claims**



An indicator has a permanent magnet secured to a drum to form a rotor which is able to turn to 180° opposed stations to permit the successive display of diametrically opposed symbols carried on the drum. The position of the rotor's permanent magnet is governed by a stator that can establish any one of a number of differently oriented magnetic fields. The stator has an even number of uniform poles protruding inwardly from an annular core. The poles are regularly spaced around the entire annular core and are arranged in pairs whose inner ends are diametrically opposed. The inwardly protruding poles, instead of being radial, are offset from and parallel tp diametral lines dividing the annular core into equal segments. The offset arrangement of poles insures the presence of a turning force on the rotor whenever the rotor is commanded to turn to the 180° opposite station.

3,569,883
ELECTRICAL WINDING

Robert I. Van Nice, 240 Case Ave, Sharon, Pa.
Filed Sept. 15, 1969, Ser. No. 857,952
Int. Cl. H01f *15/14*
U.S. Cl. 336—70 **3 Claims**


72
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T12 T4 T11 T3 T10 T2 T9 T1 T8 T0
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T12 T4 T13 T5 T14 T6 T15 T7 T16 T8
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T16 T24 T17 T25 T18 T26 T19 T27 T20 T28
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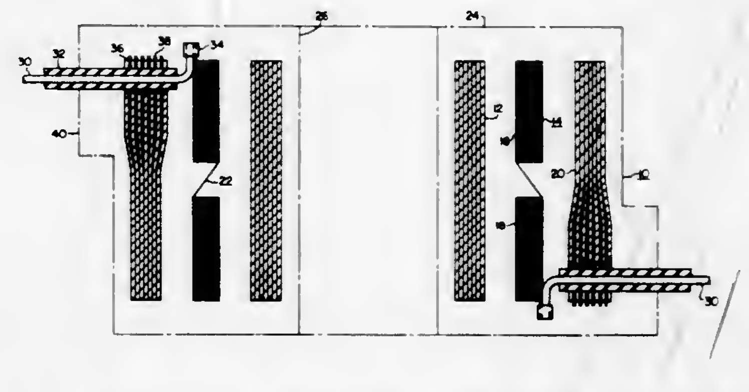
T24 T32 T23 T31 T22 T30 T21 T29 T20 T28
80
104

A winding for electrical inductive apparatus having a plurality of pancake coils, each of which have a plurality of turns provided by radially interleaved conductors. The first and second pancake coils adjacent the line end, or ends, of the winding, are interconnected to provide an interleaved turn, high series capacitance arrangement wherein the electrical circuit spirals inwardly in the first pancake coil and outwardly in the second. The third and fourth pancake coils are also interconnected to provide an interleaved turn, high series capacitance arrangement, but the sequence is reversed to direct the electrical circuit outwardly in the third pancake coil and inwardly in the fourth to reduce the electrical stress between the inner turns of the second and third pancake coils.

3,569,884
TRANSFORMER COIL WOUND FROM SHEET CONDUCTOR AND CAST IN A RESIN HOUSING

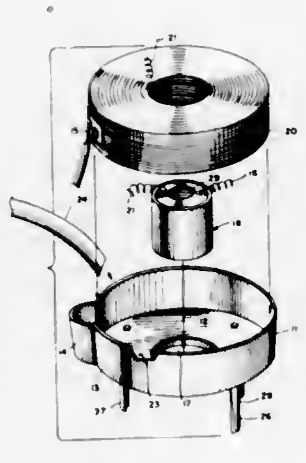
Leonard L. Wright, Sharon, and Paul W. Martincic, Sharpsville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Apr. 14, 1969, Ser. No. 815,743
Int. Cl. H01f *15/10, 27/04*
U.S. Cl. 336—96 **4 Claims**



A transformer coil comprising a low voltage winding and an inner concentric high voltage winding. The windings being provided by winding on itself a plurality of layers of sheet conductor having a thin insulation coating thereon. Leads for the high voltage winding are brought out of the coil through an opening in the low voltage winding or closely adjacent the low voltage winding and the windings are cast into a resin housing so that the resin housing surrounds the windings and the high voltage leads. The cast resin braces the high voltage leads against the low voltage windings and provides a long leakage path from the voltage leads to points of a different ground potential.

3,569,885
METHOD OF TRANSFORMER CONSTRUCTION AND DEVICE

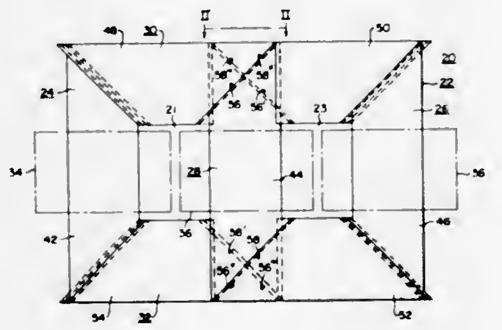
Raymond H. Hilgers, Roselle, Ill., assignor to Precision Paper Tube Company, Wheeling, Ill.
Filed Nov. 3, 1969, Ser. No. 873,307
Int. Cl. H01f *15/02, 27/30, 41/00*
U.S. Cl. 336—96 **7 Claims**



The transformer makes use of a unique cup-shaped fitting which has a central bottom opening defined by a flange made of thinner material so as to grip a primary winding in substantially fluidtight relation so that taunting compound can be effectively introduced into the fitting to complete the transformer.

3,569,886
MAGNETIC CORE STRUCTURES

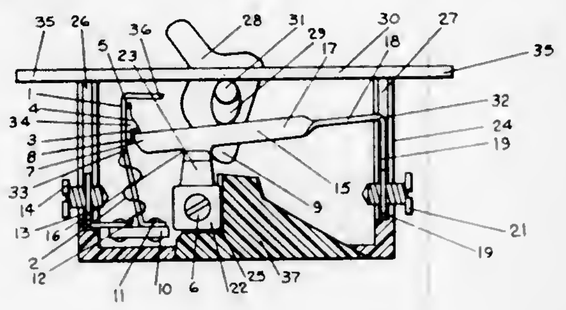
Theodore R. Specht, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 24, 1969, Ser. No. 860,474
Int. Cl. H01f *27/24*
U.S. Cl. 336—217 **11 Claims**



A three-legged magnetic core structure having a plurality of stacked layers of metallic laminations, including two outer leg laminations, an inner leg lamination, and joining upper and lower yoke laminations. Each layer of laminations is of like construction, utilizing laminations of like configuration and dimensions, with the layers being oriented differently to provide three layers between repeating joints. The joints at the outer corners of the magnetic core are mitered, and the joints between the yoke and inner leg lamination include a mitered and a square joint at each end of the inner leg lamination. The inner leg lamination has one end narrowed where it joins a yoke lamination with a square joint, to provide the required joint distribution between the inner leg lamination and adjoining yoke laminations.

3,569,887
TIME DELAY SWITCH

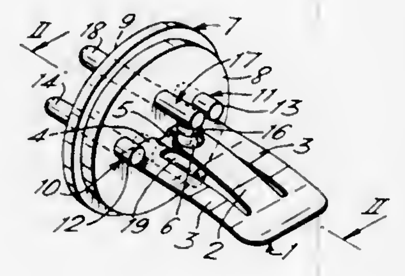
Horace D. Brown, Miami, Fla., assignor to Montec Corporation, Miami, Fla.
Filed Oct. 9, 1969, Ser. No. 865,014
Int. Cl. H01h *37/14, 37/52*
U.S. Cl. 337—77 **7 Claims**



A switch having a bimetal latch for locking a resilient contact in a closed circuit position, and a heating coil for activation of the latch to release the contact. An integral ambient temperature responsive switch energizes the coil periodically to stabilize the temperature of the bimetal.

3,569,888
THERMALLY SENSITIVE ELECTRIC SWITCHES AND ACTUATING DEVICES THEREFOR

John C. Taylor, Otters'Ole Market Street, Buxton, Derbyshire, England
Filed May 6, 1969, Ser. No. 822,175
Claims priority, application Great Britain, May 15, 1968, 23,158/68
Int. Cl. H01h *37/04, 37/54*
U.S. Cl. 337—89 **15 Claims**

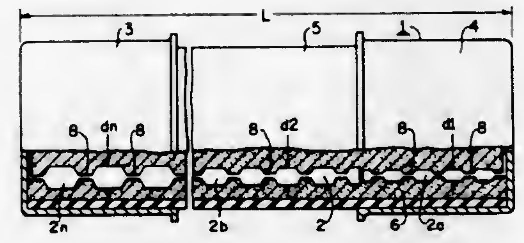


Thermally sensitive switches, and thermally sensitive switch actuating devices, in which a bimetal sheet constituting the actuating member of the switch or switch actuating device is mounted in cantilever fashion from a face of a mounting block by means of one or more metal rods embedded in the mounting block and welded, brazed or soldered to the face of the bimetal sheet.

3,569,889
CURRENT-LIMITING FUSABLE DEVICE WITH FUSABLE ELEMENTS OF STEPPED OR GRADUATED CROSS-SECTIONAL AREAS AND HAVING DENTS

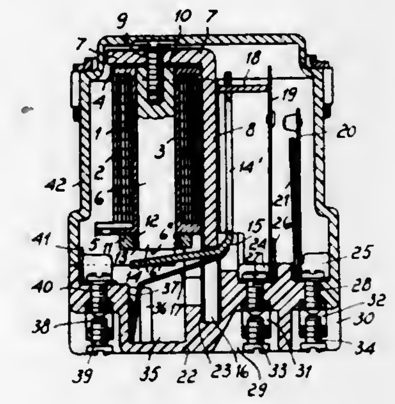
Yukio Iwasaki, Amagasaki, and Shinobu Oota, Takarazuka, Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 17, 1968, Ser. No. 768,406
Int. Cl. H01h *85/08*
U.S. Cl. 337—159 **7 Claims**

A current-limiting fuse has one or more electrically parallel fusible elements, each of which has a stepped, or graduated cross-sectional diameter. In addition, each of the fusible elements has dents provided along its axial length. Preferably, a plurality of such fusible elements are disposed in parallel within a tubular fuse holder filled with an arc-extinguishing granular material, such as silica sand.



3,569,890
BI-STABLE MAGNETIC LATCHING RELAY

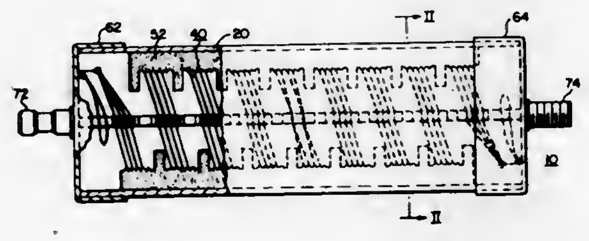
Ezio Baratelli, Via Cavour 14, Buguggiate, Varese, Italy
Filed Dec. 26, 1968, Ser. No. 787,004
Claims priority, application Italy, Dec. 29, 1967, 24517A/67
Int. Cl. H01h *9/24*
U.S. Cl. 335—170 **5 Claims**



A magnetic-latching relay in which an armature is movable between a closed position engaging one end face of a core and an open position spaced from this end face and in which two windings are provided about the core, one of which provides, when energized, a magnetic field moving the armature to closed position and the other, when energized, moving the armature to open position. The relay includes further an annular permanent magnet, surrounding the end portion of the core on which the end face cooperating with the armature is provided, to keep the armature, when brought to the closed position by energizing the one winding, in said closed position even after the one winding is deenergized.

3,569,891
CURRENT LIMITING FUSE

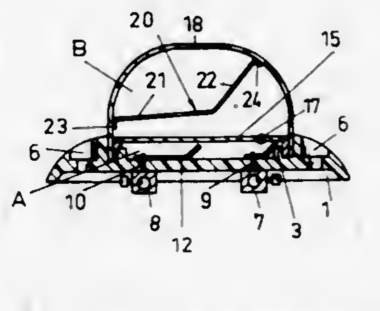
Frank L. Cameron, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 31, 1969, Ser. No. 872,895
Int. Cl. H01h *85/08, 85/12, 85/14*
U.S. Cl. 337—290 **6 Claims**



A current limiting fuse structure comprising a generally tubular, electrically insulating casing having terminal means disposed adjacent to the opposite ends thereof. One or more fusible elements are connected between the terminal means with each fusible element including first and second conductor sections of different sizes or cross-sectional areas. A pulverulent, arc quenching material is also disposed in the casing in contact with each fusible element.

3,569,892
HEAT ACTUATED CONTACT UNIT FOR ELECTRICAL FIRE ALARM SYSTEMS

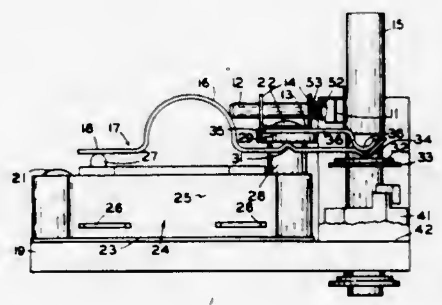
Paul Henry Ripamonti, Baulkham Hills, New South Wales, Australia, assignor to Fire Fighting Equipment Pty. Limited, Ermington, New South Wales, Australia
Filed Aug. 14, 1968, Ser. No. 752,650
Claims priority, application Australia, Nov. 16, 1967, 29,962/67
Int. Cl. H01h *37/40, 37/76*
U.S. Cl. 337—320 **7 Claims**



A totally sealed twin chamber thermostat for an electrical fire alarm system actuated by both slow and fast heat rise conditions.

3,569,893
POSITIVE RUN THERMOSTAT

Lawrence L. Pembrook, Norwalk, Ohio, assignor to Norwalk Thermostat Company, Norwalk, Ohio
Filed Apr. 14, 1969, Ser. No. 815,862
Int. Cl. H01h *37/20, 37/52*
U.S. Cl. 337—361 **10 Claims**



An adjustable thermostat having a thermally flexed actuating element which is adjustably positioned toward and away from an actuating position and can be displaced to the actuating position for a wide range of temperatures by means of an element which drives the actuating element. The driving element is activated by the setting of the adjustment means to a predetermined state to set the thermally flexed element to its "on" position independent of temperature. A positive run thermostat having a bimetallic blade as an actuator for a snap action switch assembly. The blade is mounted as a beam maintained against two longitudinally spaced, opposed abutments and arranged for adjustment by adjustment of the relative positions of the abutments normal to the major face of the blade. A screw adjustment means for one of the abutments is combined with an actuating finger which engages a plunger at the full "on" or positive run position to cause the plunger to engage the bimetallic blade and displace it to its switch actuating condition for all temperatures to which the thermostat is subjected.

3,569,894

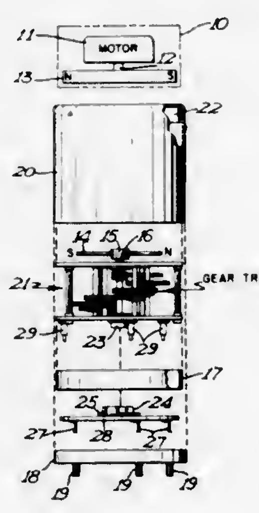
MAGNETICALLY COUPLED IMPLANTABLE SERVOMECHANISM

Lee R. Bolduc, St. Louis Park, and George F. Schwoboda, New Brighton, Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 14, 1969, Ser. No. 815,857

Int. Cl. H01c *1/12*

U.S. Cl. 338—12 **8 Claims**



A magnetically coupled servomechanism wherein a remote magnetic device is driven by a motor and is magnetically coupled to a second rotatable magnetic device in a hermetically sealed unit for implantation in the body of an animal, which device imparts its resultant motion to an output shaft connected to a stepdown gear train having an output shaft which imparts torque to the element it is desired to rotate. The input shaft, gear train and output shaft are also in the hermetically sealed unit. The output shaft may be electrically insulated from the element to be driven, such as a potentiometer. The mechanism may be used to selectively drive more than one element, in which case a drive device is slideably mounted on the output shaft of the gear train, to be selectively slid longitudinally along the shaft to couple with the selected element for driving.

3,569,895

INHOMOGENEOUS MAGNETORESISTANCE DEVICES

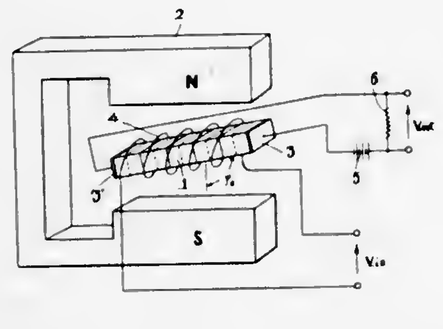
Hiroyuki Fujisada, Tokyo, Japan, assignor to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

Continuation-in-part of application Ser. No. 661,757, Aug. 4, 1967, now abandoned. This application June 16, 1969, Ser. No. 833,489

Claims priority, application Japan, Aug. 15, 1966, 41/53,270, 41/53,271

Int. Cl. H01c *7/16*

U.S. Cl. 338—14 **10 Claims**



A solid state element having layer form inhomogeneities in impurity concentration is positioned within a magnetic field and experiences changes in resistance when subjected to energy in the form of a standing sound wave, a travelling sound wave, a change in direction of a magnetic field, or light in a pattern of alternating intensity.

3,569,896

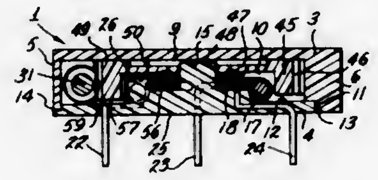
ULTRATHIN MINIATURE POTENTIOMETER WITH RECESSED DRIVE WHEEL MEANS

William D. Kirkendall, Dalton, Pa., assignor to Weston Instruments, Inc., Newark, N.J.

Filed Jan. 15, 1969, Ser. No. 791,476

Int. Cl. H01c *5/02, 1/12*

U.S. Cl. 338—162 **6 Claims**



Miniaturized variable resistors of the circular type having a drive wheel rotatable in a housing and an arcuate resistance element slidably engaged by a contact driven by the drive wheel. The drive wheel has a rim thicker than the web of the wheel and substantial portions of the resistance element are located within the rim to provide an ultrathin potentiometer.

3,569,897

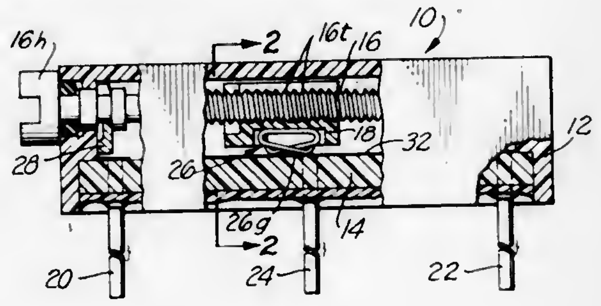
POTENTIOMETER MULTI-FINGER CONTACT ASSEMBLY

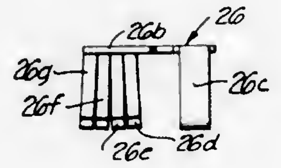
David E. Laube, Mira Loma, and Darrel D. Hillman, Orange, Calif., assignors to Bourns, Inc.

Filed Oct. 3, 1968, Ser. No. 764,678

Int. Cl. H01c *9/02, 1/12*

U.S. Cl. 338—183 **4 Claims**





Multifinger contact and contact carrier especially adapted for use in extremely small leadscrew adjusted potentiometers having flat-surface resistance elements such as cermets and wherein available space for a contact is extremely limited, the contact comprising a collector-brushing limb and a plurality in excess of two of element-brushing limbs formed by longitudinal slit shearing of a contact strip and fanning-out or separating the element-brushing limbs or fingers by a dimpling operation, whereby each of the fingers is capable of flexing independently of the others.

3,569,898

SUPPLY RAIL FOR ELECTRICAL DISTRIBUTION SYSTEMS

Max Laser, Lidingo, Sweden, assignor to U. S. Philips Corporation, New York, N.Y.

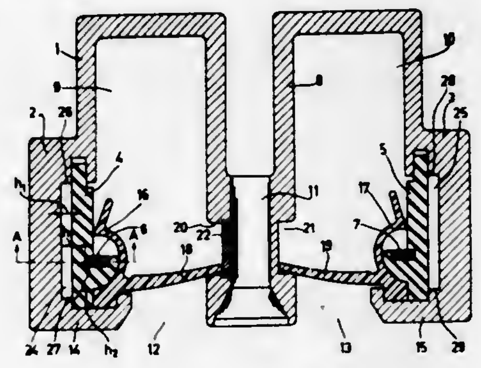
Filed Feb. 7, 1969, Ser. No. 797,524

Claims priority, application Sweden, Feb. 9, 1968, 1762/68

Int. Cl. H01r *41/00*

U.S. Cl. 339—14 **4 Claims**

A supply rail for use in electrical distribution systems having a pair of hollow compartments separated by a center bar. Each compartment is provided with a slit opening for receiving a contact device. Each compartment is provided with a current bar carried on an insulated carrier body which is located on a sidewall of each hollow compartment. The carrier body abuts against abutments on said sidewall to produce an airgap between the carrier body and the sidewall in each compartment. The airgap is available to receive at the ends of the supply rail projections of insulating material to provide a connection means between sections of a supply rail or an end cap.



3,569,899

DEVICE IN DISTRIBUTION SYSTEMS FOR ELECTRIC CURRENT

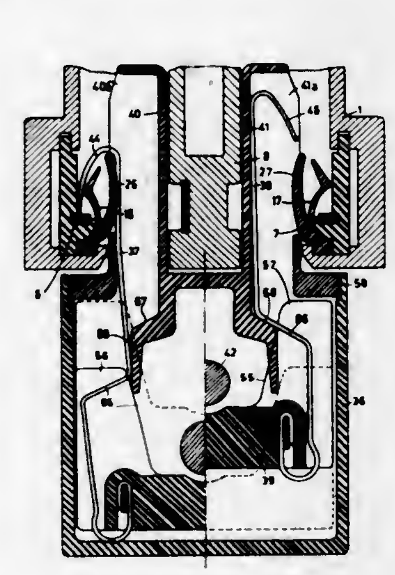
Max Laser, Lidingo, Sweden, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 7, 1969, Ser. No. 797,567

Claims priority, application Sweden, Feb. 9, 1968, 1761/68

Int. Cl. H01r *41/00*

U.S. Cl. 339—14 **10 Claims**



A hollow supply rail having a current carrier therein for the distribution of electrical current. The rail has a side slit opening through which a contact device may be inserted for tapping into the carrier. The carrier is made accessible from a direction opposite to the slit opening so as to be available only to the hook-shaped contact device.

3,569,900

ELECTRICAL CONNECTOR ASSEMBLY

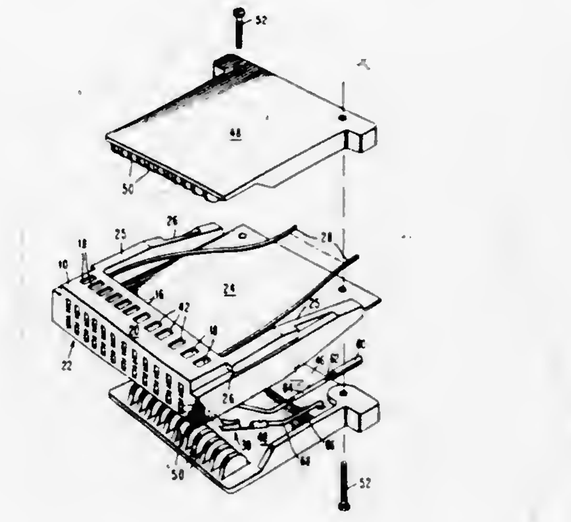
Edward C. Uberbacker, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,386

Int. Cl. H01r *3/06, 13/58*

U.S. Cl. 339—14 **5 Claims**

An electrical connector assembly which includes an insulator housing having a pair of parallel rows of openings passing from a front face to a back face thereof. The openings are adapted to receive terminal contacts which lock in place. The locking means between the terminal contacts and the housing are available for unlocking through adjacent access means from the top and bottom surfaces of the housing. A flat thin extension extends from the back face of the housing between the rows of the pair of rows of openings. Clamp means are provided on each side of the extension to provide a strain relief for the wires to which the contacts are attached. The clamp means also serve as a common grounding conductor.



3,569,901

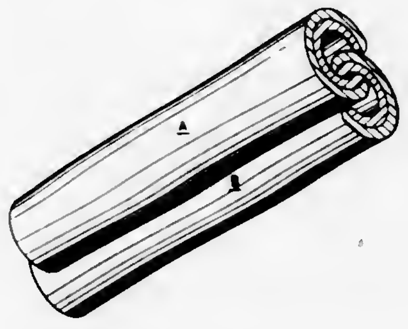
THERMAL-MATING BIMETAL ROLLPINS

John A. Connor, Tarzana, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Oct. 25, 1968, Ser. No. 770,629

Int. Cl. A44b *19/00;* **H01r** *13/20, 25/00*

U.S. Cl. 339—30 **4 Claims**



There is disclosed a set of two mutually supporting metallic elements which, when mated, form a combined structure with assured holding force sufficient to maintain good mechanical and electrical connection over a substantial temperature excursion both above and below room temperature. Each of the metallic elements consists of a fabricated bimetal rollpin which is cylindrical in shape with an incomplete circular cross section so that a pair of elements may be inserted one within the other to establish mechanical and electrical contact. Each of the elements consists of two metallic layers. The metal comprising the outer layer on one element comprises the inner layer on the other element and the metal comprising the inner layer on the first element comprises the outer layer on the second element. In this manner the two rollpins are provided with opposite or complementary thermal expansion and contraction characteristics so that the connection once made remains firm and tight independently of excursions of ambient temperature.

3,569,902

CHARGING PLUG DEVICE

Teruo Hara, Tokyo, Japan, assignor to Crown Radio Corporation, Tokyo, Japan

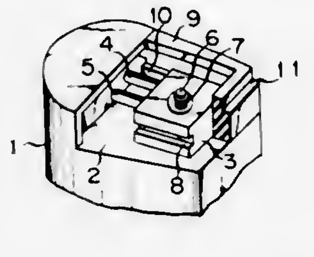
Filed Apr. 1, 1969, Ser. No. 811,705

Claims priority, application Japan, Apr. 1, 1968, 42/25419

Int. Cl. H01r *13/44, 29/00, 33/00*

U.S. Cl. 339—36 **3 Claims**

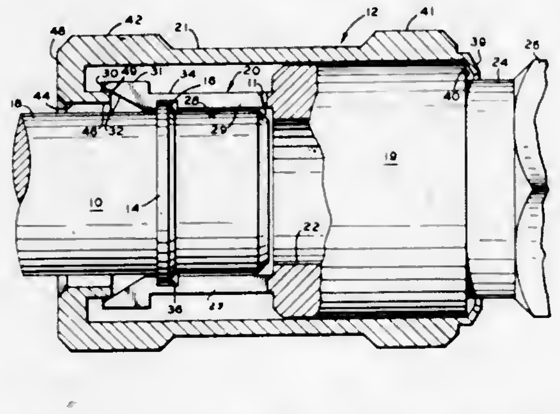
The charging plug device of the present invention comprises a casing of an electrical apparatus containing a charging means and a plug member, the pins of which can be



pushed out of the casing or housed therein simply by rotating the plug member while it is fitted to one end of the casing.

3,569,903
COAXIAL CONNECTOR WITH AXIAL INTERLOCK

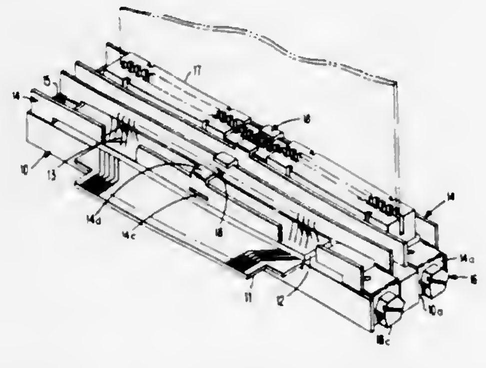
Alexander R. Brishka, Mamaroneck, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.
Filed Aug. 7, 1969, Ser. No. 848,301
Int. Cl. H01r *13/62*
U.S. Cl. 339—74 **8 Claims**



An electrical connector with a male member, a female member with a bore, and slots forming spring jaws in said female member to form an electrical connection between the members, and means are provided to lock the mated parts against axial displacement. The outer end of the bore is flared diagonally outwardly and a tubular member slidable on the female member contacts the diagonally flared outer end of the bore and cams the jaws outwardly to release the parts.

3,569,904
ELECTRICAL HOUSING AND LEVER ACTUATING APPARATUS

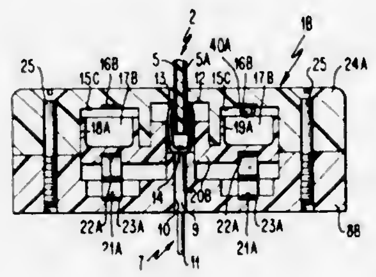
Cortland P. Hill, Vestal, and John R. Mankus, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 18, 1968, Ser. No. 776,454
Int. Cl. H01r *13/54*
U.S. Cl. 339—75 **5 Claims**



An actuating crank and electrical connector housing lever apparatus which enables (1) the holding and releasing of printed circuit cards, boards or the like, and (2) a convenient transverse insertion or extraction of the cards into and from the housing. The actuating crank features self locking within the lever and, through the camming action designed therein, can move the lever from a latched to an unlatched position or, conversely, by a cranking turn through an arc of approximately 210°.

3,569,905
ELECTRICAL CONNECTOR WITH CAM ACTION

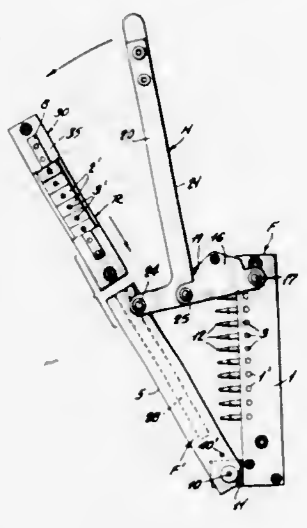
Theoharis Kehagioglou, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 19, 1968, Ser. No. 776,867
Int. Cl. H01r *13/62*
U.S. Cl. 339—75 **6 Claims**



A solderless connector is disclosed for force-free insertion and removal of contact terminals of electrical devices. A plurality of contact elements are provided having split resilient and spaced diverging contact segments which are slidably mounted through apertures in a controllably reciprocable cam plate actuable for selective positioning along the extension of the contact segments. The contact segments diverge to an open position from a common bight adjacent a support to which the contact elements are mounted. When the cam plate is actuated to the upper position of the contact segments, they are deflected inwardly to bring them into contact with terminal elements of a device inserted in the connector. When the cam plate is returned to the lower position of the contact segments, they are returned to the open position for removal and insertion of the devices.

3,569,906
PIVOTED PLUG BOARDS FOR CABLE TERMINALS

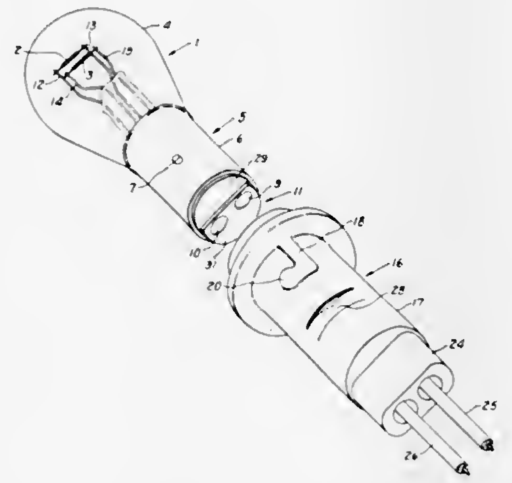
Albert Cohen, 2901 Telestar Court, Falls Church, Va.
Filed Jan. 7, 1969, Ser. No. 789,571
Int. Cl. H01r *13/54*
U.S. Cl. 339—75 **11 Claims**



A switchboard assembly embodying a fixed rack of connector terminals, to which is pivoted a movable rack of mating terminals, particularly those forming the ends of coaxial cables, which require a rectilinear movement relative to each other to effect the coupling and uncoupling therebetween. The connector terminals in both the fixed and movable racks form parts of elongate modular electric panels which are in alignment with each other in the respective racks, and which are spaced slightly from each other in each rack and are mounted on trunnions to permit them to rock slightly to enable the mating coaxial plug and jacks terminals in the respective racks to engage and disengage each other in a rectilinear direction as the rack frames are pivoted relative to each other.

3,569,907
LAMP BASE AND SOCKET

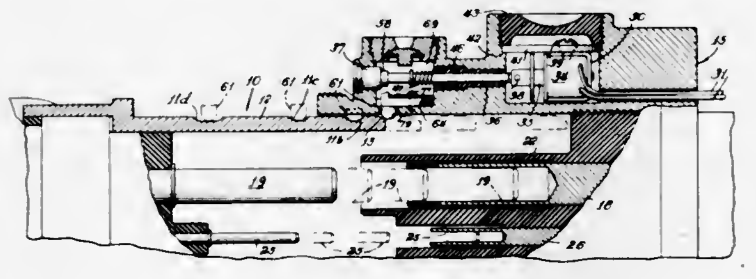
William B. Landgraf, Cleveland Heights, Ohio, assignor to General Electric Company
Filed Aug. 28, 1968, Ser. No. 755,898
Int. Cl. H01r *13/54*
U.S. Cl. 339—88 **2 Claims**



A special purpose electric lamp having a base of the bayonet type and a socket accommodating the base. A stop in the socket obstructs the insertion of a conventional bayonet lamp base into a locked position in the socket and the bayonet base of the special purpose lamp accommodates the stop in the locked position of the lamp in the socket.

3,569,908
CONNECTOR ASSEMBLY

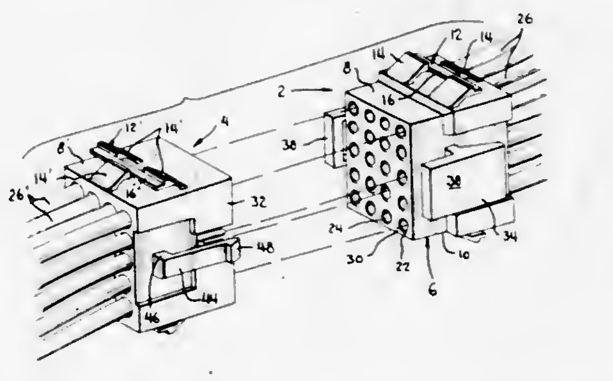
Arthur I. Appleton, 1 Bridlewood Road, Northbrook, Ill.
Filed Dec. 11, 1968, Ser. No. 782,830
Int. Cl. H01r *13/54*
U.S. Cl. 339—91 **6 Claims**



An electrical receptacle having a power energized safety-lock to prevent insertion, or withdrawal, of a second component such as a receptacle cover, or a plug for connection therewith, while the receptacle is energized. Energy for urging a plug-engaging finger into a lock position in which it can obstruct the movement of the plug in or out of the receptacle is provided by a strong spring. However, only a small amount of energy is required to maintain, or lock, the plug-engaging finger in this lock position when, as in accordance with this invention, a boltlike obstruction is moved to block the release-motion of the plug-engaging finger. The bolt is moved to its lock position by a solenoid which is energized in parallel with the receptacle contacts.

3,569,909
ELECTRICAL CONNECTOR ASSEMBLY HAVING IMPROVED LATCHING MEANS

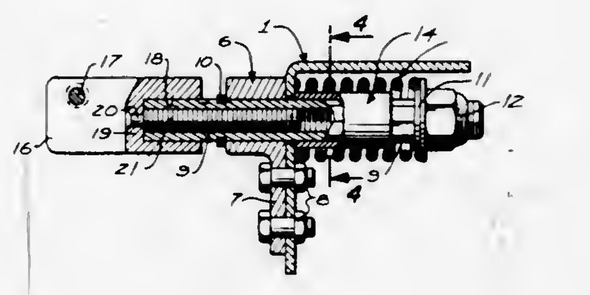
William Joseph Garver, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Dec. 26, 1968, Ser. No. 787,007
Int. Cl. H01r *13/54*
U.S. Cl. 339—91 **7 Claims**



Electrical connector assembly comprises a pair of matable connector parts, each of which has mounting means thereon to permit mounting in a panel opening. Each part is also provided with latching arms which are cooperable to latch the parts together. Either pair of arms can be disengaged from the other pair by depressing the arms toward the connector body, the arrangement being such that the connector parts can be disengaged from each other regardless of which part is mounted in the panel opening.

3,569,910
COMPENSABLE AND YIELDABLE KEEPER

Lloyd Richard Poe, Beverly Hills, Calif., assignor to Hartwell Corporation, Los Angeles, Calif.
Filed July 7, 1969, Ser. No. 839,569
Int. Cl. H01r *13/54*
U.S. Cl. 339—91 **2 Claims**

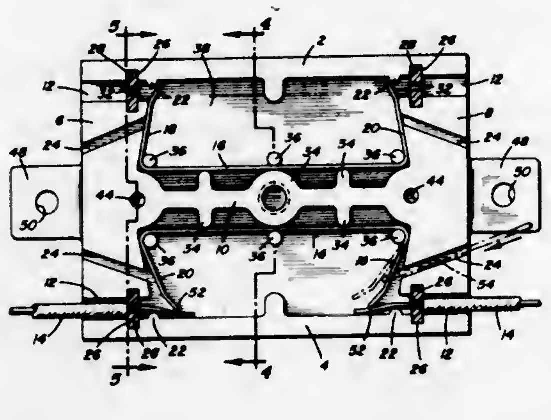


A keeper particularly adapted for multiple drawer assemblies such as used to contain electronic equipment having an elongated nonrotatably mounted and spring loaded sleeve which slidably receives a keeper fitting. A screw-threaded member is adjustably mounted in a screw-threaded bore in the sleeve and is accessible from the end of the sleeve opposite from the keeper fitting.

3,569,911
TERMINAL BOX

Raymond Bogdanowicz, 16727 Van Aken, Shaker Heights, Ohio
Filed Oct. 25, 1968, Ser. No. 770,706
Int. Cl. H01r *9/08*
U.S. Cl. 339—95 **4 Claims**

A terminal box arrangement with an insulated housing member having side and end walls. The end walls have apertures therein, for guiding electric conductors into the housing. Mounted inside the walls of the housing is a leaf spring, the free ends of which intersect the axes of the apertures, providing locking means for conductors entering the housing through the apertures. Tool passageways are positioned in each end wall, adjacent each of the apertures, providing access to the arms of the leaf spring.



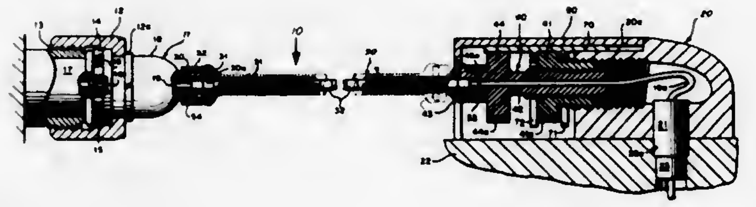
3,569,912
CONDUIT OF ADJUSTABLE STIFFNESS

Carl A. Damm, Upper Black Eddy; Albert C. Eichmann, Huntingdon Valley, and William J. Halpern, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Navy

Original application Apr. 8, 1968, Ser. No. 719,629, now Patent No. 3,504,592. Divided and this application May 29, 1969, Ser. No. 828,902

Int. Cl. H03k *17/02*

U.S. Cl. 339—101 **2 Claims**



An electrical connector including a flexible armored sheath having an insulated conductor threaded therethrough and electrically connected between a plug unit and a breech cap which is adapted for applying a firing signal to a pyrotechnic cartridge and which has flanged spring pins formed to function both as ground contacts and as spent cartridge extracting means. A braided sheath encircles the armored sheath and is mechanically connected at one end to the breech cap and at the other end through a turnbucklelike sheath stretching assembly to the plug unit. The stretching assembly enables the braided sheath to be longitudinally stretched so that it tightly grips the armored sheath and forms therewith a more rigid conduit.

3,569,913
UNIVERSAL TELEPHONE HANDSET CORD

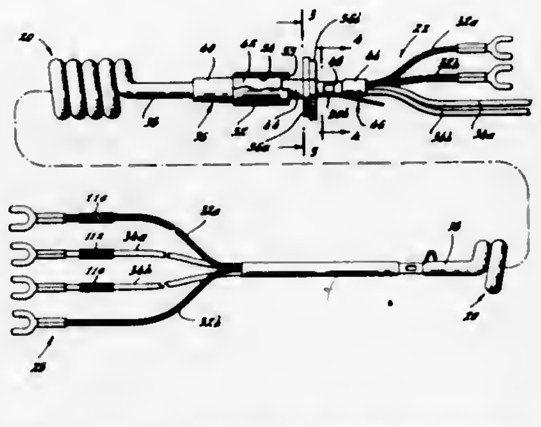
John C. Wolff, Cheshire, Conn., assignor to The Whitney Blake Company, New Haven, Conn.

Filed Jan. 15, 1969, Ser. No. 791,336

Int. Cl. H01r *13/58*

U.S. Cl. 339—103 **10 Claims**

The universal telephone handset cord of the invention is adaptable for connection with telephones of different design. For use with a saddle-type handset the cord is provided with a removable sleeve for closing the handset cord opening, and one or more removable split ring washers which abut a saddle on the transmitter cup to secure the cord therein. To adapt the cord for use with a stayhook-type handset, the sleeve is removed leaving an underlying bushing to close the smaller cord opening in that type handset; also, the split ring washers which are not needed are removed. Connection with the screw in the handset is made with a stayhook secured to the end of the cord. The cord may also be provided with alternate schemes of color coding for the various telephone designs. This is done by coding the wires of the cord overall in one scheme and then superimposing a second color code scheme over portions of the wires in a manner which leaves the underlying scheme still visible.



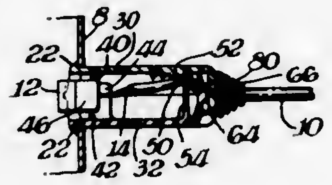
3,569,914
CONNECTOR HOUSING

Donald F. Taylor, West Grove, Pa., and Ernest L. Riberdy, Sunnyvale, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 19, 1969, Ser. No. 800,397

Int. Cl. H01r *13/58, 13/48*

U.S. Cl. 339—107 **5 Claims**



An integral piece of flexible, plastic material is molded to have hinged top and bottom members which pivot at one edge to enclose a connector. Each of the top and bottom members have complementary portions for positioning and clamping the connector adjacent to and extending through the hinge. In addition, complementary strain relief means grip the cable when the members are in a closed position.

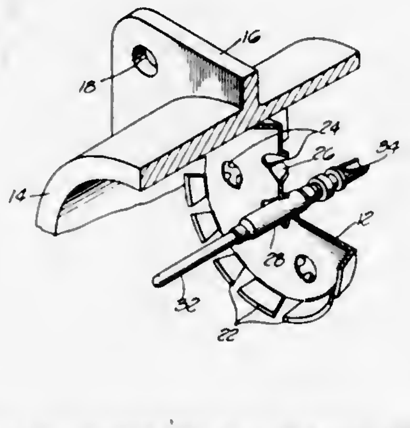
3,569,915
GROUNDING FOIL

Stanley J. Sorensen, Sylmar, Calif., and Arvin L. Langham, Phoenix, Ariz., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Sept. 16, 1968, Ser. No. 759,910

Int. Cl. H01r *23/06, 23/08*

U.S. Cl. 339—143 **5 Claims**



The invention comprises a grounding foil member having one or more cavities therein, formed of tangs for securing circuit elements such as filters thereto by means of direct contact. The outer edge of the foil member which contacts the inner shell of a conductor is formed of flaps bent at an angle. Each of the flaps deflect upon entering the shell which completes the electrical circuit between the filter and the shell through the ground foil. The filter may be removed from the ground foil and the ground foil from the shell with relative ease and with no soldering required.

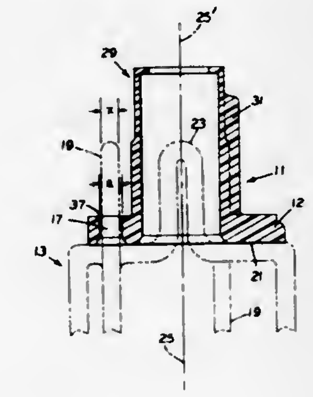
3,569,916
BASE FOR AN ELECTRON TUBE HAVING RETENTION PROVISIONS THEREIN

Doyle Alfred Wood, Ottawa, Ohio, assignor to Sylvania Electric Products Inc.

Filed July 22, 1969, Ser. No. 843,441

Int. Cl. H01r *13/46*

U.S. Cl. 339—145 **6 Claims**



A protective base for an electron tube having a plurality of substantially rigid connective leads arranged in spaced relationship to protrude from the tube closure surface. The tube base has a plurality of perforations arrayed therein to accommodate the protrusion of the respective connective leads therethrough. At least two substantially oppositely disposed perforations in the array are formed to have at least two diverse dimensions, one dimension of which is smaller than the diameter of the respective lead protruding therethrough, to provide predetermined spaced apart regions of pressured contact and regions of noncontact with said lead to effect a retention relationship between the base and the respective connective lead accommodated therein.

3,569,917
ELECTRICAL CONNECTOR ASSEMBLY

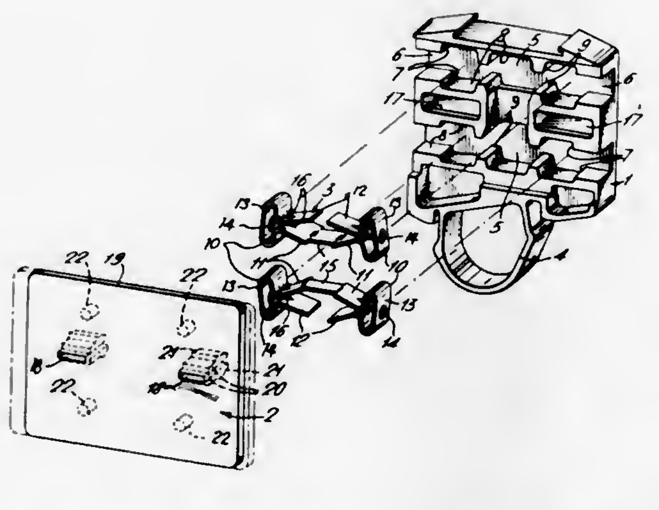
Hermanus Petrus Johannes Gilissen, Vlijmen, Netherlands, assignor to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 638,802, May 16, 1967, Patent No. 774,721. This application Dec. 9, 1968, Ser. No. 782,079

Claims priority, application Netherlands, Dec. 11, 1967, 67/16,828

Int. Cl. H01r *9/12*

U.S. Cl. 339—198 **3 Claims**



A pin block has a detachable cover which is slidable a small distance relative to the block. Pegs on the cover project between the arms of U-shaped contacts in channels of the block. To withdraw a pin from a contact, the cover is slid in the opposite direction so that the arms of the U-shaped contacts are prevented via engagement with the peg therebetween and hold them from camming engagement with projections in the channel.

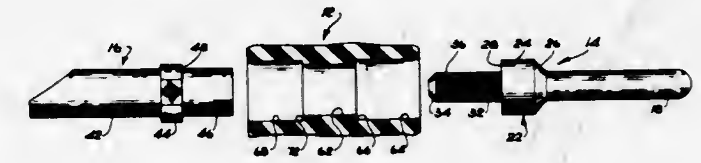
3,569,918
MULTIPIECE ELECTRICAL CONTACT

Bruce K. Arnold, Pasadena, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 30, 1969, Ser. No. 872,568

Int. Cl. H01r *13/50*

U.S. Cl. 339—214 **2 Claims**



A multipiece electrical contact having a mating portion, the front end of which is adapted to be interconnected with the mating portion of another electrical contact and a termination portion, the rear end of which is adapted to be secured to a conductor. One of the portions has a member extending therefrom for insertion into a bore formed at the other end of the other portion with the insertion of the member into the bore forming a tight fit. Each of the portions may contain shoulders which abut shoulders of an insulating member so that the contact may be captivated in the insulator.

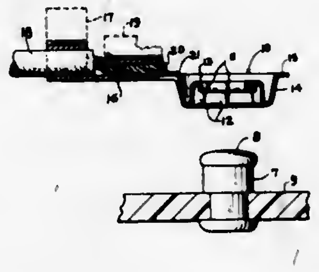
3,569,919
SNAP ELECTRICAL CONNECTOR

Domenic John Daddona, Jr., Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed July 23, 1969, Ser. No. 843,951

Int. Cl. H01r *11/22*

U.S. Cl. 339—258 **1 Claim**



A socket member for electrical connection to a projecting pin terminal is made entirely of a single piece of sheet metal. An inner wall portion is slitted to provide resilient fingers adapted to make electrical contact against either the undersurface of a bulbous head on the pin terminal or directly against the shank of the pin. An outer wall extends upwardly a substantial distance above the spring fingers and has a flat circular rim so that the socket can easily be pressed over the stud. An integral shank extends radially outwardly and has means for clamping a lead wire and a strengthening rib extends partially into the shank and also into the outer wall. In one form, a tongue may be located opposite the shank to assist in holding the socket member in a mounting block.

3,569,920
HEADING-SENSING APPARATUS

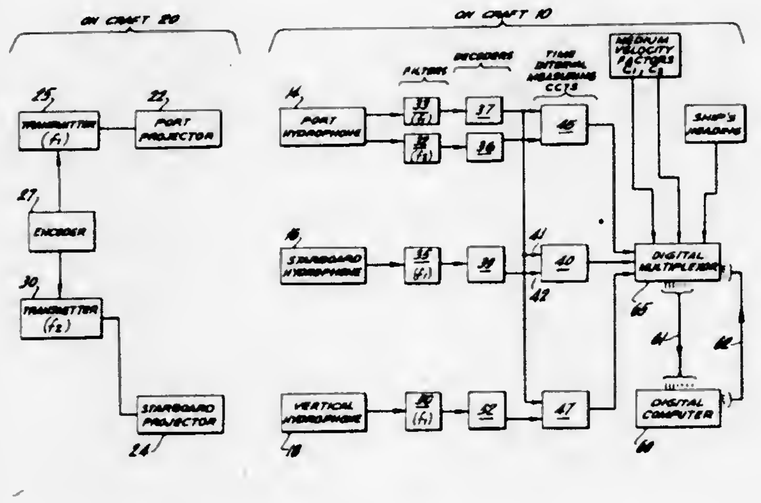
Herbert S. Antman, Elmhurst, N.Y., assignor to Edo Corporation, College Point, N.Y.

Filed June 6, 1969, Ser. No. 830,981

Int. Cl. G01s *3/00*

U.S. Cl. 340—5 **11 Claims**

A heading-sensing arrangement employs spaced transmitting and receiving transducers and signal-processing apparatus for determining the relative heading between two vessels displaced in three dimensions. The desired heading is

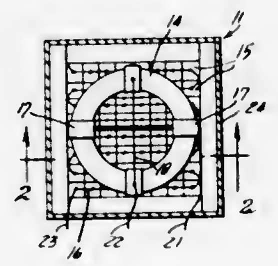


computed by normalizing measured angles between the vessels to account for elevation variations.

3,569,921
CYLINDER-ROD DUAL RESONANT TRANSDUCER ARRAY

Willis A. Teel, Panama City, Fla., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 13, 1969, Ser. No. 791,542
Int. Cl. H04r *17/00*
U.S. Cl. 340—10 **10 Claims**



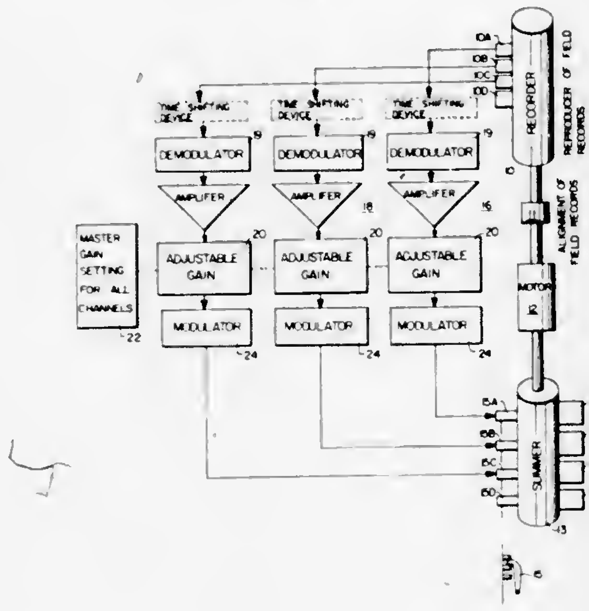
This invention pertains to a piezoelectric transducer which employs toroidal piezoelectric transducer elements and a plurality of prismatic piezoelectric rod elements in a unitary assembly. By application of predetermined driving potentials to the aforesaid piezoelectric elements, their acoustic coupling may be varied to produce a low Q combination thereof. Because the basic relationship of the two types of piezoelectric elements is modular in nature, they may also be combined to produce a variety of radiation patterns.

3,569,922
METHOD FOR ELIMINATING SELECTED NOISE DISTURBANCES FROM SEISMIC RECORDINGS

Josephus O. Parr, Jr., San Antonio, Tex., assignor to Petty Geophysical Engineering Company, San Antonio, Tex.

Filed Sept. 30, 1968, Ser. No. 763,498
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **6 Claims**

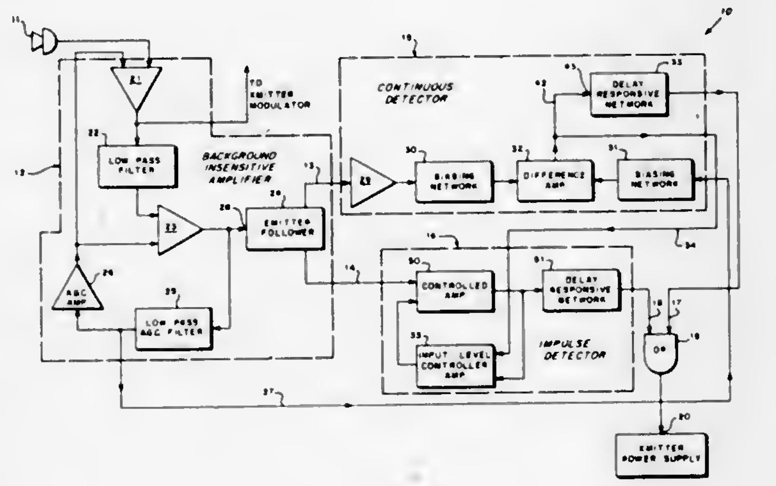
A method for attenuating undesirable seismic noise disturbances by providing an effective adjustable attenuation bandwidth between the attenuation afforded by the geophone spread and stacking. The attenuation bandwidth is obtained from the individually recorded seismic traces at a series of selected impact locations and by weighting the individual data according to specified formulae prior to summing the data and stacking it in a conventional manner.



3,569,923
ADAPTIVE ACOUSTIC DETECTOR APPARATUS

Henry Naubereit, Browns Mills, N.J., and David L. Baddorf, Hatboro, Pa., assignors to the United States of America as represented by the Secretary of Navy

Filed Oct. 30, 1967, Ser. No. 679,255
Int. Cl. G08b *13/00*
U.S. Cl. 340—16 **11 Claims**

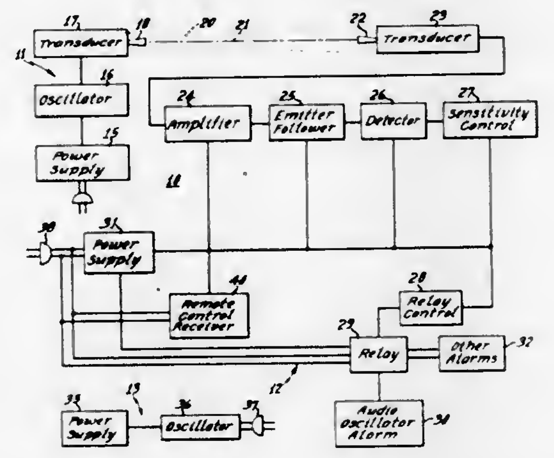


An adaptive acoustic detector provides a signal for switching on the power supply of approximately positioned transmitter upon the detection of desired information which may comprise either a continuous or an impulse acoustic signal, irrespective of the attendant background noise. A composite signal composed of both the desired information and background noise is separated by a background insensitive amplifier which selectively feeds back only the background information thereby allowing the unattenuated passage of the desired information. An appropriate detector, upon the receipt of the desired information, permits the passage of a signal indicative thereof to provide the above mentioned switching signal.

3,569,924
ULTRASONIC DETECTION SYSTEM

John E. Drake, and Dexter Benner, Jacksonville, Fla., assignors to Dexter Manufacturing Company, Jacksonville, Fla.

Filed Mar. 19, 1969, Ser. No. 808,513
Int. Cl. G08b *13/16*
U.S. Cl. 340—16 **13 Claims**

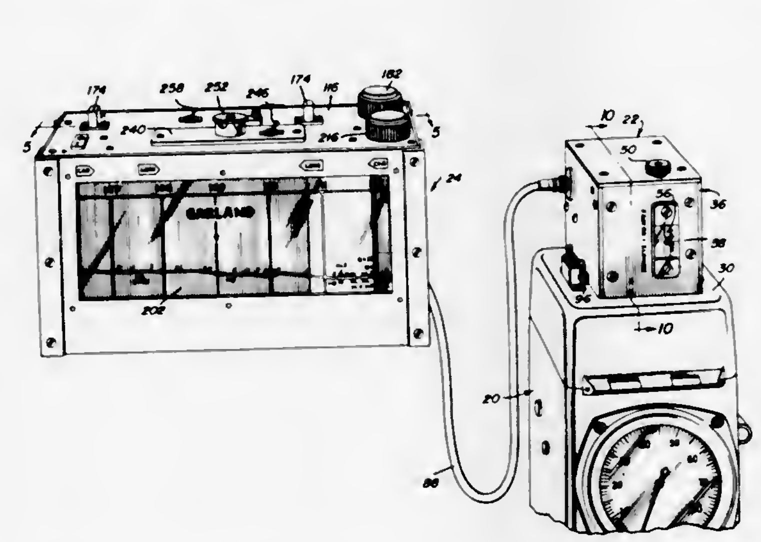


An ultrasonic detection system having a transmitter for producing a beam and receiver for receiving and converting the beam to an electrical AC signal and for amplifying the AC signal. A detector converts the amplified AC signal to a DC voltage, and a variable sensitivity control produces a voltage pulse upon a substantial change in the amplified AC signal resulting from a sufficient temporary interruption of the beam by an intruder. A relay control selectively completes the current path between a power source and a relay with the relay control being actuated upon occurrence of the voltage pulse. The variable sensitivity control includes a potentiometer for varying the bias supplied to a transistor, transistor being biased below conduction. The detector includes means for increasing the bias supplied to the transistor above conduction upon a sufficient temporary interruption of the beam by an intruder whereupon the transistor produces the voltage pulse for actuation of the relay control. The relay control includes a silicon controlled rectifier which completes the current path through the relay upon occurrence of the voltage pulse by the transistor.

3,569,925
TRAIN-HANDLING INDICATOR

Elmer Ray Tyler, 2258 S. Virginia; Charles Preuitt Battaile, 2123 Brighton Drive, Springfield, Mo., and Kenneth I. Dyche, 4513 N. "O" St., Fort Smith, Ark. 72901

Filed May 23, 1968, Ser. No. 731,385
Int. Cl. B61l *25/00*
U.S. Cl. 340—24 **15 Claims**

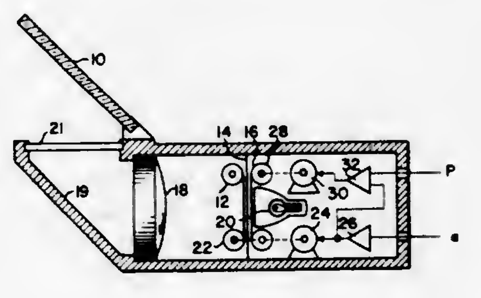


Position-indicating apparatus operably driven from a speed recorder for continuously indicating, on a profile film tape, the location of the full length of a train. The recording movement of the speed recorder is mechanically picked up by a control unit and transmitted by means of electrical impulses to a film strip actuating means for a synchronized movement of the film strip in conjunction with the travel of the vehicle. The speed of the film strip is adjustable through the control unit to bring the movement of the film strip into synchronization with the movement of the vehicle. The location indicating unit includes means for indicating the full length of the train in relation to the moving profile film tape, as well as means for varying this length indication to correspond to different length trains.

3,569,926
FLIGHT PATH AND SPEED COMMAND DISPLAY

Richard A. Korn, Burbank, and Milo E. Stormo, Granada Hills, Calif., assignors to Singer General Precision, Inc.

Filed Mar. 19, 1969, Ser. No. 808,480
Int. Cl. B64d *43/02*
U.S. Cl. 340—27 **6 Claims**

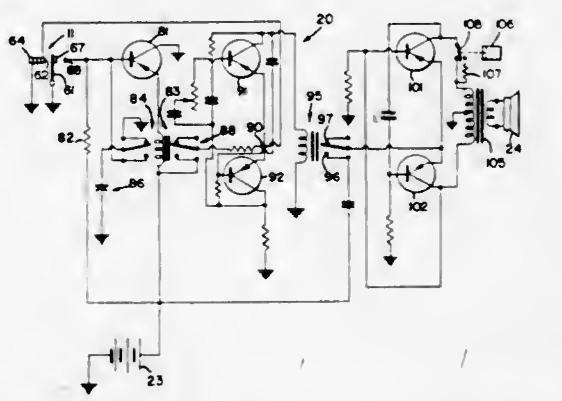


An electro-optical aircraft flight instrument that accepts input signals representing angle of attack and pitch angle and used these signals to drive servo reticles which, together with a fixed reticle, are projected at infinity upon a transparent screen in the pilot's normal line of sight. The servoed reticles display flight path of the aircraft and the angle, in degrees, between that flight path and the horizon, while the fixed reticle shows the extension of the aircraft longitudinal axis, or datum line, and a speed control which, together with the projected flight path reticle, displays to the pilot the proper landing approach speed, and warns him of a stall approach speed.

3,569,927
REVERSE OPERATION WARNING SIGNAL SYSTEM

Jay Milton Guyton, 225 E. Main St., Uniontown, Pa., and John E. Williams, Jr., R.D. 2 - Box 265, Dunbar, Pa.

Continuation-in-part of application Ser. No. 488,447, Sept. 20, 1965, now abandoned. This application June 16, 1967, Ser. No. 653,290
Int. Cl. B60q *5/00*
U.S. Cl. 340—56 **11 Claims**

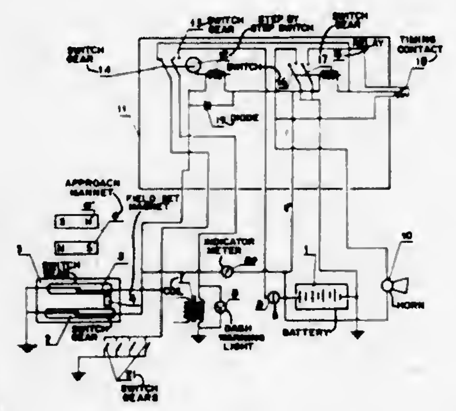


A warning signal system effective upon reverse movement of a vehicle. A sensor is mounted for free arcuate movement upon and independently of a shaft which is coupled to the speedometer cable of the vehicle for rotation therewith. Magnetic coupler means associated with the shaft effects arcuate movement of the sensor between two stop positions in accordance with the direction of motion of the vehicle.

Movement of the sensor corresponding to reverse movement of the vehicle effects energization of an electrical circuit which operates a warning device. The circuit includes means for varying the nature of the warning as well as means to return the sensor to a circuit-deenergizing position, and from which latter the sensor immediately returns under magnetic coupling if reverse movement of the vehicle continues, thereby reenergizing the warning signal circuit.

3,569,928
MAGNETICALLY ACTUATED SAFETY ALARM CIRCUIT

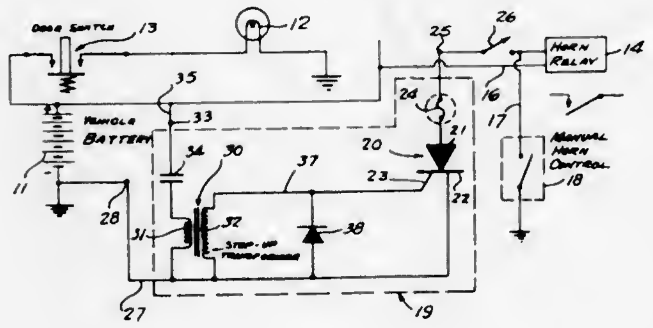
Alfonso Avallone, Piazza della Vittoriann. 92r, Genoa, Italy
Filed Aug. 4, 1967, Ser. No. 658,452
Claims priority, application Italy, May 31, 1967, 7041/A/67
Int. Cl. B60r *25/10*
U.S. Cl. 340—63 **6 Claims**



A regulating or alarming circuit controlled by magnetic fields comprising one or more protective gas glass bulb contacts having poles set by a magnet and integrated by controlling magnets which complete the quoted pole setting by the first magnet, causing the contacts to close, thereby actuating the regulating or alarming circuits.

3,569,929
TRANSIENT VOLTAGE DETECTOR BURGLAR ALARM SYSTEM FOR VEHICLES

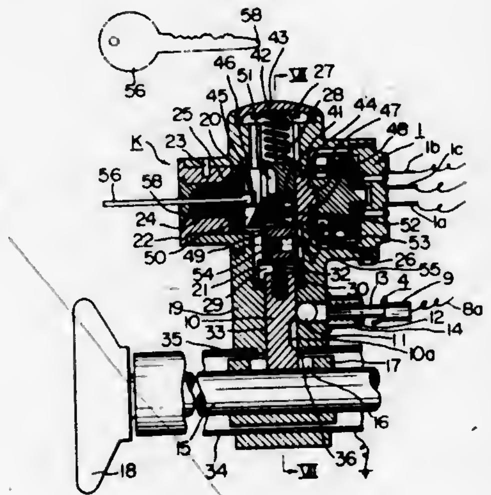
Gene S. Wood, Project City, Calif., assignor to Alvin M. Cibula and Franklin S. Cibula, Redding, Calif., fractional part interest to each
Filed Apr. 19, 1968, Ser. No. 722,742
Int. Cl. G08b *13/00;* **B60r** *25/00*
U.S. Cl. 340—63 **7 Claims**



An alarm device to be connected across the battery of a motor vehicle to respond to transient voltage changes caused by electrical loading of the battery such as would be caused by energization of the vehicle door lights, brake light, or the like, and to thereby cause the vehicle horn to be energized. The device has an input circuit including the primary of a transformer. The secondary of the transformer is connected to the gate and cathode of a normally nonconducting silicon-controlled rectifier whose anode and cathode are connected in an energizing circuit containing the vehicle horn relay. The silicon-controlled rectifier is turned on in response to a transient voltage change detected by the transformer primary, thereby energizing the horn relay.

3,569,930
THEFT-PREVENTING DEVICE FOR AUTOMOBILES

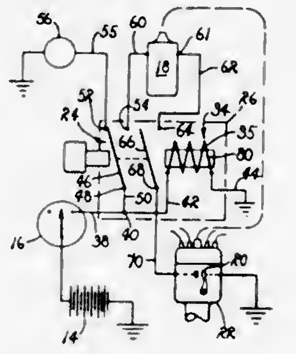
Teruo Hirama, Yokohama, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama City, Japan
Filed Sept. 9, 1968, Ser. No. 758,539
Claims priority, application Japan, Sept. 23, 1967, Apr. 5, 1968, 42/60,834;43/261,740
Int. Cl. B60r *25/02*
U.S. Cl. 340—63 **5 Claims**



A theft-preventing device of automobiles mounted on a steering shaft casing and having a key-operated unit. The key-operated unit includes a steering shaft locking means to lock the steering shaft when said key is at a lock position, and an alarm switch to be closed unless the steering shaft is locked. A door switch is mounted on a door of the automobile, which switch is closed when the door is open. An alarm means with a power source is connected in series with the door switch and the alarm switch, so as to generate alarm sounds whenever the door is opened without locking the steering shaft.

3,569,931
AUTOMOTIVE VEHICLE ANTITHEFT SYSTEM

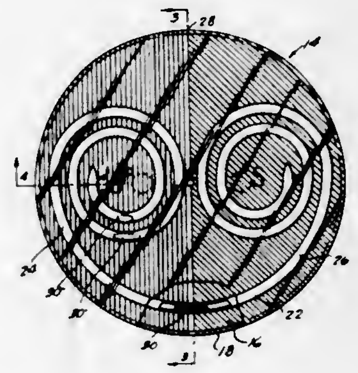
Benjamin Baxter, P.O. Box 448, Fowler, Calif. 93625
Filed Sept. 18, 1968, Ser. No. 760,569
Int. Cl. B60r *25/00;* **G08b** *13/00*
U.S. Cl. 340—64 **9 Claims**



An automotive antitheft system including an alarm and an electrical circuit having bistable switch means interconnected with an ignition circuit for internal combustion engines and including means for making a circuit to an alarm while breaking the ignition circuit, and to provide for the making of the ignition of a circuit while simultaneously breaking the circuit to the alarm so that upon closing the ignition circuit at the ignition switch only the alarm may be energized when the switching device is in a first bistable position and, alternatively, only the ignition circuit may be energized when the switch mechanism is in second bistable position.

3,569,932
VISUAL INDICATOR OF DEGREE OF TURN OF A STEERING WHEEL

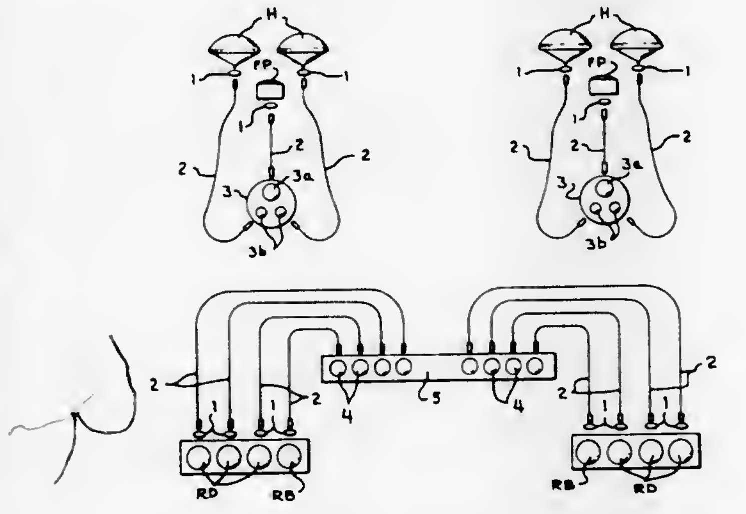
Dana L. Reed, Jr., 11 Walsh Drive, Dumont, N.J. 07628
Filed Aug. 4, 1967, Ser. No. 658,568
Int. Cl. B60q *1/34*
U.S. Cl. 340—73 **7 Claims**



An indicator for use on, or in connection with, a steering wheel for vehicles or vessels comprising an interconnected pair of spiral channels lying on opposite sides of a rotatable disc, said disc being responsive to rotation of such steering wheel, and a gravity-responsive member freely movable in said channel.

3,569,933
SIGNALLING SYSTEM WITH INDICATING MEANS

Bruce Cameron Longenecker, and Charles Edward Reynolds, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Continuation of application Ser. No. 569,726, Aug. 2, 1966, now abandoned. This application July 29, 1969, Ser. No. 854,342
Int. Cl. B60q *1/00;* **G07b** *5/16*
U.S. Cl. 340—79 **3 Claims**

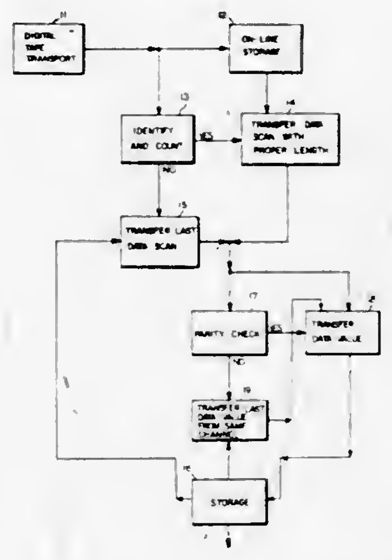


A signalling system for use on vehicles indicates the condition of the lighting system thereof by the use of fiber optic means extending between the lighting means of the lighting system and indicating means positioned within the vehicle for observation by an operator thereof.

3,569,934
METHOD OF DETECTING AND CORRECTING ERRORS IN MULTIPLEXED SEISMIC DATA

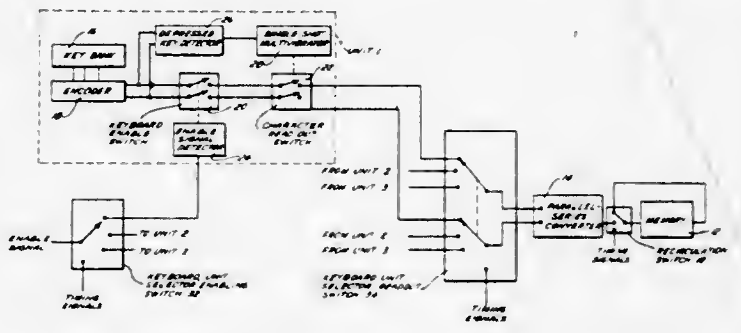
Josephus O. Parr, Jr., San Antonio, Tex., assignor to Petty Geophysical Engineering Company, San Antonio, Tex.
Filed Dec. 17, 1968, Ser. No. 784,346
Int. Cl. G06k *5/00;* **G11b** *27/36;* **H03k** *5/18*
U.S. Cl. 340—146.1 **5 Claims**

A method for the detection and correction of errors in multiplexed data whereby the data is initially identified and counted to determine whether or not there are complete sets of data and subsequent data examination to detect errors in individual bit groups. Previously validated data is substituted for incorrect data to provide a useful data collection.



3,569,935
KEYBOARD-CONTROLLED MULTIPLEX INFORMATION RETRIEVAL SYSTEM

Frank W. Sieracki, and Thomas Coombe, Berlin, N.J., assignors to Ultronic Systems Corporation
Filed Apr. 30, 1969, Ser. No. 820,593
Int. Cl. H04q *1/00, 3/00*
U.S. Cl. 340—152 **7 Claims**

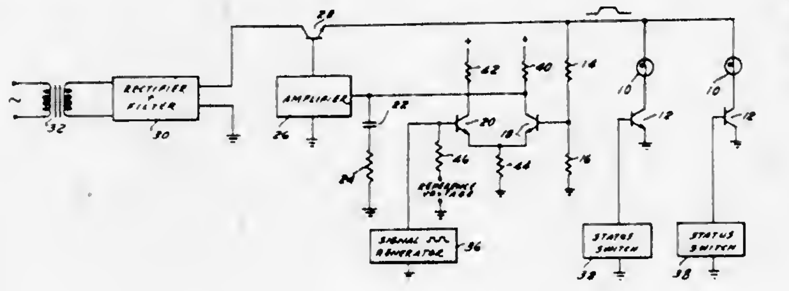


Information, such as stock market transactions, stored in a common memory, is to be displayed visually by a plurality of remotely disposed video monitors. The displays of the various monitors can be totally independent in content, but partial or complete duplication is possible. Each monitor has a keyboard associated therewith whereby the memory can be interrogated for certain specific information to be displayed by the corresponding monitor. To this end, interrogations or requests are supplied sequentially into the memory. The requests are then read out of the memory into a data processor which generates answers. The answers are fed back into the memory and then read out from the memory to the various monitors at which the requests originated.

3,569,936
VISUAL INDICATOR PULSE SUPPLY APPARATUS

Ronald W. Johnson, Cherry Hill, N.J., assignor to Ultronic Systems Corporation
Filed Nov. 8, 1968, Ser. No. 774,360
Int. Cl. H04q*1/32, 5/00*
U.S. Cl. 340—169 **5 Claims**

A visual display device is provided with a plurality of individual display elements such as lamps which are individually controlled to be either lit or dark in order to collectively present a changing pattern of dark and lit lamps which defines the display. To this end, each element is supplied with a separate control signal which has first and second mutually exclusive values, one of which represents the "element-off" state, the other representing the "element-on" state. All elements are connected in parallel to the output of a power supply. The supply produces an energizing voltage which takes the form of a pulse train of equidistantly spaced unidirectional pulses of like amplitude and duration.

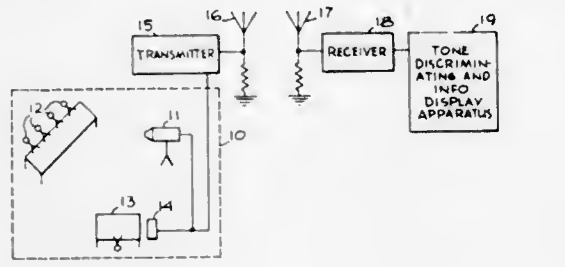


As a result, this voltage, in periods between pulses, has a first value which is insufficient to light the elements and, during the periods in which the pulses are present, has a second and higher value at which the elements can be lit. However, during the periods in which pulses are present, only those lamps which receive control signals in the "element-on" state are lit and all other lamps are dark.

3,569,937

TONE SIGNAL COMMUNICATIONS APPARATUS

Merrill Heatter, 14241 Ventura Blvd, Sherman Oaks, Calif.
Continuation-in-part of application Ser. No. 517,408, Dec. 29, 1965, now abandoned. This application Nov. 6, 1968, Ser. No. 773,802
Int. Cl. H04b *7/00;* **H04q** *9/00*
U.S. Cl. 340—171 **5 Claims**



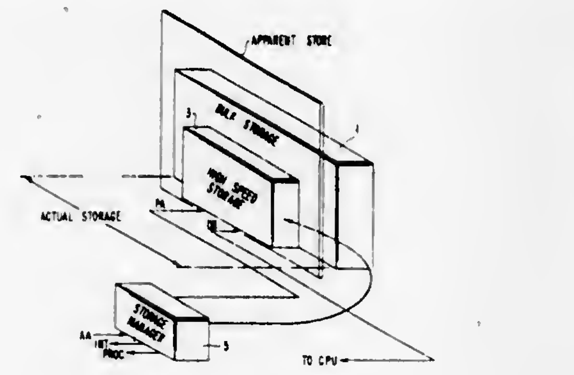
The present invention provides the means by which one or more signals can be employed to operate one or more load devices. Embodiments of the invention have widespread application, but are particularly useful in the broadcast field where these tone signals can be generated in the broadcast studio and then, via radio or television, received in the home where they can be made to operate apparatus that will display to the home listener or viewer the information represented by these tone signals. In this way, the home listener or viewer is directly involved and made a participant of the program being broadcast.

3,569,938

STORAGE MANAGER

Harold E. Eden, and John J. Harmon, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 20, 1967, Ser. No. 692,007
Int. Cl. G06f *9/20*
U.S. Cl. 340—172.5 **19 Claims**

In a data processing system wherein data is stored in a large capacity bulk storage, and is processed against from a low capacity, high speed storage, a storage manager for accepting addresses from said data processing system in terms of the normal addressing capability of said system, and automatically retrieving the required data block from bulk storage to high speed storage for system processing, said storage manager comprising first means for receiving a data block address, and translating said address into a physical address for accessing said high speed storage, if said block address is presently being, or has recently been, processed against; second means for scanning said block addresses present in said high speed storage means and presenting the physical addresses of said data block for high speed storage access if said data block is resident in said high speed storage means; third means useable in the eventuality that the

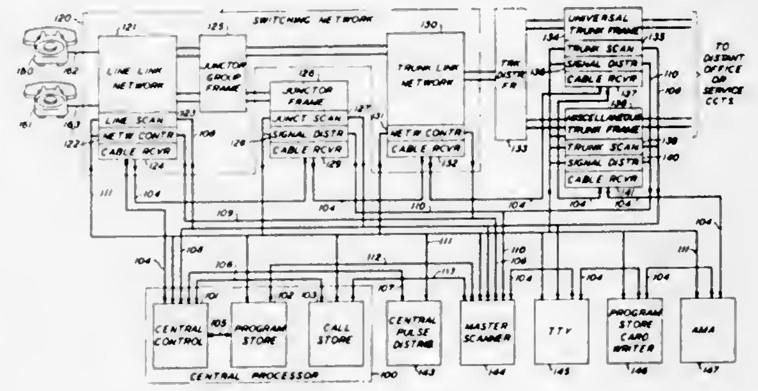


desired data block is not resident in said high speed storage, for designating data storage areas in said high speed storage to receive said required data block from said bulk storage; fourth means, including bulk storage accessing means, for retrieving or inserting said required data block from or into said bulk storage to or from said high speed storage; and fifth means for setting up control information and presenting said control information to said fourth means for supervising said retrieval or insertion of said data.

3,569,939

PROGRAM CONTROLLED DATA PROCESSING SYSTEM

Anton H. Doblmaier, Summit, N.J.; Randall W. Downing, Wheaton, Ill.; Michael P. Fabisch, Bronx, N.Y.; John A. Harr, Geneva; John S. Nowak, Wheaton; Frank F. Taylor, West Chicago, and Werner Ulrich, Glen Ellyn, Ill., assignors to Bell Telephone and Laboratories, Incorporated, New York, N.Y.
Original application Dec. 31, 1963, Ser. No. 334,875. Divided and this application Nov. 24, 1967, Ser. No. 685,351
Int. Cl. G05b *19/00*
U.S. Cl. 340—172.5 **19 Claims**

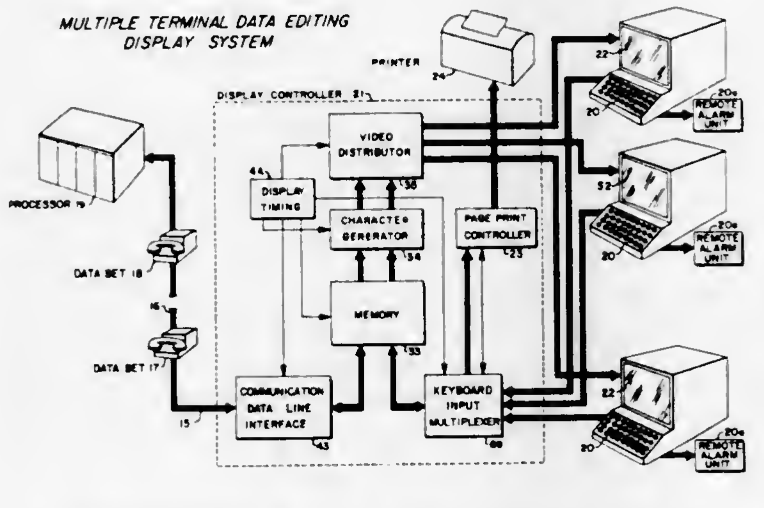


Improvements in data processor systems to increase data handling capabilities and to conserve memory space. The improvements are accomplished by parallel execution of independent data processing actions, by providing single cycle execution of functions which customarily require several program steps, and by optimizing the use of instruction code space and data space in memory.

3,569,940

REMOTE ALARM FOR VISUAL DISPLAY TERMINALS

George M. McFadden; Anthony F. Maggio, Jr., and William L. Ewing, Oklahoma City, Okla., assignors to General Electric Company
Filed June 10, 1968, Ser. No. 735,658
Int. Cl. G06f *3/04, 3/14*
U.S. Cl. 340—172.5 **16 Claims**

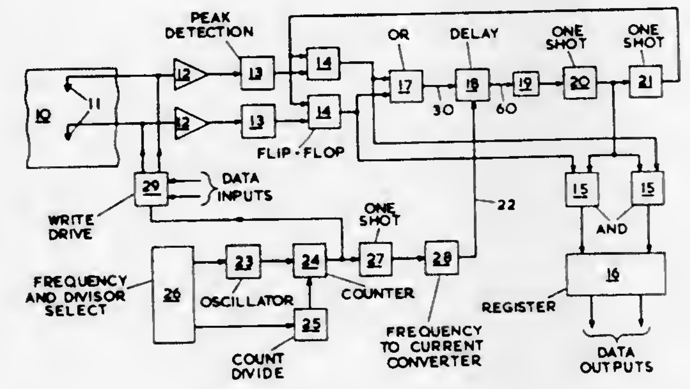


A communication network system utilizing a plurality of remotely located keyboard display terminals employing terminal alarms for indicating predetermined system conditions.

3,569,941

DIGITAL DATA STORAGE APPARATUS

Charles Passmore Randall, and John Williams, Stoke-On-Trent, England, assignors to English Electric Computers Limited, London, England
Filed July 29, 1968, Ser. No. 748,475
Claims priority, application Great Britain, July 28, 1967, 34723/67
Int. Cl. G06k *7/016;* **G11b**
U.S. Cl. 340—172.5 **7 Claims**



A digital data storage apparatus having a movable data storage surface and associated read/write heads, which includes a circuit which ensures that characters read from the surface are correctly assembled in a register by staticizing the component bits of each character and by assembling them in the register only when a time delay approximately equal to one-half of the time spacing between characters has elapsed.

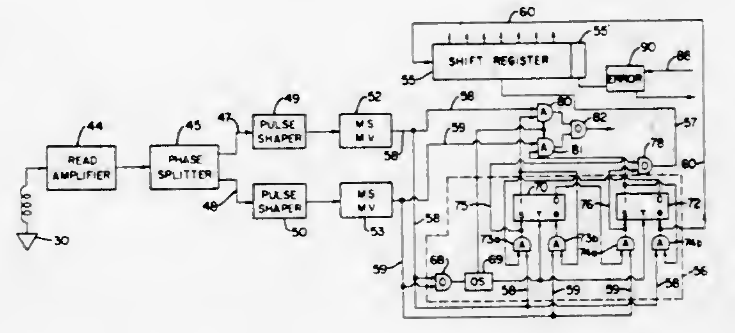
The time delay is character frequency dependent and a particular feature of the described apparatus is that it automatically provides a time delay appropriate to the character frequency being used.

3,569,942

METHOD AND APPARATUS FOR PROCESSING DATA

Raymond B. Larsen, and Wallace B. Edwards, Riverton, Wyo., assignors to Datel Corporation, Falls, Va.
Filed Aug. 12, 1968, Ser. No. 751,884
Int. Cl. G11b *5/00*
U.S. Cl. 340—172.5 **18 Claims**

Data in binary form can be stored on a magnetic recording surface in the form of positive and negative data pulses; and when retrieved, the leading and trailing edges of each pulse are differentiated into bipolar pulses which can be simultane-

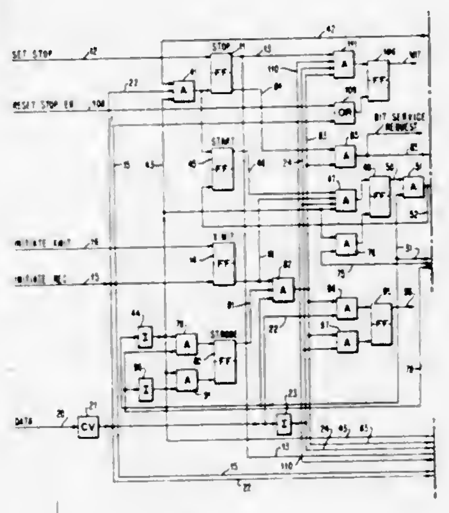


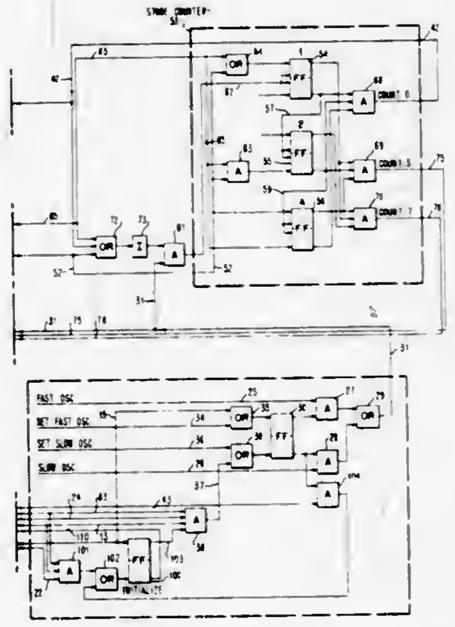
ously error-checked and decoded to binary 1's or 0's represented by the data pulses recorded in each block of information recorded.

3,569,943

VARIABLE SPEED LINE ADAPTER

David Mackie; Eugene E. Mallar, Jr., and Robert F. Steen, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 2, 1969, Ser. No. 812,812
Int. Cl. G05b *11/00;* **G06c** *9/00*
U.S. Cl. 340—172.5 **3 Claims**



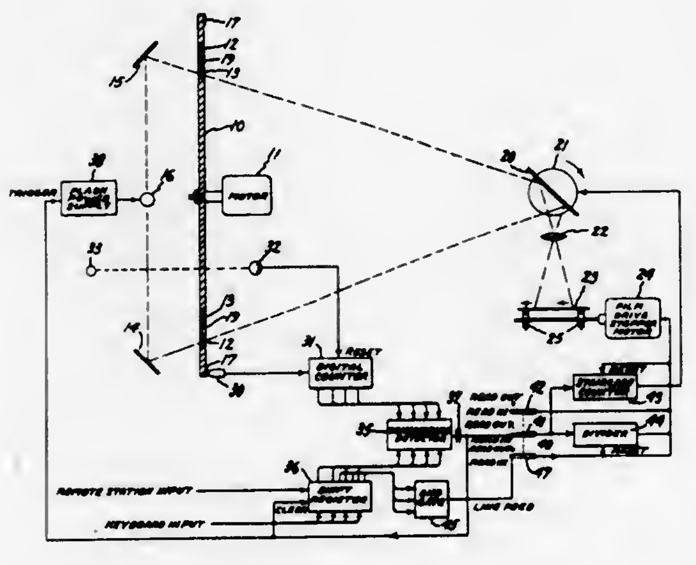


A variable speed line adapter for receiving start-stop data transmission is normally set for reception at one speed and will examine the starting characters of received data at that speed. If the first received character is not a complete and valid starting character for the initial receiver speed, a shift is made to another receiver speed and the next data character examined. By a proper selection of starting characters, the adapter may be switched from one speed range to another until the line adapter is set to receive at the speed of the transmitted signal.

3,569,944
METHOD OF OPTICAL RECORDING OF BINARY CODES

John E. Bigelow, Schenectady, N.Y., assignor to General Electric Company

Filed Apr. 1, 1968, Ser. No. 717,848
Int. Cl. G11c *13/04*
U.S. Cl. 340—173 **21 Claims**

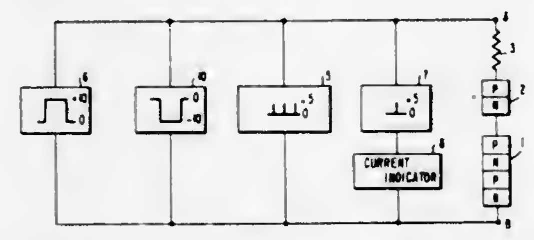


A system for storing and retrieving data in the form of unique sets of superimposed angularly oriented optical diffraction gratings, each set of gratings representing a different symbolic character. Each selected character is stored by optically recording the set of gratings associated therewith. Typically, a set of characters representing an address is recorded together with each group of characters representing stored information. Readout is accomplished by comparing quickly the stored sets of characters representing different addresses with an address called for by the system. When the desired address is located, the system reads out all recorded data associated therewith.

3,569,945
LOW POWER SEMICONDUCTOR DIODE SIGNAL STORAGE DEVICE

Irving T. Ho, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 6, 1969, Ser. No. 789,263
Int. Cl. G11c *11/36;* **H03k** *4/80*
U.S. Cl. 340—173 **6 Claims**

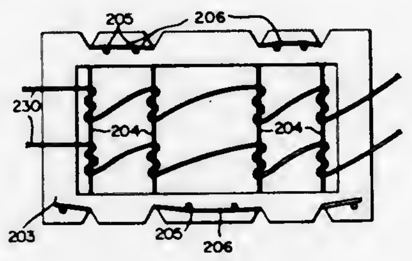


A PNPN semiconductor diode is connected in series with an additional PN diode to form a bit memory. A bit is stored on the PNPN device by applying a positive voltage sufficiently large to break down the center junction of the PNPN device and increase the minority carriers in the regions adjacent to the center junction. Repetitive small positive voltage pulses maintain the minority carrier condition as a bit memory. A large negative voltage erases the memory cell.

3,569,946
MAGNETIC MATERIAL AND DATA STORE

Wilbur G. Hespenheide, Malvern, Pa., assignor to Burroughs Corporation, Detroit, Mich.

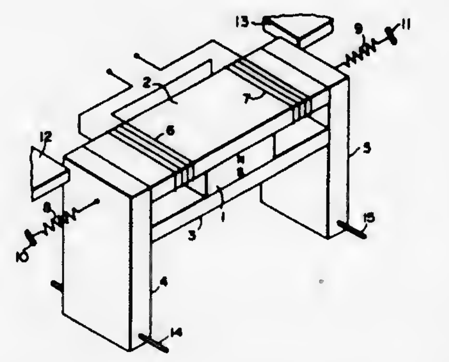
Filed Sept. 25, 1958, Ser. No. 763,241
Int. Cl. G11c *11/12, 5/04*
U.S. Cl. 340—174 **1 Claim**



A ferromagnetic plated wire memory having a nonaxially aligned easy direction of magnetization with respect to the longitudinal axis of the wire memory and having spaced apart sections of ferromagnetic material along the wire memory free of said easy direction of magnetization.

3,569,947
MAGNETIC MEMORY DEVICE

Raymond J. Radus, Monroeville, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa. Continuation of application Ser. No. 167,360, Jan. 19, 1962, now abandoned. This application June 16, 1969, Ser. No. 835,898
Int. Cl. G11c *11/52;* **H01h** *51/22;* **H01f** *7/13*
U.S. Cl. 340—174 **17 Claims**



A flux transfer device wherein magnetic flux from a source divides between two parallel magnetic circuit paths according to the respective reluctance thereof and flux may be transferred from one of the paths to the other by varying the reluctance thereof through the application of control signals to control windings disposed in the respective magnetic circuit paths.

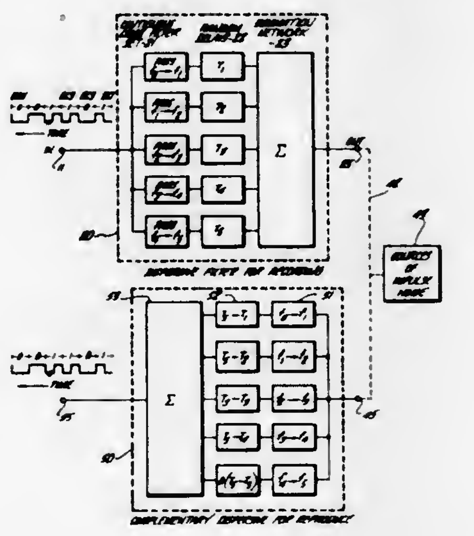
3,569,948
HIGH BIT DENSITY RECORD AND REPRODUCE SYSTEM WITH SELECTED FREQUENCY BAND COMPONENT DISPERSAL

Kermit A. Norris, Azusa, Calif., assignor to Subscription TELEVISION, INC., New York, N.Y.

Filed Aug. 23, 1967, Ser. No. 662,639
Int. Cl. G11b *5/02, 5/44*
U.S. Cl. 340—174.1 **15 Claims**

A method and apparatus is disclosed which avoids bit dropout and dropin problems associated in magnetic medium recording by resolving the random multilevel signal inputs characteristic of digital data into a plurality of selected frequency band components. These selected frequency band components are each subjected to a different time delay which relative time delays are selected at random. A signal summation circuit sums the delayed frequency band components and the summation signal is recorded in assigned

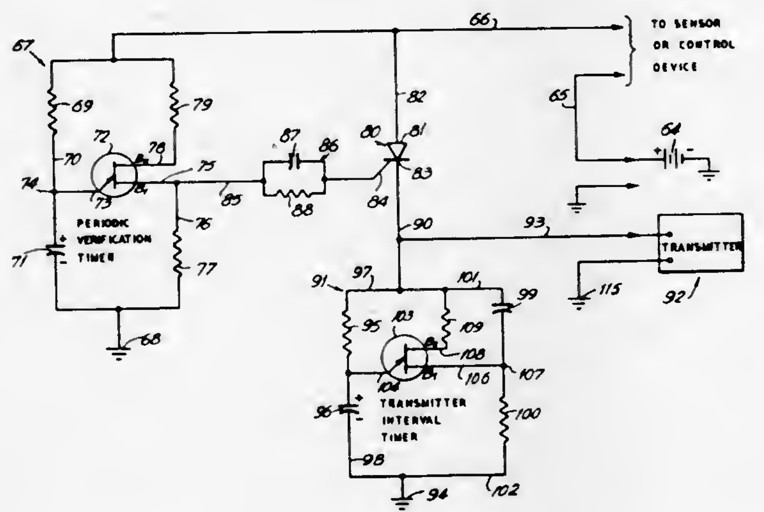
spaces on a single data track on a magnetic medium as a slowly varying nonsaturable analog signal. This method and apparatus as disclosed thus disperses in a single data track the information content of several data bits over a considerable length of the magnetic medium rather than confining them to sequential bit cell intervals. Accordingly, any spurious signal variation for a short duration of time, as normally characterized by a dropout or a dropin, results in a loss of only a few frequency cycles of several frequency band components which compose the information content of many data bits with the result being that extremely high bit rates are possible with virtually no probability of a bit dropout or a bit dropin. Reproduction of the binary data is accomplished through the use of a complementary frequency band dispersive circuit. In a further nonlimiting embodiment wherein the magnetic medium may vary in speed relative to the record and reproduce circuits, an intermediate record and reproduce device is employed which is responsive to such speed variations so as to continually assure precise spatial separation of the frequency band components on the magnetic medium.



3,569,949
WIRELESS REMOTE CONTROL SYSTEM

Roger Isaacs, 953 E. 9th St., and Albert Stern, 929 E. 18th St., Brooklyn, N.Y. 11230

Filed Feb. 12, 1968, Ser. No. 704,877
Int. Cl. G08b *21/00;* **H03k** *5/00, 17/00*
U.S. Cl. 340—213 **29 Claims**

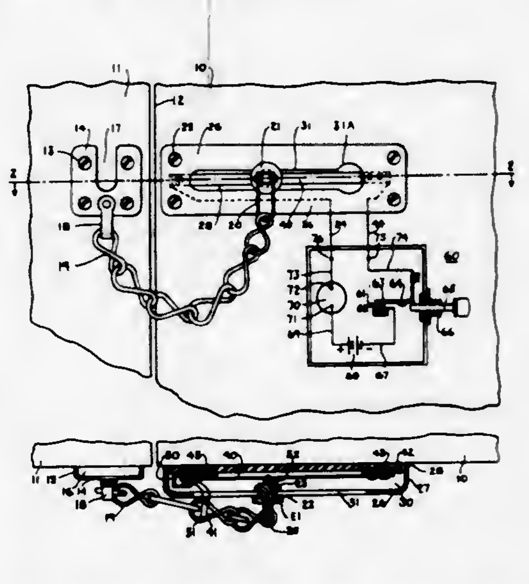


This invention is concerned essentially with a wireless remote control system embracing a signaling station and a robot or operating station, both jointly and severally, wherein a remotely located signaling station transmits intermittent signals responsive to manual actuation or actuation of a sensor or other control device, and the operating station operates continuously in response to the received intermittent signals, ceasing operation only upon termination of the signals.

3,569,950
LOCK-ALARM COMBINATION

Paul L. Betz, 1113 Angonne Drive, Baltimore, Md. 21218

Filed Apr. 29, 1968, Ser. No. 724,981
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 **3 Claims**

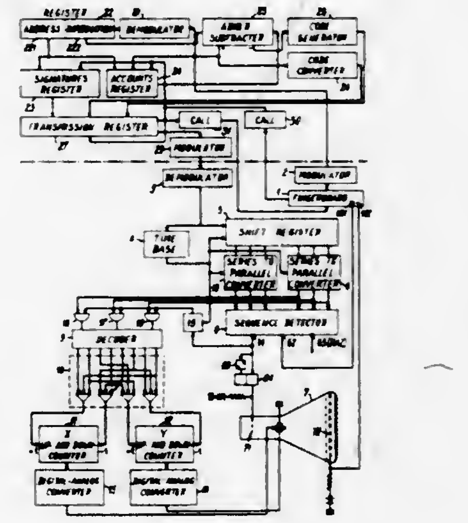


A chained bolt door fastener and alarm system has alarm energizing electrical contacts which are actuated to sound the alarm by movement of the slidable chain bolt from an initial preset position when an attempt is made by an intruder to open the door from the outside. The contacts and the bolt may be so arranged in relation to the slide that unauthorized movement of the bolt either in the direction to permit limited opening of the door, or in the opposite direction to enable removal of the bolt from the slide, will energize the alarm.

3,569,951
SCANNING AND RECEIVING STATION FOR GRAPHIC SYMBOLS

Jean C. Lavenir, 144 Avenue des Etats Unis, Versailles, assignor to Jean-Claude Merlin, 1 rue Marcelin Berthelot, Vanves, France

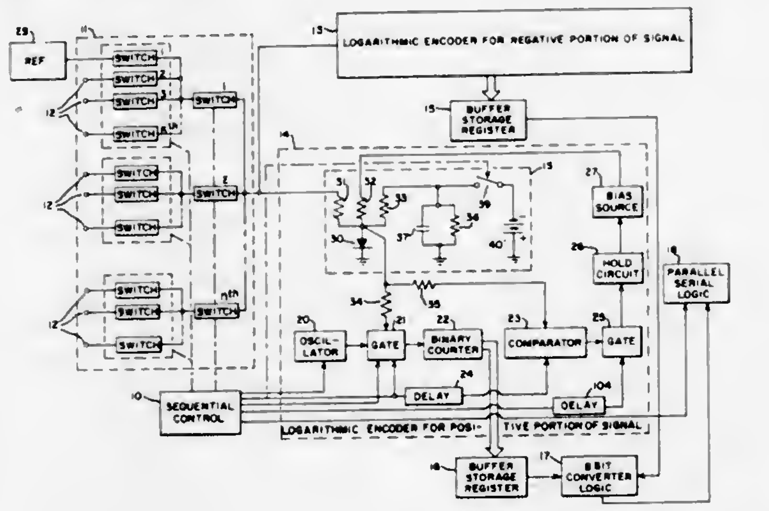
Filed Apr. 2, 1969, Ser. No. 812,640
Claims priority, application France, Apr. 5, 1968, 147,198
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 **4 Claims**



A system for viewing graphic symbols and graphs on the screen of a cathode-ray tube. The graphs are drawn by giving the spot incremental movements along quantified directions or vectors and the incremental advance of the spot is caused by sending to the receiving end of the system binary digit vector words defining the quantified directions. The information relative to the illumination or extinction of the spot is transmitted not by a supplementary bit but by means of a particular combination of two vector words. This combination is a succession of two vector words defining vectors of the same and opposite direction.

3,569,952
TIME DIVISION MULTIPLEX SYSTEM AND A LOGARITHMIC ENCODER FOR HIGH SPEED MULTIPLEX OPERATION

Hans R. Schindler, Syracuse, N.Y., assignor to General Electric Company
Filed Dec. 12, 1967, Ser. No. 689,888
Int. Cl. H03k *13/16*
U.S. Cl. 340—347 **4 Claims**



A time division multiplex system and a logarithmic encoder for high speed multiplex operation is described. By means of a switching network, the system continuously samples a large number of amplitude information signals, typically voice signals, available on separate input channels and encodes them by a logarithmic law into a binary coded form. The coded groups are applied to a common output channel in the time division multiplex format.

The encoder is logarithmic, employing a tunnel diode threshold device for comparing the sampled input signal with a repetitive wave of internal generation having an exponentially decaying waveform.

A servo network is further provided for stabilizing the encoding tunnel diode against thermal variations and other factors.

3,569,953
WIDE RANGE ANALOG TO DIGITAL CONVERTER

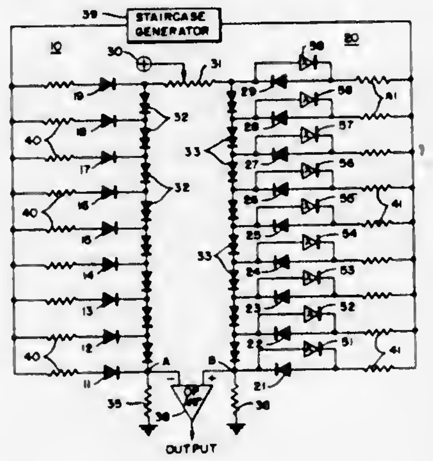
Donald G. Shuda, Clarence Center, and Donald L. Starkey, North Tonawanda, N.Y., assignors to Sylvania Electric Products Inc.
Filed Mar. 25, 1968, Ser. No. 715,625
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 **9 Claims**

An analog to digital converter for logarithmically quantizing an analog input voltage, which may vary over a wide dynamic range, and providing a representative binary-coded decimal readout. The analog input voltage is processed through parallel strings of serially connected logarithmic amplifiers, the individual outputs of which are connected to respective threshold detectors at the parallel inputs of a shift register. Upon command, shift pulses are applied to the register to generate a serial output which is applied to a binary counter for readout.

3,569,954
ANALOG COMMUTATOR

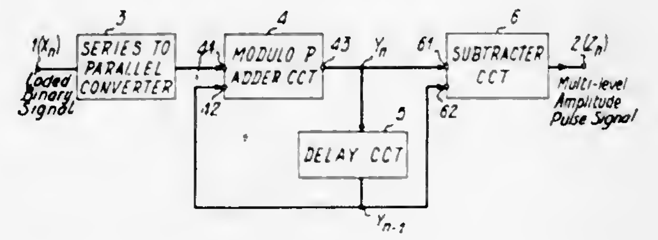
Charles A. Glorioso, Chicago, Ill., assignor to Teletype Corporation, Skokie, Ill.
Filed May 23, 1968, Ser. No. 731,389
Int. Cl. H03k *13/00*
U.S. Cl. 340—347 **10 Claims**

An electronic commutator for converting low-level parallel binary input signals into an amplified, permutation-coded, serial-output, signal train includes a reference diode array and an input diode array, with the diodes of each of the arrays being variably reversed-biased, and with the diodes of the input array each being shunted by a reverse-connected photovoltaic cell. A staircase scanning voltage is applied to the diode arrays in the forward direction, and the diodes of each array conduct in a step-by-step fashion; but in the absence of any input signal causing a photovoltaic diode to conduct, the output of the reference array always is higher than that of the input array due to the manner in which the reverse-bias initially is adjusted. This causes a first output always to be obtained from an operational amplifier operated in its saturation-to-saturation mode and supplied with input signals from each diode array. Whenever a photovoltaic cell for a given level of the input array is illuminated, however, it generates sufficient current, when the diodes for that level of the two arrays are rendered conductive, to overcome the imbalance in favor of the reference array, causing a higher output voltage for that level to be obtained from the input array. This, in turn, causes a second output to be obtained from the operational amplifier. The output obtained from the operational amplifier, as a result, is a permutation-coded serial signal corresponding to the parallel signal applied to the photovoltaic diodes.



3,569,955
METHOD AND DEVICES FOR CONVERTING CODED BINARY SIGNALS INTO MULTILEVEL SIGNALS AND FOR RECONVERTING THE LATTER INTO THE FORMER

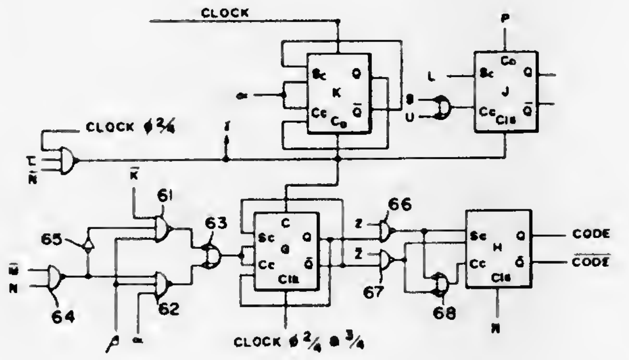
Maurice A. Maniere, Paris, France, assignor to Lignes Telegraphiques Et Telephoniques Styled L. T. T., Paris, France
Filed Oct. 11, 1968, Ser. No. 766,823
Claims priority, application France, Oct. 12, 1967, 124171
Int. Cl. H04l *3/00*
U.S. Cl. 340—347 **4 Claims**



Code converter for converting a first sequence of coded binary signals x_n, each of said signals being formed of m bits, having a given duration and being capable of taking 2^m possible values, into a second sequence of multilevel signals z_n whose amplitude has $(2^{m+1}-1)$ possible levels proportional to the series of integers from $-(2^m-1)$ to $+(2^m-1)$ including zero. The converter comprises a register for supplying the signals x_n of the first sequence, a modulo p adder circuit where $p=2$ having a first input connected to the register and a second input, said modulo p adder circuit generating a third sequence of m-bit binary signals y_n, a nonborrow subtractor circuit having a first input being connected to the output of said adder circuit and a second input, a delay circuit having an input connected to the output of the adder circuit for delaying said signals y_n by the duration of the signals x_n and thereby delivering the signals y_{n-1} at the time of occurrence of the signal x_n and an output connected to the second input of both said adder circuit and subtractor circuit. The nonborrow subtractor circuit provides a sequence of m-digit signals whose digits are -1, 0 and $+1$. Each digit of said m-digit signals is multiplied by a coefficient equal to the weight thereof to obtain multilevel components relative to each of said digits and these components are algebraically added. Means for reconverting the multilevel signals z_n into the coded binary signals x_n are also described.

3,569,956
MINIMAL LOGIC BLOCK ENCODER

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of, and James O. Duffy, Pasadena, Calif.
Filed Oct. 30, 1968, Ser. No. 771,760
Int. Cl. H03k *13/24*
U.S. Cl. 340—347 **10 Claims**

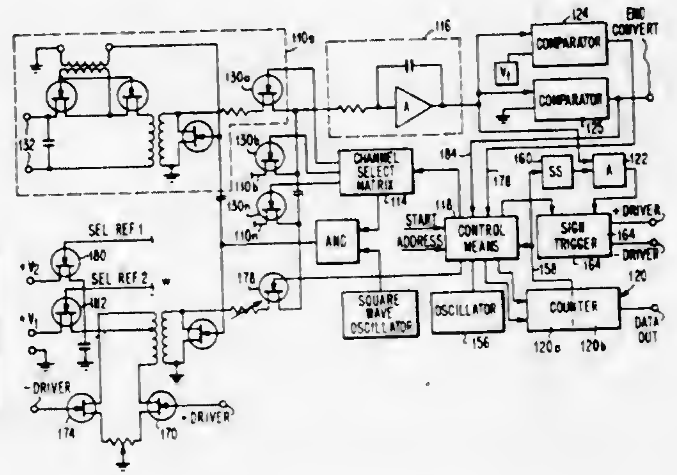


An encoder incorporating a minimum number of logic circuits to convert 64 6-bit data words into 64 32-bit code words, forming a 32, 6 biorthogonal code. Each code bit, generated during a multiclock-period-code-bit-period, is logically combined, at the end of the code bit period, with a code bit of a comma free vector code to produce a code bit of a code word in a 32, 6 comma free biorthogonal code. The encoder implements an algorithm in accordance to which each of the six data word bits is incorporated in a modulo-2 summation, as a function of the code-bit number and number of logic ones in the code-bit number in binary form.

3,569,957
ANALOG TO DIGITAL CONVERTER WITH ISOLATED INPUTS

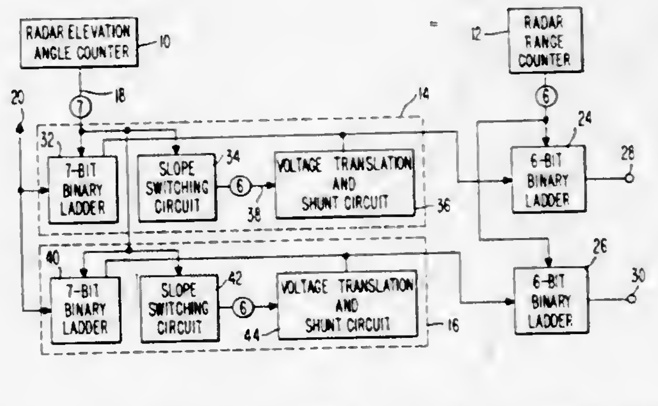
Robert J. Masterson, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 23, 1968, Ser. No. 786,215
Int. Cl. H03k *13/20*
U.S. Cl. 340—347 **9 Claims**

An analog to digital converter with isolated inputs is provided wherein each of a plurality of input signal channels comprises a transformer and a source of input signals. A second transformer is coupled between the first transformer and the source of input signals and a source of pulses is coupled through the second transformer to actuate a chopper means for producing a modulated signal proportional to the input to the secondary of the transformer. The modulated signal from a selected channel is coupled to an integrating means for a predetermined time as a digital signal generating means is actuated. At the expiration of the predetermined time the polarity of the input signal is detected and a reference voltage input channel is energized to couple to the input of the integrator a reference voltage of the opposite polarity to the input signal while the digital signal generating means is actuated. When the output of the integrator reaches its initial level, the digital signal generating means then holds the digital representation of the input signal.



3,569,958
POLAR-TO-CARTESIAN, DIGITAL-TO-ANALOG CONVERTER

Claude D. Gabriel, King of Prussia, Pa., assignor to Burroughs Corporation, Detroit, Mich.
Filed Oct. 13, 1965, Ser. No. 495,634
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 **8 Claims**

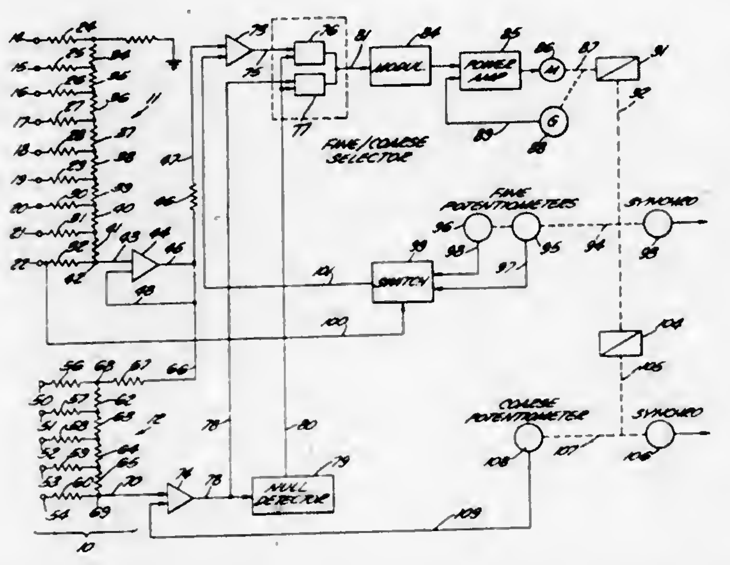


The present disclosure describes a code converter which converts directly from polar digital information to cartesian analog information by continuously adjusting the resistances of a weighted-resistor binary ladder that performs the digital to analog conversion.

3,569,959
DIGITAL TO ANALOGUE SERVOSYSTEM

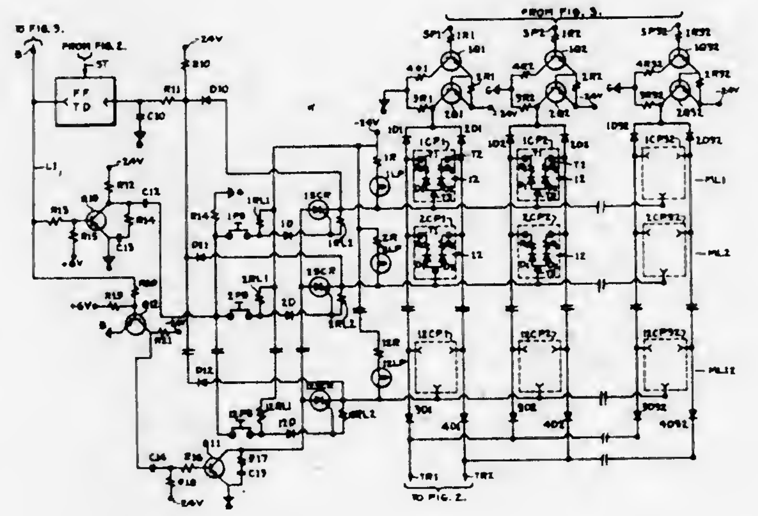
Shingo Arase, and James B. Briggs, Los Angeles, Calif., assignors to Hoffman Electronics Corporation, El Monte, Calif.
Filed June 14, 1966, Ser. No. 557,509
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 **18 Claims**

There is disclosed herein a digital to analogue converter particularly useful in radio air navigation systems. The converter includes a ladder network of weighted impedances having an output coupled to an amplifier for providing a fine analogue output, and having an output for providing a coarse and fine output. Also disclosed is a servosystem which may include the converter as its input to receive the digital information, and which includes fine and coarse servoloops. One of the loops includes a motor for driving output gearing which serves to intercouple the loops mechanically to provide a precision output and to provide feedback for each of the two loops. The ladder network includes electrically weighted networks providing a predetermined electrical ratio with respect to the digital inputs, and the mechanical inter-coupling of the servoloops includes gearing having a ratio proportional to the electrical ratio. Additionally, a potentiometer circuit including potentiometers and switching means coupled therewith is disclosed which enables the potentiometers to rotate continuously and eliminate transients occasioned by the potentiometer wipers crossing the resistive gaps thereof.



3,569,960
CODED BINARY SYMBOL GENERATOR

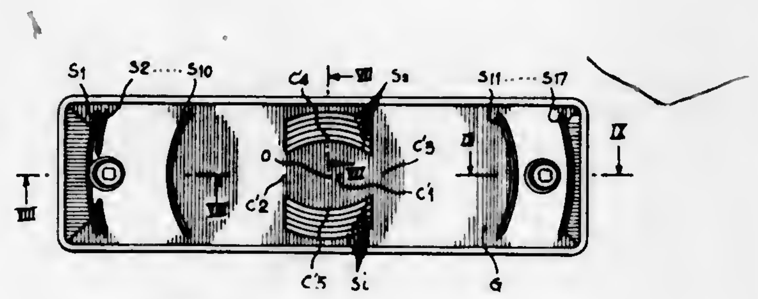
James T. Neiswinter, Garden City, N.Y.; Carl N. Pederson, Westmont, and Peter G. Angelopoulos, Westchester, Ill., assignors to the Pioneer Electric and Research Corporation, Forest Park, Ill.
Filed May 31, 1967, Ser. No. 642,449
Int. Cl. G06f *3/00*
U.S. Cl. 340—347 **6 Claims**



A voltage divider network with means for selectively and sequentially interconnecting resistors of various ohmic values in one leg thereof to provide discrete voltages, each one of which voltage is associated with a corresponding resistor value. The discrete voltage levels are detected and converted to a binary coded output in accordance with an intelligible encoding of the resistors. For such encoding the different resistor values and discrete voltage steps used are equal in number to the binary code which is to be generated. For example, for a binary code of 2 to the second power (2^2), 4 resistors are selectively insertable in the voltage divider network and four different voltage levels detected. For a binary code of 2 to the fourth power (2^4), 16 resistance values and voltage levels are utilized. In order to minimize the number of different resistance values and voltage levels needed for a given binary code level, more than one voltage divider with its associated resistors and voltage level detectors may be utilized and "read" simultaneously.

3,569,961
SIGNALLING INDICATOR LENS FOR MOTOR VEHICLES

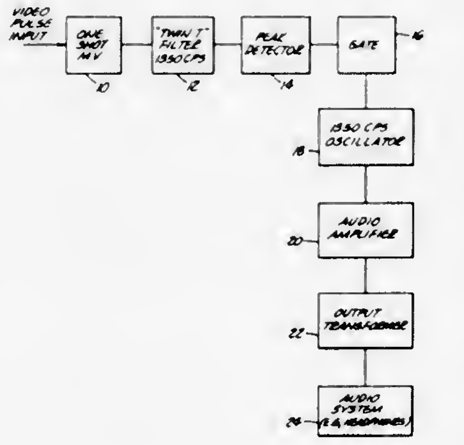
Jacques Ricard, Fontenay sur Bois, France, assignor to Projecteurs Cibie, Bobigny, France
Filed Apr. 14, 1969, Ser. No. 815,539
Claims priority, application France, Apr. 26, 1968, 149639
Int. Cl. G08b *5/36*
U.S. Cl. 340—383 **5 Claims**



A motor vehicle signalling indicator having on the internal surface of its transparent or translucent window at least one group of concentric arcuate ridges. One side of each ridge is located on a conical surface the apex of which is outside the plane and spaced from the front to rear central window of the axis of the indicator.

3,569,962
IDENTIFICATION TONE GENERATOR

Robert W. Kuthe, West Covina, Calif., assignor to Hoffman Electronics Corporation, El Monte, Calif.
Filed July 3, 1967, Ser. No. 650,909
Int. Cl. G08b *3/00*
U.S. Cl. 340—384 **6 Claims**

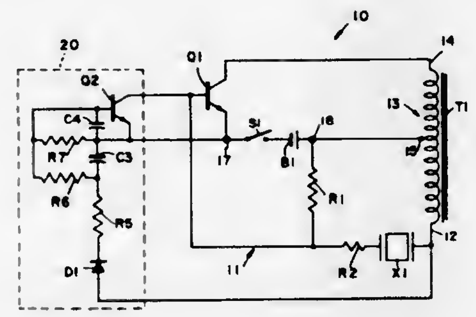


In a TACAN system a peak detector senses the filtered output of a one-shot multivibrator and energizes an audio oscillator whose output is fed to the audio system of an aircraft.

3,569,963
AUDIBLE ALARM UNIT

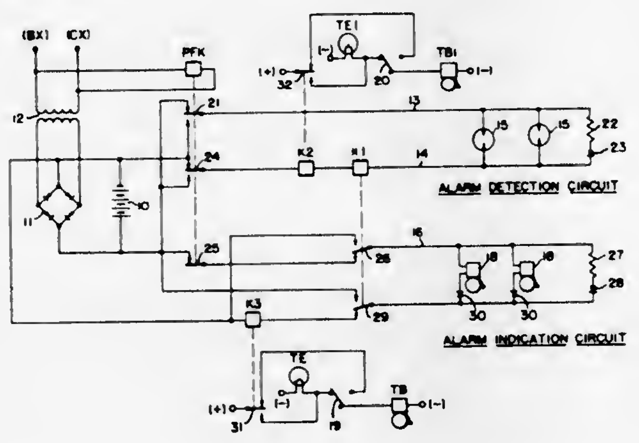
Henry R. Mallory, Greenwich, Conn., and Sherwood S. Thaler, Spring Valley, N.Y., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Continuation of application Ser. No. 621,596, Mar. 8, 1967, now abandoned. This application Oct. 6, 1969, Ser. No. 866,093
Int. Cl. G08b *3/00*
U.S. Cl. 340—384 **2 Claims**

A piezoelectric electroacoustical transducer is in series with the feedback path of a compact, encapsulated audio oscillator operating on a voltage compatible with those produced by a single electrical cell. The necessary voltage stepup for the transducer is obtained by a feedback transformer. Internal pulser circuits provide an output tone which is interrupted at a subaudio frequency. Provision is made for an internal power source and for an internal sensor switch.



3,569,964
SUPERVISORY ALARM SYSTEMS

Irving Mande, Westport, Conn., assignor to Edwards Company, Inc., Norwalk, Conn.
Filed May 16, 1968, Ser. No. 729,768
Int. Cl. G08b *29/00*
U.S. Cl. 340—409 **8 Claims**

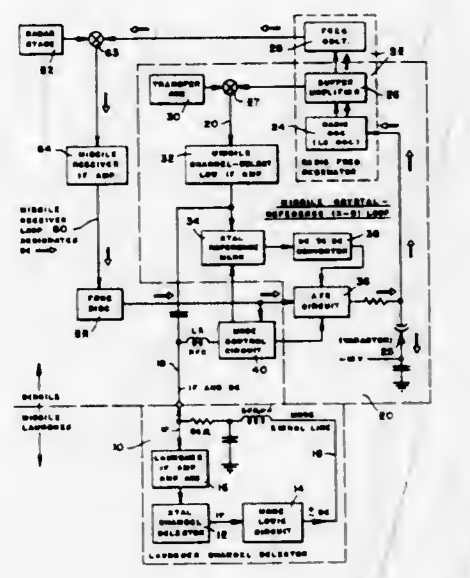


A supervisory alarm system is disclosed for a normally supervised alarm detection circuit actuated in response to energization from a commercial source of power. A plurality of alarm condition sensing devices is connected in multiple in the circuit and includes supervisory and alarm detection means including supervisory and alarm relays connected in series in the circuit for respectively sensing trouble and alarm conditions. Power failure detection means responsive to the failure of the source of power deenergizes the supervisory relay until power from the commercial source is restored and a control means is effective in response to the power failure detection means for energizing the circuit from a standby battery.

3,569,965
MULTICHANNEL FREQUENCY-SELECT SYSTEM

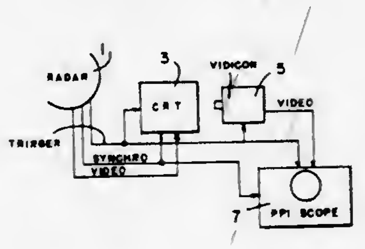
Michael T. Bagley, West Covina, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 18, 1969, Ser. No. 843,118
Int. Cl. G01s *9/02*
U.S. Cl. 343—5 **4 Claims**

A multichannel frequency-select system which allows for operation of a remotely-controlled device, for example a missile, at various frequencies, e.g. radar frequencies. In the missile, there is located a crystal bank capable of generating a set of reference frequencies one at a time, each crystal of which holds a basic oscillator in a standby position. An automatic frequency control (AFC) circuit in the missile provides a two-speed sweep-ramp voltage for changing the frequency of the basic oscillator by controlling a voltage-sensitive capacitance or varactor, in the tank circuit of the basic oscillator. A channel selector unit based in a missile launcher provides means to select the desired channel of operation in the remotely-controlled device by furnishing the proper mode voltages, which are related to the sweep voltages, in the device at a precise time.



3,569,966
TIME COMPRESSION OF RADAR VIDEO

William J. Dunn, Margate City, and Edward M. Sawtelle, Ventnor, N.J.
Filed June 3, 1969, Ser. No. 829,998
Int. Cl. G01s *9/04*
U.S. Cl. 343—13 **11 Claims**

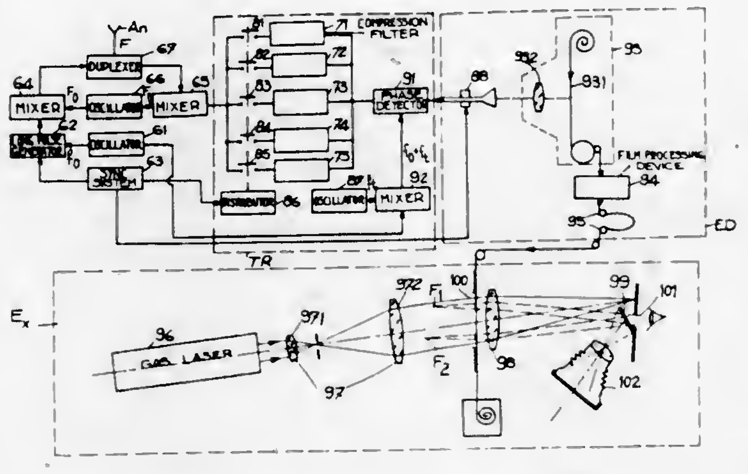


A system for achieving radar video sweep time reduction in order to provide more time to write alphanumerics on a radar PPI display. The system utilizes analogue or digital techniques for the time compression which is accomplished by storing the radar video and subsequently reading out the stored information for display. When less time is utilized for reading out the information than the time required to store the information, time compression of the radar video occurs.

3,569,967
ECHO PROCESSING APPARATUS OF SIDE LOOKING DETECTION SYSTEMS OPERATING WITH FREQUENCY MODULATED TRANSMITTED PULSES

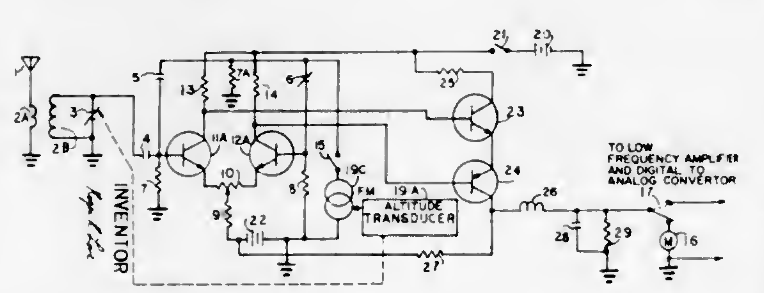
Robert Jules Gendreu; Jean Andre Lemoing, and Guy Francis Le Parquier, Paris, France, assignors to Thomson C.S.F., Paris, France
Filed Dec. 6, 1968, Ser. No. 781,885
Claims priority, application France, Dec. 13, 1967, 132,111
Int. Cl. G01s *7/28*
U.S. Cl. 343—17.2 **6 Claims**

In a moving side-looking coherent detection system, wherein the transmitted pulses are linearly frequency modulated, the echoes are submitted to a compression which is a function of the range of the target from which they originate, and by means of which the recording of the echoes on a photographic film displaced at a speed proportional to that of the system, supplies, for each echo, a pattern similar to that of a Newton ring; the observation of that pattern with a coherent and plane luminous wave and an appropriate con-



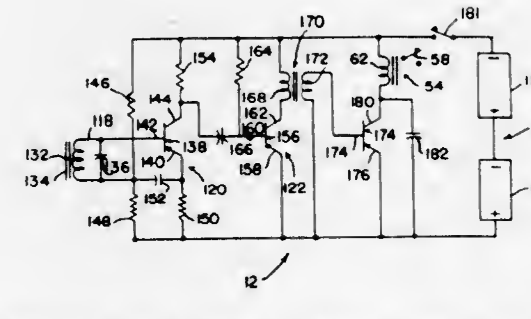
ventional optical system allows the direct vision of the position of the target.

3,569,968
PROXIMITY INDICATING MEANS
Roger Ross Love, 89 Brook Lake Road, Florham Park, N.J.
Filed Oct. 14, 1968, Ser. No. 767,361
Int. Cl. H04b *7/00;* **G08g** *5/04*
'J.S. Cl. 343—100 **13 Claims**



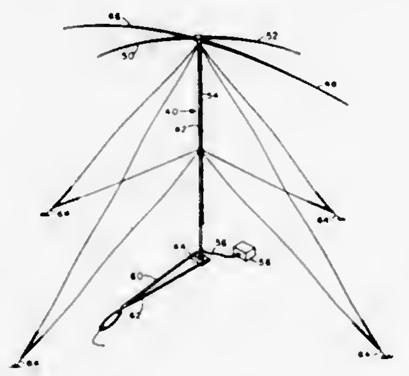
A proximity indicating system having an RF transmitter, a normally balanced differential circuit, a tuned antenna circuit, and indicating means. The continuously transmitted signal is applied to the antenna in such a manner as to maintain the differential circuit in a balanced condition, while simultaneously received signals of the same frequency coming from other systems within operating range cause an unbalance in the differential circuit which is detected by the indicator. When the system is used with aircraft, the transmitter may be frequency modulated and the antenna circuit tuned in accordance with the aircraft altitude.

3,569,969
MAGNETIC INDUCTION, AUDIOFREQUENCY SELECTIVE, REMOTE CONTROL SYSTEM
John W. Lemon, Jr., 712 Princeton Road, Berkley, Mich.
Filed Feb. 17, 1964, Ser. No. 345,380
Int. Cl. A63h *33/26;* **H04b** *7/00*
U.S. Cl. 343—225 **3 Claims**



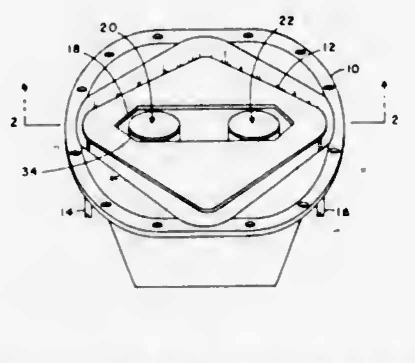
A remote control system for models and the like including a transmitter having a magnetic induction loop in which electromagnetic waves are generated and transmitted including desired intelligence. The magnetic induction loop preferably encompasses an area in which remote control is desired whereby on operation of the transmitter an electromagnetic flux of controlled intensity is provided within the area. The remote control system further includes a receiver for receiving the electromagnetic waves from the transmitter magnetically inductively coupled to the transmitter and means for controlling a model in accordance with the output of the receiver.

3,569,970
PORTABLE ANTENNA HAVING A MAST FORMED OF COAXIAL WAVEGUIDE SECTIONS
Richard C. Fenwick; Don L. Holzschuh; Betty M. Wicker, Richardson, Tex., and Paul B. Smithey, Sidney, Ill., assignors to Collins Radio Company, Dallas, Tex.
Filed Oct. 1, 1968, Ser. No. 764,149
Int. Cl. H01q *1/00, 1/22*
U.S. Cl. 343—724 **7 Claims**



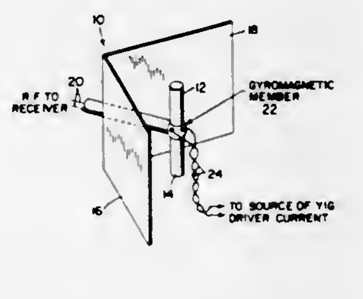
A manually transportable HF radio antenna including a segmented mast which is easily assembled and disassembled and further functions as a low-loss feedline between radio and dipole radiating elements. A pair of dipoles are provided which allow a low standing wave ratio and also function as guy wire supports for the mast. Rigid dipole elements may be provided which switchably allow either a horizontally polarized mode or a vertically polarized mode of wave propagation.

3,569,971
DUAL BAND CAVITY BACKED ANTENNA FOR RADIO NAVIGATION
Leslie V. Griffee, Dallas, Tex., assignor to Collins Radio Company, Dallas, Tex.
Filed Sept. 5, 1969, Ser. No. 855,682
Int. Cl. H01q *21/00*
U.S. Cl. 343—725 **8 Claims**



A radio navigation antenna operable in either the P communication band or the L communication band. A housing mountable in a rotatable support means in the body of an aircraft accommodates a planar P band radiating element and a pair of L-band folded monopoles such that interference is minimized among the radiating elements and 180° radiation patterns may be generated by the respective radiating elements.

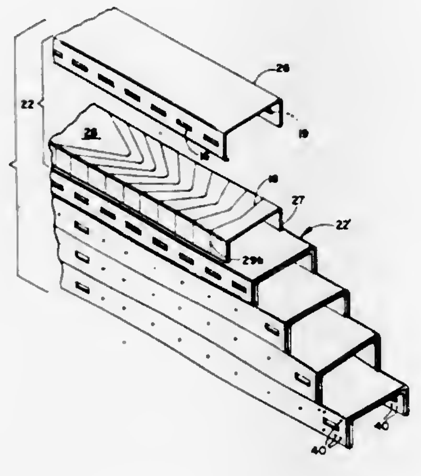
3,569,972
ELECTRONICALLY TUNABLE ANTENNA
William J. McEvoy, Ventura, Calif.
Filed July 10, 1968, Ser. No. 743,734
Int. Cl. H01q *9/16, 1/00, 9/00*
U.S. Cl. 343—747 **3 Claims**



A broadband microwave antenna in the form of a pair of aligned dipoles between which is interposed a ferrite element, such as a sphere of gyromagnetic material, controllably biased so as to vary its point of gyromagnetic resonance. By selectively changing the strength of the bias applied to this ferrite element, the antenna may be accurately tuned over a wide band of frequencies.

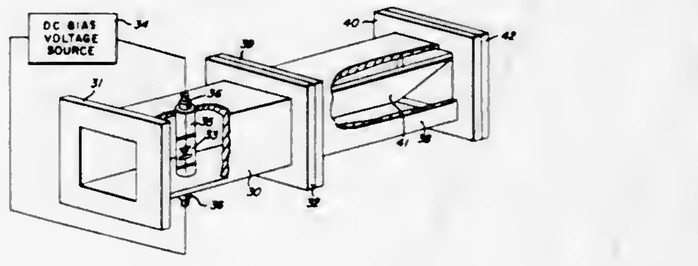
The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

3,569,973
CONSTRAINED LENS TYPE ANTENNA
Charles T. Brumbaugh, Jr, Norwalk; Jerry L. McFarland, Fullerton; Jack W. Preston, Placentia, and Richard W. Wesley, Yorba Linda, Calif., assignors to North American Rockwell Corporation
Filed May 2, 1969, Ser. No. 821,207
Int. Cl. H01g *19/06, 21/00*
U.S. Cl. 343—753 **11 Claims**



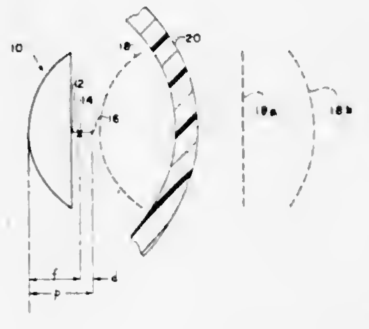
A constrained lens-type antenna including a lens having a controlled aperture phase distribution and utilizing stripline circuitry. The lens is formed of a plurality of mutually parallel stripline assemblies, each assembly comprising a pair of mutually nested dielectric U-channels sandwiching a dielectric slipsheet having a plurality of deposited electrically conductive lines of selected lengths as discrete delay elements. The outer surface of the opposing walls of the U-shaped channel assembly include microwave ports, each being electromagnetically coupled to an associated terminus of a mutually exclusive one of said delay elements, the ports in one of the opposing walls being exposed to a feed horn, serve as feed ports, while the ports in the other of the opposing walls serve as radiating ports. The novel use of stripline circuitry provides a lens assembly of minimum bulk and weight while also having improved geometrical tolerances and performance.

3,569,974
DUAL POLARIZATION MICROWAVE ENERGY PHASE SHIFTER FOR PHASED ARRAY ANTENNA SYSTEMS
Willard W. McLeod, Jr., Lexington, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Dec. 26, 1967, Ser. No. 693,531
Int. Cl. H01p *1/16;* **H03h** *5/12;* **H01g** *19/06*
U.S. Cl. 343—754 **12 Claims**



A phase shifter is disclosed for supporting dual orthogonal polarization modes of propagated microwave energy in tactical electrically beam scanning phased array antenna systems of the optically fed reflector type. Reentrant single port antenna array elements provide a predetermined electrical phase shift of linear as well as circular polarized energy. Incident waves received by each element oriented in one plane of polarization, for example, a vertical wave, will be electrically shifted and launched after traversal of the device as, illustratively, a horizontally oriented wave. Each element incorporates a circular polarizer as well as reflective termination member together with solid state phase shifting means.

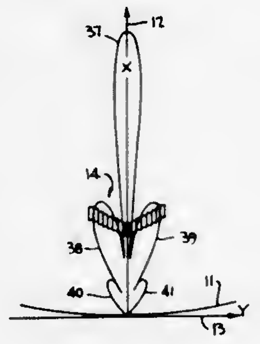
3,569,975
PHASE PATTERN CORRECTION FOR TRANSMITTER HAVING A RADOME
George C. Fretz, Jr., Cuyahoga Falls, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio
Filed Nov. 5, 1968, Ser. No. 773,425
Int. Cl. H01q *19/14, 3/00, 1/42*
U.S. Cl. 343—781 **2 Claims**



Apparatus for altering an electromagnetic wave phase configuration to a predetermined nonplanar front to compensate for radome phase distortion and which wave, upon exiting the radome, has a phase front which is planar.

3,569,976
ANTENNA ARRAY AT FOCAL PLANE OF REFLECTOR WITH COUPLING NETWORK FOR BEAM SWITCHING
William Korvin, Odenton, Md., and Milton K. Mills, Falls Church, Va.
Filed Aug. 29, 1968, Ser. No. 759,256
Int. Cl. H01q *3/26, 13/00*
U.S. Cl. 343—777 **26 Claims**

An antenna system for steering plural beams from a secondary reflector is formed from a primary array of linear feed elements, which can be arranged in either a one- or two-dimensional configuration. By controlling which of the radiators are simultaneously excited with a switching matrix, the position of the primary beam is varied as a function of the axis of the reflector forming the secondary beam.



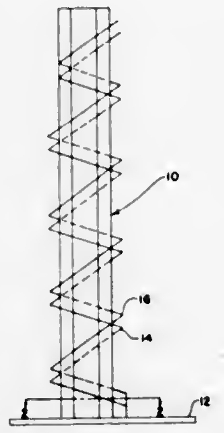
3,569,977
HEXAGRAM ANTENNA

William B. Koller, Akron, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Dec. 26, 1968, Ser. No. 786,911

Int. Cl. H01q *1/36, 1/48*

U.S. Cl. 343—848 **7 Claims**



Two triangular radiating elements are interlaced in a helical winding about a common axis to form a single antenna structure. The elements are wound in opposite directions and are laterally separated, thus reducing the RF coupling between them and improving the circularity of each radiating pattern with one radiating element wound in one direction and the other in the opposite direction, a dual circularity is achieved from the same physical volume.

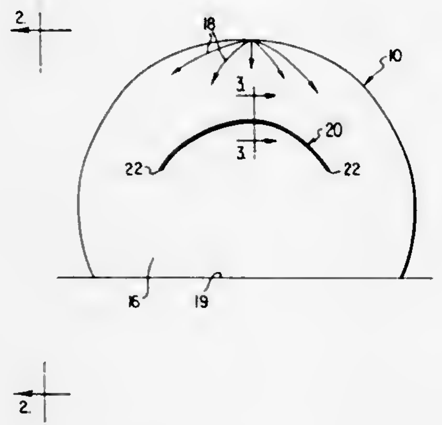
3,569,978
RADOME GUTTER

Lewis V. Smith, Bethesda, Md., assignor to Communications Satellite Corporation

Filed Sept. 4, 1968, Ser. No. 757,373

Int. Cl. H01q *1/42;* **E04d** *13/00*

U.S. Cl. 343—872 **9 Claims**



A gutter carried on the exterior surface of a radome, above the radome low look antenna aperture for diverting water flow from the surface area of the aperture.

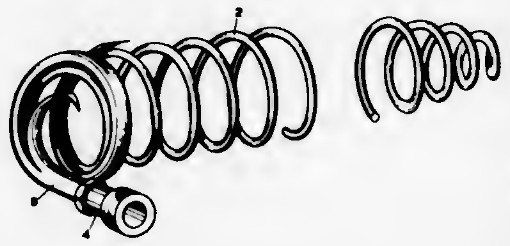
3,569,979
HELICAL LAUNCHER

Benedikt Aa. Munk; Leon Peters, Jr., and Edward K. Damon, Columbus, Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ohio

Filed Dec. 5, 1968, Ser. No. 781,319

Int. Cl. H01Q *1/36*

U.S. Cl. 343—895 **6 Claims**



The invention is for a helical antenna assembly which utilizes a coaxial cable as a means of electrical excitation and provides a gradual transition from the coaxial cable to the helix wire to permit higher power excitation and elimination of a flat ground plane.

3,569,980
POLARIZER NETWORK

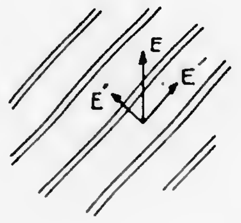
Jacques Salmon, Paris, France, assignor to Thomson C.S.F., Paris, France

Filed May 9, 1968, Ser. No. 728,279

Claims priority, application France, May 16, 1967, 106,515

Int. Cl. H01q *15/02;* **H01p** *1/16*

U.S. Cl. 343—909 **3 Claims**



The operating bandwidth of a polarizer transmitting network is increased through associating at least two pairs of elementary polarizer transmitting networks, the phase shifts between the components of the wave due to an elementary network being such that their sum is equal to the desired phase shift.

3,569,981
RECORDING LOCK SYSTEM

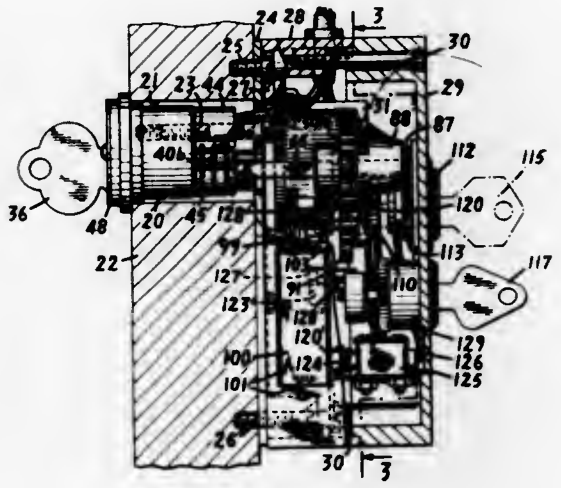
Lynn F. Hampton; David S. Ralph, and Henry McDonald Curl, Columbus, Ohio, assignors to The Lock-Tronic Corporation, Columbus, Ohio

Filed July 29, 1968, Ser. No. 748,415

Int. Cl. G07c *1/32*

U.S. Cl. 346—53 **2 Claims**

A lock and recorder cooperate to provide a record of, among other matters of interest to those responsible for protecting a given building or other space from unwanted intrusion, the times when the lock is turned and whether the lock is operated from the outside or the inside, the particular key (of a set of keys that may be issued to several security guards) employed to turn the lock, and instances of failure of the power supply to the recorder and tampering with the recorder.



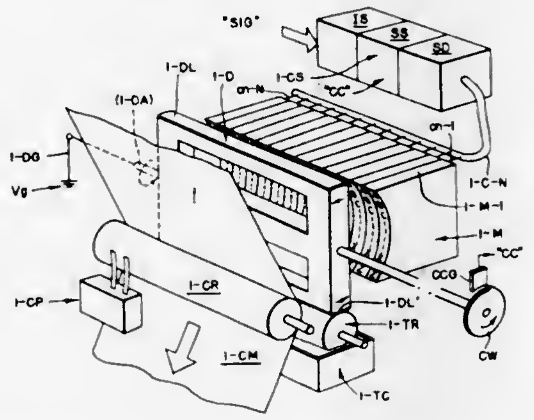
3,569,982
ELECTROSTATIC PRINTER WITH SCANNING DIELECTRIC SEGMENT

Michael S. Shebanow, and Ronald F. Borelli, Medfield, Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 2, 1968, Ser. No. 695,176

Int. Cl. G01d *15/06*

U.S. Cl. 346—74 **20 Claims**



A high-speed electrostatic printing mechanism including a hollow-type roll presenting a concave matrix of raised font electrodes, the electrodes being configured as different alphanumeric print characters; and, arranged in image-able relation with the electrode array, a plurality of dielectric segments, each of approximately "printline height" and mounted on a propeller arm to be swept past the concave matrix for receiving character images therefrom.

3,569,983
WRITING CIRCUIT FOR ELECTROSTATIC RECORDERS

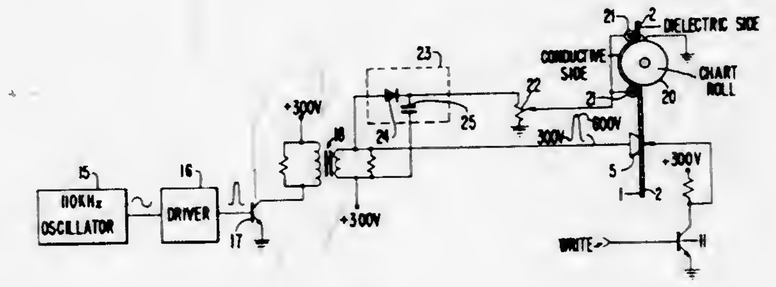
Edward W. Marshall, Saratoga, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed May 22, 1968, Ser. No. 731,065

Int. Cl. G01d *15/06*

U.S. Cl. 346—74 **10 Claims**

There is disclosed electrostatic recording apparatus in which the potential swing of the stylii electrode is reduced to a level that a single readily available conventional low voltage rated transistor may be used as the driver for each of the recording stylii. The reduction in stylii voltage swing is made possible by the use of a pulsed bias, called enhancement pulses, on the stylii backup electrode. The pulse width of the enhancement pulses is maintained sufficiently short, as of less than 2 microseconds, to permit the amplitude of the pulse to exceed the minimum potential required for electrostatic recording (charging of the recording medium). For a stylii potential swing of 300 volts, typical parameters for the frequency, amplitude and pulse width of the enhancement pulses are 110 kHz., 600 volts and 1 microsecond, respectively. In addition to the reduction in the number of transistors and power supplies required, significant improvement in the quality of the low frequency and DC signal recordings without a comparable degration of high frequency performance is also obtained.



3,569,984
MAGNETIC RECORDING HEAD WITH A VARIABLE SIZE GAP

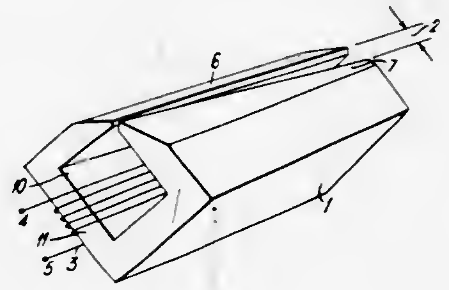
Christopher Alan Watson, Takeley, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed July 3, 1968, Ser. No. 742,304

Claims priority, application Great Britain, July 14, 1967, 32459/67

Int. Cl. G01d *15/12;* **G11b** *5/22*

U.S. Cl. 346—74 **8 Claims**



A magnetic recording head having a single tapered magnetic recording gap extending across the width of a recording medium which moves transversely thereto. A signal to be recorded, represented by pulses of alternating polarity and sequentially decreasing magnitudes, is applied to a signal winding which develops a magnetic flux for magnetizing the recording medium to positive and negative saturated states, depending upon the polarity of the pulses. Due to the decreasing magnitude of the pulses and to the tapered magnetic recording gap, varying widths of the recording medium are driven to the aforesaid saturated states, causing successive portions in time of the signal to be recorded transversely in spatial sequence across the width of said medium.

3,569,985
FACSIMILE PRINTING BLADE ASSEMBLY

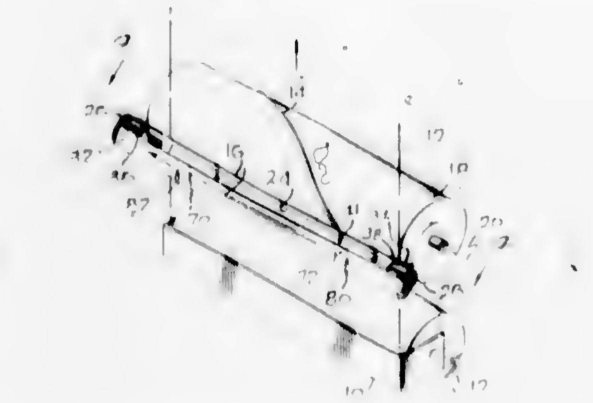
Kunio A. Sumida, Los Angeles, Calif., assignor to Telautograph Corporation, Los Angeles, Calif.

Filed Aug. 16, 1968, Ser. No. 753,254

Int. Cl. G01d *15/24*

U.S. Cl. 346—139 **8 Claims**

An improved printing blade apparatus for a facsimile printer which uses a rotating band type blade. The apparatus comprises a pair of capstan rollers for holding the blade inclined to the paper path, and a pair of skewed rollers for urging the upper blade edge toward a registration stop. A leaf spring contacts the blade immediately below its upper edge to bias it towards the paper.



3,569,986
STYLUS FOR RECORDING APPARATUS

Josef Thoma, Waldkirch; Walter Laeufer, Freiburg in Breisgau, and Benno Streu, Freiburg in Breisgau, Germany, assignors to Fritz Hellige & Co., G.m.b.H., Freiburg, Breisgau, Germany

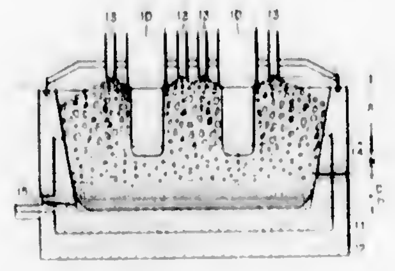
Filed Feb. 4, 1969, Ser. No. 796,400

Claims priority, application Germany, Feb. 13, 1968, 1,673,957.4

Int. Cl. G01d *15/08*

U.S. Cl. 346—139 **7 Claims**

tionship among themselves and with the course of the reaction which is operated in a continuous fashion if the reaction is conducted so that at the time metal and/or slag is tapped, only a relatively minor proportion of the total amount present is removed, and the reaction is conducted under substantially steady-state conditions.



3,569,988
A LASER COLOR DISPLAY DEVICE UTILIZING DIGITAL DEFLECTORS AND DISPERSION CORRECTION

Uwe Schmidt, Hamburg-Wandsbek; Karl Joachim Schmidt-Tiedemann, Rellingen, and Simon Duinker, Hamburg-Bahrenfeld, Germany, assignors to U. S. Philips Corporation, New York, N.Y.

Filed May 20, 1966, Ser. No. 551,604

Claims priority, application Germany, May 22, 1965, P36864

Int. Cl. H04n *9/14*, **H04b** *9/00*

U.S. Cl. 178—5.4 **9 Claims**

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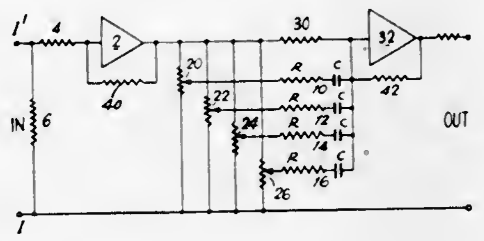
cuit includes plural differentiating circuits connected in parallel with each other and with a signal level equalizing impedance between a low output impedance amplifier and a low input impedance amplifier. The time constants of the differentiating circuits, in combination, match the complex time constant of the afterglow component in the video signal.



3,569,990
IMPLOSION PROTECTION APPARATUS FOR CATHODE RAY TUBES

James Inglis, London, England, assignor to Thorn Radio Valves and Tubes Limited, London, England

Filed Feb. 28, 1968, Ser. No. 708,865

Claims priority, application Great Britain, Mar. 3, 1967, 10272/67

Int. Cl. H04n *5/64*

U.S. Cl. 178—7.8 **8 Claims**

circuit which produces U.S.A. Standard Code for Information Interchange (ASCII). The sender circuit converts lowercase characters to the uppercase by inverting predetermined signal elements in accordance with the ASCII code. If the alpha-only key is operated, the inversion is provided when the sender detects certain code element signals which are common to all alphabet characters.

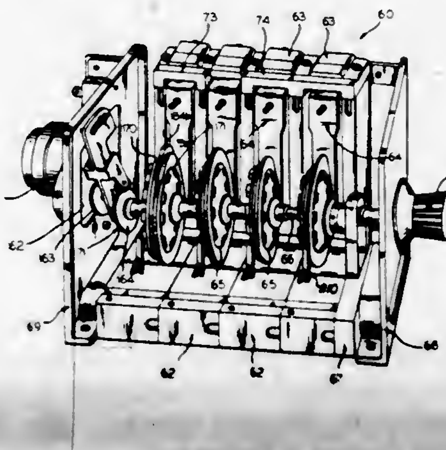
3,569,992
ELECTROMECHANICAL TIMER MECHANISM WITH IMPROVED MODULAR HOUSING CONSTRUCTION WITH ADJUSTABLE CAM OPERATING MEANS

Frank J. Papa, Jr., Montville, N.J., and Kenneth P. Kraemer, Cerritos, Calif., assignors to Industrial Timer Corporation, Parsippany, N.J.

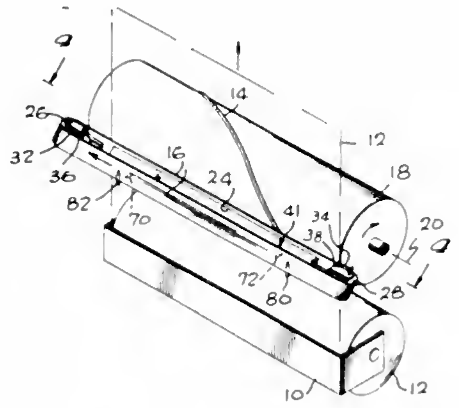
Filed Mar. 6, 1969, Ser. No. 804,832

Int. Cl. H01h *7/08, 43/10*

U.S. Cl. 200—38 **16 Claims**

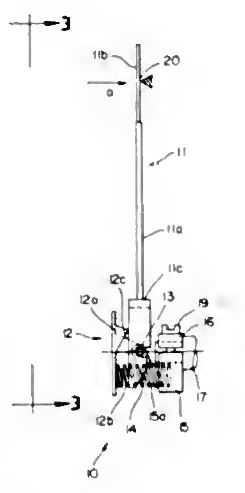


Timer having modular construction for mounting switches, inclined to the paper path, and a pair of skewed rollers for urging the upper blade edge toward a registration stop. A leaf spring contacts the blade immediately below its upper edge to bias it towards the paper.



3,569,986
STYLUS FOR RECORDING APPARATUS

Josef Thoma, Waldkirch; Walter Laeufer, Freiburg in Breisgau, and Benno Streu, Freiburg in Breisgau, Germany, assignors to Fritz Hellige & Co., G.m.b.H., Freiburg, Breisgau, Germany
Filed Feb. 4, 1969, Ser. No. 796,400
Claims priority, application Germany, Feb. 13, 1968, 1,673,957.4
Int. Cl. G01d *15/00*
U.S. Cl. 346—139 **7 Claims**

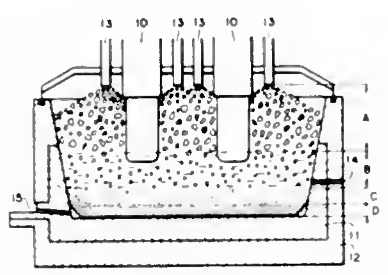


An apparatus for recording information wherein the stylus and the connecting means for a stylus and its driving means rotate on an axis perpendicular to the axis of the driving means. The connecting means include a symmetrical lever arrangement which ensures a constant trace producing pressure upon its reversal around the axis of the driving means. Such reversing capability permits the recording of information in more than one direction around the axis of rotation of the stylus. The connecting means facilitate rapid interchange of styli.

3,569,987
METHOD OF SMELTING ORES IN A RESISTANCE FURNACE

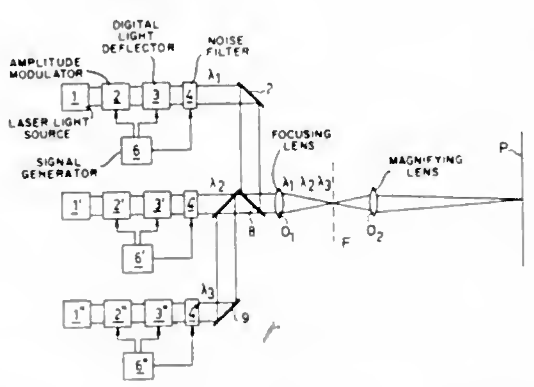
Jutaro Yonemochi, Koadachi 171, Komaemachi, Kitatamagun Tokyo, Japan
Filed Feb. 3, 1969, Ser. No. 795,816
Claims priority, application Japan, Feb. 3, 1968, 43/6564
Int. Cl. H05b *3/60*
U.S. Cl. 13—34 **3 Claims**

A method is provided for the operation of a reduction furnace for smelting reactions whereby reactor capacity, electrode size, and power requirements remain in matched relationship among themselves and with the course of the reaction which is operated in a continuous fashion if the reaction is conducted so that at the time metal and/or slag is tapped, only a relatively minor proportion of the total amount present is removed, and the reaction is conducted under substantially steady-state conditions.



3,569,988
A LASER COLOR DISPLAY DEVICE UTILIZING DIGITAL DEFLECTORS AND DISPERSION CORRECTION

Uwe Schmidt, Hamburg-Wandsbek; Karl Joachim Schmidt-Tiedemann, Rellingen, and Simon Duinker, Hamburg, Bahrenfeld, Germany, assignors to U. S. Philips Corporation, New York, N.Y.
Filed May 20, 1966, Ser. No. 551,604
Claims priority, application Germany, May 22, 1965, P36864
Int. Cl. H04n *9/14;* **H04b** *9/00*
U.S. Cl. 178—5.4 **9 Claims**

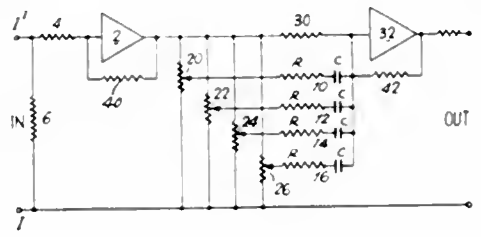


A laser imaging system employing a laser beam, a series of voltage operable optical deflection cells, a polarizer for controlling the brightness of the image points, and means for correcting color dispersion including a first lens for focussing the beam in a first plane and a magnifying lens for focussing the ray in a further focal plane. Each deflection cell utilizes two independently energized Kerr cells separated by a dielectric, each of which rotates the plane of polarization of the laser beam less than 90°. Also disclosed is apparatus for eliminating flicker during a field-sequential display including an image storage tube.

3,569,989
AFTERGLOW CORRECTING CIRCUIT ARRANGEMENTS

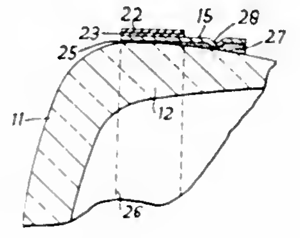
John David Millward, Orpington, England, assignor to The Rank Organisation Limited, London
Filed Dec. 20, 1967, Ser. No. 692,037
Claims priority, application Great Britain, Dec. 20, 1966, 570,27
Int. Cl. H04n *5/14*
U.S. Cl. 178–7.2 **9 Claims**

An afterglow correction circuit is provided for use in television film scanning apparatus to reduce in the video output signal from the apparatus that component resulting from the optical decay energized phosphor in the scanning tube and producing an afterglow in this tube. The correction circuit includes plural differentiating circuits connected in parallel with each other and with a signal level equalizing impedance between a low output impedance amplifier and a low input impedance amplifier. The time constants of the differentiating circuits, in combination, match the complex time constant of the afterglow component in the video signal.



3,569,990
IMPLOSION PROTECTION APPARATUS FOR CATHODE RAY TUBES

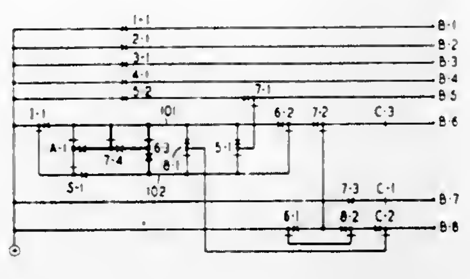
James Inglis, London, England, assignor to Thorn Radio Valves and Tubes Limited, London, England
Filed Feb. 28, 1968, Ser. No. 708,865
Claims priority, application Great Britain, Mar. 3, 1967, 10272/67
Int. Cl. H04n *5/64*
U.S. Cl. 178—7.8 **8 Claims**



To reduce the implosion risks of the envelope of a cathode ray tube the flange of the face plate has two U-shaped metal strips cooperating to provide an encircling frame. The front margin of the frame is a close fit on and is bonded to the flange of the face plate whereas the rear margin of the frame has a wedge-shaped gap between it and the envelope. The wedge-shaped gap is filled with an adhesive filler and the frame has a surrounding tensioning band.

3,569,991
SHIFT ARRANGEMENT FOR KEYBOARD DATA SENDER

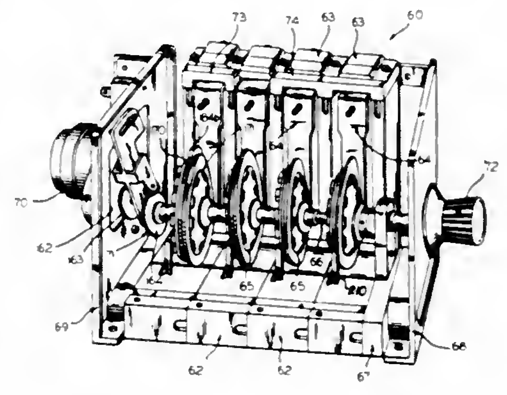
Douglas A. Kerr, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Mar. 20, 1968, Ser. No. 714,672
Int. Cl. H04l *17/06*
U.S. Cl. 178—17 **6 Claims**



An alpha-only shift lock key in a keyboard sender permits generation of uppercase characters for alphabetic letters only. Control of conventional shifting is retained in the normal shift key whose operation dominates the function of the alpha-only key. Character generation is provided by a sender circuit which produces U.S.A. Standard Code for Information Interchange (ASCII). The sender circuit converts lowercase characters to the uppercase by inverting predetermined signal elements in accordance with the ASCII code. If the alpha-only key is operated, the inversion is provided when the sender detects certain code element signals which are common to all alphabet characters.

3,569,992
ELECTROMECHANICAL TIMER MECHANISM WITH IMPROVED MODULAR HOUSING CONSTRUCTION WITH ADJUSTABLE CAM OPERATING MEANS

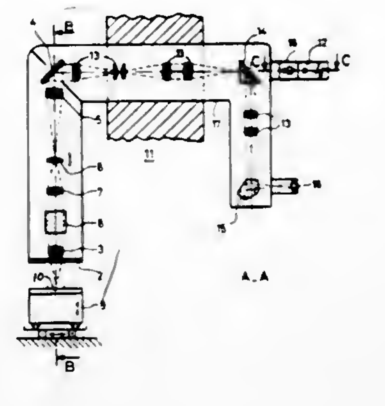
Frank J. Papa, Jr., Montville, N.J., and Kenneth P. Kraemer, Cerritos, Calif., assignors to Industrial Timer Corporation, Parsippany, N.J.
Filed Mar. 6, 1969, Ser. No. 804,832
Int. Cl. H01h *7/08, 43/10*
U.S. Cl. 200—38 **16 Claims**



Timer having modular construction for mounting switches, relays and coils including actuating cam assemblies adjustable for timing intervals and sequencing, including molded plastic interfitting parts capable of providing a multitude of switching arrangements and which permits ease of assembly and maintenance.

3,569,993
APPARATUS FOR IRRADIATING A SPECIMEN WITH A LASER BEAM

Jean Blin; Maurits W. Geerlings, Karlsruhe, and Herman A. Tasman, Karlsruhe-Waldstadt, Germany, assignors to European Atomic Energy Community, Brussels, Belgium
Filed June 10, 1968, Ser. No. 735,636
Claims priority, application Germany, June 26, 1967, E34240I
Int. Cl. B23K *9/24*
U.S. Cl. 219—121 **3 Claims**

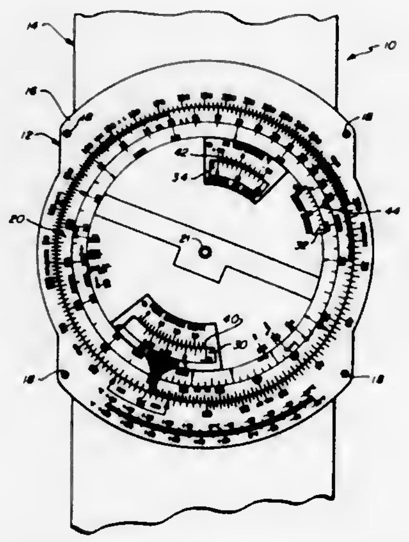


An apparatus for irradiating a specimen with a laser beam in a hot cell comprising a laser generator located outside the cell and an observation channel for remote adjustment of the specimen. The laser beam and the observation channel are in a common duct with their axes parallel to each other. A movable mirror system in the observation channel near the specimen is used to bring the two axes into coincidence when an observation is to be made.

3,569,994
NAVIGATIONAL COMPUTER

Ben W. Rau, 320 N. Deere Park West, Highland Park, Ill. 60035

Filed Dec. 26, 1968, Ser. No. 787,090
Int. Cl. G06c *27/100*
U.S. Cl. 235—78 **4 Claims**

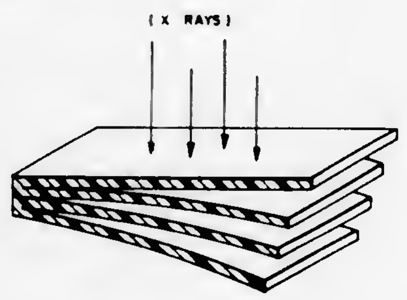


A navigational computer including a base member having arranged thereon an arcuately disposed logarithmic scale, a density altitude scale, a pressure altitude scale and an air temperature scale. A disc member of a smaller diameter than the logarithmic scale on the base member is concentrically rotatably mounted on the base member. The disc member having arranged thereon a logarithmic scale, time scales and windows disposed at predetermined positions for exposing the density altitude scale, pressure altitude scale and the air temperature scale on the base member.

3,569,995
LOW ENERGY RADIATION DOSIMETRY METHOD IN THE RANGE OF 15 KEV AND BELOW

Barbara J. Mallon, Livermore, and Lyman E. Lorensen, Orinda, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 26, 1968, Ser. No. 755,194
Int. Cl. G01t *1/04*
U.S. Cl. 250—83 **4 Claims**



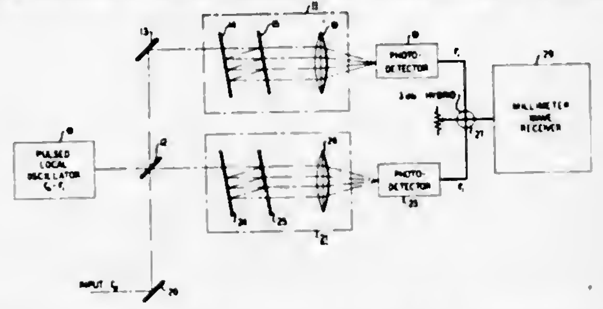
A method for measuring low-energy, high-flux radiation doses. Thin layers of poly- [3,3-bis (chloromethyl) oxacyclobutane] are exposed to ionizing radiation. Changes in physical properties of the layers are a measure of the radiation dose received.

3,569,996
OPTICAL HETERODYNE RECEIVER WITH PULSE WIDENING OR STRETCHING

James E. Goell, Middletown, and William M. Hubbard, Middletown Township, Monmouth County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 7, 1968, Ser. No. 735,216
Int. Cl. H04b *9/00*
U.S. Cl. 250—199 **10 Claims**

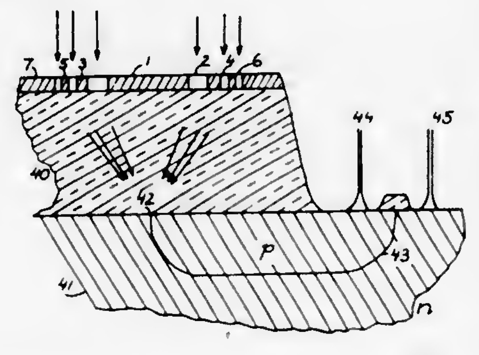
In the optical heterodyne receivers disclosed, the overall signal-to-noise ratio is improved by widening in terms of time duration the information-modulated optical pulses so that their bandwidth is comparable to the bandwidth of the detector. In particular, multiple reflection widening techniques are disclosed. Balanced detection with pulse widening in each path is also disclosed.



3,569,997
PHOTOELECTRIC MICROCIRCUIT COMPONENTS MONOLYTHICALLY INTEGRATED WITH ZONE PLATE OPTICS

Kurt Lehovec, Williamstown, Mass., assignor to Inventors and Investors, Inc., Williamstown, Mass.

Filed July 13, 1967, Ser. No. 653,245
Int. Cl. G02b *5/18;* **G02f** *1/28;* **H01j** *3/14*
U.S. Cl. 250—217 **17 Claims**

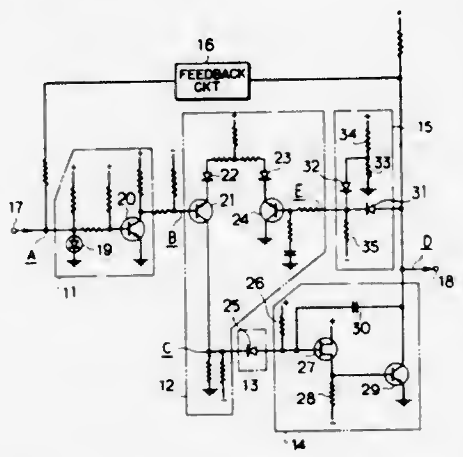


This invention concerns improved structures for the transformation of radiant energy into electric energy or vice versa. The improvement consists of combining a semiconducting microcircuit element with a zone plate optics into a compact integrated structure.

3,569,998
APPARATUS FOR GENERATING A RECTILINEAR SWEEP OF VOLTAGE

Hisashi Eguchi, Tokyo, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1968, Ser. No. 780,624
Claims priority, application Japan, Dec. 15, 1967, 42/80090
Int. Cl. H03k *4/12*
U.S. Cl. 307—228 **9 Claims**

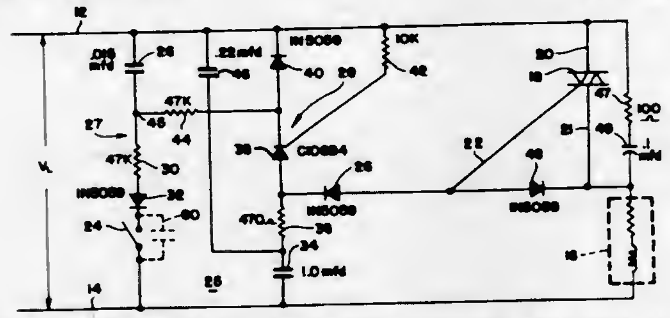


Apparatus for generating a rectilinear sweep of voltage in response to a triggering signal includes an integrator provided with a first DC coupled feedback path including an amplifier which is normally released and inhibits the integrator, a bistable circuit responsive to a triggering signal to inhibit the amplifier and release the integrator whereby a rectilinear sweep of voltage is generated by the circuit, and a second feedback path from the output of the integrator to the input of the bistable circuit to reset the bistable circuit when the output of the integrator reaches a predetermined level.

3,569,999
A.C. CONTROL CIRCUIT

Joseph E. Pascente, Norridge, Ill., assignor to Grigsby-Barton, Inc., Arlington Heights, Ill.

Filed Oct. 18, 1968, Ser. No. 768,701
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **16 Claims**

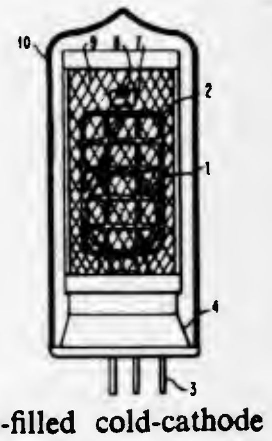


A zero-voltage A.C. switching circuit operates synchronously with the line, and may be used to control the application and removal of power to or from a highly reactive load, as well as a resistive load, without loss of synchronism or switch control.

3,570,000
GAS-FILLED COLD-CATHODE INDICATOR DISPLAY TUBE

Michio Koshizuka, Hiroshi Saito, and Shinichiro Hata, Tokyo, Japan, assignors to Japan Radio Company, Limited, Tokyo, Japan

Filed June 11, 1968, Ser. No. 736,188
Claims priority, application Japan, Nov. 10, 1967, 42/72,357
Int. Cl. H01j *7/40, 17/32, 65/48*
U.S. Cl. 313—54 **5 Claims**

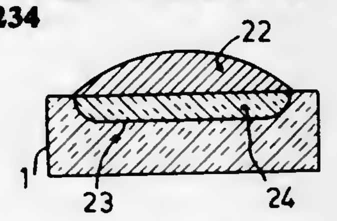


A miniature gas-filled cold-cathode indicator display tube wherein an electrically insulating oxide of a radioactive metal isotope having a long half-life (having a long period of half decay), such as thorium oxide, uranium oxide or vanadium oxide is placed within the envelope of the tube to prevent the ionization voltage from increasing when the tube is operated under adverse conditions.

3,570,001
ALLOYED SEMICONDUCTOR DEVICE WITH ALUMINUM AND MAGNESIUM ELECTRODE

Willem Frederik Chalmers Hoyinck van Papendrecht, Nijmegen, Netherlands, and Bernhard Wilde, Hamburg, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed June 27, 1968, Ser. No. 740,510
Claims priority, application Germany, June 29, 1967, P 16 14 262.4
Int. Cl. H01l *3/14*
U.S. Cl. 317—234 **6 Claims**

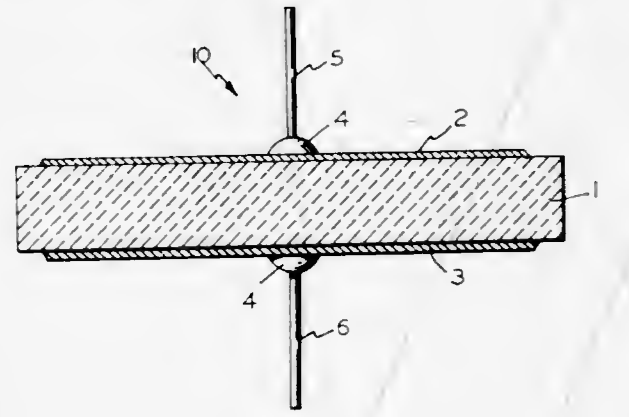


A device whose breakdown voltage is improved by adding to the alloyed electrode, which contains aluminum to flatten the alloying front, magnesium to round off the front edges, is described.

3,570,002
NON-LINEAR RESISTOR OF SINTERED ZINC OXIDE

Takeshi Masuyama and Michio Matsuoka, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 24, 1968, Ser. No. 723,746
Claims priority, application Japan, Apr. 26, 1967, 42/27,342
Int. Cl. H01l *3/16*
U.S. Cl. 317—238 **9 Claims**

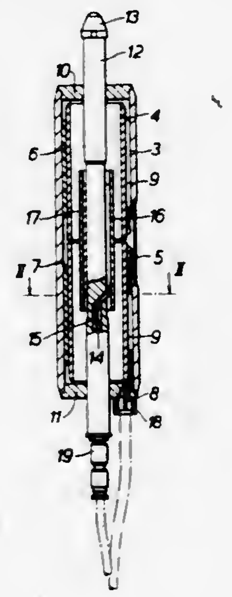


A non-linear resistor. The resistor has a sintered disc of zinc oxide and two electrodes, one applied to each of the opposite surfaces of said sintered disc. One of said two electrodes is a silver electrode in non-ohmic contact with one of said opposite surfaces, and the other of said two electrodes in ohmic contact with another of said opposite surfaces.

3,570,003
POSITION RESPONSIVE VARIABLE CAPACITOR

Gordon Maurice West, Kirkcaldy, Fife, Scotland, assignor to The Rank Organisation Limited, London, England

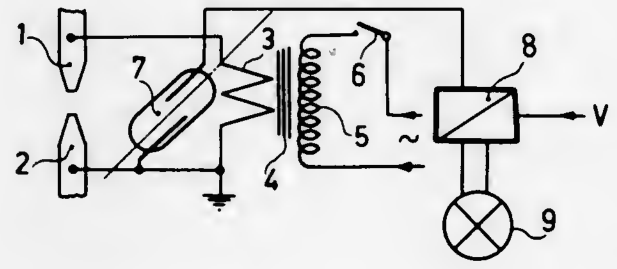
Filed Jan. 21, 1969, Ser. No. 792,699
Claims priority, application Great Britain, Feb. 12, 1968, 6,843/68
Int. Cl. H01g *5/14*
U.S. Cl. 317—246 **12 Claims**



A capacitive potentiometer in which the electric field is set up by at least two electrical discrete elements disposed in a line and the electrode and elements are movable relatively along such line and wherein the operative electric field passes through only one dielectric to avoid unsymmetrical distortion of the field due to environmental changes.

3,570,004
APPARATUS USING MAGNETIC REED SWITCHES FOR MONITORING THE OPERATION OF A SPOT-WELDING MACHINE

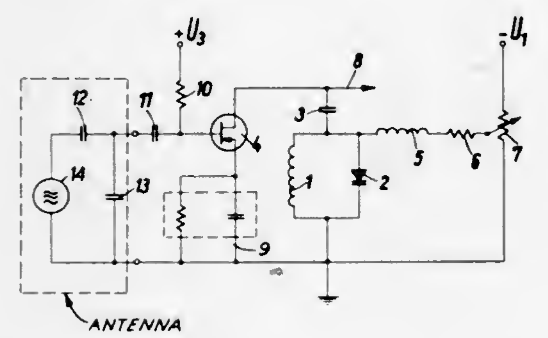
Hendrik J. de Jong, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of application Ser. No. 685,025, Nov. 22, 1967. This application Jan. 30, 1968, Ser. No. 701,754
Claims priority, application Netherlands, Nov. 24, 1966, 6616539
Int. Cl. G01r *19/16*
U.S. Cl. 324—103 **7 Claims**



Apparatus for monitoring the current in a spot welding machine includes a magnetic reed switch responsive to the magnetic field produced by the welding current. The reed switch operates a trigger circuit which, in turn, operates a signal lamp.

3,570,005
RADIO RECEIVER INPUT CIRCUIT FOR REDUCED LOADING BY CAPACITIVE ANTENNAS

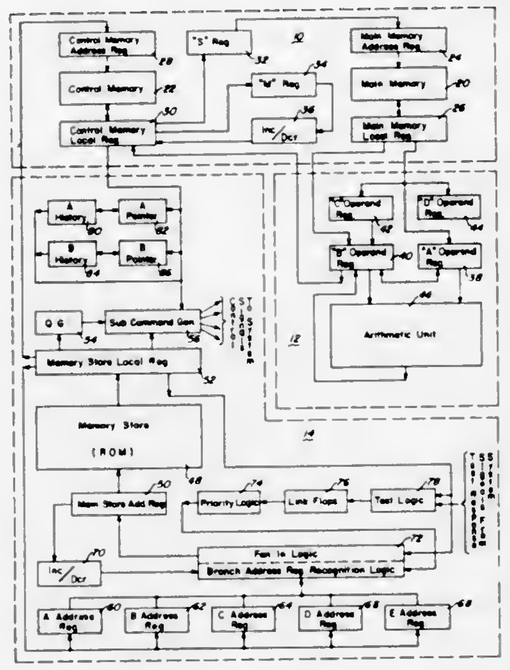
Hans Prolss, Hildensheim, Niedersachsen, Germany, assignor to Blaupunkt-Werke G.m.b.H., Hildesheim, Germany
Filed Feb. 26, 1968, Ser. No. 708,143
Claims priority, application Germany, Apr. 14, 1967, B 92,064
Int. Cl. H04b *1/18, 1/28*
U.S. Cl. 325—376 **5 Claims**



To overcome the effect of antenna capacity on tuning of radio receivers, particularly automobile receivers, the emitter-collector path of a field effect transistor is connected in parallel with a tuned circuit including a fixed inductance and a diode of variable capacitance, the bias of the diode determining the resonant frequency of the tuned circuit; the antenna is connected to the base of the field effect transistor, which is further supplied with a variable bias.

3,570,006
MULTIPLE BRANCH TECHNIQUE

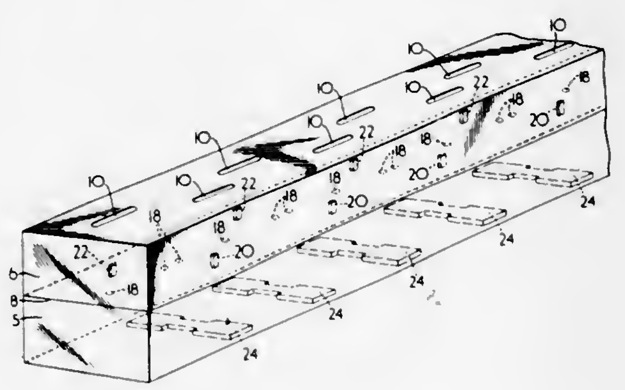
George S. Hoff, Sudbury, and Ming-tzer Miu, Brighton, Mass., assignors to Honeywell Inc., Minnneapolis, Minn.
Filed Jan. 2, 1968, Ser. No. 694,949
Int. Cl. G06f *9/10*
U.S. Cl. 340—172.5 **8 Claims**



An apparatus for effecting a multiple branching operation wherein a multiplicity of branch addresses, with corresponding test conditions, are pre-established and the results stored pending the detection of a "branch-on-stored-test" signal to initiate the actual branching operation. To accommodate the branch on stored test operation, provisions are made for storing a multiplicity of branch addresses in corresponding branch address registers together with indicating means to establish the results of the test conditions and for storing an indication thereof prior to the actual branching operation.

3,570,007
PLURAL BEAM COUPLED WAVEGUIDE ANTENNA

Eric A. N. Whitehead, London, England, assignor to Elliott Brothers (London) Limited, London, England
Filed Apr. 11, 1968, Ser. No. 720,649
Claims priority, application Great Britain, Apr. 17, 1967, 7,821/67
Int. Cl. H01q *13/10*
U.S. Cl. 343—771 **4 Claims**



The elements of a linear aerial array are fed by one of a pair of transmission lines coupled together by directional couplers. By feeding a respective transmission

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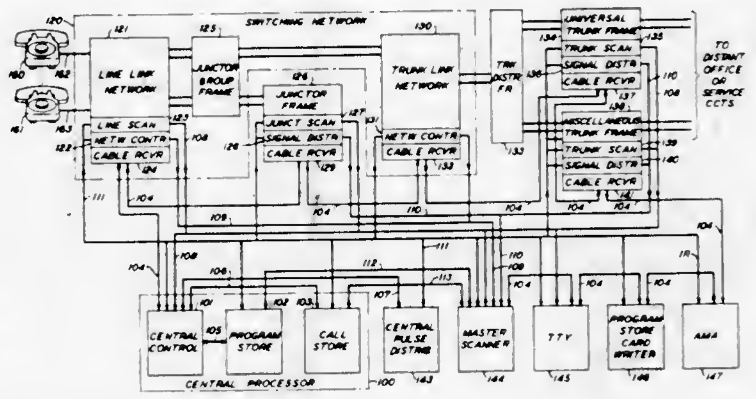
line different radiation patterns are produced. A planar array, formed by mounting the linear arrays adjacently, can be fed by two pairs of feeder transmission lines each pair coupled together by directional couplers and one feeder line of each pair feeding a respective array line. Supplying any one of the four feeder lines produces a respective one of four radiation patterns.

3,570,008
TELEPHONE SWITCHING SYSTEM

Randall W. Downing, Eatontown, Harold F. May, Holmdel, Frank F. Taylor, Asbury Park, and Werner Ulrich, Colts Neck, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y.
Filed Dec. 31, 1963, Ser. No. 334,875
Int. Cl. G06f *3/00, 9/00*
U.S. Cl. 340—172.5 **45 Claims**

A program controlled telephone switching system which comprises duplicated control and memory units and duplicated peripheral equipments. The control of the peripheral equipments through common translating instrumentalities is described.

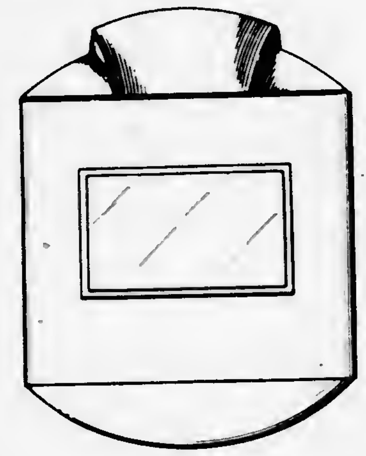


DESIGNS

MARCH 9, 1971

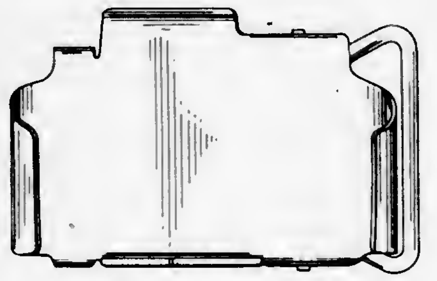
220,076
WELDER'S HELMET OR SIMILAR ARTICLE
Marshall N. Anderson, Grayslake, Ill., assignor to Sellstrom Manufacturing Company, Palatine, Ill.
Filed June 1, 1964, Ser. No. 80,230
The portion of the term of the patent subsequent to Sept. 9, 1982, has been disclaimed
Term of patent 14 years
Int. Cl. D2—*03*

U.S. Cl. D2—232



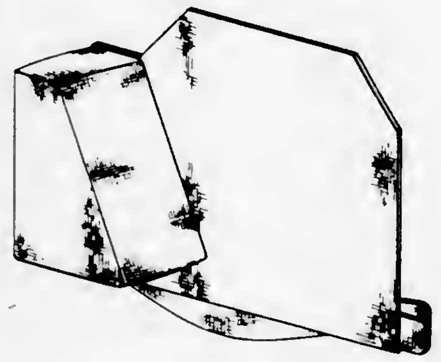
220,077
COMBINED BELT BUCKLE AND HOLDER FOR A LIGHTER OR SIMILAR ARTICLE
Wilfred W. Weingardt, 5247 Southeastern Ave., Indianapolis, Ind. 46201
Filed Apr. 1, 1969, Ser. No. 16,529
Term of patent 14 years
Int. Cl. D2—*08*

U.S. Cl. D2—406



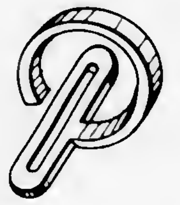
220,078
PILLOW ATTACHABLE TO A SEAT BACK
Thad J. Earl, 1132 E. 2nd St., Defiance, Ohio 43512
Filed May 29, 1969, Ser. No. 17,413
Term of patent 14 years
Int. Cl. D6—*01*

U.S. Cl. D3—9



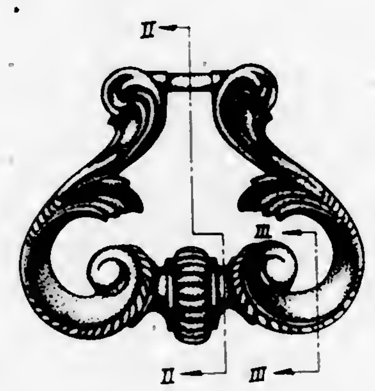
220,079
FILE HOLDER
Isak Benis, 2165 Matthews Ave., Bronx, N.Y. 10462
Filed Apr. 24, 1969, Ser. No. 16,887
Term of patent 3½ years
Int. Cl. D8—*02*

U.S. Cl. D8—94



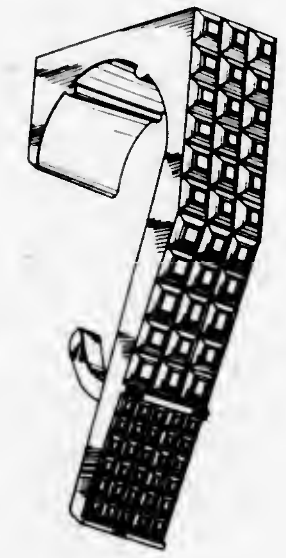
220,080
BAIL
William Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.
Filed Dec. 5, 1969, Ser. No. 20,386
Term of patent 14 years
Int. Cl. D8—*03*

U.S. Cl. D8—138



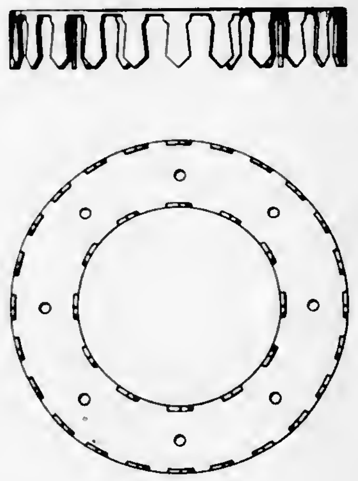
220,081
SHOWER CURTAIN HOOK
Victor Trivilino, Elmhurst, N.Y., assignor to Kleinert's Inc., College Point, N.Y.
Filed Nov. 17, 1969, Ser. No. 20,128
Term of patent 14 years
Int. Cl. D8—*03*

U.S. Cl. D8—239



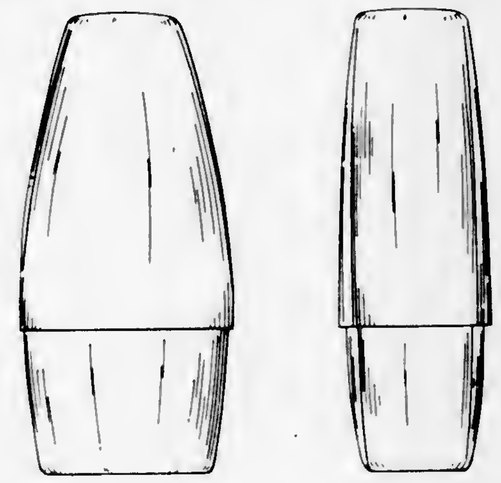
220,082
TRUSS CONNECTOR PLATE
Donald L. Thomas, 615 Melinda Drive, Oxford, Ohio 45056
Filed Oct. 2, 1969, Ser. No. 19,378
Term of patent 14 years
Int. Cl. D8—*04*

U.S. Cl. D8—266



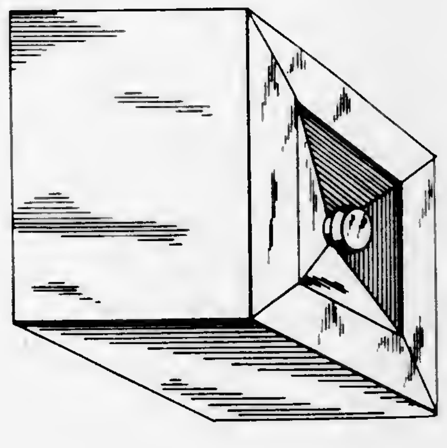
220,083
COMBINED BOTTLE AND COVER THEREFOR
James Tucker, Chicago, Ill., assignor to The Gillette Company, Boston, Mass.
Filed Sept. 24, 1969, Ser. No. 19,280
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—144



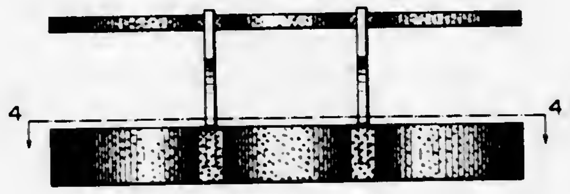
220,084
CONTAINER FOR LIQUIDS
Eugene E. Goodrich, 819 S. Western Ave., Park Ridge, Ill. 60068
Filed Aug. 29, 1969, Ser. No. 18,907
Term of patent 14 years
Int. Cl. D9—*07*

U.S. Cl. D9—175



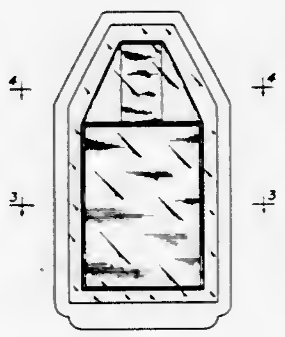
220,085
PACKAGING AND STACKING TRAY
Albertus Antonius Swane, 's Hertogenbosch, Netherlands, assignor to N.V. Maatschappij tot Exploiteren van Octrooien en Licenties "Matepa," 's Hertogenbosch, Netherlands
Filed Aug. 26, 1969, Ser. No. 18,854
Term of patent 14 years
Int. Cl. D9—*04*

U.S. Cl. D9—187



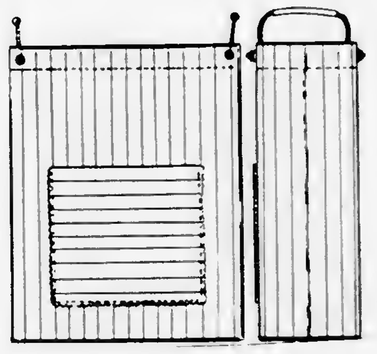
220,086
CHEESE CONTAINER
Pierre Benech, Paris, France, assignor to Societe Anonyme des Fermiers Reunis, Paris, France
Filed Aug. 12, 1969, Ser. No. 18,653
Claims priority, application France Feb. 12, 1969
Term of patent 14 years
Int. Cl. D9—*99*

U.S. Cl. D9—192



220,087
SHOPPING BAG
Lee Shy-Bell Schauble, Box L and S, Manteno, Ill. 60950
Filed May 26, 1969, Ser. No. 17,365
Term of patent 14 years
Int. Cl. D9—*06*

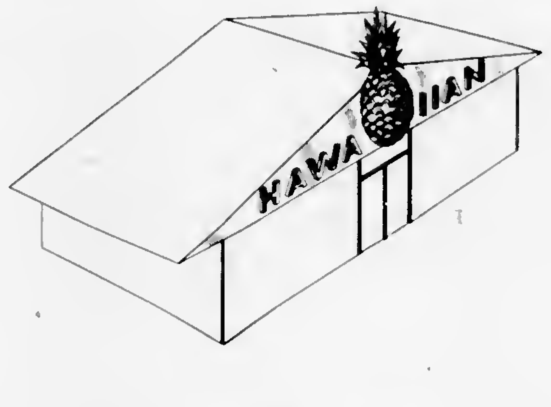
U.S. Cl. D9—249



220,088
RESTAURANT BUILDING

William C. Sizer, Box 832, Minneapolis, Minn. 55440
Filed Sept. 9, 1968, Ser. No. 13,457
Term of patent 14 years
Int. Cl. D25—*04*

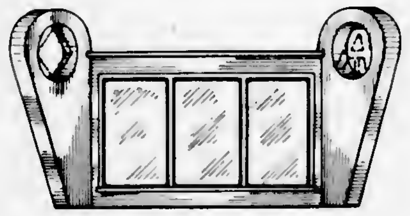
U.S. Cl. D13—1



220,089
MOVABLE BUILDING COMPRISING A SHOWROOM

Robert W. Orlick, 5290 Villa-Way, Edina, Minn. 55436
Filed Oct. 27, 1969, Ser. No. 19,726
Term of patent 14 years
Int. Cl. D25—*04*

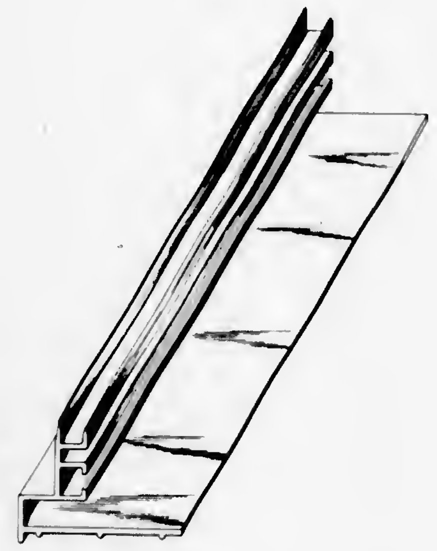
U.S. Cl. D13—1



220,090
EXTRUDED BEAM FOR SWIMMING POOLS

William A. van den Broek, Doylestown, Pa., assignor to Sylvan Pools, Inc., Doylestown, Pa.
Filed Oct. 28, 1969, Ser. No. 19,762
Term of patent 14 years
Int. Cl. D25—*99*

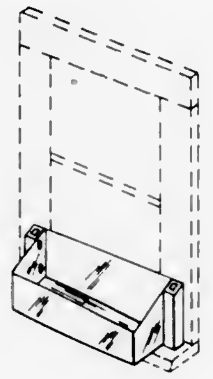
U.S. Cl. D13—1



220,091
WINDOW CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Continuation-in-part of design application Ser. No. 13,387, Sept. 4, 1968, now Patent No. 216,103, dated Nov. 25, 1969. This application Nov. 3, 1969, Ser. No. 19,899
Term of patent 14 years
Int. Cl. D25—*02*

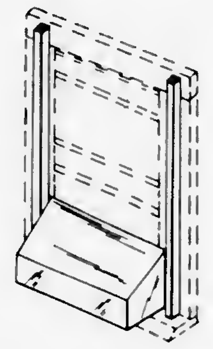
U.S. Cl. D13—1



220,092
COMBINATION WINDOW AWNING AND CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Continuation-in-part of design application Ser. No. 13,387, Sept. 4, 1968, now Patent No. 216,103, dated Nov. 25, 1969. This application Nov. 3, 1969, Ser. No. 19,900
Term of patent 14 years
Int. Cl. D25—*02*

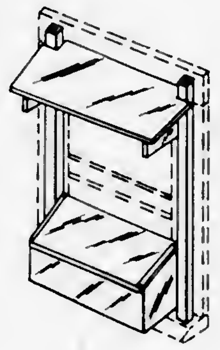
U.S. Cl. D13—1



220,093
COMBINATION WINDOW AWNING AND CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Continuation-in-part of design application Ser. No. 13,387, Sept. 4, 1968, now Patent No. 216,103, dated Nov. 25, 1969. This application Nov. 3, 1969, Ser. No. 19,902
Term of patent 14 years
Int. Cl. D25—*02*

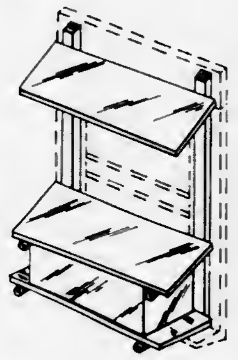
U.S. Cl. D13—1



220,094
COMBINATION WINDOW AWNING AND CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Continuation-in-part of design application Ser. No. 13,387, Sept. 4, 1968, now Patent No. 216,103, dated Nov. 25, 1969. This application Nov. 3, 1969, Ser. No. 19,903
Term of patent 14 years
Int. Cl. D25—*02*

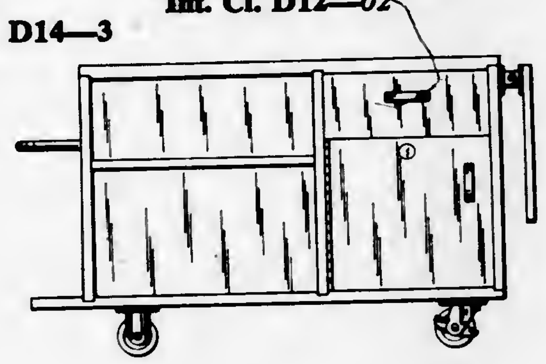
U.S. Cl. D13—1



220,095
UTILITY CART

John P. Salsgiver, West Acton, Mass., assignor to United Technical Corporation, West Concord, Mass.
Filed June 6, 1969, Ser. No. 17,558
Term of patent 14 years
Int. Cl. D12—*02*

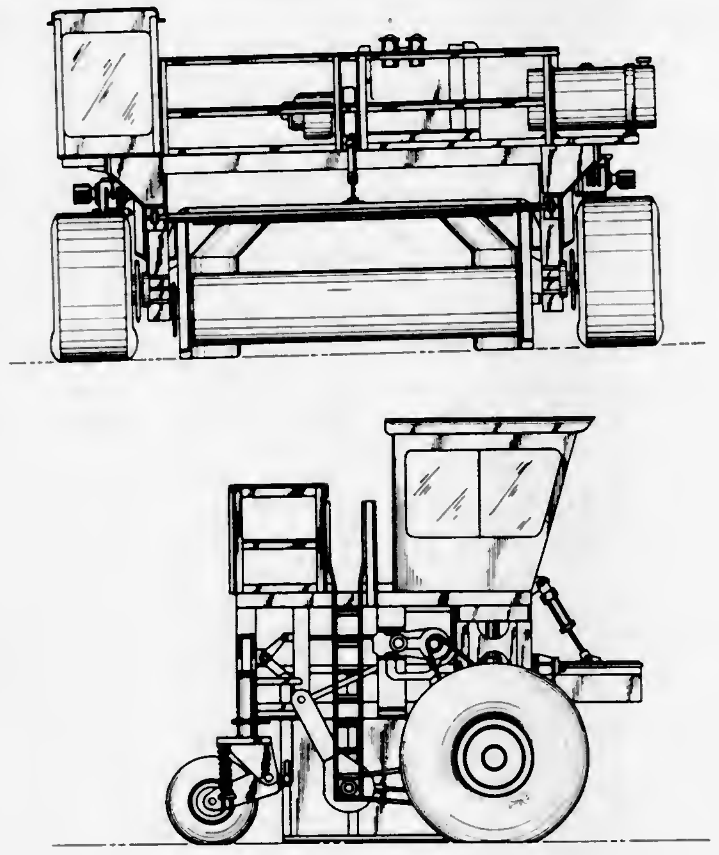
U.S. Cl. D14—3



220,096
MACHINE FOR TREATING REFUSE

Herbert T. Cobey, Galion, Ohio, assignor to Imco, Inc.
Filed July 24, 1969, Ser. No. 18,382
Term of patent 14 years
Int. Cl. D12—*13*

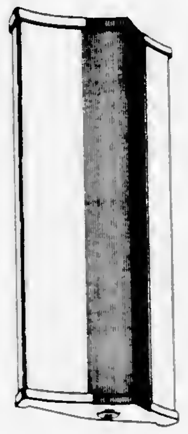
U.S. Cl. D14—3



220,097
TRUCK MIRROR

Hugo Magi, Etobicoke, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Toronto, Ontario, Canada
Filed Sept. 24, 1969, Ser. No. 19,287
Term of patent 14 years
Int. Cl. D12—*14*

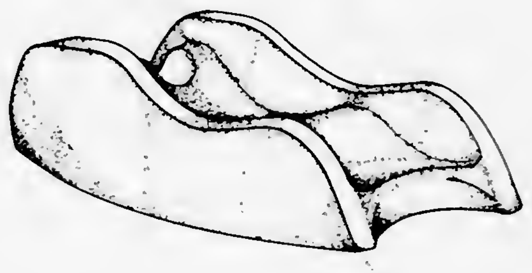
U.S. Cl. D14—6



220,098
BODY REST LOUNGE FOR SHAMPOOING

Beulah Molle, 2211 Santa Monica Blvd., Santa Monica, Calif. 90404
Filed Dec. 5, 1969, Ser. No. 20,376
Term of patent 14 years
Int. Cl. D6—*01*

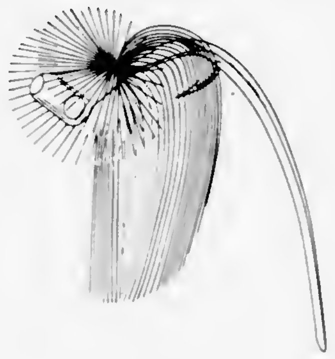
U.S. Cl. D15—3



220,099
FISHING LURE

Lowell W. Brawley, 1540 Carlton Ave. 95350, and Gerald D. Peek, 1509 Grimes Ave. 95351, both of Modesto, Calif.
Filed Aug. 13, 1969, Ser. No. 18,661
Term of patent 14 years
Int. Cl. D22—*07*

U.S. Cl. D22—27

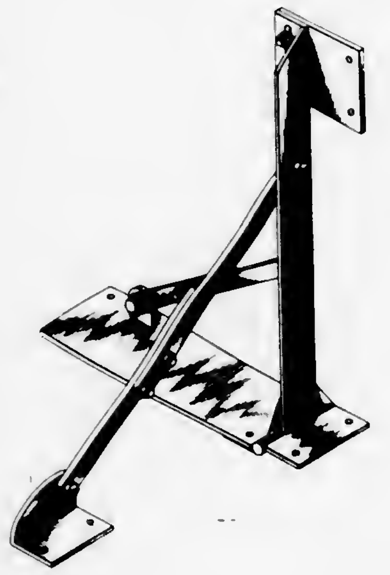


220,100

VEHICLE FLOOR MOUNTED GUN RACK

Walter P. Akin, 5805 Copeland Road,
Paradise, Calif. 95969
Filed Aug. 11, 1969, Ser. No. 18,620
Term of patent 14 years
Int. Cl. D22—*99*

U.S. Cl. D22—99

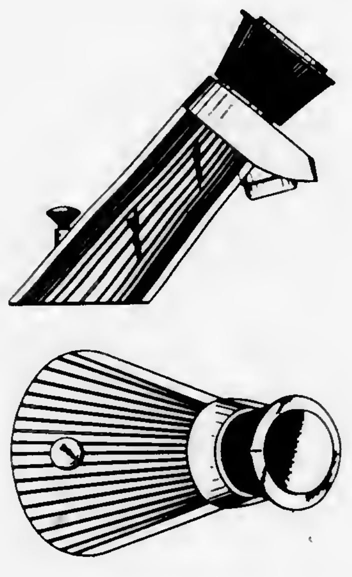


220,101

WATER FAUCET

George Z. Brown and Roger H. Ramsey, Akron, Ohio,
assignors to Standard Screw Company, Hartford, Conn.
Filed Aug. 18, 1969, Ser. No. 18,751
Term of patent 14 years
Int. Cl. D23—*01*

U.S. Cl. D23—23

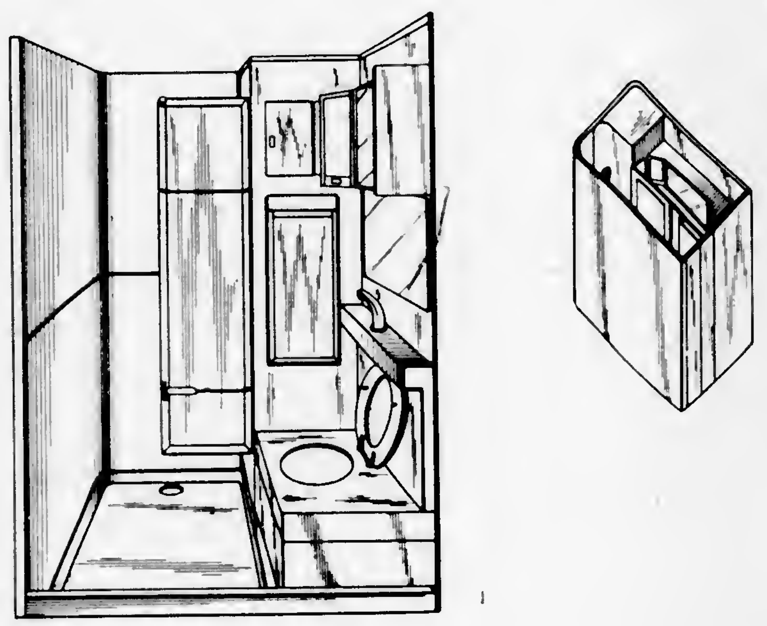


220,102

DESIGN FOR A BATHROOM MODULE

Ray C. Conner, Battle Creek, Mich., assignor to The
Cortez Corporation, Kent, Ohio
Filed June 19, 1969, Ser. No. 17,780
Term of patent 14 years
Int. Cl. D23—*02*

U.S. Cl. D23—49

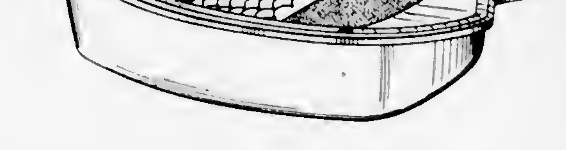


220,103

INFANT'S BATH

Robert A. Clowe, Penfield, N.Y. 14526
Filed July 24, 1969, Ser. No. 18,373
Term of patent 14 years
Int. Cl. D23—*02*

U.S. Cl. D23—52

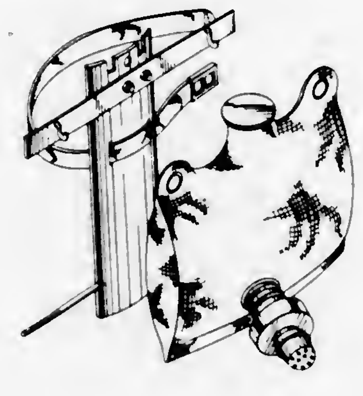


220,104

COMBINED PORTABLE SHOWER AND SUPPORT

Donald R. Quackenbush, College Place, Wash.
(2112 Marcia Drive, Bellbrook, Ohio 45305)
Filed July 11, 1969, Ser. No. 18,181
Term of patent 14 years
Int. Cl. D23—*02*

U.S. Cl. D23—57

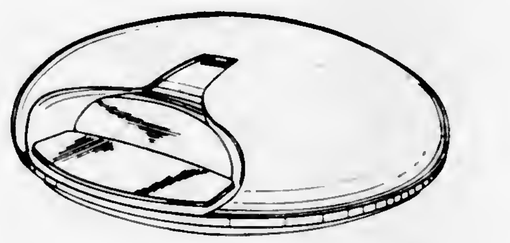


220,105

DATA PROCESSING TERMINAL CONSOLE

Neal Small, New York, N.Y., assignor to Interplex
Corporation, Waltham, Mass.
Filed Aug. 11, 1969, Ser. No. 18,642
Term of patent 14 years
Int. Cl. D14—*02*

U.S. Cl. D26—5

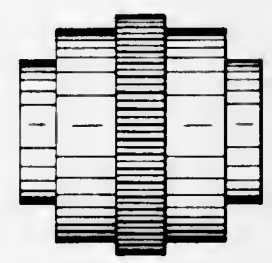


220,106

PINCH ROLLER HUB FOR A TAPE RECORDER OR THE LIKE

John H. Rentschler, Minneapolis, Minn., assignor to
Minnesota Rubber Company, Minneapolis, Minn.
Term of patent 14 years
Filed May 29, 1969, Ser. No. 17,416
Int. Cl. D14—*01*

U.S. Cl. D26—14

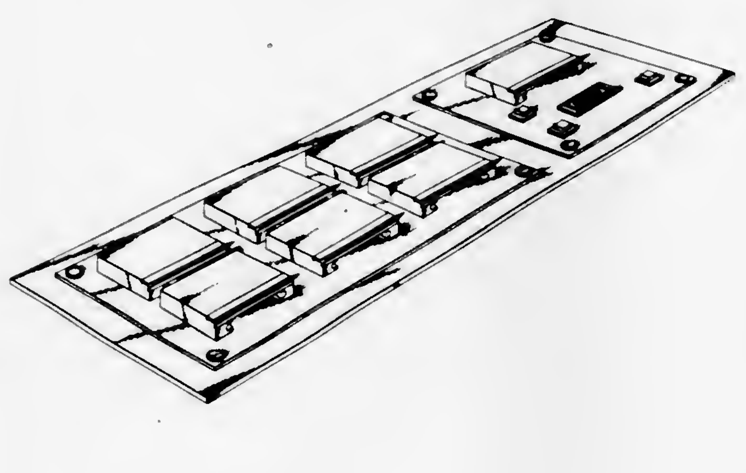


220,107

RECORDING SYSTEM OPERATIONAL PANEL

Edgar F. Trombly, Grosse Pointe Farms, Mich., assignor
to Scanfax Systems Corporation, New York, N.Y.
Filed Oct. 1, 1969, Ser. No. 19,368
Term of patent 14 years
Int. Cl. D14—*01*

U.S. Cl. D26—14

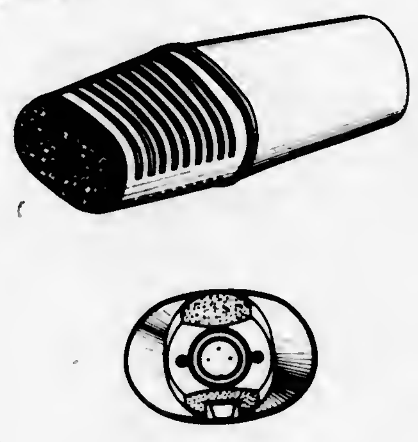


220,108

MICROPHONE

Rebertus van de Poel, Eindhoven, Netherlands, assignor
to U.S. Philips Corporation
Filed Oct. 6, 1969, Ser. No. 19,441
Claims priority, application Switzerland Apr. 9, 1969
Term of patent 14 years
Int. Cl. D14—*01*

U.S. Cl. D26—14

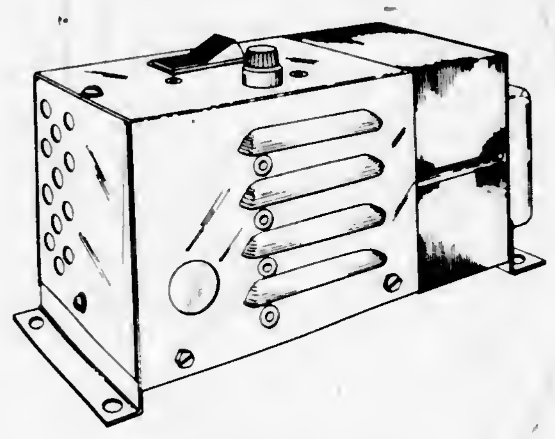


220,109

POWER CONVERTER

Donald J. Gnaedinger and Melvin F. Walter, Highland,
Ill., assignors to Basler Electric Company, Highland, Ill.
Filed Aug. 29, 1969, Ser. No. 18,913
Term of patent 14 years
Int. Cl. D13—*02*

U.S. Cl. D26—15

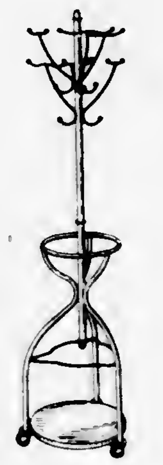


220,110

CLOTHING RACK

Miguel Jakiemow, 27 Rich St., Irvington, N.J. 07111
Filed Sept. 5, 1969, Ser. No. 19,029
Term of patent 14 years

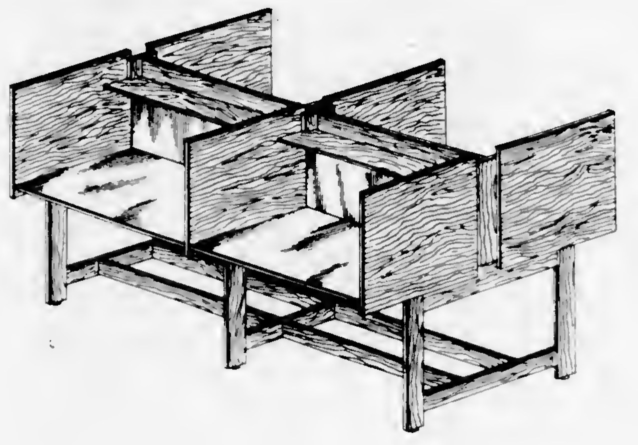
U.S. Cl. D33—8



220,111
DOUBLE STUDY CARRELL UNIT

John L. Gianfagna, 102 Crestwood Circle,
Marietta, Ohio 45750
Original design application June 4, 1968, Ser. No. 12,554. Divided and this application May 14, 1969, Ser. No. 18,669
Term of patent 14 years
Int. Cl. D6—*01*

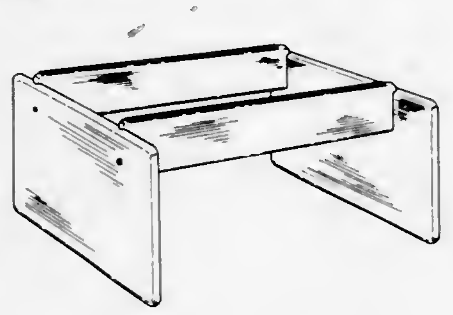
U.S. Cl. D33—11



220,112
TABLE BASE

Keith N. Muller, 73 Balmoral Ave., Toronto 7, Ontario, Canada, and Michael M. Stewart, 1 Laurier Ave., Toronto 5, Ontario, Canada
Filed Feb. 24, 1969, Ser. No. 15,887
Term of patent 14 years
Int. Cl. D6—*01*

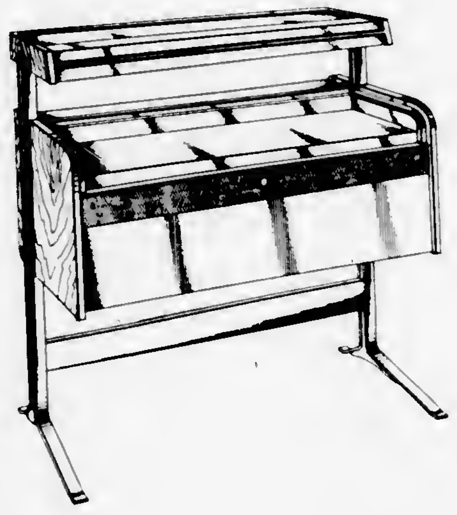
U.S. Cl. D33—14



220,113
RECORDING SYSTEM CONSOLE

Edgar F. Trombly, Grosse Pointe Farms, Mich., assignor to Scanfax Systems Corporation, New York, N.Y.
Filed Oct. 1, 1969, Ser. No. 19,366
Term of patent 14 years
Int. Cl. D6—*01*

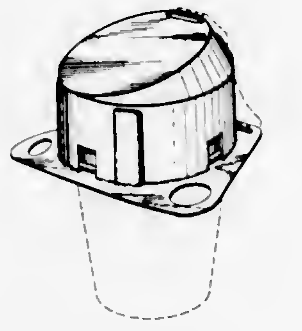
U.S. Cl. D33—19



220,114
COMBINATION CUP DISPENSER AND TOOTHBRUSH HOLDER

Michael W. Carroll, 250 Lincoln, Roselle, Ill. 60172
Filed Aug. 14, 1969, Ser. No. 18,679
Term of patent 14 years
Int. Cl. D6—*01*

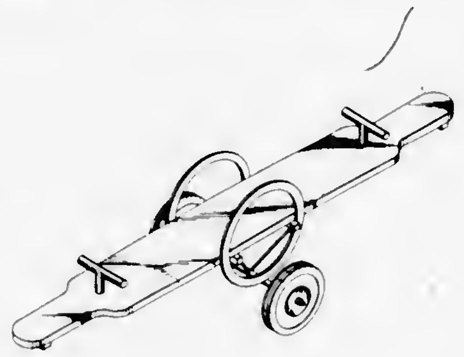
U.S. Cl. D33—26



220,115
WHEELED TEETER TOTTER

Victor J. Semler, 1515 Sylvester St.,
Pasco, Wash. 99301
Filed Feb. 2, 1970, Ser. No. 21,205
Term of patent 14 years
Int. Cl. D21—*00*

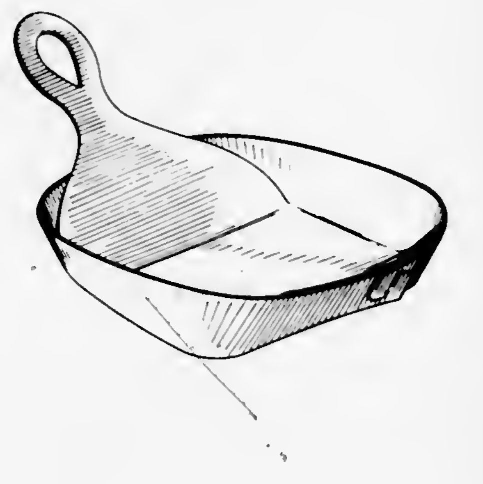
U.S. Cl. D34—5



220,116
SERVING SKILLET

James L. Siegmann, 108 E. Jefferson St.,
Goshen, Ind. 46526
Term of patent 14 years
Int. Cl. D7—*99*

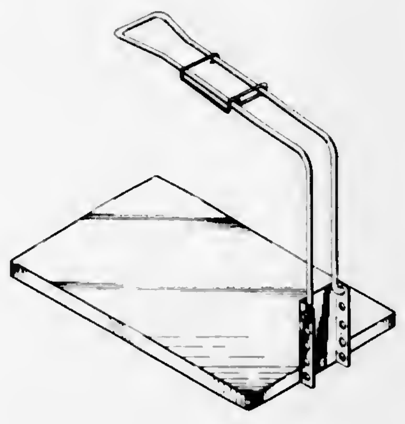
U.S. Cl. D44—10



220,117
SUPPORT FOR ELECTRIC HAND MIXER OR THE LIKE

William F. Liatti, 1807 Fernridge,
San Dimas, Calif. 91773
Filed Mar. 24, 1969, Ser. No. 16,394
Term of patent 14 years
Int. Cl. D7—*99*

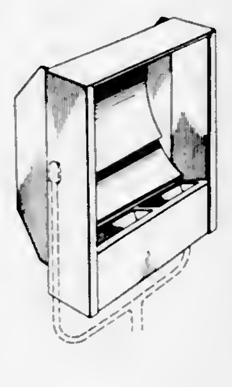
U.S. Cl. D44—29



220,118
FOLDABLE LUMINAIRE HOUSING

Joseph N. Tawil, Woodland Hills, George R. Hartz, Canoga Park, and Edmund F. Walsh, Reseda, Calif., assignors to Berkey/Color Tran Mfg., Inc., Burbank, Calif.
Filed Sept. 26, 1969, Ser. No. 19,308
Term of patent 14 years
Int. Cl. D26—*02*

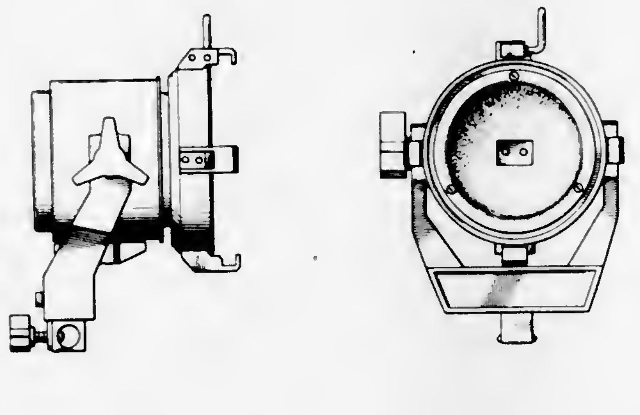
U.S. Cl. D48—20



220,119
LUMINAIRE HOUSING

Richard B. Glickman, Sherman Oaks, and George R. Hartz, Canoga Park, Calif., assignors to Berkey/Color Tran Mfg., Inc., Burbank, Calif.
Filed Sept. 26, 1969, Ser. No. 19,317
Term of patent 14 years
Int. Cl. D26—*02*

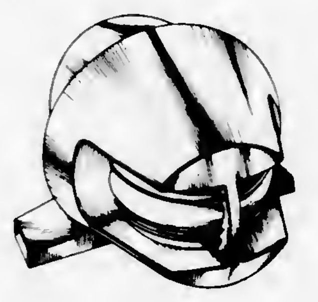
U.S. Cl. D48—20



220,120
NAVIGATIONAL LIGHT

Donald E. Stewart, Grand Rapids, Mich., assignor to Attwood Corporation, Lowell, Mich.
Filed Sept. 18, 1969, Ser. No. 19,203
Term of patent 14 years
Int. Cl. D12—*99*

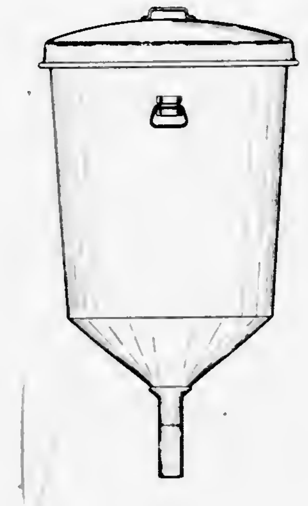
U.S. Cl. D48—32



220,121
COMBINED GARBAGE CAN AND SUPPORT THEREFOR

Arthur U. Griggers, 351 Hickory St.,
Greenville, Ala. 36037
Filed Dec. 4, 1969, Ser. No. 20,358
Term of patent 14 years
Int. Cl. D7—*06*

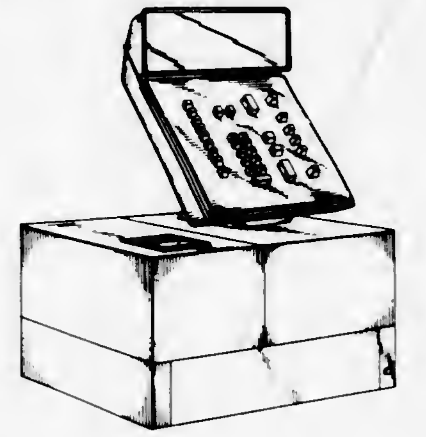
U.S. Cl. D49—35



220,122
CASH REGISTER

Allan Borows, Scarsdale, N.Y., assignor to Pitney Bowes-Alpex, Inc.
Filed Nov. 7, 1969, Ser. No. 19,817
Term of patent 14 years
Int. Cl. D20—*99*

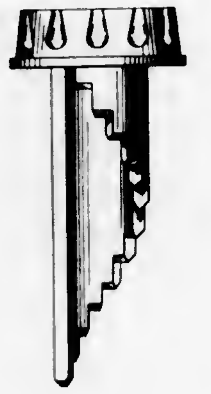
U.S. Cl. D52—4



220,123

REFLECTIVE FUEL GAUGE

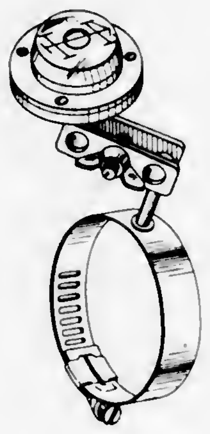
Alfred H. Kelch, Jr., Mequon, Wis., assignor to
The Kelch Corporation, Mequon, Wis.
Filed Sept. 24, 1969, Ser. No. 19,285
Term of patent 14 years
Int. Cl. D10—*08*
U.S. Cl. D52—6



220,124

LEVELER FOR A PICKUP TRUCK OR THE LIKE

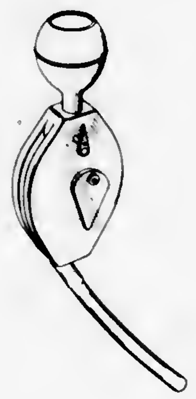
David D. Powell, 9009 Kiefer Blvd.,
Sacramento, Calif. 95826
Filed Jan. 26, 1970, Ser. No. 21,070
Term of patent 14 years
Int. Cl. D10—*99;* D12—*99*
U.S. Cl. D52—6



220,125

ANTIFREEZE TESTER

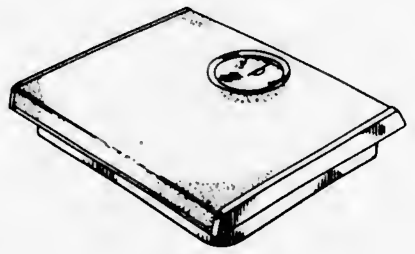
Alan G. Wallskog, Prospect Heights, Ill., assignor to
E. Edelmann & Co.
Filed Feb. 24, 1970, Ser. No. 21,592
Term of patent 14 years
Int. Cl. D10—*11*
U.S. Cl. D52—7



220,126

SCALE

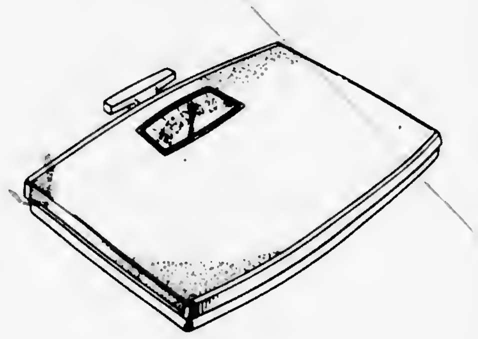
Robert A. O'Neil, Glen Ellyn, and Stefan A. Unger, Chicago, Ill., assignors to Borg-Erickson Corporation Chicago, Ill.
Filed May 7, 1969, Ser. No. 17,044
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D52—10



220,127

SCALE

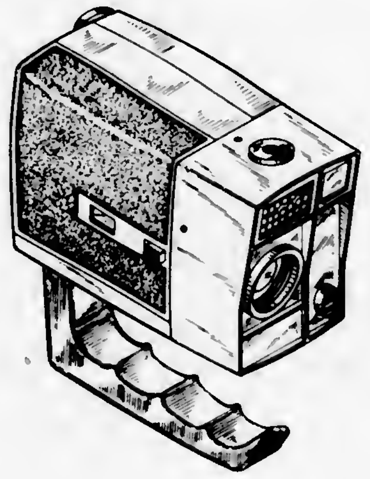
Robert A. O'Neil, Glen Ellyn, and Stefan A. Unger, Chicago, Ill., assignors to Borg-Erickson Corporation, Chicago, Ill.
Filed May 7, 1969, Ser. No. 17,054
Term of patent 14 years
Int. Cl. D10—*99*
U.S. Cl. D52—10



220,128

MOTION PICTURE CAMERA

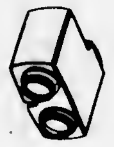
Robert E. Bourke, Goodhill Road,
Weston, Conn. 06880
Filed May 22, 1969, Ser. No. 17,276
Term of patent 14 years
Int. Cl. D16—*02*
U.S. Cl. D61—1



220,129

OPTICAL IMAGE SPLITTER

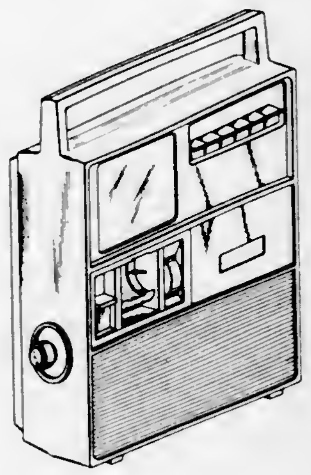
Bernard J. Lipari and Robert R. Hickerson, Overland Park, Kans., assignors to Beston Electronics, Inc., Prairie Village, Kans.
Filed July 9, 1969, Ser. No. 18,123
Term of patent 14 years
Int. Cl. D16—*08*
U.S. Cl. D61—1



220,130

REAR SCREEN SOUND PROJECTOR

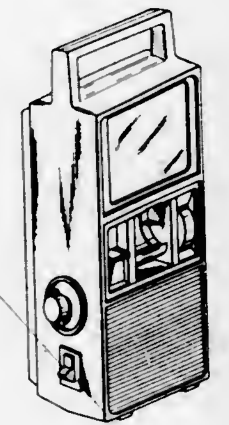
Richard Hart, 1196 S. Main St., Lombard, Ill. 60148
Filed Jan. 2, 1970, Ser. No. 20,751
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D61—1



220,131

REAR SCREEN PROJECTOR

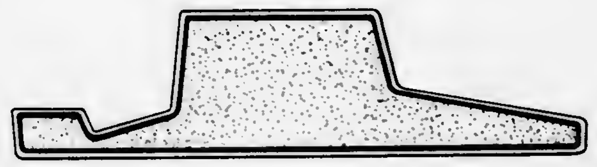
Richard Hart, 1196 S. Main St., Lombard, Ill. 60148
Filed Jan. 2, 1970, Ser. No. 20,752
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D61—1



220,132

HOUSING FOR TYPEWRITER

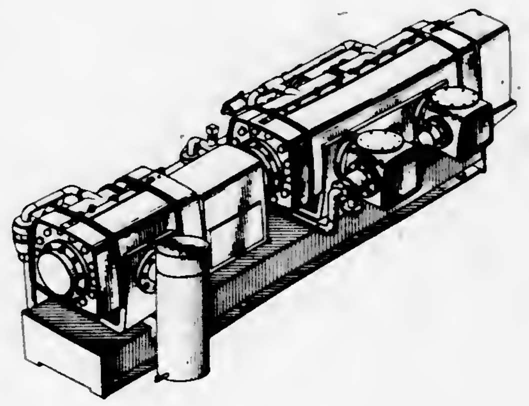
Alfons Boothby and Georges Joseph, Wilhelmshaven, Germany, assignors to Olympia Werke AG., Wilhelmshaven, Germany
Filed Sept. 17, 1969, Ser. No. 19,183
Claims priority, application Germany Apr. 18, 1969
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11



220,133

COMPRESSOR

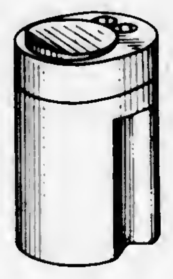
James Gordon Knapp, Chicago, and Robert L. Baumgartner, Elgin, Ill., and Joseph E. Muller, Catasauqua, Pa., assignors to Fuller Company
Filed Nov. 14, 1968, Ser. No. 14,543
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D65—1



220,134

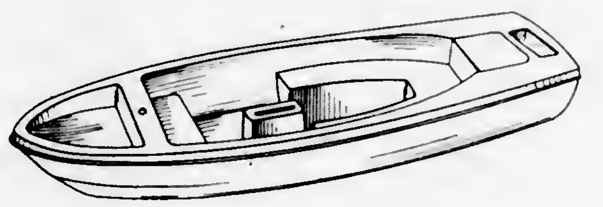
PUMP FOR INFLATABLE ARTICLES

Petrus Joannes Stut, Drachten, Netherlands, assignors to U.S. Philips Corporation
Filed Nov. 3, 1969, Ser. No. 19,911
Claims priority, application Switzerland May 29, 1969
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D65—1



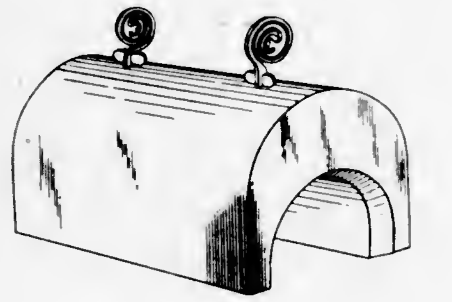
220,135
BOAT HULL

Peter A. Milne, South Benfleet, Essex, England, assignor to Richmond Marine Limited, London, England
Filed June 26, 1969, Ser. No. 17,903
Claims priority, application Great Britain Dec. 30, 1968
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



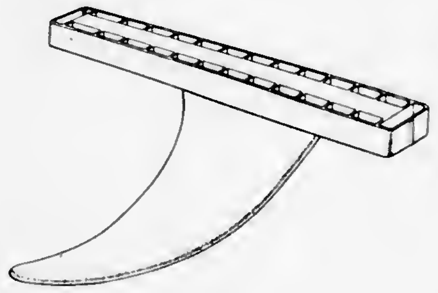
220,136
PIPELINE FLOAT

William W. Wilson, Shreveport, La., assignor to Morton S. Adler, Des Moines, Iowa, a fractional part interest
Filed Sept. 17, 1969, Ser. No. 19,185
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



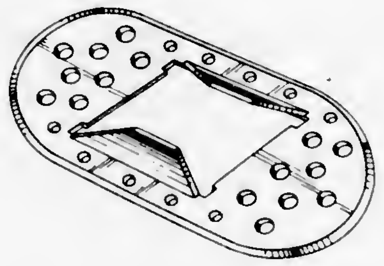
220,137
SURF BOARD FIN AND SUPPORT BOX COMBINATION

Sigmund Kwiatkowski, Seaton, South Australia, Australia, assignor to John Arnold's Surf Shop Pty. Ltd., Adelaide, South Australia, Australia
Filed Oct. 29, 1969, Ser. No. 19,827
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D71—1



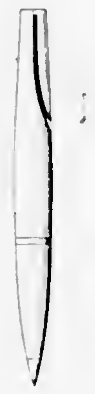
220,138
HOUSING FOR A ROADWAY MARKER

Peter Hedgewick, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Amherstburg, Ontario, Canada
Filed Jan. 12, 1970, Ser. No. 20,895
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D72—1



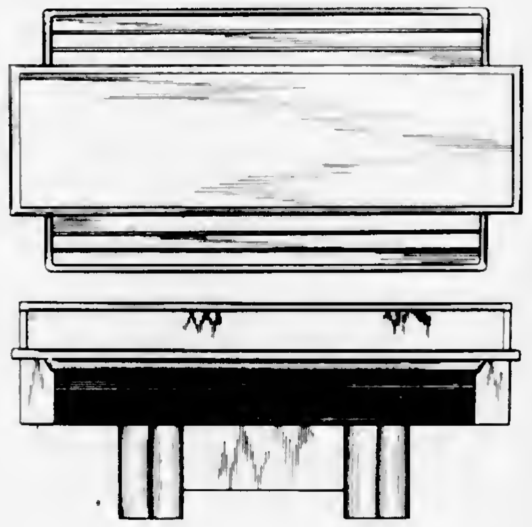
220,139
WRITING INSTRUMENT

Gino C. Di Spirito, Hasbrouck Heights, N.J., assignor to Kreisler Manufacturing Corporation, North Bergen, N.J.
Filed Apr. 9, 1970, Ser. No. 22,355
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D74—17



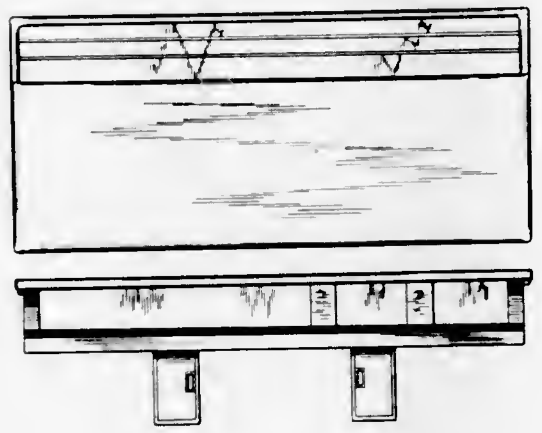
220,140
CONDIMENT CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.
Filed Sept. 4, 1969, Ser. No. 18,998
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—2



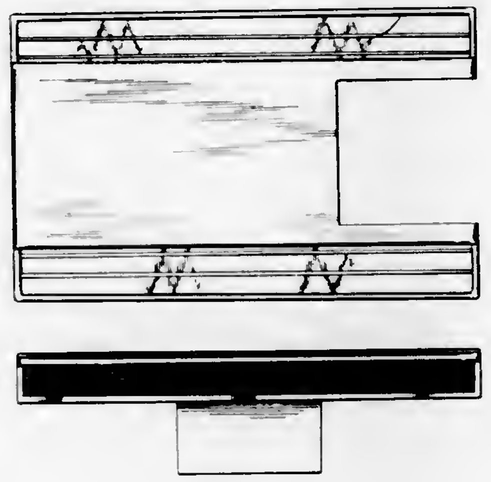
220,141
FOOD CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.
Filed Sept. 4, 1969, Ser. No. 19,005
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—2



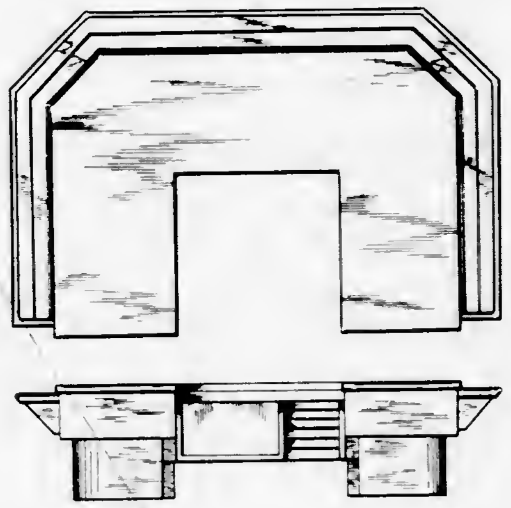
220,142
BEVERAGE CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.
Filed Sept. 4, 1969, Ser. No. 19,012
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—2



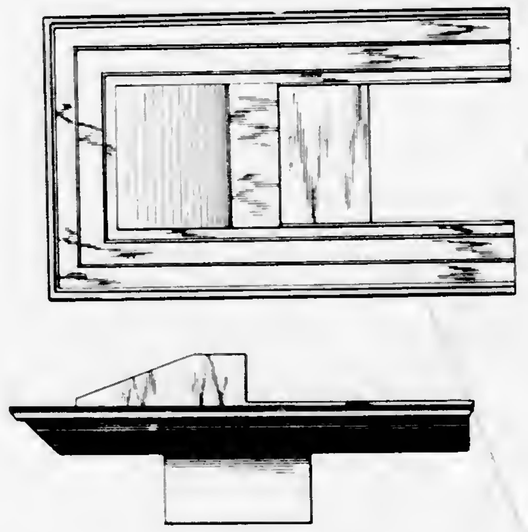
220,143
FOOD CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.
Filed Sept. 4, 1969, Ser. No. 19,016
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—2



220,144
CHECK-OUT CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.
Filed Sept. 4, 1969, Ser. No. 19,024
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—2

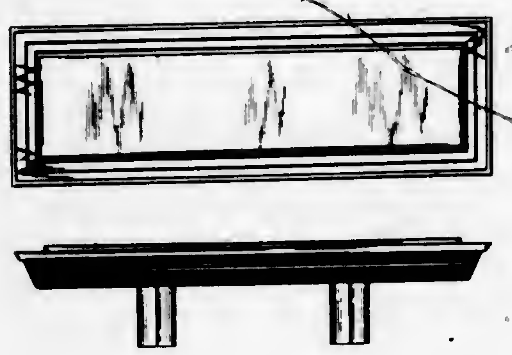


220,145
ISLAND CAFETERIA COUNTER

Murray A. Perl, New London, Frank Laspaluto, Waterford, and Robert J. Sevieri, Old Lyme, Conn., assignors to Facilities Design Associates, Inc., New London, Conn.

Filed Sept. 4, 1969, Ser. No. 19,025
Term of patent 14 years
Int. Cl. D6—*01*

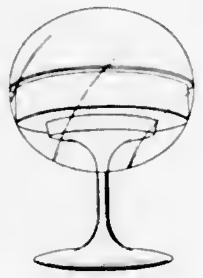
U.S. Cl. D80—2



220,146
DISPLAY STAND

Raymond Loewy, Paris, France, assignor to Stanley Edward Matthews, London, England
Filed July 17, 1969, Ser. No. 18,243
Claims priority, application Great Britain Jan. 24, 1969
Term of patent 14 years
Int. Cl. D6—*01*

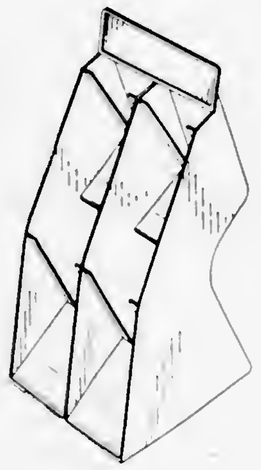
U.S. Cl. D80—9



220,147
DISPLAY STAND

John Richard Atkinson, Wigginton, York, England, assignor to Rowntree Mackintosh Limited, York, England
Filed Aug. 11, 1969, Ser. No. 18,610
Term of patent 14 years
Int. Cl. D6—*01*

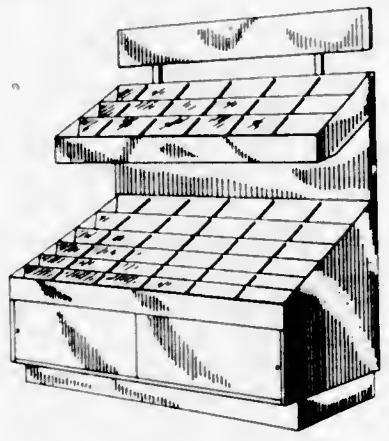
U.S. Cl. D80—9



220,148
MERCHANDISE DISPLAY STAND

William S. Leath, Birmingham, Ala., and Jimmie D. Waller, Clinton, S.C., assignors to C. W. Anderson Hosiery Corporation, Clinton, S.C.
Filed Aug. 22, 1969, Ser. No. 18,812
Term of patent 3½ years
Int. Cl. D6—*01*

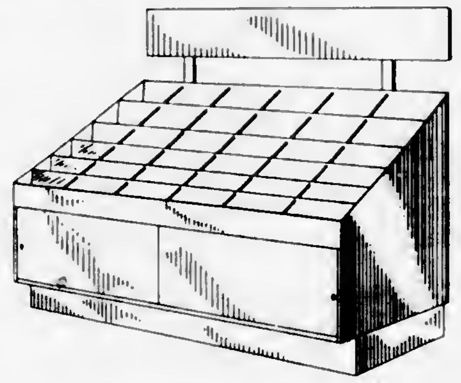
U.S. Cl. D80—9



220,149
MERCHANDISE DISPLAY STAND

William S. Leath, Birmingham, Ala., and Jimmie D. Waller, Clinton, S.C., assignors to C. W. Anderson Hosiery Corporation, Clinton, S.C.
Filed Aug. 22, 1969, Ser. No.18,993
Term of patent 3½ years
Int. Cl. D6—*01*

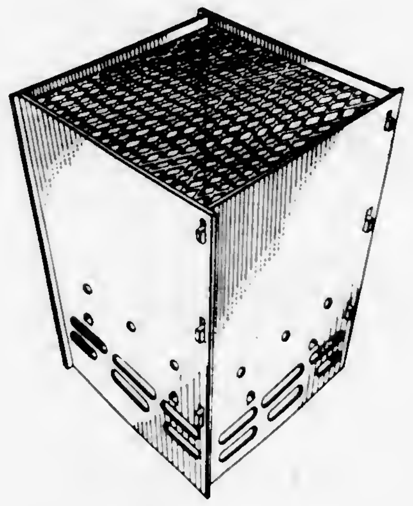
U.S. Cl. D80—9



220,150
PORTABLE BARBECUE STOVE

Joe E. Roestenburg, Trinidad, Colo., assignor to William J. Tracy, as trustee for S. Double R Trust, 1st National Bank of Trinidad, Colo.
Filed Oct. 6, 1969, Ser. No. 19,438
Term of patent 14 years
Int. Cl. D7—*04*

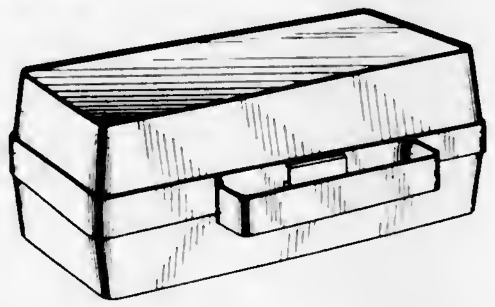
U.S. Cl. D81—10



220,151
CASE FOR A HAIR CURLER KIT OR SIMILAR ARTICLE

Robert S. Waters, Oak Brook, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jan. 27, 1969, Ser. No. 15,520
Term of patent 14 years
Int. Cl. D28—*03*

U.S. Cl. D86—10

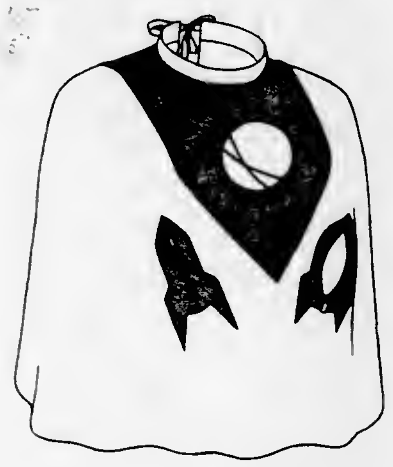


220,152
CHILD'S BARBER APRON OR SIMILAR ARTICLE

Miriam L. Bush, Box 231, High St.,
Three Bridges, N.J. 08887

Original design application July 27, 1966, Ser. No. 3,224, now Patent No. 212,870, dated Dec. 3, 1968, which is a continuation-in-part of design application Ser. No. 1,891, Apr. 14, 1966. This application Sept. 16, 1968, Ser. No. 19,066
Term of patent 14 years
Int. Cl. D28—*03*

U.S. Cl. D86—10

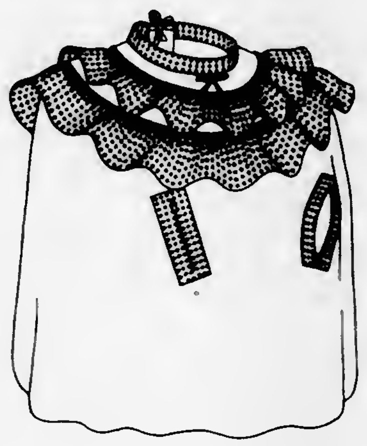


220,153
CHILD'S BARBER APRON OR SIMILAR ARTICLE

Miriam L. Bush, Box 231, High St.,
Three Bridges, N.J. 08887

Original design application July 27, 1966, Ser. No. 3,224, now Patent No. 212,870, dated Dec. 3, 1968, which is a continuation-in-part of design application Ser. No. 1,891, Apr. 14, 1966. This application Sept. 16, 1968, Ser. No. 10,067
Term of patent 14 years
Int. Cl. D28—*03*

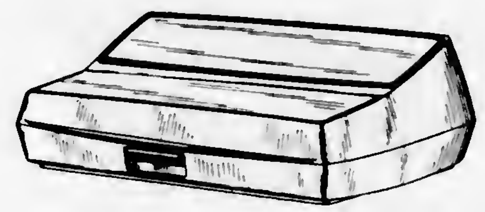
U.S. Cl. D86—10



220,154
STORAGE CASE FOR A MANICURIST TOOL OR SIMILAR ARTICLE

Edward A. Irelan, Lombard, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jan. 23, 1970, Ser. No. 21,046
Term of patent 14 years
Int. Cl. D3—*99*

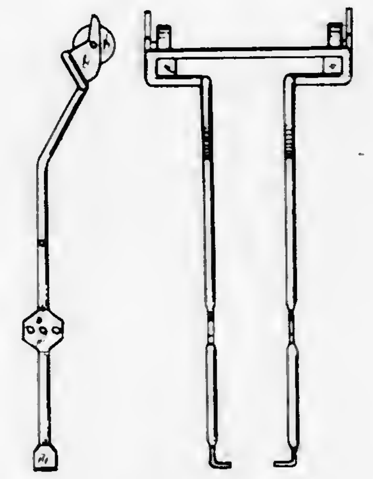
U.S. Cl. D87—1



220,155
ACCESSORY FOR BICYCLE REARING ACTIONS

Harold Hasselbusch, 144—21 68th Drive,
Flushing, N.Y. 11367
Filed Oct. 17, 1969, Ser. No. 19,610
Term of patent 14 years
Int. Cl. D12—*14*

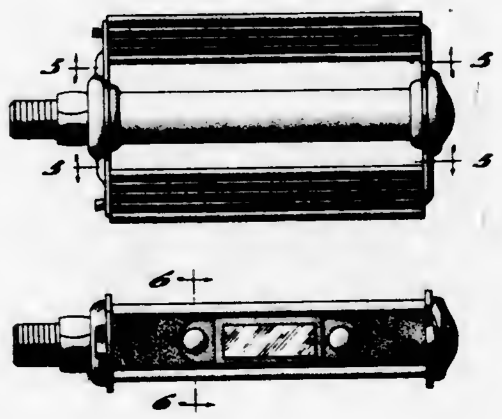
U.S. Cl. D90—1



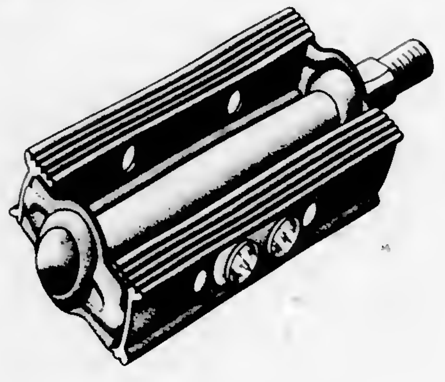
220,156
REFLECTIVE BICYCLE PEDAL

Robert F. Humlong, Maysville, Ky., assignor to Wald Manufacturing Company, Inc., Maysville, Ky.
Filed Feb. 24, 1970, Ser. No. 21,579
Term of patent 14 years
Int. Cl. D12—*14*

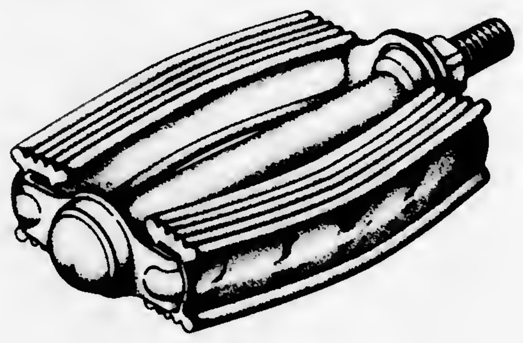
U.S. Cl. D90—14



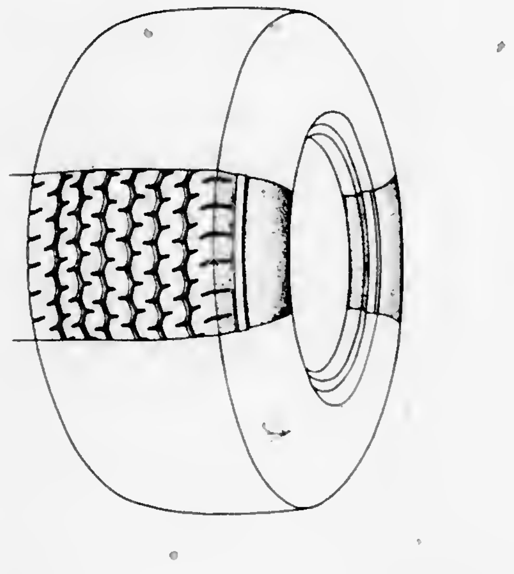
220,157
REFLECTIVE BICYCLE PEDAL
Robert F. Humlong, Maysville, Ky., assignor to Wald Manufacturing Company, Inc., Maysville, Ky.
Filed Feb. 24, 1970, Ser. No. 21,580
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D9[illegible]14



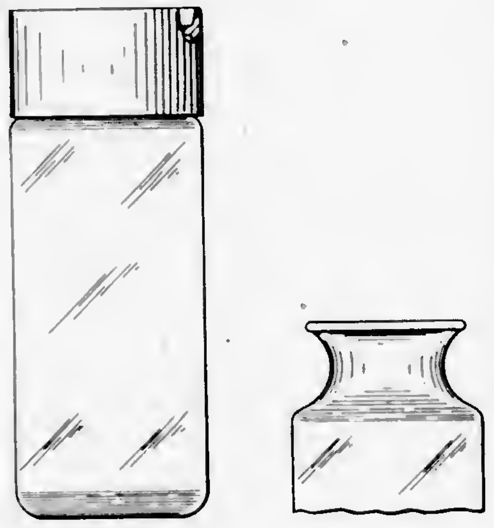
220,158
REFLECTIVE BICYCLE PEDAL
Carlton P. Pawsat, Maysville, Ky., assignor to Wald Manufacturing Company, Inc., Maysvillle, Ky.
Filed Mar. 2, 1970, Ser. No. 21,703
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—14



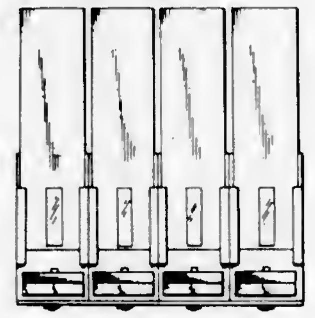
220,159
TIRE
Iain C. Mills, Birmingham, England, assignor to The Dunlop Company Limited, Birmingham, England
Continuation-in-part of design applications Ser. No. 13,087, Aug. 12, 1968, and Ser. No. 14,574, Nov. 20, 1968. This application July 11, 1969, Ser. No. 18,178
Claims priority, application Great Britain Mar. 14, 1968; May 30, 1968; Mar. 19, 1969
Term of patent 7 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



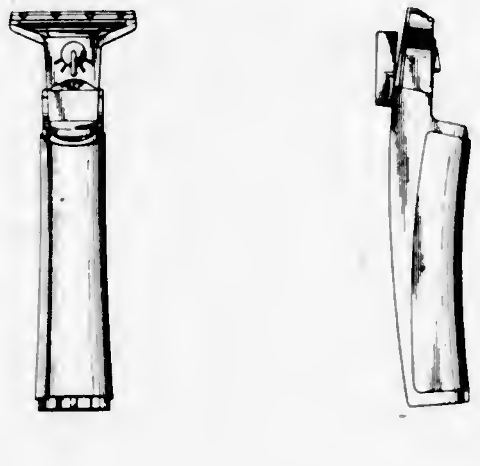
220,160
COMBINED SHAKER AND SERVER
Sara L. Balbach, Corning, Richard W. Greger, Elmira, and Allen J. Samuels, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Jan. 10, 1969, Ser. No. 15,302
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D94—3



220,161
PANEL OF PRODUCT CARTRIDGES
Martelle J. Syverson, 1100 S. Broadway, P.O. Box 408, Albert Lea, Minn. 56087
Continuation-in-part of design application Ser. No. 7,735, July 10, 1967, now Patent No. 215,259, dated Sept. 16, 1969. This application Apr. 22, 1969, Ser. No. 17,858
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D94—3



220,162
RAZOR
Bruce F. Ray, Danvers, Mass., assignor to The Gillette Company, Boston, Mass.
Continuation-in-part of design application Ser. No. 18,651, Aug. 12, 1969. This application Feb. 10, 1970, Ser. No. 21,389
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



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TO WHOM
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- AB Landsbygdens Frilidsbebyggelse: *See—*
  - Appelgren, Wolter; Jorsback, Jan-Olov; and Naeslund, Gudmund, 3,568,838.
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  - Hale, John K.; and Adams, Charles B.,3,568,423.
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  - to Lockheed Aircraft Corporation. Amplifier system for driving shaker motors. 3,569,847, Cl. 330-13.
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  - Esten, Harold; and Aeronautics and Space Administration with respect to an invention of;,3,569,637.
- Aeroquip Corporation: *See—*
  - Geisman, James L., 3,568,494.
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  - Dain, Richard James, 3,568,756.
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- Du Pont de Nemours, E. I., and Co. : *See*—
  - King, Charles L. T884,002.
  - Osborn, Robert O., and Meloon. T884,001.
  - Wolinski, Leon E. T884,005.
  - Wolinski, Leon E., and Harris. T884,003.
- Gossett, John R., Jr. : *See*—
  - Coney, Charles H., and Gossett. T884,004.
- Harris, Roland G. : *See*—
  - Wolinski, Leon E., and Harris. T884,003.
- King, Charles L., to E. I. du Pont de Nemours and Co. Trunk mat for automobiles. T884,002, 3-9-71. Cl. 161—160.
- Meloon, Daniel T. : *See*—
  - Osborn, Robert O., and Meloon. T884,001.
- Osborn, Robert O., and D. T. Meloon, to E. I. du Pont de Nemours and Co. Membrane separation. T884,001, 3-9-71. Cl. 210—23.
- Wolinski, Leon E., to E. I. du Pont de Nemours and Co. Foil-foam laminar structures. T884,005, 3-9-71. Cl. 161—161.
- Wolinski, Leon E., and R. G. Harris, to E. I. du Pont de Nemours and Co. Oriented foam laminar structures. T884,003, 3-9-71. Cl. 161—161.
- Wood, George F. L. Heat processable silver halide emulsions with solarization characteristics. T884,006, 3-9-71. Cl. 96—108.

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- Bush, Miriam L. Child's barber apron, or similar article. 220,153, 3-9-71, Cl. D86—10.
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Design Patents

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DEFENSIVE PUBLICATIONS APPLICATIONS

(Notice of Dec. 16, 1969, 869 O.G. 687)

10 : T884.002
T884.007

36 : T884.001

36 : T884.003

36 : T884.005

36 : T884.006

47 : T884.004

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PATENT OFFICE NOTICES

Notice of Trademark Publications in February and March

Beginning Feb. 2, 1971, the OFFICIAL GAZETTE of the United States Patent Office, consisting of patent and trademark Sections, was separated into two distinct publications, the "OFFICIAL GAZETTE (Patent Section)" and the "OFFICIAL GAZETTE (Trademark Section)." Those subscribing to the OFFICIAL GAZETTE prior to the separation have received only the OFFICIAL GAZETTE (Patent Section) beginning with the date of its separation unless they requested a subscription to the OFFICIAL GAZETTE (Trademark Section). An effort was made to notify these subscribers that they would not receive the OFFICIAL GAZETTE (Trademark Section) after the separation on February 2 unless they subscribed separately to this publication. However, the notice has been misinterpreted by some former subscribers who, accordingly, have not requested a separate subscription to the OFFICIAL GAZETTE (Trademark Section) and, therefore, have not received this publication.

In view of the above, jurisdiction will be restored for all marks published for opposition on Feb. 2, 9, 16, and 23, Mar. 2, 9, and 16, 1971, to the Examiner of Trademarks and these marks will, by notice in the OFFICIAL GAZETTE (Trademark Section) of Mar. 23, 1971, be republished for opposition by reference to the OFFICIAL GAZETTE (Trademark Section) for those dates. The republication of these marks by reference will be effective as a publication in accordance with Section 12(a) of the Trademark Act of 1946 for the purpose of opposition by any person who believes he will be damaged by the registration of the mark. Oppositions to such republished marks may be filed within the time specified by Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any opposition received after the original publication and on or before Apr. 22, 1971, will be deemed to have been timely filed.

In addition, all persons desiring to receive the OFFICIAL GAZETTE (Trademark Section) should contact the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription to this publication costs $17.00 per annum. The Superintendent of Documents has advised that all persons subscribing during March will receive the previous February and March issues of the OFFICIAL GAZETTE (Trademark Section) until the excess weekly inventory of approximately 3000 copies is exhausted.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Feb. 25, 1971.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,594,256, C. E. Compton, MINING MACHINE HEAD; **2,760,255**, same, SCREW CONVEYOR AND MANUFACTURE THEREOF; **2,760,624**, same; **2,784,955**, same, MINING MACHINE CUTTER HEAD WITH REAR HELICALLY EXTENDING TRANSVERSE OPENING; **2,719,708**, same, PAN GUIDEWAY FOR ROTARY MINING HEAD, filed Nov. 2, 1970, U.S. Ct. of App. 4th Cir., Virginia (Richmond), Doc. 15,248, *Metal Products, Inc.* v. *Charles E. Compton, Joy Manufacturing Company, and Polan Industries, Inc.*

2,719,708. (See 2,594,256.)

2,760,255. (See 2,594,256.)

2,760,624. (See 2,594,256.)

2,784,955. (See 2,594,256.)

2,845,046. (See 3,405,686.)

2,921,786, Deichmann and Becker, CLOTH SPREADING MACHINES; **3,067,996**, E. Theodosiou, FOLD RETAINING DEVICE FOR CLOTH LAYING MACHINES; **3,112,107**, same, HIGH SPEED CLOTH LAYING MACHINE; **3,203,638**, same, filed Jan. 22, 1968, D.C., S.D.N.Y., Doc. 68–C–278, *Cutting Room Appliances Corp.* v. *Sam Zuckerman Sewing Machine Corp.* Order dismissing action for lack of prosecution, May 26, 1970.

2,988,604, W. M. Nye, RECORDING AND REPRODUCING SYSTEM; **3,024,320**, same, DICTATING MACHINE ERASURE UNIT; **2,989,594**, M. B. McKaig, MAGNETIC TAPE RECORDING AND REPRODUCING MACHINE, filed July 1, 1969, D.C., W.D. Wash. (Seattle), Doc. 8374, *Nye Systems, Inc.* v. *Lanier Business Products, Inc.* Consent dismissal. (This case was transferred from the W.D. of Washington to N.D. Georgia (Atlanta).)

2,989,594. (See 2,988,604.)

2,996,754, Ziegler and Carrier, HYDRAULIC DOOR CLOSER; **3,161,908**, P. Walach, same, filed Oct. 27, 1970, D.C. Minn. (St. Paul), Doc. 3–70–299, *Hartzel Manufacturing, Inc.* v. *Ideal Security Hardware Corporation.*

3,002,200, C. E. Murcott, ADJUSTABLE GUARD FRAME FOR BEDS AND THE LIKE; **3,089,152**, same; **3,097,370**, same, FOUR-WAY ADJUSTABLE BED RAIL UNIT, filed June 18, 1969, D.C., S.D.N.Y., Doc. 69–C–2655, *Lumex Inc.* v. *Edco Surgical Supply Co. Inc.* Stipulation and order of dismissal, with prejudice, Oct. 6, 1970.

3,024,320. (See 2,988,604.)

3,067,996. (See 2,921,786.)

3,089,152. (See 3,002,200.)

3,097,370. (See 3,002,200.)

3,112,107. (See 2,921,786.)

3,127,668, W. C. Troy, HIGH STRENGTH-VARIABLE POROSITY SINTERED METAL FIBER ARTICLES AND METHOD OF MAKING THE SAME; **3,437,457**, J. I. Fisher, REINFORCED METAL FIBER COMPOSITES; **3,490,902**, same, METAL FIBER REINFORCEMENT, filed Oct. 5, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2461, *A.R.F. Development Corp. et al.* v. *Brunswick Corp.*

3,161,908. (See 2,996,754.)

3,203,638. (See 2,921,786.)

3,275,680, Holzrichter, Kronig and Frenz, PRODUCTION OF ORGANIC ACETATES IN PRESENCE OF A NOBLE METAL CATALYST AND OXYGEN, filed June 29, 1970, D.C., S.D. Tex. (Houston), Doc. 70–H–681, *Farbenfabriken Bayer Aktiengesellschaft* v. *National Distillers and Chemical Corp.*

3,328,536, E. C. Bolick, Jr., REMOTE CALL-IN MULTIPLE RECORDER SWITCHING SYSTEM; **3,347,432**, same, ENDLESS TAPE CONTROL DEVICE, filed July 31, 1969, D.C., N.D. Ga. (Atlanta), Doc. 12965–C, *Lanier Electronic Laboratory, Inc.* v. *Nye Systems, Inc.* Consent dismissal, Oct. 21, 1970.

3,347,432. (See 3,328,536.)

3,367,809, R. S. Soloff, SONICS, filed Oct. 13, 1970, D.C. Conn. (New Haven), Doc. 14081, *Branson Instruments, Incorporated* v. *Sonics and Materials, Inc. and Robert S. Soloff.*

3,389,365. (See Re. 26,781.)

3,405,686, H. W. Hart, WATERING SYSTEM FOR NEWLY HATCHED FOWLS; **2,845,046**, same, WATER SUPPLYING DEVICE FOR POULTRY, filed Oct. 26, 1970, D.C., S.D. Ohio (Cincinnati), Doc. 7721, *Harold W. Hart and H. W. Hart Manufacturing Co.* v. *Tidy Manufacturing Corporation, Ltd.*

3,437,457. (See 3,127,668.)

3,463,342, Bender, Fraser and Thompson, ADAPTER FOR CONTROLLED CLOSURE OF EVACUATED CONTAINERS; **3,474,543**, Bender and Thompson, METHOD AND APPARATUS FOR SIMULTANEOUSLY FREEZE DRYING A PLURALITY OF BACTERIAL CULTURES, filed Oct. 28, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2683, *Cenco Medical/Health Supply Corp.* v. *Thermovac Industries, Corp., Albert Stanley & Co. and Albert Mendelson.*

3,474,543. (See 3,463,342.)

3,475,070, T. C. Hoshall, DISPLAY CASE, filed Oct. 23, 1970, D.C., W.D .Okla. (Oklahoma City), Doc. 70–526–C, *Thomas C. Hoshall and Rainbo Photo Color, Inc.* v. *Mid-Continent News Company.*

3,490,902. (See 3,127,668.)

Re. 26,781, C. J. Frenzel, TRIGGER ACTUATED SWITCH DEVICE; **3,389,365**, B. H. Matthews, VARIABLE RESISTOR WITH SWITCH, filed June 24, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1523, *Skil Corporation* v. *Rockwell Mfg. Co.*

Certificates of Correction for the Week of Mar. 16, 1971

Re. 26,935
Re. 26,981
D. 218,491
D. 219,059
3,388,859
3,436,057
3,483,235
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3,555,545

Service by Publication

Sam L. Leach

In accordance with Rule 47 of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on January 6, 1965, of an application for patent entitled "Apparatus For Making Pictorial Parallax Panoramagram Units," on behalf of Sam L. Leach, whose last known address is 101 Thorncliff Lane, St. Louis, Missouri, 63122. The application was filed under the provisions of Rule 147 as a divisional of an application earlier made in compliance with Rule 47(a) and 35 U.S.C. 116 by joint inventor Harold D. Rice without execution by the said Sam L. Leach. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Sam L. Leach in connection with the present application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Patents Available for Licensing or Sale

3,528,899. METHOD OF BROMINATING THE SIDE CHAIN OF AN ALKYL BENZENE. Emil Plander et al., Prague, Czechoslovakia. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,530,453. SNOWFALL ALARM. Denis Rossier, Switzerland. Correspondence to: Elton Industries, Inc., 420 Jericho Turnpike, Jericho, N.Y., 11753.

3,533,640. DOLLY CONSTRUCTION. George D. Fator, 3233 Windsor Drive, Sacramento, Calif., 95825.

3,541,799. BRACING CONSTRUCTION. Hans Jost et al. Correspondence to: Darby & Darby, 405 Lexington Ave., New York, N.Y., 10017.

3,545,109. ATTACHMENT FOR REMOVING WET SNOW AND SLUSH, FOR DETACHABLE COUPLING TO A RAISABLE AND LOWERABLE SNOW PLOW. Marcel Boschung, Switzerland. Correspondence to: Werner W. Kleeman, Suite 315, 1225 Connecticut Ave., Washington, D.C., 20036.

The following 3 patents are offered by John W. Barnd, 32 Hollybrook Road, Paramus, N.J.

3,351,128. MULTI-ZONE TEMPERATURE CONTROL.
3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.
3,515,345. MULTI-ZONE TEMPERATURE CONTROL.

General Electric Company is prepared to grant non-exclusive licenses under the following 41 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804. Attention: Patent Counsel.

2,831,934. POTENTIAL RELAY.

Applications for license under the following patent may be addressed to: Patent Counsel, Aerospace Electronics, General Electric Company, Utica, N.Y., 13503.

2,860,751. POSITIONING DEVICE.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Power Transmission Division, General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,539,691. GLASS FURNACE WITH IMPROVED PARTIALLY IMMERSED ELECTRODE.
3,531,686. LAMP BALLAST CIRCUIT FOR DUAL VOLTAGE SUPPLIES.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Company, P.O. Box 8555, Philadelphia, Pa., 19101.

3,546,961. VARIABLE FLEXIBILITY TETHER.
3,548,222. THERMIONIC POWER GENERATION APPARATUS.

Applications for license under the following 8 patents may be addressed to: Patent Counsel, Appliance and Television Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.

3,170,743. DOMESTIC APPLIANCE.
3,404,700. LIQUID LEVEL CONTROL MEANS.
3,466,105. DOOR-OPERATED RACK EXTENDING AND RETRACTING MEANS FOR A FRONT-OPENING APPLIANCE CABINET.
3,466,108. DOOR-OPERATED RACK EXTENDING AND RETRACTING MEANS FOR A FRONT-OPENING APPLIANCE CABINET.
3,529,775. DISCHARGE DEVICE FOR AN AUTOMATIC WASHING MACHINE.
3,530,306. DISHWASHER CONTROL CIRCUIT.
3,536,056. SELF-CLEANING, CATALYTIC COATED, COOKING OVEN.
3,536,457. CATALYTIC OXIDATION UNIT FOR DOMESTIC OVEN EXHAUST.

Applications for license under the following 8 patents may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804. Attention: Patent Counsel.

3,183,315. PUSH BUTTON SWITCH WITH DETENT ARRANGEMENT.
3,245,026. SNAP-IN FLUORESCENT LAMPHOLDERS WITH QUICK-CONNECT TERMINALS.
3,263,201. FLUORESCENT LAMPHOLDER WITH QUICK-CONNECT TERMINALS.
3,285,560. MOUNTING ARRANGEMENT FOR A FLUORESCENT LAMPHOLDER ASSEMBLY.
3,514,168. DYNAMOELECTRIC MACHINE INCORPORATING A LUBRICATED THRUST BEARING SYSTEM.
3,515,902. SYNCHRONOUS SWITCHING CIRCUIT.
3,515,918. PLURAL ROTOR OIL SLINGER.
3,528,103. INDUCTION MOTOR AND STARTING AND REVERSING CIRCUIT THEREFOR.

Applications for license under the following 18 patents may be addressed to: General Electric Company, Power Distribution Division, 100 Woodlawn Ave., Pittsfield, Mass., 01201. Attention: Division Patent Counsel.

2,779,899. TIME DELAY CONTROL SYSTEM.
3,187,146. BUSHING FUSE PROVIDED WITH A FUSE BODY OF STRONG INSULATING MATERIAL HAVING FLATTENED ENDS.
3,225,224. DISTRIBUTION TRANSFORMER LIGHTING ASSEMBLY.
3,233,198. HERMETICALLY SEALED DISTRIBUTION TRANSFORMER.
3,233,311. METHOD OF MAKING ENCAPSULATED COILS.
3,297,938. VOLTAGE REGULATING SYSTEM.
3,388,211. SEALING BUSHING AND WALL MEMBER FOR ELECTRICAL APPARATUS AND METHOD OF ASSEMBLING SAME.
3,480,898. COMBINED FUSE AND SWITCH OPERATOR ASSEMBLY.
3,524,033. BYPASS SWITCH AND VACUUM INTERRUPTER.
3,524,178. VOLTAGE INDICATOR AND TEST DEVICE.

3,530,968.	TICKET HANDLING AND STORAGE MECHANISM ESPECIALLY USEFUL IN AUTOMATIC FARE COLLECTION SYSTEMS.
3,531,175.	METHOD OF MANUFACTURING EVACUATED DEVICES.
3,531,627.	TRANSIT TICKET HAVING FARE CODING MEANS FOR AUTOMATIC FARE COLLECTION SYSTEMS.
3,531,690.	VOLTAGE SURGE DIVERTER.
3,538,382.	TRIGGERED VACUUM GAP OVERVOLTAGE PROTECTIVE DEVICE.
3,543,097.	DIRECT CURRENT LIGHTNING ARRESTER WITH AUTOMATIC ARC QUENCHING MEANS.
3,264,420.	CABLE GROUNDING, THREE POSITION, SNAP ACTION SWITCH.
3,291,639.	METHOD OF INSULATING ELECTRICAL CONDUCTORS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	9-29-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-30-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-12-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-02-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-22-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	5-26-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-04-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-27-70
PHYSICS, GROUP 280—R. L. EVANS, Director Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-17-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts; Household, Personal and Fine Arts.	5-18-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-15-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-27-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-03-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-19-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	1-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,670,468 to 2,673,977, inclusive
Plant Patents	Numbers 1,260 to 1,266, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED MARCH 16, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

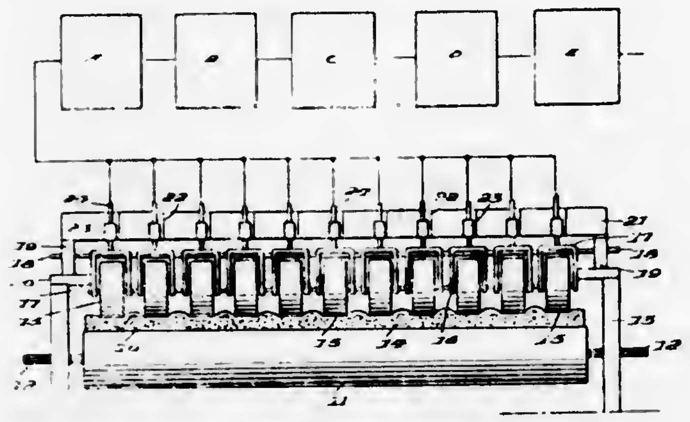
T884,008
ELECTRICAL CONDUCTOR HAVING AN INSULATION COVERING OF A POLYIMIDE FILM HAVING FLUOROCARBON RESIN COATINGS

Carl Gumerman, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Sept. 17, 1969, Ser. No. 858,878
Int. Cl. B44d *1/14*
U.S. Cl. 117—218
No Drawing. 17 Pages Specification

An insulated electrical conductor is provided wherein the insulation covering is a polyimide film having a fluorocarbon polymeric coating of FEP or PTFE on at least one surface thereof, and wherein further the insulated conductor has an overcoating or external layer of a blend of between about 10% and about 35% by weight, based upon the total overcoating weight, of FEP fluorocarbon polymeric material and between about 65% and about 90% by weight, based upon the total overcoating weight, of PTFE fluorocarbon polymeric material; optionally, the overcoating may have up to about 35% by weight, based upon the total overcoating weight, of a pigment. The terms FEP and FEP fluorocarbon material both refer to copolymers of tetrafluoroethylene and hexafluoropropylene, and PTFE refers to homopolymers of tetrafluoroethylene. Representative pigments which can optionally be used in the overcoating include titanium dioxide, cadmium selenide red and lamp black.

T884,009
COMPRESSION UNIFORMITY ANALYSER

Malak E. Yunan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 13, 1969, Ser. No. 876,594
Int. Cl. G01b *5/00*
U.S. Cl. 33—148
1 Sheet Drawing. 17 Pages Specification



Thickness of a resilient batt is continuously detected as the batt travels in a linear path by apparatus comprising:

(1) a horizontal support;
(2) a plurality of weighted sensors responsive to compressed batt thickness;
(3) a plurality of transducers connected to said sensors; and
(4) a computational circuit connected to the transducer outputs comprising:
  (a) a first amplifier,
  (b) a first circuit means coupled to the output of said first amplifier for producing a signal representing the average output level of said first amplifier for a particular time interval,
  (c) a second amplifier for multiplying the difference between the transducer output signals and the output of said first amplifier,
  (d) operational amplifying and signal averaging means coupled to said second amplifier for producing an output proportional to the average mean deviation of the output of said second amplifier, and
  (e) a second circuit means coupled to said operational amplifying and signal averaging means for dividing the output thereof by a signal proportional to the output of said first circuit means, the output of said second circuit means being a representation of compressed batt thickness.

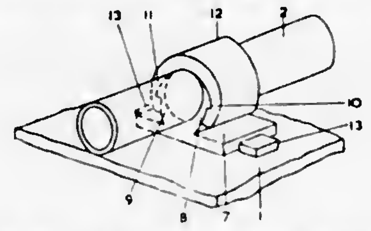
T884,010
ORIENTED FOAM LAMINAR STRUCTURES

Leon Edward Wolinski, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Jan. 22, 1970, Ser. No. 5,138
Int. Cl. B32b *3/12*
U.S. Cl. 161—88
No Drawing. 5 Pages Specification

A laminar structure comprising a core of oriented closed cell styrene polymer foam of specific elongation and tensile modulus having fabric and thermoformable thermoplastic film bonded to a first and second side of a foam core, respectively.

T884,011
CLIPS

Paul Johnson Garner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Jan. 29, 1970, Ser. No. 6,804
Claims priority, application Great Britain, Feb. 3, 1969, 5,715/69
Int. Cl. A44b *21/00*
U.S. Cl. 24—73
2 Sheets Drawing. 6 Pages Specification

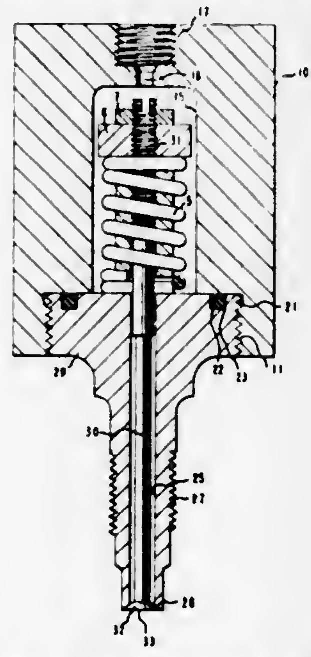


A clip is disclosed for attaching a thermoplastic panel to a metal frame used to reinforce the thermoplastic panel. The clip is preferably made of a stiff thermoplastic material and the base is shaped so as to engage sites integrally molded on the surface of the thermoplastic panel. Two arms extend above the base which receive and grip the metal frame or tubular member. Each arm carries a lug at or near its end. A transverse locking member is placed over the arms securing the tubular member between the arms.

Preferably the clip is slidably engaged with the thermoplastic panel to permit movement in transverse direction to the rod. Thermoplastic panels thus reinforced are useful for auto panels, for example, Hoods, and enjoy the advantages of slidability to correct minor inaccuracies in automobile production and compensation for the thermal expansion of the tubular frame by sliding. Thermoplastic materials suitable for the production of clips are isotatic polymers of propylene, high density polyethylene, copolymers of propylene with ethylene, acrylonitrile-butadiene-styrene copolymers, acetal copolymers and nylons.

T884,012
INJECTION VALVE

Herbert Blades, Hockessin, Del., and Donald W. Johnson, Donelson, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 3, 1970, Ser. No. 8,354
Int. Cl. F16k *17/04*
U.S. Cl. 137—541
1 Sheet Drawing. 4 Pages Specification

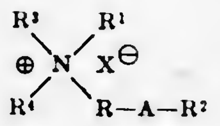


An injection valve that includes a body having inlet and outlet ends connected by a passage which has successive cylindrical and tapered lengths. A stem having a cylindrical portion somewhat smaller than the cylindrical length of the passage and a tapered portion that matches the tapered length of the passage extends into the passage. A biasing means connected between the valve body and the stem urges the tapered portion of the stem into engagement with the tapered length of the passage to seal and close off the passage at the outlet end.

T884,013
SILVER HALIDE REVERSAL COMPOSITIONS

Norman Wayne Kalenda, % Eastman Kodak Co., Kodak Park Division, Rochester, N.Y. 14650
Filed Apr. 23, 1970, Ser. No. 31,384
Int. Cl. G03c *1/08*
U.S. Cl. 96—102
No Drawing. 17 Pages Specification

Improved silver halide compositions are disclosed which can be reversal-processed in fogging developers such as disclosed in U.S. Patents 2,563,785 by Ives and 2,497,875 by Falleson. Good reversal images can be obtained with internal-image silver halide emulsions even if they have some surface sensitivity. In one embodiment, the improved silver halide emulsions disclosed herein comprise an internal-image silver halide emulsion comprising a merocarbocyanine dye and a sulfonated derivative of a polynuclear carbocyclic and/or a compound of the formula:



wherein R^1 is an alkyl or aryl group containing 1 to about 12 carbon atom, R^2 is an alkyl group of 1 to about 12 carbon atoms, R is an alkylene group having from 1 to about 6 carbon atoms and preferably is a methylene group, X is an anion, A is a sulfur atom or a sulfone group, and R^3 and R^4 are alkyl groups of from 1 to about 8 carbon atoms or they are together the necessary atoms to form a heterocyclic group which is preferably a monocyclic group having from 5 to 7 atoms in the ring. In another embodiment, a silver halide emulsion which has been sulfur- and gold-sensitized can be bathed in an alkylene-bis benzothiazolium salt after exposure, followed by developing in a strongly alkaline solution containing an active developing agent to produce a reversal image. In still another embodiment, a spectrally sensitized silver halide emulsion having some surface sensitivity and containing an aminoalkyl-substituted piperazine can be processed in a developer according to Ives, U.S. Patent 2,563,785, to obtain a reversal image.

T884,014
FLAME RESISTANT CARPET

Clarence C. Dannnelly, % Tennessee Eastman Co., Box 511, Kingsport, Tenn. 37662
Filed May 18, 1970, Ser. No. 38,501
Int. Cl. C09k *3/28*
U.S. Cl. 117—137
No Drawing. 22 Pages Specification

A flame resistant carpet fabric comprising in combination a woven backing, a polyester fiber tufted into the woven backing, and a coating securing the polyester fiber into the woven backing. The coating can comprise a polymeric material and a material selected from the group consisting of a flame resisting agent, a filler, a pigment, and mixtures thereof. In this embodiment the flame resisting agent can contain halogen, phosphorus or halogen and phosphorus.

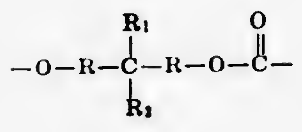
A flame resistant carpet fabric comprising in combination a woven backing, a polyester fiber tufted into the woven backing, and a coating securing the polyester fiber into the woven backing. The coating can comprise a halogen containing polymeric material. In this embodiment the coating can further comprise a material selected from the group consisting of a flame resisting agent, a filler, a pigment and mixtures thereof; and the flame resistant agent can contain halogen, phosphorus or halogen and phosphorus. In one embodiment the coating can comprise an aqueous dispersion containing, based on the weight of the dispersion, about 50 weight percent of a copolymer of vinyl chloride and vinylidene chloride, 25 weight parts tris(2,3-dibromopropyl) phosphate, and 5 weight parts 2-ethylhexyldiphenyl phosphate.

T884,015
COPOLYCARBONATE BINDERS FOR USE IN ELECTROPHOTOGRAPHIC ELEMENTS

William J. Staudenmayer, Pittsford, and Stewart H. Merrill, Rochester, N.Y. (both of Kodak Park Works, Rochester, N.Y. 14650)
Filed June 1, 1970, Ser. No. 42,523
Int. Cl. G03g *5/00*
U.S. Cl. 96—1.5
No Drawing. 54 Pages Specification

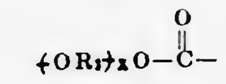
Photoconductive layers containing certain copolycarbonates as binders exhibit improved resistance to liquid developer attack. As a result, their lifetime is extended when utilized in xerographic liquid development processes.

Useful binders are copolycarbonates having repeating units of

(I) 

$$-O-R-\overset{R_1}{\underset{R_2}{C}}-R-O-\overset{O}{\overset{\|}{C}}-$$

and

(II) 

$$\text{+}OR_3\text{+}_xO-\overset{O}{\overset{\|}{C}}-$$

wherein R is an arylene radical including a substituted arylene radical; R_1 is (1) an aliphatic radical having 1 to 8 carbon atoms, (2) an aryl radical, (3) when joined with the adjacent arylene group, the carbon atoms necessary to complete a fused ring moiety, (4) when joined with R_2, the carbon atoms necessary to complete a monocycloalkylidene nucleus, (5) when joined with R_2, the carbon atoms necessary to complete a bridged cycloalkylidene group and (6) a cycloalkyl radical, all of (1) through (6) including substituted counterparts; R_2 represents a hydrogen atom or any of the substituents set forth for R_1; R_3 represents a lower alkylene group having 2 to 8 carbon atoms; and x is an integer such that the molecular weight of the group $\text{+}OR_3\text{+}_x$ is about 12 to about 6500. These copolycarbonates generally contain from about 2 to about 98% of repeating unit I and these binders can be either random or block copolymers.

T884,016
PROCESS FOR IMPROVING THE UNIFORMITY OF CRIMPED CONTINUOUS ACRYLIC TOW

Imre Mirko Jonkoff, Camden, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed June 29, 1970, Ser. No. 50,897
Int. Cl. D01g *1/06, 5/00*
U.S. Cl. 19—66
No Drawing. 8 Pages Specification

A process for improving the uniformity of crimped, continuous acrylic filament tow. The tow is forwarded into contact with at least one (preferably two) grooved applicator surface under sufficient tension to separate the filaments. The grooved applicator surface has outlets in the roots and/or crests of the grooves which are connected to an internal conduit. While in contact with the applicator surface, the filaments are heated at a temperature between about 95° C. and 160° C. by uniformly passing steam from the applicator surface onto the filaments. The steam pressure is preferably about 5 to 30 p.s.i.g. and the tow is preferably forwarded at speeds of about 125 to 175 yards per minute.

The process results in better tow quality as is indicated by a reduction in the static properties of the tow and a reduction in the crimp index of the fibers. This improvement provides for better tow processability into sliver (e.g., on a "Turbo Stapler"), a more uniform sliver (e.g., fewer defects) and better yarn uniformity.

T884,017
MULTIPLE STEP DISPERSE AND BASIC DYE PAD STEAM DYEING OF BLENDS OF POLYESTER AND BASIC DYEABLE POLYESTER WITH OR WITHOUT CELLULOSE DYED WITH CELLULOSIC DYES AND CARPETS DYED THEREBY

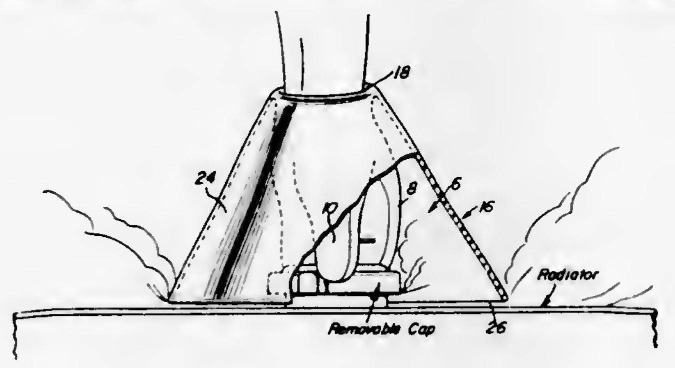
Melvin A. Caldwell, 1501 Greenfield Ave., Kingsport, Tenn. 37664
Filed June 29, 1970, Ser. No. 50,927
Int. Cl. D06p *3/82*
U.S. Cl. 8—21
No Drawing. 13 Pages Specification

A composite fabric of cellulose, polyester and basic dyeable polyester is continuously contacted with a basic dye, then contacted with steam, then contacted with a clearing agent such as sodium hypochlorite and finally contacted with a mixture of a dispersed dye and a cellulosic dye. This composite fiber can also be dyed by contacting it with a disperse and basic dye, then with steam, then the above clearing agent and finally with a cellulosic dye. Polyester fibers of reduced dispersed dye affinity can be blended with the cellulosic polyester blend in the latter dyeing process. A polyester faced carpet with the first two mentioned polyesters as the face threads is dyed by padding a disperse dye and a basic dye and then steaming poly(1,4-cyclohexylene dimethylene terephthalate) is used as the first polyester which is not basic dye dyeable while a modified poly(ethylene terephthalate) is used as a basic dye dyeable fiber.

PATENTS
GRANTED MARCH 16, 1971
GENERAL AND MECHANICAL

3,570,009
HEAT RESISTANT SPRAY DEFLECTOR GLOVE

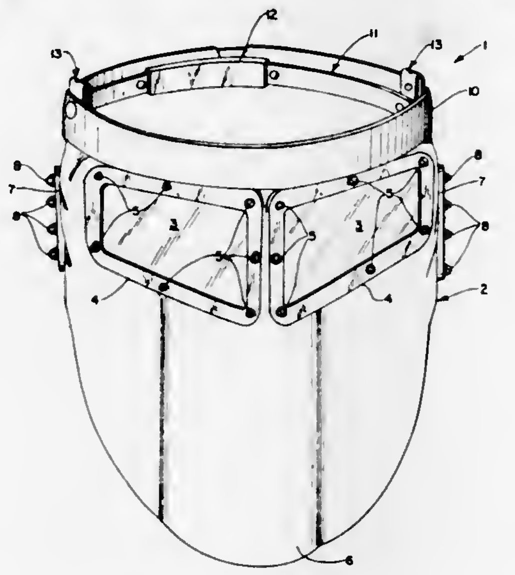
Harold G. Spruell, Jackson, Ga., assignor to Richard W. Watkins, Jr., Jackson, Ga., a fractional part interest
Filed Apr. 10, 1969, Ser. No. 814,999
Int. Cl. A41d *19/00*
U.S. Cl. 2—16 **3 Claims**



A safety-type glove for protective use when removing a dangerously pressurized automobile radiator cap, a leaking hot water, steam or vapor valve, leaky ammonia, Freon gas or like valves. The glove, or mitten, is made of suitable heat resistant material. It is wholly encased within the confines of an outwardly and downwardly flaring shield, more particularly, a truncated conical cuff made of heat resistant material and which is permanently turned down over and encloses the glove and provides a spray trapping and deflecting shield.

3,570,010
COMBINATION FACE SHIELD AND HOOD

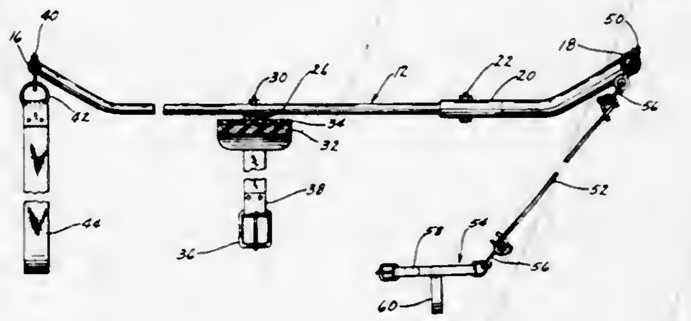
George R. Hoffmaster and William R. Bohner, Reading, Pa., assignors to ESB Incorporated, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 754,220, Aug. 21, 1968. This application Mar. 5, 1969, Ser. No. 804,422
Int. Cl. A42b *1/08;* **A61f** *9/00*
U.S. Cl. 2—3 **5 Claims**



A combination face shield and hood which is particularly useful to protect the wearer against BB's fired by a rifle such as used in army infantry training. It includes a suspension which is readily attachable to an army helmet, two double lens portions and a hood portion for resisting BB shots. The hood portion contains two screened openings on the sides thereof for hearing and ventilation.

3,570,011
BACK SUPPORT

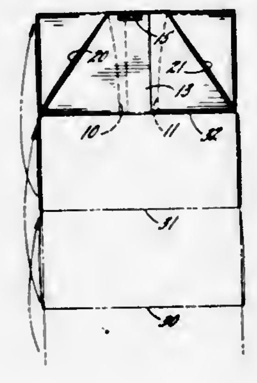
Charley Bertel Naig, Cylinder, Iowa 50528
Filed Oct. 3, 1968, Ser. No. 764,740
Int. Cl. A61f *5/37, 5/02, 13/00*
U.S. Cl. 2—44 **7 Claims**



A device having an elongated rigid member including spaced apart elements embracing the wearer's back. A pair of end portions flared outwardly away from the wearer's back are connected through straps to the wearer's chest and ankles and feet. A belt is secured to the pair of elements for engagement around the wearer's waist to hold the elongated member in place on the wearer's back. The weight of the wearer's upper body portion is carried in part through the elongated member connected to the ankles and feet through an elastic connecting means when the wearer is in a stooped position.

3,570,012
SURGICAL GOWN

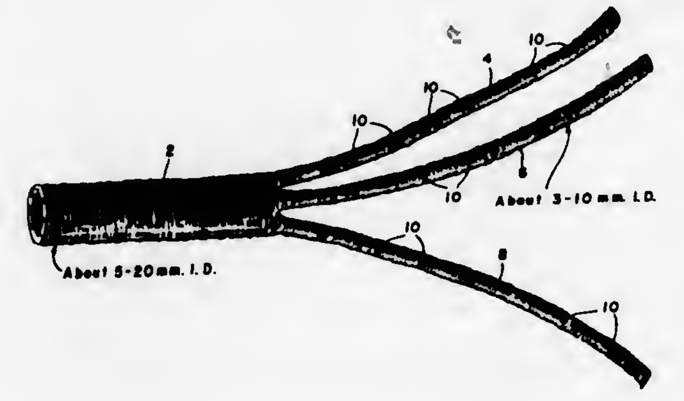
Terry L. Winters, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Mar. 12, 1969, Ser. No. 806,405
Int. Cl. A41b *9/00*
U.S. Cl. 2—114 **9 Claims**



A method of folding a surgical gown so that in its folded form it may be picked up as a unit and put on after shaking it out, with or without the help of an assistant, without touching any of the sterile outer surfaces of the gown. The folding process involves folding the sleeves of a back closing gown down over the closed front of the gown, folding the back flaps forwardly over the sleeves, folding the lower portion of the gown upwardly one or more times so that the armholes remain exposed, and then folding the gown transversely to form a small package with the armholes still exposed to facilitate handling and donning of the gown.

3,570,013
CARDIAC IMPLANT

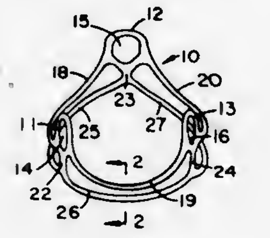
Louis J. Blumen, 8 Carleton Drive, Pittsburgh, Pa. 15243
Filed June 19, 1968, Ser. No. 738,202
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **2 Claims**



This patent discloses a cardiac implant for use in supplying arterial blood to portions of the myocardium of a patient. The implant is made of silicone-impregnated woven Dacron, pre-clotted in the patient's own blood, and comprises a main portion or tube which separates into a number of branch portions. Each of the branch portions is provided with a number of perforations. The main tube is grafted to the aorta, and the branches are inserted in the myocardium of the patient. Blood-vessel growth will take place in the vicinity of the perforations, so that collateral circulation is provided, e.g., to a heart impaired by coronary thrombosis.

3,570,014
STENT FOR HEART VALVE

Warren D. Hancock, 10601 Calm Hill Circle, Santa Ana, Calif. 92705
Filed Sept. 16, 1968, Ser. No. 759,858
Int. Cl. A61f *1/00*
U.S. Cl. 3—1 **36 Claims**

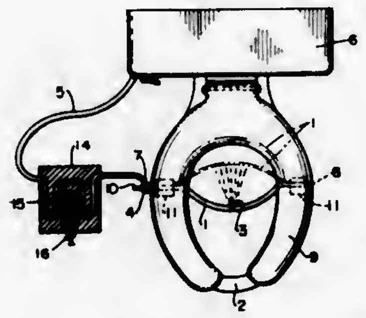


A heart valve stent that includes an annular framework, preferably of bendable material, having three rounded apexes interconnected by support arms curved to incline away from the apexes. Additional support arms are included parallel to and axially beyond the first support arms. For use in the mitral position, the framework is circumscribed by an outer ring, which receives an annular element of felt or other suitable material. The heart valve is positioned on the stent, with its marginal portions overlapping it and affixed to it by sutures.

3,570,015
DOUCHING DEVICE

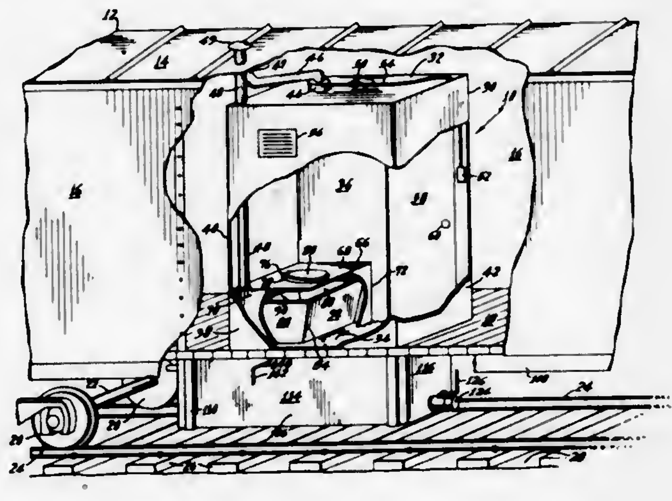
Fabian Rosengaus, Calle Morena 425, Col. de Valle, Mexico City, Mexico
Filed Aug. 1, 1968, Ser. No. 749,408
Int. Cl. A61h *35/00;* **E03d** *9/08*
U.S. Cl. 4—7 **4 Claims**

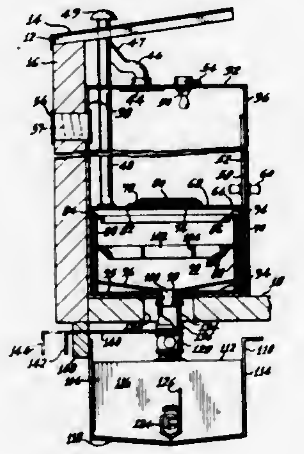
A douching attachment for toilet seats comprising a tube attached to the lower surface of the seat, journaled at each side, and shaped to swing entirely out of sight under the rear portion of the seat or down into the bowl where a vent directs a stream of water upward toward the users body, the tube being connected by a hose to the flush tank, with a manually operated valve between the hose and tube and a handle on the end of the tube for swinging the tube into operative position.



3,570,016
PORTABLE CHEMICAL TOILET SYSTEM

Francis L. Ellis, John H. Thornton, and Burley Frank Inman, Jacksonville, Fla., assignors to Duval Chemical Toilets, Inc., Jacksonville, Fla.
Filed Mar. 6, 1969, Ser. No. 804,935
Int. Cl. B61d *35/00*
U.S. Cl. 4—8 **10 Claims**

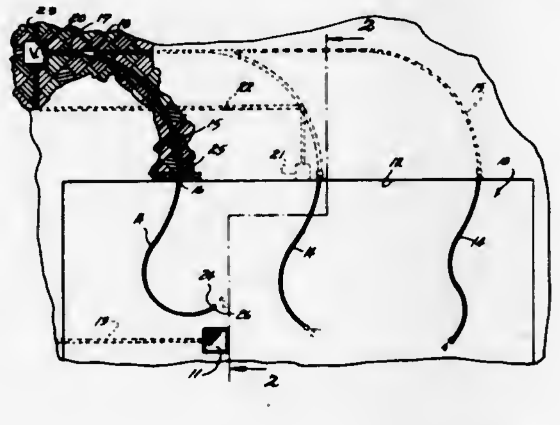


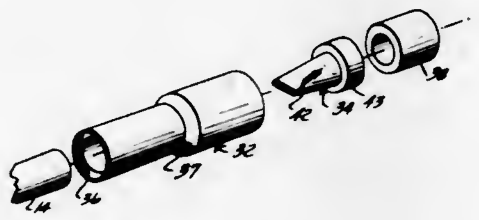


A portable toilet system mounted on a railroad car including a toilet housing compartment positioned within the railroad car and having a receiving tank positioned therein adapted to contain a liquid chemical solution for decomposing purposes and a toilet seat having an opening therethrough mounted in the compartment. The receiving tank has a passageway communicating with the toilet seat opening and is adapted and arranged to receive excrement from the toilet seat opening. The system also includes an enclosed holding tank positioned below the receiving tank and exteriorly of the railroad car therebeneath which is adapted and arranged to receive and hold periodic discharges of the contents of the receiving tank after excreta has built up therein, and passage means communicating between the tanks with selectively operable valve means positioned in the passage means for transferring the contents of the receiving tank into the holding tank. The handle of the valve means is inaccessible to the user of the toilet within the compartment and is operable from a position exteriorly of the railroad car.

3,570,017
SWIMMING POOL CLEANING APPARATUS

Wayne P. Reece, Orange County, Fla., assignor to Tropicana Pools, Inc., Orange County, Fla.
Filed June 23, 1969, Ser. No. 835,613
Int. Cl. E04h *3/18*
U.S. Cl. 4—172.16 **9 Claims**

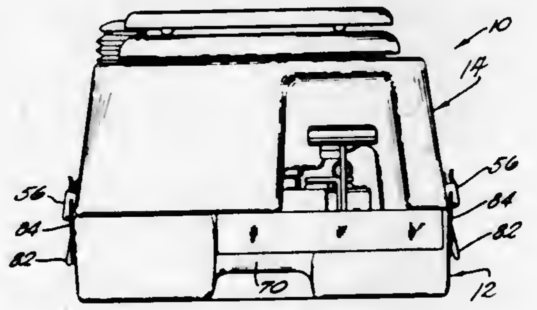




An extending and retracting apparatus for swimming pool cleaning devices of the silt agitating type in which tubes extend from the walls of the swimming pool to agitate silt, and the like, settled on the pool bottom in order to suspend the silt in the water of the pool so that it may be filtered out through the swimming pool filter. A one-way valve is placed within the extending tube of the swimming pool cleaning apparatus to improve the extension and retraction of the tube by increasing the pressure of the water extending and retracting the tube into and out of the side of a swimming pool.

3,570,018
PORTABLE TOILET

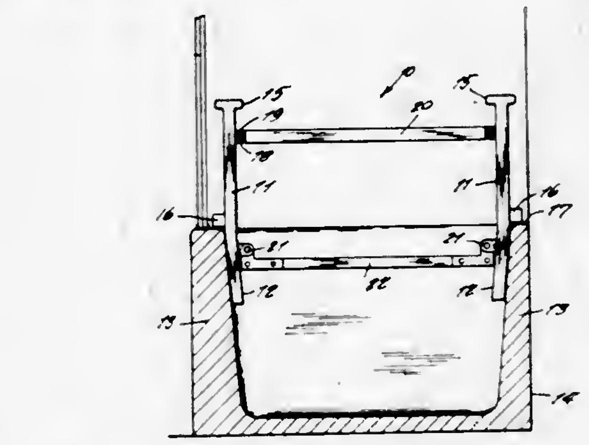
Ronald J. Sargent, Ann Arbor, Charles L. Sargent, Ypsilanti, and Frank T. Sargent, Clio, Mich., assignors to Thetford Corporation, Ann Arbor, Mich.
Filed Apr. 25, 1968, Ser. No. 724,071
Int. Cl. E03d *5/016*
U.S. Cl. 4—115 **21 Claims**



A self-contained portable sanitation unit formed in two sections. The top section includes a seat, seat cover and bowl which has a hollow wall structure serving as a water storage compartment for flushing purposes. The bottom section is the holding tank. In use, the two sections are held together by clamps. A flushing plunger is provided at the rear of the top section for flushing the unit. The holding-tank section is sealed from the environment by a normally closed slide valve element in the passageway that provide communication with the top section. The slide valve element is opened for flushing purposes by depressing a foot pedal located at the front side of the unit. For tank evacuation, the top section is removed by releasing the clamps and the holding tank can be carried like a suitcase by means of an integral handle on one side and is evacuated by emptying into a nearby permanent toilet facility.

3,570,019
BATHTUB SEAT

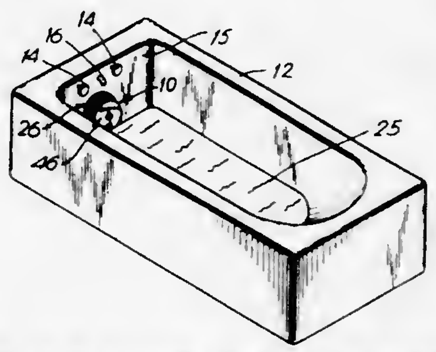
Alfred Osborne, 222 Walter St., Pittsburgh, Pa. 15210
Filed July 24, 1969, Ser. No. 845,944
Int. Cl. A47k *3/12*
U.S. Cl. 4—185 **5 Claims**



A convenient seat for a person within a bathtub, the seat comprising a pair of vertical side panels slideable along opposite sides of the tub, the vertical side panels supporting therebetween a removeable upper seat and a hinged lower seat, thus accommodating fully adjustably all persons.

3,570,020
ADJUSTABLE VALVE FOR BATHTUBS OR THE LIKE

Mikio Kato, 1003 Nottingham Place, La Vale, Md. 21502
Filed July 22, 1969, Ser. No. 843,302
Int. Cl. E03c *1/244*
U.S. Cl. 4—206 **18 Claims**

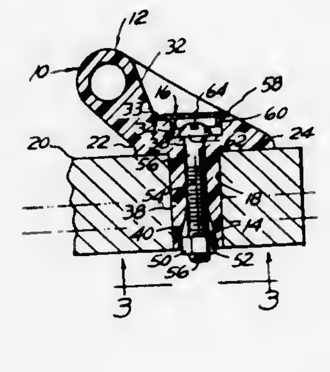


An adjustable valve for use in a bathtub, basin, or the like to select the overflow level of the water therein. The valve includes a cover rotatably mounted relative to a housing secured to the side wall of the tub and having a liquid flow passage that communicates with the exit port in the tub. Indicating means is provided to select the desired level of water before it will overflow through the safety valve, with control means to be gripped by the user in adjusting the cover. Depending on the size of the cover the range of adjustment may be from two to fifteen inches, or more.

3,570,021

TOP-INSTALLABLE TOILET SEAT HINGE POST

Robert E. Watson, Farmington, Mich., assignor to Swedish Crucible Steel Company, Detroit, Mich.
Filed Mar. 20, 1969, Ser. No. 808,805
Int. Cl. A47k *13/12*
U.S. Cl. 4—240 **2 Claims**

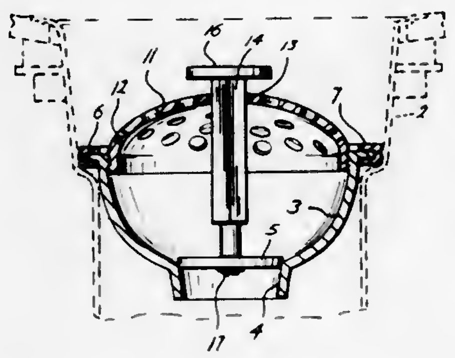


This toilet seat hinge post has a base adapted to rest upon the toilet bowl rear platform and a longitudinally-slotted hollow stem adapted to extend down into one of the platform stud holes thereof. The central bore in the stem extends from a countersink in the top of the base to a tapered or flared counterbore of polygonal cross-section at the lower end of the stem. The screw of an expanding bolt having its head inserted in the countersink extends downward through the central bore and has its nut, also of polygonal cross-section threaded upon its lower end within the tapered counterbore and is thereby prevented from rotating when the screw is rotated. A hinge post ear rises from the base for receiving the hinge rod of the toilet seat or cover. The hinge post is installed by dropping the stem into the stud hole after which the screw of the bolt is tightened, causing the nut thereon to travel upward into the tapered counterbore and expand the circumferentially-spaced fingers formed by the longitudinal slots of the stem into tight gripping engagement with the side wall of the stud hole. A removable flanged cap is then inserted in the countersink to conceal the head of the screw. To remove the hinge post, the foregoing procedure is reversed.

3,570,022

DISPOSAL INTAKE CONTROL

Olan C. Nealy, 4625 N. Freeway, Houston, Tex. 77022
Filed Nov. 26, 1968, Ser. No. 779,195
Int. Cl. A47k *1/14*
U.S. Cl. 4—287 **4 Claims**

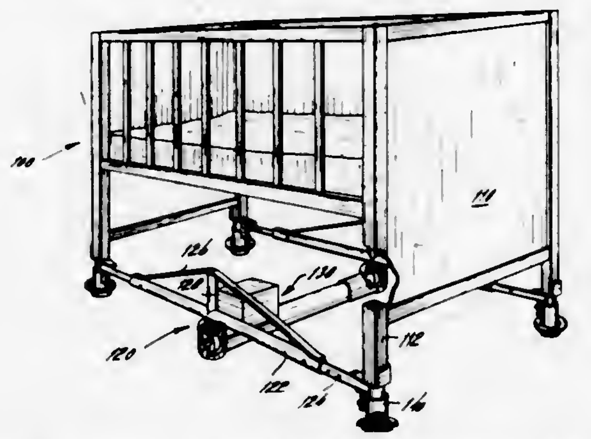


An intake control for disposal units mounted in a kitchen sink, and the like, that sits in the intake conduit of the disposal unit and has a lower member in which an outlet passageway is formed, an upper member mountable in said lower member, said upper member having perforations therein and an outlet valve and valve stem, said unit having means for sealing the discharge conduit, and being removable from said discharge conduit by merely lifting same out of the conduit intake opening.

3,570,023

FLOATING ACTION FURNITURE SUPPORT AND RELAXER

Gerald A. Bennett, 36 Draper St., Oswego, N.Y. 13126
Filed Mar. 7, 1969, Ser. No. 812,535
Int. Cl. A61g *7/00;* **A47d** *9/02*
U.S. Cl. 5—109 **7 Claims**

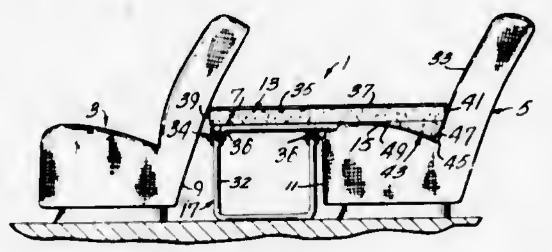


The invention is a means for supporting and imparting a floating motion to a bed, crib or similar furniture. The structure used is simply two connected truss members having spring loaded furniture supporting cylinders at ends with reciprocating cam means intermediate ends, adapted to cause the furniture to rise and fall with in the spring supported cylinders, the reciprocating cams being eccentrically mounted with respect to each other to cause a rocking motion to the furniture. The effect is the same as would be achieved by a mother rocking or shaking a crib containing an infant.

3,570,024

FOLDING CAR BED

James P. Griffin, 535 31st Ave., La Salle, Quebec, Canada
Filed Nov. 12, 1968, Ser. No. 774,757
Claims priority, application Canada, Oct. 21, 1968, 33,149
Int. Cl. A47c *19/16*
U.S. Cl. 5—118 **9 Claims**

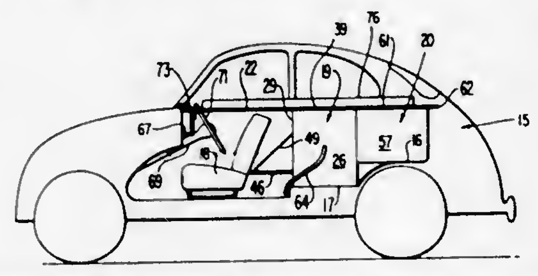


A portable car bed for cooperation with a seat in a car to form a bed area.

3,570,025

SLEEPING AND STORAGE UNIT FOR SMALL SEDANS

Paul F. Sullivan, 16 Sagamore Way, Waltham, Mass. 02154
Filed July 14, 1969, Ser. No. 841,466
Int. Cl. A47c *17/64*
U.S. Cl. 5—118 **10 Claims**

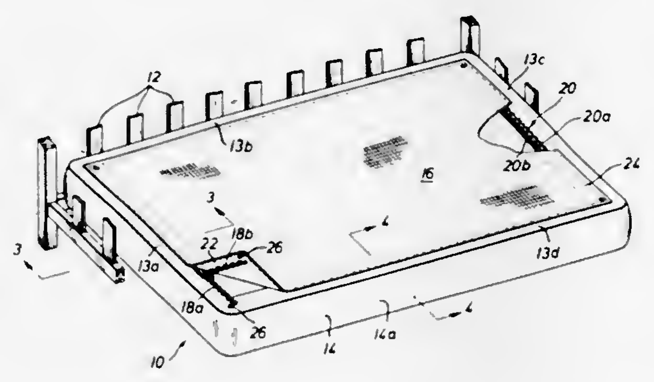


A sleeping and article storing kit particularly adapted for use in a Volkswagen sedan characterized by relatively few parts which can be assembled or knocked-down in minimum time and providing comfortable sleeping accommodations for two and maximum storage space for a variety of articles in the rear quarters of the vehicle customarily occupied by the rear seat.

3,570,026

BABY BED SHEET WITH REMOVABLE PANEL

Frances W. Allison, 2230 Sul Ross, Houston, Tex. 77006
Filed May 20, 1968, Ser. No. 730,416
Int. Cl. A47g *9/04*
U.S. Cl. 5—334 **3 Claims**

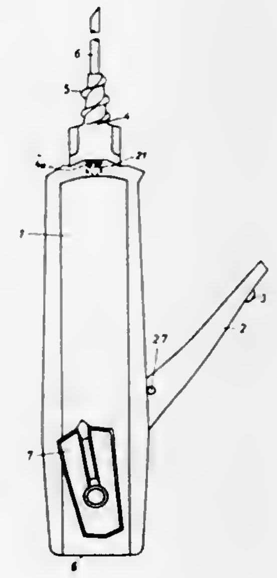


A bed sheet for baby beds is disclosed. It includes a contoured retainer that encircles the four sides of a baby bed mattress and snugly fits the contour thereof. The retainer overlaps only a portion of the top side of the mattress adjacent the sides thereby leaving most of the upper surface of the mattress uncovered. A panel is provided to cover the exposed upper surface of the mattress. Slide fasteners are used to releasably attach the panel to the contoured retainer.

3,570,027

COMBINATION DEVICE FOR OPENING OF BOTTLES, CANS, CONTAINERS AND CASKS OF ALL TYPES

Walter Steiner, Oberseenerstrasse 14, Winterthur, Switzerland
Filed Nov. 4, 1968, Ser. No. 773,022
Claims priority, application Switzerland, Nov. 7, 1967, 15,525/67
Int. Cl. B25f *1/00*
U.S. Cl. 7—14.2 **17 Claims**

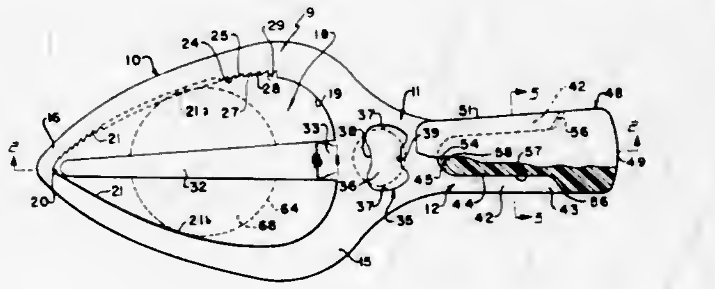


There is disclosed a multipurpose utensil or combination device readily suitable for opening bottles, cans, containers, and casks of all types, or the like, which is of the type incorporating a graspable body member at which there is accommodated a can opener mechanism and also a cork puller mechanism. The can opener mechanism includes a transport wheel and the cork puller mechanism includes a pressure generating device. Both the transport wheel of the can opener mechanism and the pressure generating device of the cork puller mechanism can be actuated by a single lever which is pivotably mounted to the graspable body or housing.

3,570,028

JAR AND BOTTLE OPENER

Rodolphe V. de la Hitte, 2547 Musgrave St., Victoria, British Columbia, Canada
Filed Aug. 8, 1968, Ser. No. 751,161
Claims priority, application Canada, Aug. 12, 1967, 997,672
Int. Cl. B25f *1/00;* **B67b** *7/44*
U.S. Cl. 7—14.6 **3 Claims**

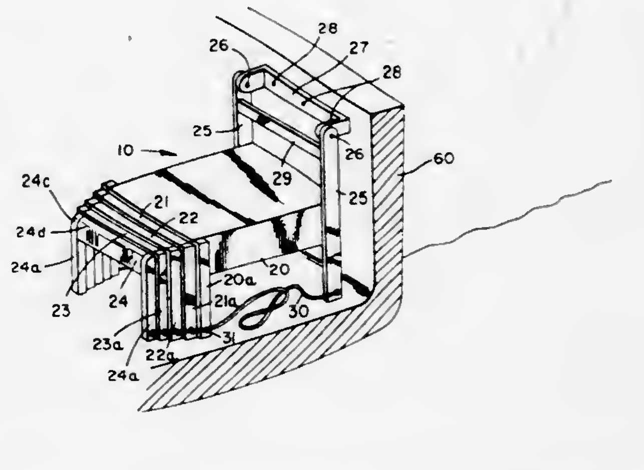


An opener for screw top lids having a handle and a head, the head having a substantially pear-shaped opening one side edge of which is smooth and the other of which is serrated so that the lid can be inserted into the opening and the opener turned relative to the lid so that the opener pivots about the region where the serrated edge contacts the lid to cause said serrated edge to grip the side of the lid.

3,570,029

COMBINATION BOAT SEAT AND GANGPLANK

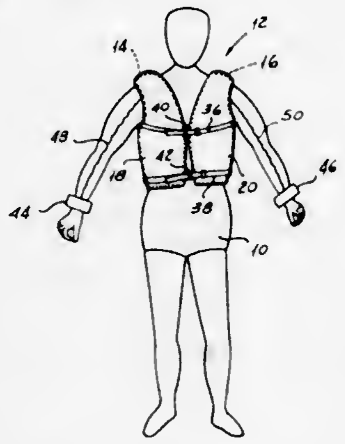
Teddy J. Hunsaker, 8235 State Rte. 14, Streetsboro, Ohio 44240
Filed Sept. 22, 1969, Ser. No. 859,758
Int. Cl. B63b *29/04*
U.S. Cl. 9—7 **10 Claims**



A combination boat seat and gangplank that features a series of telescoping sections that may be moved between open and closed position within a boat or other like object and further featuring a pivotal mounting that permits the entire unit to be swung around a pivot point and extended for use as a gangplank.

3,570,030
LIFE SAVING BUOYANCY SYSTEM

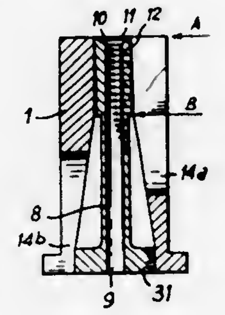
Edgar G. Baker, Carbondale, Pa., assignor to Gentex Corporation, New York, N.Y.
Filed Feb. 3, 1969, Ser. No. 795,839
Int. Cl. B63c *9/10*
U.S. Cl. 9—338 **18 Claims**



A life saving buoyancy system in which a buoyant mass located in the region of the chest of the wearer and separate and discrete buoyant masses in the wrist or forearm regions of the wearer are secured to the wearer's body so as to orient the body of a floating wearer from a face down, "dead dog" position to a face up, head out of the water position and to support him in that position. If desired, a buoyant mass may be positioned behind the wearer's head to ensure that his head is out of the water when in the face up position.

3,570,031
DIE, AND METHOD OF MANUFACTURING CALIBRATED RIVETS

Eloi Auriol, Flourens, Haute-Garonne, France, assignor to Ateliers de la Haute-Garonne ets Auriol & Cie
Filed May 25, 1967, Ser. No. 641,327
Claims priority, application France, May 27, 1966, 63,252
Int. Cl. B21k *1/58*
U.S. Cl. 10—24 **3 Claims**

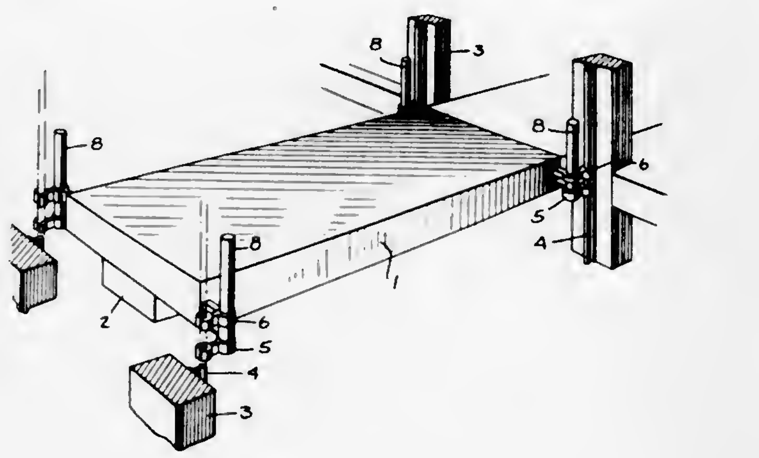


A gun-shaped die for manufacturing rivets made of an elastic metal having at one end a slightly inwardly tapering flange member and at the other end a flange member approximately twice as great or greater in diameter than the inwardly tapering flange member. The portion of the gun-shaped die bounded between the two flange members has a thickness sufficient to withstand elastic deformations and generally the thickness of this portion will be approximately equal to the bore of the die.

3,570,032
HIGH VERTICAL LIFT BRIDGE

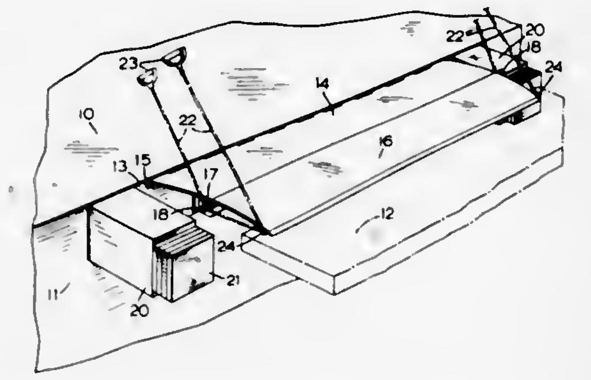
Earle F. Allen, Plymouth, Mass., assignor to Valentine E. Macy, Jr., New York, N.Y., a fractional part interest
Filed Mar. 7, 1969, Ser. No. 806,044
Int. Cl. E01d *15/02*
U.S. Cl. 14—42 **5 Claims**

The invention is a vertical lift bridge which is raised utilizing hydraulically driven pistons. In order that the bridge may be raised to a substantial height, the hydraulic drive system is arranged to raise the bridge in a series of steps. Thus, each hydraulic drive motor operates on a vertical rail or channel using releasable gripping shoes which permits the drive cylinder to be fully extended a number of times so that the bridge may be raised to a height equal to multiples of the stroke of the hydraulic drive motor.



3,570,033
DOCKBOARDS

Adrian P. Hovestad, 1044 Shepherds Drive, Burlington, Ontario, Canada, and John A. Merrick, 40 Oak Ave., R.R. 1, Dundas, Ontario, Canada
Filed Apr. 28, 1969, Ser. No. 819,607
Int. Cl. B65g *11/00*
U.S. Cl. 14—71 **10 Claims**

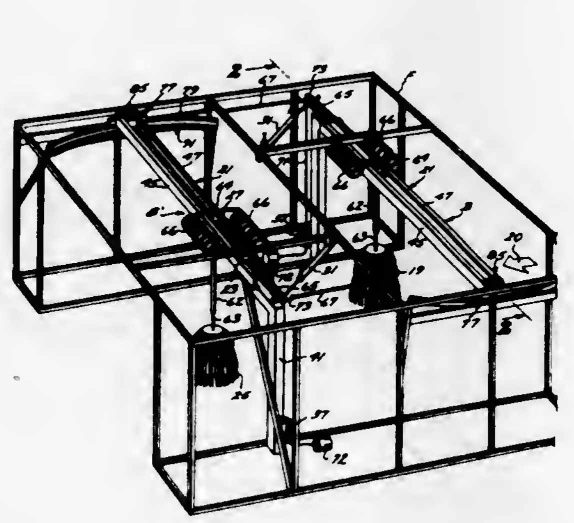


In a dockboard, especially dockboards of the "add-on" type the effort required for manual handling of the board is reduced by dividing the board longitudinally whereby the two parts are movable independently by their own manual handling means; alternatively or in addition the board is provided with a counterbalance spring comprising a torsion bar having two generally parallel portions connected to one another, such a spring giving the necessary counterbalance force over the relatively wide angle of movement required of the dockboard.

3,570,034
CAR WASHING APPARATUS

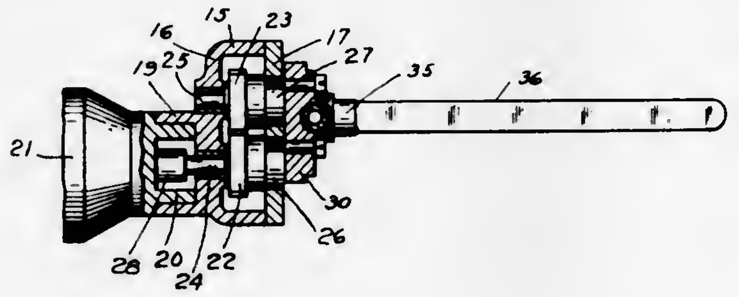
Henry J. Lanfrankie, Glendale, Calif., assignor to California Car Wash, Sun Valley, Calif.
Filed Feb. 26, 1969, Ser. No. 802,515
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 **12 Claims**

A car washing apparatus for washing a car as it passes along a predetermined path, such apparatus comprising an overhead arm pivotally mounted at one side of the path and normally extending transversely thereover. The arm forms a track which mounts a carriage that suspends a rotary vertical brush. Means is provided for biasing the arm to its normal position projecting transversely of the path and control means is provided to pivot said arm from its neutral position to a rearward position. The carriage is biased to a normal position disposing said brush centrally in the path. Thus, an automobile moving forwardly along the path will contact the brush and swing the arm forwardly and urge the brush outwardly along the track to the front corner of the automobile. The bias means will then swing the arm rearwardly moving the brush along the side of the car to the neutral position where the control means will effect further rearward movement thereof to the rear corner of the car and then the arm will commence forward movement and the brush will move inwardly along the rear of the car to its central position while the arm moves forwardly to its neutral position.



3,570,035
POWER OPERATED GUM MASSAGER AND TOOTH BRUSH

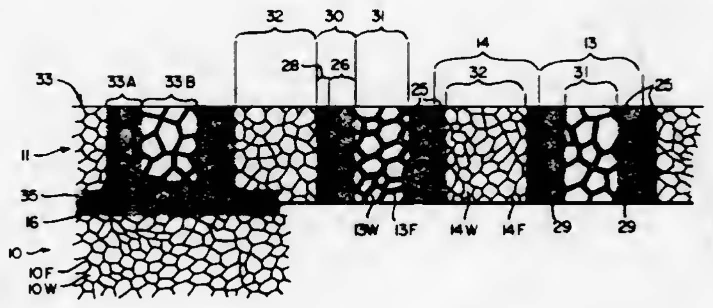
Forest H. Barnett, 625 S. Trafton, Tacoma, Wash. 98104
Filed June 24, 1969, Ser. No. 836,032
Int. Cl. A46b *13/00*
U.S. Cl. 15—22 **6 Claims**



A brush member, composed of a shank having a tuft of bristles on its outer end, has its inner end secured on readily attachable and detachable means to a mounting plate at the front of a housing. Driven gear and crank members in the housing impart to the plate a distinctive movement which will move the tips of the bristles in a figure eight path. This makes it possible to apply the bristles to the gums and teeth in such a manner that movement of the bristles, when they are in contact with the gums and teeth, will be toward the outer ends of the teeth. This enables the user, at one operation to brush the teeth and to massage the gums by brushing then outwardly on the teeth and to avoid brushing the gums back on the teeth.

3,570,036
POLYURETHANE SPONGE SCRUBBER

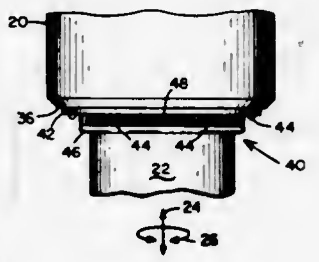
James R. Gilchrist, Clarence, and Albert J. Assad, East Aurora, N.Y., assignors to Truly-Magic Products, Inc., Buffalo, N.Y.
Filed June 18, 1969, Ser. No. 834,411
Int. Cl. A47k *7/03*
U.S. Cl. 15—104.94 **10 Claims**



A scrubber in the form of a block of polyurethane sponge of intercommunicating open pore structure including at one surface, spaced elongated regions of such block which are rigidified compared to intermediate surface regions of such block which are not and hence are more resilient, thereby providing an effective scrubbing face, the block preferably being impregnated with a cleaning preparation containing an antibacterial agent to provide a surgical scrubber.

3,570,037
SHAFT WIPER

Robert M. Rood, 3225 Victoria Road, St. Paul, Minn. 55119
Filed Aug. 21, 1968, Ser. No. 754,248
Int. Cl. F16c *33/20*
U.S. Cl. 15—210 **3 Claims**

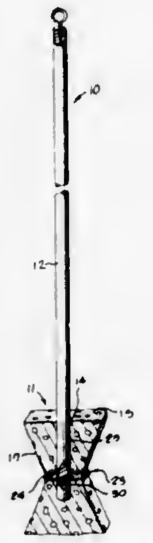


A wiper for use with a movable shaft, or quill, is adapted for axial movement within a supporting structure. The shaft wiper slideably surrounds and engages the movable shaft in a manner to wipe all contaminants and foreign particles therefrom for preventing the contaminants or particles from becoming lodged between the movable shaft and the mounting, thereby preventing the movable shaft from becoming lodged in the housing and unable to be moved. A circular structure having means for holding at least a portion of the wiper in contact with the movable shaft is shown. Various other embodiments of the shaft wiper are also shown.

3,570,038

BOTTLE BRUSH STRUCTURE

Vernon F. Jones, 1132 W. 124th St.,
Los Angeles, Calif. 90044
Continuation-in-part of abandoned application Ser. No. 728,576, May 13, 1968. This application Oct. 22, 1969, Ser. No. 871,461
Int. Cl. A47l *17/00*
U.S. Cl. 15—244 **3 Claims**

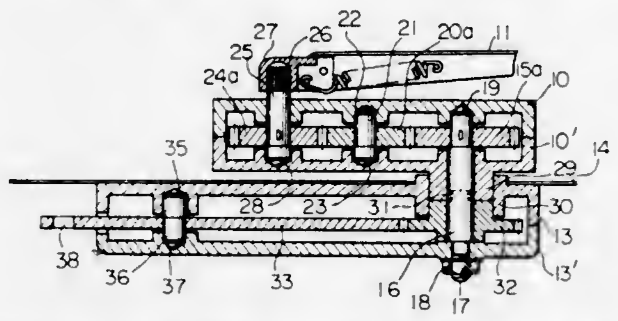


A bottle brush comprises a flexible spongy mass secured to an elongate handle by a length of wire penetrating through both stated elements in such manner as to produce uniform distribution of reaction loads during use of the brush.

3,570,039

WINDSHIELD WIPER ASSEMBLY FOR AN AUTOMOBILE

Isamu Ichinose, 3–68–1 Oppamahigashi-cho, Yokosuka, Japan, and Yoichi Mori, 402 Baba-cho, Tsurumi-ku, Yokohama, Japan
Filed July 18, 1969, Ser. No. 843,023
Claims priority, application Japan, Dec. 30, 1968, 44/96,607
Int. Cl. A47l *1/00;* **B60s** *1/02*
U.S. Cl. 15—250.13 **12 Claims**



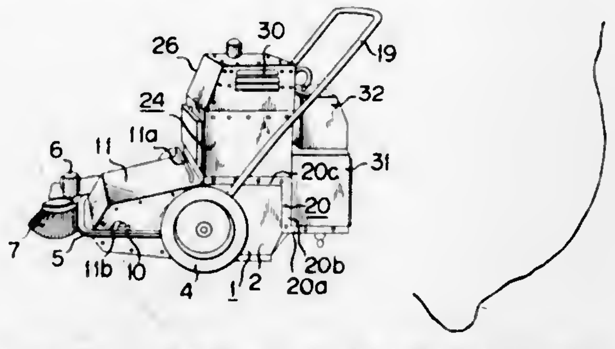
A windshield wiper assembly for an automobile having a wiper arm which moves reciprocally around a rotating center provided at the edge of a crank arm rotating around a point and a wiper blade mounted on the wiper arm for wiping a vehicle windshield in a movement following a trochoidal curve.

3,570,040

FLOOR AND GROUND CLEANER

Kiyomi Wada, Tokyo-to, Japan, assignor to Fuji Denki Kaden Kabushiki Kaisha, Tokyo-to, Japan
Filed Mar. 7, 1969, Ser. No. 805,222
Claims priority, application Japan, Mar. 8, 1968, 43/15,063
Int. Cl. A47l *9/10, 11/202*
U.S. Cl. 15—349 **9 Claims**

A novel and versatile cleaner is composed of a cleaner body movably supported on wheels, a rotating brush enclosed in a housing at the lower portion of the cleaner body and allowed to contact with the floor surface at least while the cleaner is operated, a dust box detachably mounted in the cleaner body for receiving dust stirred up from the floor by the brush operation, an air passage extending from the brush portion or the dust box to the outside of the cleaner body, an electric precipitator,

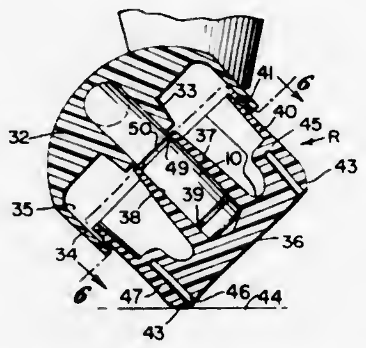


or, an electrostatic dust collecting unit, detachably mounted in the air passage, an air blower to introduce air through said air passage, an electric motor for driving the rotating brush and the blower, a high voltage power source for supplying a high voltage to the electric precipitator, and an electric power source for supplying power to the high voltage source and to the electric motor.

3,570,041

TILTED ROLLER CASTER

Jose Closa, Barcelona, Spain, assignor to Super Caster Corp., Miami, Fla.
Filed June 27, 1968, Ser. No. 740,658
Int. Cl. A47b *9/100*
U.S. Cl. 16—45 **6 Claims**



This specification discloses a caster in which a roller is rotatably mounted on an axis disposed at forty-five degrees to the vertical with the upper portion of the roller being rotatably received in a downwardly opening housing and provided with an outwardly extending flange in the zone of overlapping portions of the roller and housing to exclude foreign matter from the latter and maintain frictional resistance to rotation at a minimum. The bottom wall of the roller is integrally joined to the cylindrical wall thereof by a bevelled or rounded structure that includes an annular groove extending upwardly with the groove defining a flexible rolling wall that will give under pressure. The bottom together with the inner wall of the groove are supported by a spider comprising six webs that are integrally joined to a central hub member, the bottom, and grooved wall structure aforesaid.

3,570,042

DRYING APPARATUS FOR A CAR WASH

Fred D. Solomon, Akron, Ohio, assignor to Lanning Equipment Corp., Akron, Ohio
Filed May 6, 1968, Ser. No. 726,839
Int. Cl. F26b *19/00*
U.S. Cl. 15—316 **16 Claims**

A drying apparatus for an automatic car wash. This apparatus is supplied with forced air from a single source and comprises two, upright, side enclosures to which an

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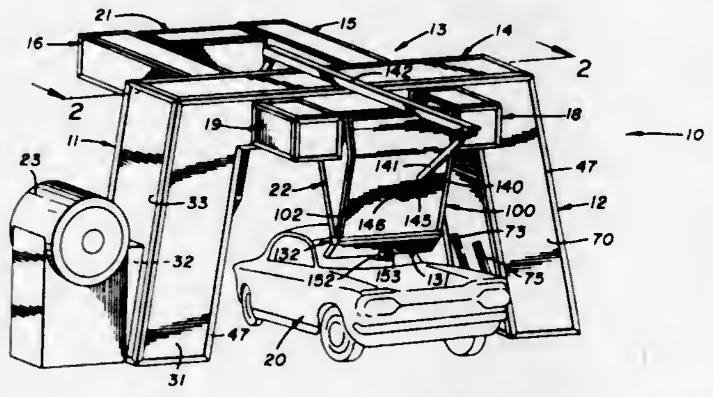
overhead assembly is connected to present an inverted U-shaped configuration. The side enclosures and the major portion of the overhead assembly are preferably made of a plastic material and include a system of internal baffle arrangements to provide ducting for the distribution of forced air therethrough from a single source. A plurality of uniquely constructed and arranged linear slot nozzles direct air from the upright side enclosures to dry the sides of a car by peeling the water therefrom, and two nozzles depend from the overhead assembly to dry the top of the car. While the slot nozzles in the side enclosures are preferably fixed, the two overhead slot nozzles are swingingly mounted on the overhead assembly



so as to provide an unimpeded air flow from one of the upright enclosures, through an enclosure in the overhead assembly and into the overhead nozzles. The overhead nozzles each have a head portion that articulates with respect to a body portion to assure that air emitted therefrom will sweep the water across and off the top of the car. The nozzles are also constructed so that air emitted therefrom tends to swing the nozzle away from the vehicle being dried so that it will not strike thereagainst. Retarding means counterbalance the rotative forces induced by the emitted air so that contact means on the nozzle ride lightly along the top of the vehicle to maintain the nozzle the desired spacing from the surfaces being dried thereby.

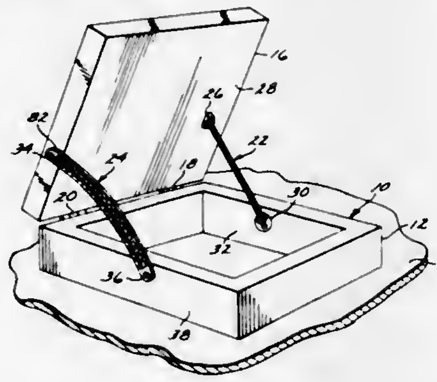
ERRATUM

For Class 16—45 see:
Patent No. 3,570,041

3,570,043

SUPPORT COLUMNS

Giltner J. Knudson, 611 Cliff Drive,
Newport Beach, Calif. 92660
Filed Jan. 27, 1969, Ser. No. 794,030
Int. Cl. B65d *43/24;* **E05f** *5/08*
U.S. Cl. 16—85 **11 Claims**

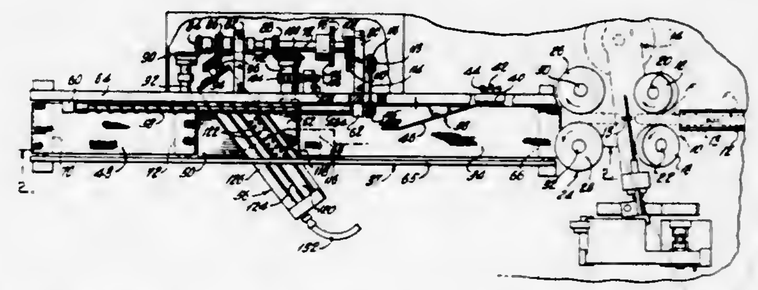


This invention relates to improvements in support columns of the kind which can stand compression but which will yield to lateral forces. Four embodiments in the form of hinge stops are illustrated in the drawings and described in the specification. In two of those embodiments, the column is formed by a coiled spring which extends to end members mounted on respective ones of a pair of hinged structures. The other two embodiments are also shown extending between end members each fixed to a respective one of a pair of hinge members but the stop is formed by an elongate member which is severed more than half but less than all the way through at spaced planes along its length so that one side of the member can withstand both compression and tension and the other side can withstand compression only.

3,570,044

SAUSAGE PEELING MACHINE

Charles S. Gartrell, Florham Park, N.J., assignor to Linker Machines Inc., Newark, N.J.
Filed Oct. 21, 1968, Ser. No. 769,061
Int. Cl. A22c *13/00*
U.S. Cl. 17—1 **9 Claims**

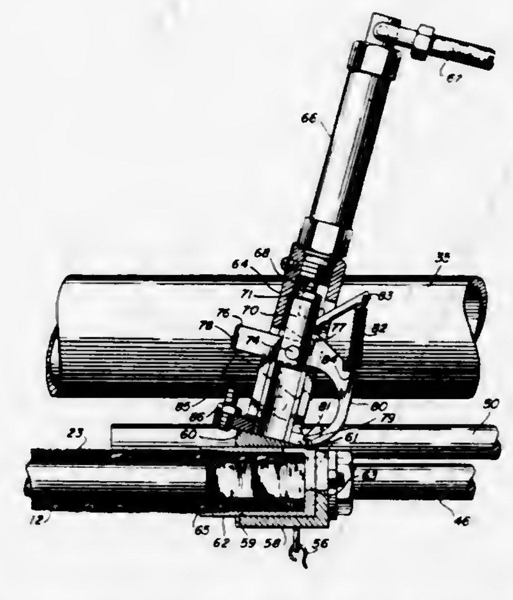


An apparatus for automatically transporting sausages, frankfurters and the like individually to a station whereby the casings thereof are stripped from the sausages by vacuum means. The transport chute is provided with at least one deflector plate which imparts rotational movement to the linear-moving sausages, and an helical feed screw is incorporated to assist in the transport of the sausages along said chute.

3,570,045

SHIRRED CASING ARTICLES, METHOD AND APPARATUS FOR MAKING SAME

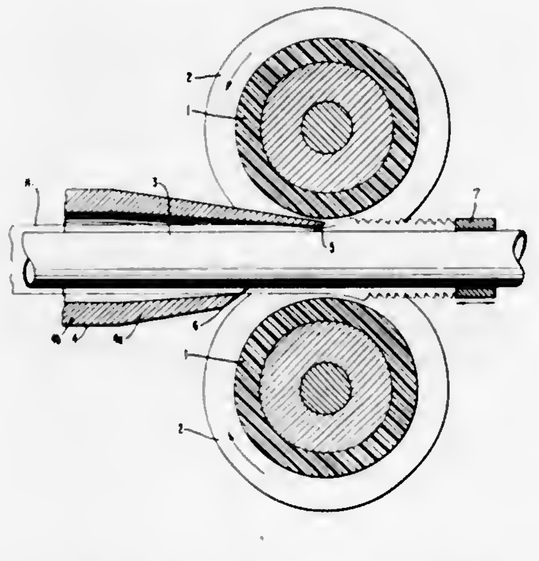
Edward A. Matecki, Evergreen Park, Ill., assignor to Union Carbide Corporation
Original application Mar. 2, 1965, Ser. No. 436,584, now Patent No. 3,419,401, dated Dec. 31, 1968. Divided and this application Sept. 3, 1968, Ser. No. 810,045
Int. Cl. A22c *13/00*
U.S. Cl. 17—34 **3 Claims**



A device for making closed end hollow shirred meat casing sticks which comprises the combination of means for inturning at least a portion of the parent casing stick into the bore of said stick without deshirring any portion of said stick and means to compact and compress said material to anchor same into the bore.

3,570,046
APPARATUS FOR SHIRRING ARTIFICIAL SAUSAGE CASINGS

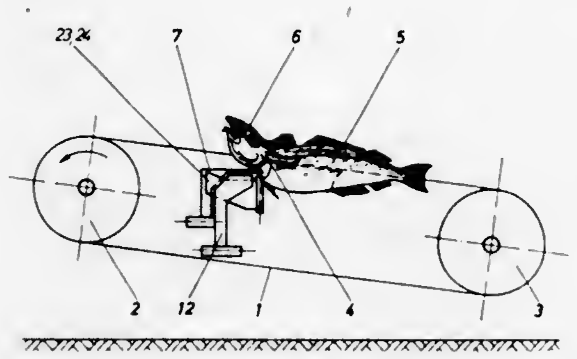
Hugo Bender, Wiesbaden-Erbenheim, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Dec. 26, 1968, Ser. No. 787,071
Claims priority, application Germany, Dec. 27, 1967, P 16 32 114.5
Int. Cl. A22c *13/00*
U.S. Cl. 17—42 **3 Claims**



This invention relates to an apparatus for shirring sausage casing which comprises a mandrel, a movable abutment adapted to be contacted by the end of a shirred casing, a plurality of rotatable conveyor wheels mounted adjacent the mandrel and being adapted to engage a sausage casing, and a rotatable sleeve on the mandrel in front of the conveyor wheels, the sleeve having a tapered section adjacent the conveyor wheels and an oblique end.

3,570,047
METHOD FOR THE REMOVAL OF THE LIVER FROM THE BELLY CAVITY OF FISHES, IN PARTICULAR LEAN FISHES

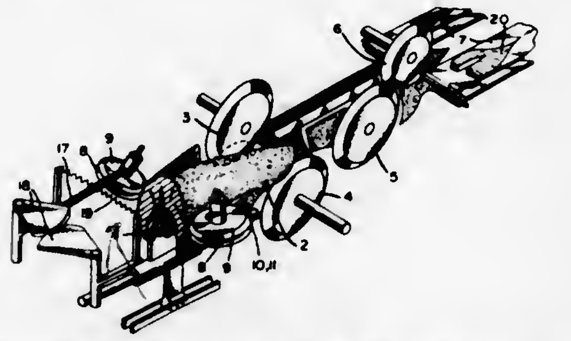
Alfred Friedrich Adolf Bartels, Lubeck-Israelsdorf, Germany, assignor to Nordischer Maschinenbau Rud. Baader Lubeck, Germany
Filed Sept. 12, 1968, Ser. No. 759,290
Claims priority, application Germany, Sept. 19, 1967, P 16 54 998.7
Int. Cl. A22c *25/14*
U.S. Cl. 17—45 **5 Claims**



A method and apparatus for the removal of liver and gullet from the belly cavity of fishes include means engaging the liver lobes from behind, from the gill cavity, below the spine and on both sides of the gullet, whereupon the ligaments supporting the liver lobes are severed by stripping along the interior wall of the belly cavity. The gullet is clamped and torn out during the severance of the ligaments.

3,570,048
APPARATUS FOR PRODUCING FISH FILLETS FREE FROM PINBONES

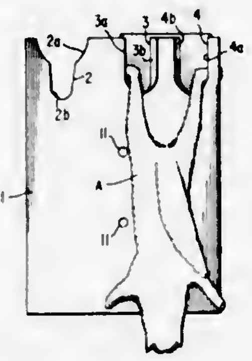
Johannes Michael, Harmsdorf via Ratzeburg, Germany, assignor to Nordischer Maschinenbau Rud. Baader, Lubeck, Germany
Continuation of application Ser. No. 623,488, Feb. 14, 1967, which is a division of application Ser. No. 449,842, Apr. 21, 1965, now Patent No. 3,319,287, dated May 16, 1967. This application Aug. 5, 1969, Ser. No. 863,405
Int. Cl. A22c *25/16*
U.S. Cl. 17—56 **2 Claims**



Apparatus for producing fish fillets free from pinbones, wherein the fish is straddled upon its belly. The apparatus has two pairs of circular knives swinging synchronously about an axis parallel to the symmetry plane of the fish and actuated to cut into the sides of fish in the region of the belly cavity of the fish and to be withdrawn in the region of the tail end of the fish.

3,570,049
SMALL GAME SKINNING BOARD

Clyde E. Muckelrath, Rte. 2, Box 178, Newellton, La. 71357
Filed June 16, 1969, Ser. No. 833,351
Int. Cl. A22c *15/00*
U.S. Cl. 17—44.2 **8 Claims**

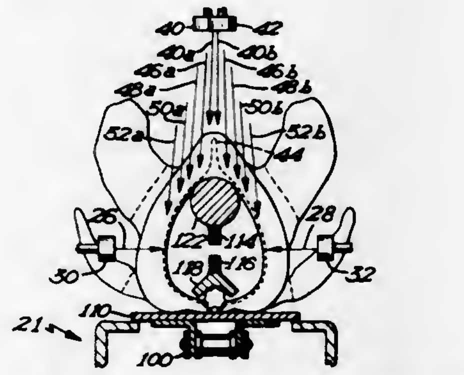


The skinning board for animals includes a panel having a neck-receiving slot extending downwardly from its upper edge adjacent one side, and also a pair of spaced feet-receiving slots extending downwardly from its upper edge adjacent the other side. A metallic plate is disposed behind the pair of spaced slots and has serrated side edges disposed substantially opposite the outer walls of the pair of slots which are adapted to impale the feet of the animal engaged in said pair, the plate being upwardly and rearwardly inclined with respect to the pair of slots. Means are provided for mounting the panel on a wall or other support with its rear face spaced therefrom.

3,570,050
PROCESS FOR REMOVING MEAT FROM BONES

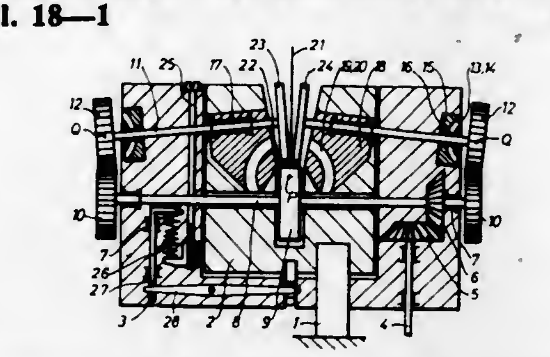
James E. Draper and Jack J. Rejsa, Minneapolis, Minn., assignors to The Pillsbury Company, Minnneapolis, Minn.
Filed Mar. 26, 1968, Ser. No. 716,138
Int. Cl. A22c *17/04*
U.S. Cl. 17—46 **13 Claims**

A process for removing meat from bones of animals, e.g. chickens, in which a nozzle is used to form a jet of a liquid (water or other liquid) having the form of a relatively thin sheet composed of several aligned parallel streams. The jet is directed at the animal preferably at a relatively small angle of incidence to the surface of the bone. The animal is placed upon a conveyor and advanced relative to the jet to form an elongated knife-like cut through the meat. In a typical application breast fillets are removed from the sternum (keel) and rib cage.



3,570,051
APPARATUS FOR BIAXIALLY STRETCHING FOIL SHEETS OR WEBS

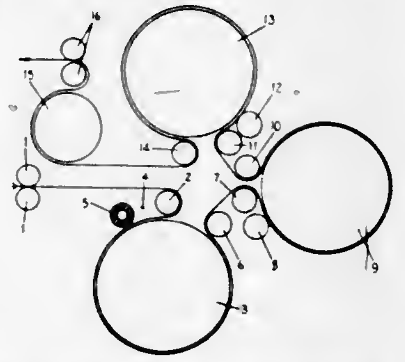
Hieronymus Zygan, Odenthal, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed July 3, 1968, Ser. No. 742,310
Claims priority, application Germany, July 4, 1967, F 52,851
Int. Cl. B29b *3/00;* **B29c** *15/00;* **B29d** *7/14*
U.S. Cl. 18—1 **4 Claims**



An apparatus for biaxially stretching continuous web materials is disclosed wherein there is employed a plurality of holding devices having means to simultaneously and independently adjust the width of gaps in the holding devices necessary to permit passage therebetween of both a marginally reinforced portion and a foil portion of the web material.

3,570,052
FILM TREATMENT

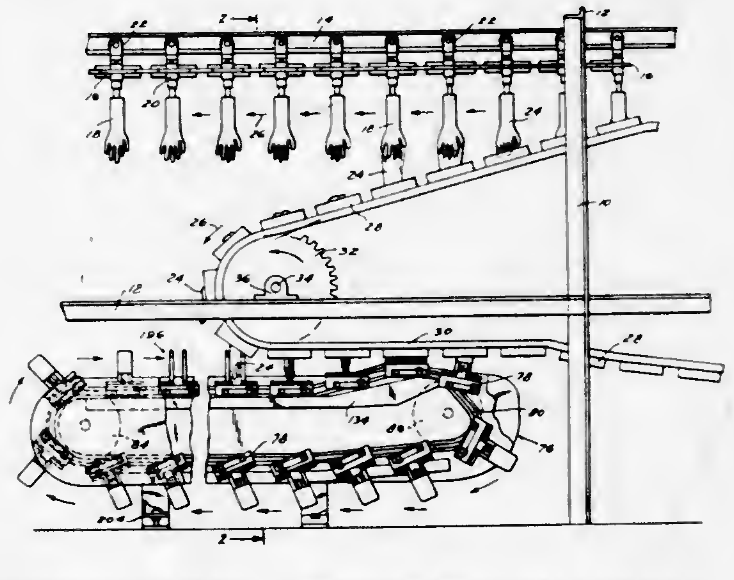
Grahame Melvin Reade, Harpenden, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Mar. 31, 1967, Ser. No. 627,449
Claims priority, application Great Britain, Apr. 15, 1966, 16,602/66
Int. Cl. B29d *7/14*
U.S. Cl. 18—1 **17 Claims**



Heat-treating oriented film by feeding it to at least one matt surfaced rotating roll which is maintained at a temperature at which the film will shrink but below the melting point of the film and forcing the film against the roll while uniformly spreading it out on the roll.

3,570,053
CUFF FOLDER MECHANISM

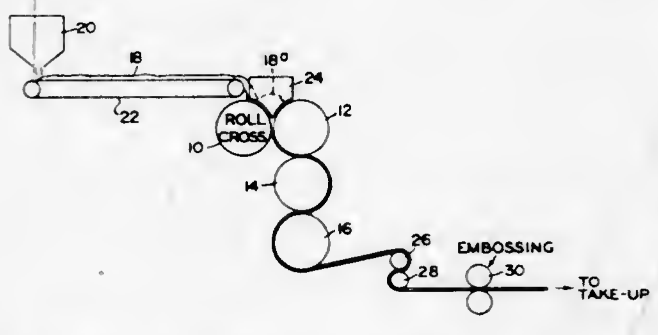
Anthony F. Rodrigues, Los Gatos, and Richard A. Wilkinson, San Jose, Calif., assignors to Becton, Dickinson of California, Inc., Los Gatos, Calif.
Filed Sept. 23, 1968, Ser. No. 761,458
Int. Cl. B29h *3/044;* **B29c** *13/04*
U.S. Cl. 18—2 **17 Claims**



A folding mechanism operatively associated and travelling in timed relation with a stripping unit capable both of stripping a glove from a casting mold and retaining the same by gripping means mounted by the stripping unit to grip the open wrist end of the glove. The folding mechanism including a pair of upstanding parallel mandrels relatively movable to varying their spaced relation and movable in a direction toward the gripping means to receive the glove from the latter and at the same time with continued movement to fold the open end about the mandrel as the glove is being released.

3,570,054
AUTOMATICALLY ADJUSTABLE END GUIDES FOR CALENDER ROLLS

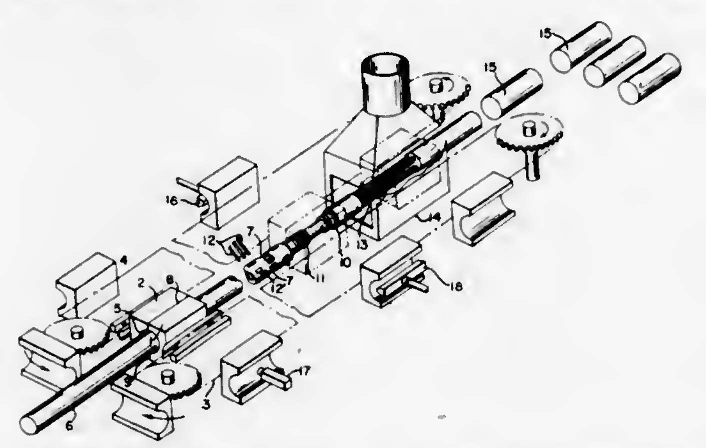
Rex C. Seanor and Charles G. Lake, Akron, Ohio, assignors to Adamson United Company, Akron, Ohio
Filed Dec. 31, 1968, Ser. No. 788,139
Int. Cl. B29d *7/14;* **B29h** *3/00;* **B30b** *3/04*
U.S. Cl. 18—2 **12 Claims**



The disclosure relates to automatically adjustable end guides for calender rolls, and is particularly adapted for end guide adjustment for rolls which may be adapted to change relative position because of roll crossing techniques. The automatic guide adjustment is achieved by use of a slave bar associated with adjustable journals carrying the calender rolls. The slave bar is connected through appropriate linkage to the guides which are adjustably mounted to follow the slave bar and maintain close spaced proximity with respect to the rolls without actually touching the rolls to cause scoring. The specifics of the adjustable mounting include a spring loading to urge each guide to a predetermined position, and sliding adjustability on at least two points within the surface of the guide on a radius with respect to one of the rolls.

3,570,055
HIGH SPEED SINTER MOLDING MACHINE

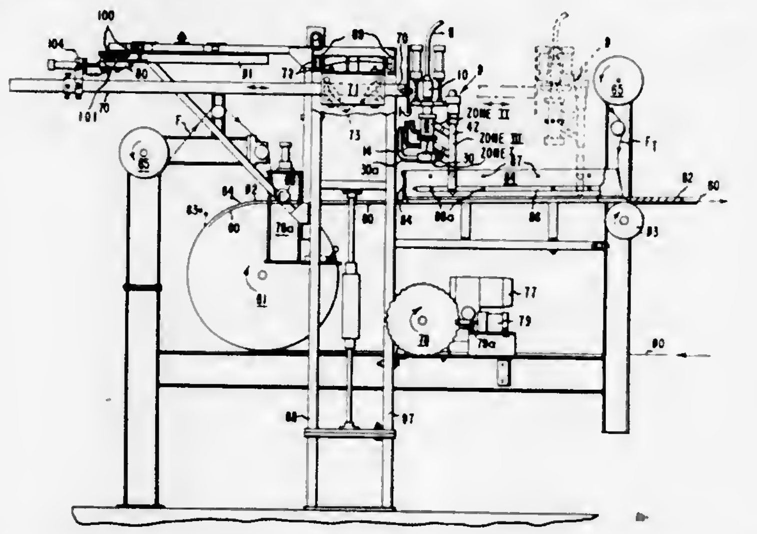
Paul M. Erlandson, Palos Park, and Richard R. Szatkowski, Western Springs, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Jan. 10, 1969, Ser. No. 790,283
Int. Cl. B29c *1/14, 3/06, 5/02*
U.S. Cl. 18—4 **10 Claims**



A high speed sinter molding machine having endless chains mounted side by side. Mold halves are attached at spaced intervals down the chains. The paired mold halves come next to each other to form a female mold into which is deposited a polymeric material. A mandrel extends inside the mold and as the mold traverses its path, it surrounds the mandrel and the mandrel deposits polymeric powder, heats the polymeric powder, and then cools it. At the end of the mold path, the finished article is ejected and is ready for the next operation.

3,570,056
MULTI-COLORED PLASTIC BUILDING PRODUCT AND ITS MANUFACTURE

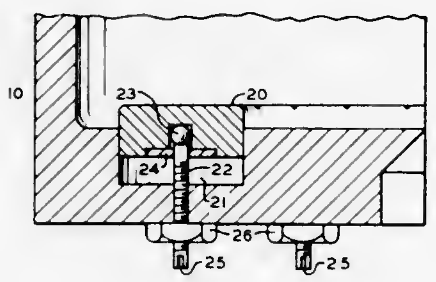
Nelson Lee Hall, Williamsville, N.Y., and Donald Hillman Slocum, Moorestown, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed July 24, 1969, Ser. No. 844,509
Int. Cl. B29c *9/00;* **B29f** *1/02, 1/12*
U.S. Cl. 18—4 **8 Claims**



A multi-colored cast plastic building product of uniformity and strength including a mass of polymeric material having distributed and suspended therein at least one smaller elongated continuous pattern of a different colored polymeric material in a predetermined reproducible three dimensional configuration and a manufacturing arrangement for producing the same so that the polymeric materials are substantially equally matched as to degree of polymerization at the time of being cast to give uniformity of all properties except color in the final product.

3,570,057
ADJUSTMENT OF VOLUME OF BLOW MOLDED CONTAINERS AND MOLD FOR SO DOING

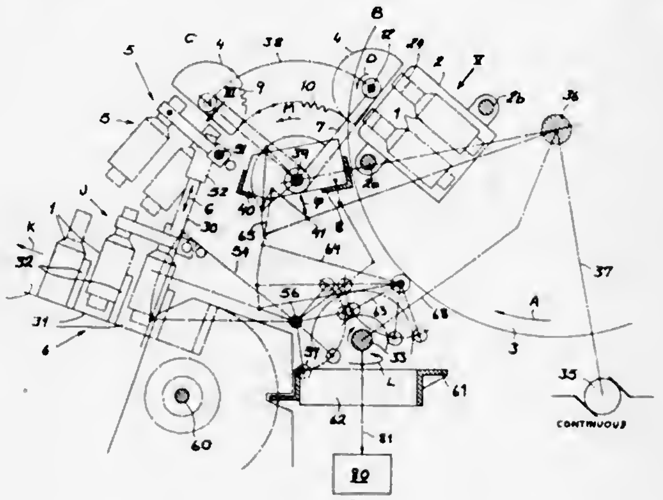
Robert Doyle, Overland Park, Kans., assignor to Phillips Petroleum Company
Filed May 24, 1968, Ser. No. 731,814
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **6 Claims**



The bottom of a mold is provided with means permitting the container bottom to be molded to different contours or shapes or concavities by providing a removable and replaceable or interchangeable bottom or mold insert which can be varied. The insert also serves as the pinch off. A disc-shaped or annular-shaped insert, which can be made adjustable so the small volume changes can be made without changing inserts, is provided also.

3,570,058
APPARATUS FOR THE REMOVAL AND TRANSPORTATION OF BLOW-MOLDED ARTICLES

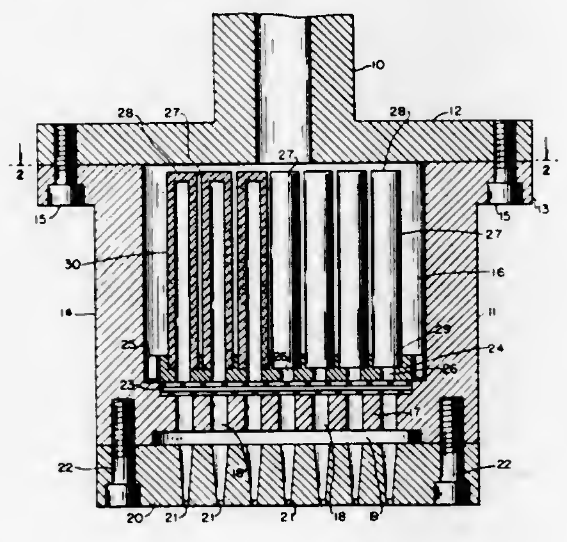
Anton Heinig, Wuppertal-Barmen, Kurt Lasch, Hilgen, near Burscheid, and Werner Weck, Schwelm, Westphalia, Germany, assignors to Firma Heinig & Leonhardt, Remscheid-Luttringhausen, Germany
Filed Jan. 13, 1969, Ser. No. 790,576
Claims priority, application Germany, Jan. 12, 1968, P 15 56 570.5
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **12 Claims**



An apparatus for the removal of blow-molded articles from a plurality of molds mounted upon a turntable which has a pickup head provided with a barbed pin adapted to lodge in a head of the blow-molded article. The pickup head is swingably mounted on an arm centered on the axis of rotation of the turntable and is entrained therewith so that the turntable need not be halted during the removal operation. A gear sector on the head cooperates with a further gear sector to swing the head about its axis and deliver the articles to a gripper which strips them from the head and advances them to a transport mechanism carrying the articles away from the turntable.

3,570,059
SPINNERETTE HEAD FILTER

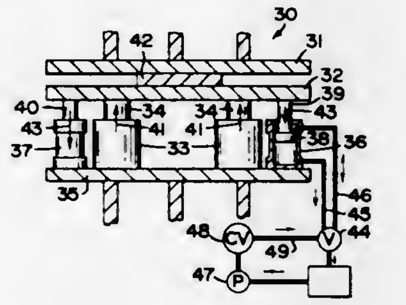
Lambert H. Mott, % Mott Metallurgical Corp., Farmington Industrial Park, P.O. Drawer "L," Farmington, Conn. 06032
Continuation-in-part of application Ser. No. 676,316, Oct. 18, 1967. This application July 24, 1969, Ser. No. 847,802
Int. Cl. D01d *3/00*
U.S. Cl. 18—8 **5 Claims**



The central cavity of a spinnerette head assembly for the extrusion of synthetic polymer fibers is substantially filled with tubular filters closed at one end and communicating with extrusion orifices, the filter area presented to inflowing plastic being at least twice the cross-sectional area of the central cavity.

3,570,060
GAUGE CONTROL FOR PRODUCTS FROM PRESSES

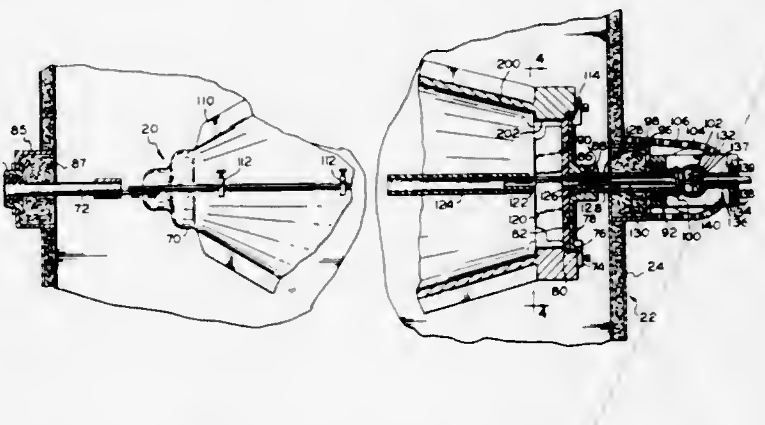
Daniel W. Stephenson, Cuyahoga Falls, Ohio, assignor to Adamson United Company, Akron, Ohio
Filed May 6, 1969, Ser. No. 822,269
Int. Cl. B30b *11/00, 15/16*
U.S. Cl. 18—16 **5 Claims**



This invention relates to hydraulic presses and particularly to apparatus for controlling gauge of products produced in presses including a fixed bolster, and a movable bolster operatively positioned in the press frame for movement to and from association with the fixed bolster for forming a product therebetween. A pair of hydraulic piston and cylinder means operatively connect the movable bolster and the frame at corresponding positions adjacent each end of the movable bolster whereby pressures exerted by such piston and cylinder means can bend end portions of the movable bolster reversely to any bending action created therein by pressure closing action of the movable bolster whereby the gauge of the product produced between the bolsters can be controlled.

3,570,061
MOLDING APPARATUS

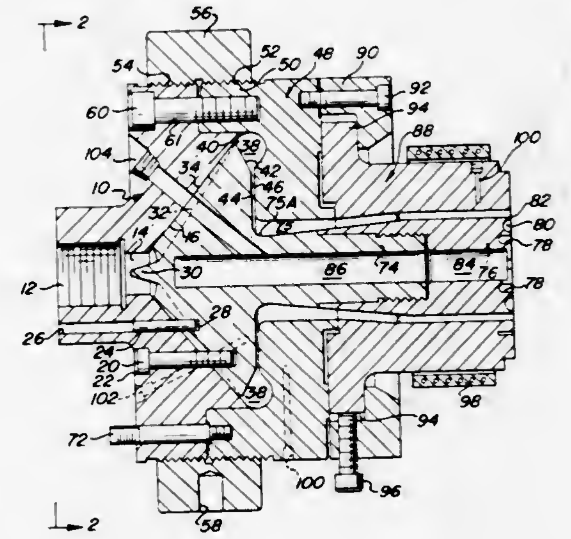
Alvadore M. Andrews, 4621 SW. Beaverton-Hillsdale Highway, Portland, Oreg. 97221
Filed Dec. 4, 1968, Ser. No. 780,970
Int. Cl. B29c *5/04*
U.S. Cl. 18—26 **5 Claims**



Molding apparatus and methods serve to tumble plastic material in shell-like molds after thin skins of plastic material are sprayed on the inner surfaces of the molds and while the molds are rotated in ovens turning the molds on axes at right angles to the axes of rotation of the molds. Paddles in the molds wipe the inner surfaces of end portions of globes being formed from the plastic material to smooth these inner surfaces. Cooling sprays cool the molds and the globes molded therein.

3,570,062
MIDSTREAM RADIAL VALVE FOR IN-LINE EXTRUSION OF VISCOUS THERMOPLASTICS

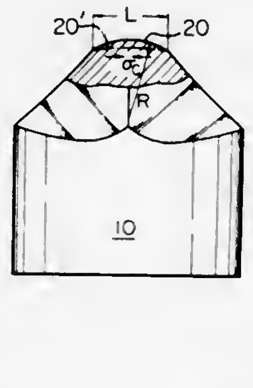
Andrew Anthony Dukert, Ambler, and Alkis Christofas, Philadelphia, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.
Filed Feb. 14, 1969, Ser. No. 799,223
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 **8 Claims**



An in-line valving die for extruding viscous thermoplastics. Outwardly diverging semi-circular channels first direct the material from the extruder in a continuous stream of sheet-like configuration, which is deposited in a high-inventory, annular cavity. The material then passes radially inward through an adjusable disk valve into a centrally disposed relaxation reservoir to allow for recovery from the uniform shearing action of the valve prior to final shaping in the forming die. All increments of the material advance with equal back pressure to deliver well converted melts without surface defects or internal stresses.

3,570,063
ANVIL FOR USE IN A HIGH PRESSURE APPARATUS

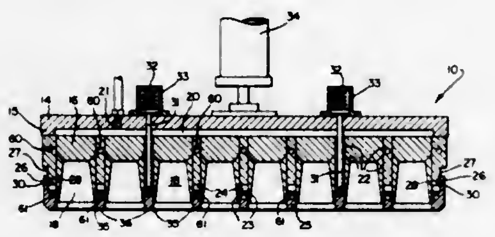
Kazuo Yasunami, Ashiya-shi, Japan, assignor to Kobe Steel Ltd., Wakinohama-cho, Fukiai-ku, Kobe, Japan
Filed July 24, 1968, Ser. No. 747,188
Claims priority, application Japan, Aug. 1, 1967, 42/49,033
Int. Cl. B30b *11/32*
U.S. Cl. 18—16.5 **1 Claim**



The top surface of an anvil utilized in a high pressure apparatus is made to form a convexed curved surface so as to avoid any breakage due to being sheared off by utilizing a compression force generated in the anvil by applying a pressure to the top surface. A high ratio of the actual pressure to be generated in the center of the substance to be pressurized to the mean pressure to be applied to the top surface is obtained by using the anvil.

3,570,064
MOLDING APPARATUS HAVING A FLEXIBLE CLAMP PLATE

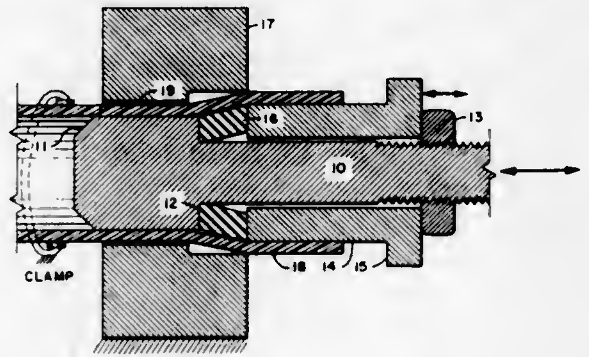
Hans de Groot, Philadelphia, Pa., assignor to Scott Paper Company, Delaware County, Pa.
Filed Aug. 13, 1968, Ser. No. 752,324
Int. Cl. B29c *3/00*
U.S. Cl. 18—19 **17 Claims**



Molding apparatus having a flexible clamp plate which is resiliently mounted opposite one surface of a mold having a plurality of mold cavities and supported at a plurality of closely spaced points. The flexible clamp plate is arranged for relative movement toward and away from the mold so as to press a web of moldable material against a clamping surface about the periphery of each of the mold cavities between intermittent advancing movements of the web of moldable material between the mold and the clamp plate.

3,570,065
PIPE BELLING

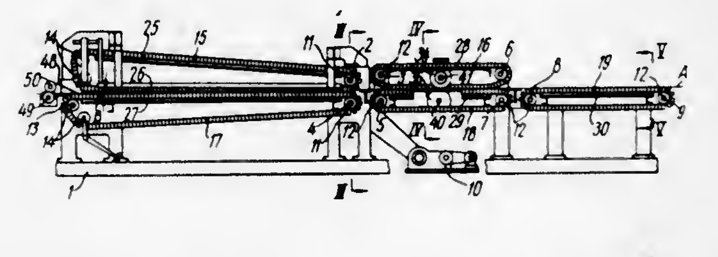
Fernando V. Guerrero, Chagrin Falls, Ohio, assignor to Continental Oil Company, Ponca City, Okla.
Filed Mar. 21, 1968, Ser. No. 715,067
Int. Cl. B29c *17/02*
U.S. Cl. 18—19 **4 Claims**



A ram assembly for forming a square-shouldered bell on a plastic pipe end, comprising a segmented ram containing a deformable annular ring.

3,570,066
PLANT FOR FORMING CORRUGATED SHEETS FROM FLAT ASBESTOS-CEMENT BLANKS

Mark Solomonovich Neifeld, Ul. A. Tolstogo 26, kv. 20; Pavel Samuilovich Moroz, Ul. Mnevniki 14, kv. 65; Oleg Alexandrovich Morgunov, Jugo-Zapad, kvartal 38, korp. 165, kv. 43; and Savely Aronovich Monastyrenko, Proezd Rusanova 27, korp. 2, kv. 33, all of Moscow, U.S.S.R.
Filed June 19, 1968, Ser. No. 738,348
Int. Cl. B29c *17/02*
U.S. Cl. 18—19 **8 Claims**

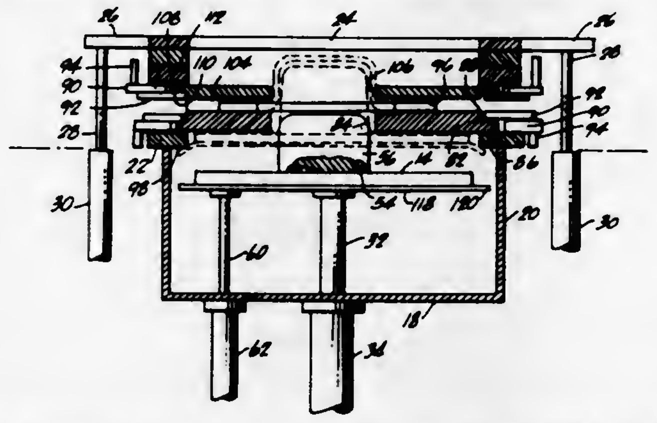


Apparatus for forming corrugated sheets from flat asbestos-cement blanks is provided with a first system of endless chains for preforming the flat blanks, and a second system of endless chains for finishing the formation of the preformed blanks. Each system includes an upper and lower row of chains. The first system of upper and lower chains vertically and horizontally converge toward one another and the second system of chains are parallel to one another.

3,570,067
APPARATUS FOR FORMING SHEET MATERIAL

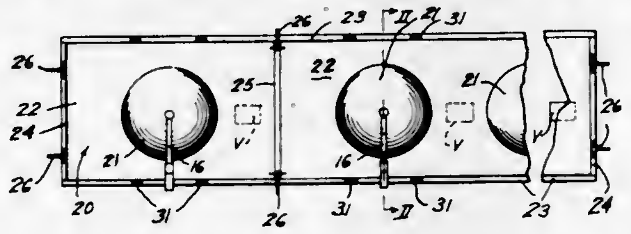
Robert M. Jones, Fullerton, and Howard G. Nourse, Palos Verdes, Calif., assignors to McDonnell Douglas Corporation
Filed May 29, 1968, Ser. No. 733,016
Int. Cl. B29c *17/00*
U.S. Cl. 18—19 **15 Claims**

Upright airtight chamber with open upper end houses vertically moving platen carrying form block. First draw ring mounted on rim of chamber with aperture corresponding to form block. Second draw ring with corresponding aperture above first ring and movable up and down to load and slidably grip heat-softened sheet of thermoplastic material between rings. Form block passes up through apertures to flow-form sheet. Pressure and vacuum means to blow-form sheet up or down into dome shape before form block is actuated. When forming is virtually complete, vacuum may be applied instantaneously to snap sheet back on form block for accurate shaping.



3,570,068
APPARATUS FOR MANUFACTURING SINK AND VANITY TOP COMBINATIONS

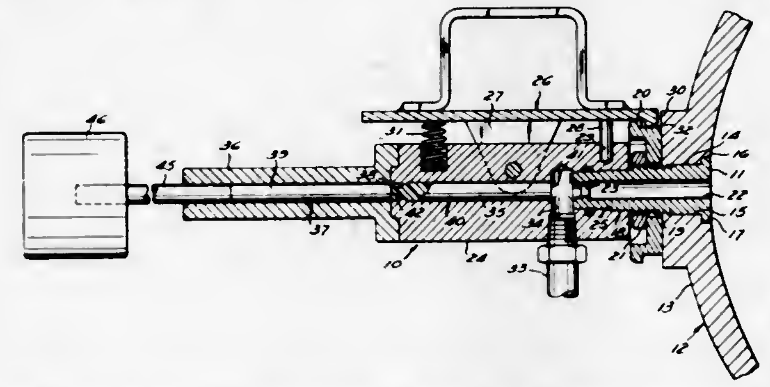
Kay L. Ruggles, Dale B. Gunnerson, and Howard S. Clark, Salt Lake City, Utah, assignors to American Standard Inc., New York, N.Y.
Original application Dec. 30, 1966, Ser. No. 606,324, now Patent No. 3,433,860. Divided and this application Jan. 21, 1969, Ser. No. 872,780
Int. Cl. B29c *1/14, 5/00;* **B22c** *9/22*
U.S. Cl. 18—26 **10 Claims**



This disclosure relates to apparatus for the manufacture of integral sink and vanity top combinations of a thermosetting synthetic plastic composition, preferably of a polyester resin type, wherein, the bowl area is integrally formed with the vanity top area, and wherein the bowl area is provided with an overflow tube that is embedded within the material of the side wall of the bowl.

3,570,069
APPARATUS FOR INJECTING MOLDABLE MATERIAL INTO A MOLD

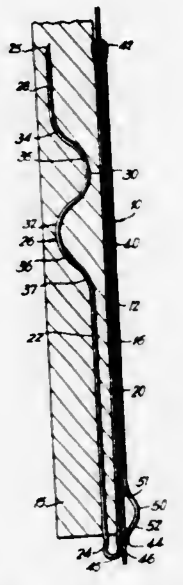
Arthur J. Wiltshire, Cleveland, Ohio, assignor to Structural Fibers, Inc., Chardon, Ohio
Filed July 11, 1968, Ser. No. 744,042
Int. Cl. B29f *1/00*
U.S. Cl. 18—30 **5 Claims**



Apparatus for connecting a source of resinous material to be molded to an inlet fitting on a mold and for inserting a plug in the fitting before the source of resinous material is disconnected from the fitting. The connecting and plug-inserting device includes a block having a resin inlet port which is connected to a source of resinous material, a resin outlet port which is connected to the mold fitting, and a passageway for guiding a plug through the resin outlet port and into the inlet fitting to block the inlet fitting after a measured amount of resin is delivered to the mold cavity.

3,570,070
CORSAGE PIN

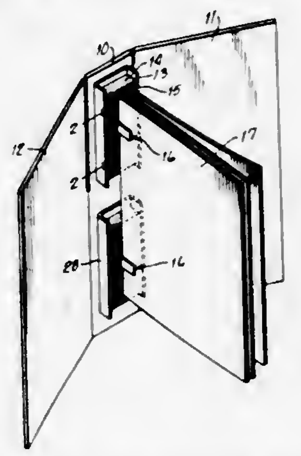
Robert H. Rose, 109 Vassar Road, Poughkeepsie, N.Y. 12603
Filed Sept. 11, 1969, Ser. No. 857,040
Int. Cl. A45f *5/08*
U.S. Cl. 24—6 **10 Claims**



A pin for a corsage or the like which includes a body portion and a pair of arms each connected by a loop to opposite ends of the body portion and having a point on the free end thereof which is adapted to pierce the stem of the corsage and the clothing of the user, respectively. Retaining means is provided on one of said arms to provide lateral support to the arm and a gripping action on the stem to prevent its easy removal from the corsage.

3,570,071
FASTENER MEANS FOR LOOSE LEAF HOLDERS

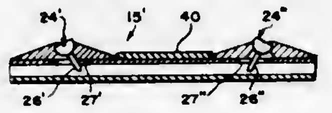
Dwight L. Wardell, Brooklyn, N.Y.
(2 Harmony Lane, Denville, N.J. 07834)
Filed Jan. 17, 1969, Ser. No. 792,060
Int. Cl. B42f *1/00*
U.S. Cl. 24—67 **4 Claims**



A fastener means for temporarily inserting individual leaves into a loose leaf holder. The means comprises (1) a leaf or insert having attached thereto an insert gripping means along at least a portion of one edge, (2) an attachment pin in the shape of a T anchored by its crossbar in the free end of the insert means and with its central shaft extending out from the insert means, (3) a backing means adapted to permit penetration of its resilient surface by the central shaft of the T-shaped attachment pin. The central shaft of the attachment pin may be angularly distorted to enable it to be more firmly retained within the grasp of the resilient surface which it penetrates. The fastener means binds the leaf into a holder formed by the joinder of the front and back rectangular covers with the backing means. The backing means may be covered on its interior face with a fine wire mesh screen to assist in the fixation of the attachment pins to the backing means.

3,570,072
FINGER TIP CONTROL BELT BUCKLES

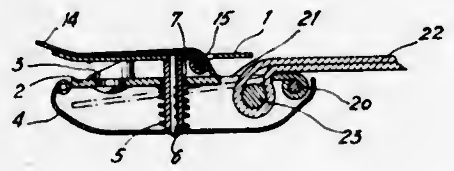
Samuel Webb, 1246 42nd St., Brooklyn, N.Y. 11219
Filed July 10, 1969, Ser. No. 840,615
Int. Cl. A44b *11/00*
U.S. Cl. 24—74 **11 Claims**



Substantially flat tubular-form buckle body has a headed pin swingable on the front wall in a horizontal plane, and in one position extends straight to the rear wall. The head of the pin is exposed at the front of the buckle, is mounted as part of a ball joint, and is manipulated by finger tip movement to bring the pin into and out of a hole in the end of the belt whose other end is mounted on a bail extending from the buckle body. As a modification, the belt is separate, both ends have holes, and both surfaces thereof are finished. The buckle therefor has two spaced headed pin units, each to deal with one belt end. With such construction, the belt is reversible.

3,570,073
SAFETY BELT BUCKLE

Pierre Cible, Paris, France, assignor to Projecteurs Cible and E.F.A. Etudes et Fabrications Aeronautiques
Filed Mar. 4, 1969, Ser. No. 804,134
Int. Cl. A44b *11/25, 17/00*
U.S. Cl. 24—77 **6 Claims**

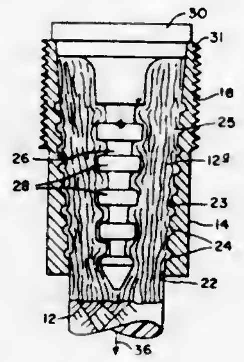


A safety belt buckle comprising a stationary jaw and a movable jaw with a formation serving to permit connection of a strap, a spring being provided between the jaws to hold them closed and a jaw opening lever being mounted on the movable jaw. The stationary jaw forms part of a casing which encloses and mounts the movable jaw and which has a base wall between which and the movable jaw the stationary jaw is mounted and the spring being disposed between the movable jaw and the base wall.

3,570,074
ROPE END FITTING

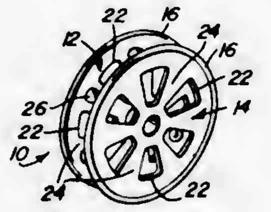
Werner K. Schimmeyer, Sunnyvale, Calif., and Paul G. Bettinger, Spokane, Wash., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 12, 1968, Ser. No. 774,937
Int. Cl. F16g *11/05*
U.S. Cl. 24—123 **2 Claims**

An improved rope end fitting structure, attached to the end portion of a rope for assuming the tensile load on the rope in use, comprises a tubular sleeve having a convoluted frusto-conical inner surface encompassing an end portion of the rope and filled with a potting resin. The rope end portion is frayed or unraveled and splayed to a larger diameter and embedded in the resin, and a convoluted tapering pin is inserted in the end of the rope, thereby providing an arrangement in which the sleeve and the embedded rope end have a maximum tensile strength at least equal to the maximum tensile strength of the rope.



3,570,075
CIRCULAR CLOTHESPIN

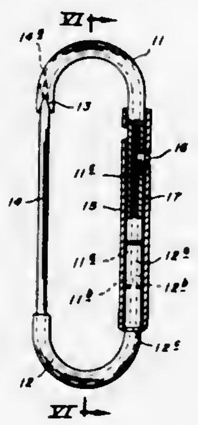
Charles R. Louderback, 8112 W. Morgan Ave., Milwaukee, Wis. 53220
Filed Mar. 3, 1969, Ser. No. 803,578
Int. Cl. D06f *55/00*
U.S. Cl. 24—137 **5 Claims**



Although primarily a circular clothespin, the disclosed invention is capable of reliable use for mounting side-by-side clotheslines atop T-shaped outdoor line supports. It is also usable as a Christmas tree ornament and as a component in a toy erection set for children. It comprises a one-piece plastic spool and embodies opposed plastic disks united by a hollow hub. These disks are made of resilient plastic material and are provided with radial spokes and internal bosses which provide line positioning and retaining detents.

3,570,076
SAFETY PIN

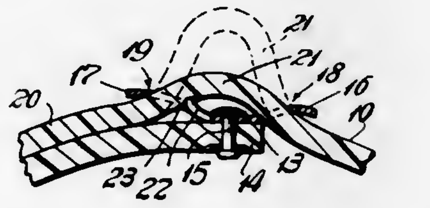
Robert W. Wagner, 1102 Lowenhill St., Pittsburgh, Pa. 15216
Filed July 15, 1969, Ser. No. 841,855
Int. Cl. A44b *9/10*
U.S. Cl. 24—156 **8 Claims**



A safety pin device is provided having a rotatably-operated sleeve part, a base or upper loop part that securely-carries a pin part to project forwardly therefrom, and a nose or upper loop part that is adapted to latch-receive a pointed end of the pin and to be angularly-swung into and out of an axially-aligned positioning with respect to the pin. A spring part is carried within the loop parts and has a cam lug that is removably-mounted within the wall of the nose loop part to project outwardly and cooperate with a closed-end, spirally-slotted, camming portion in the sleeve part to, by rotative movement of the sleeve, enable an outward swinging movement of the nose part when it has been raised out of a latching position with the pin.

3,570,077
BUCKLES

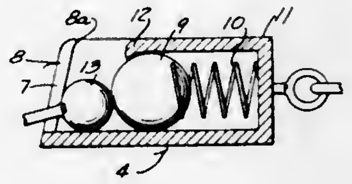
Gabriel S. Hawie, Bridgeport, Conn., assignor to The Hawie Manufacturing Company, Bridgeport, Conn.
Filed Dec. 8, 1969, Ser. No. 882,921
Int. Cl. A44b *11/04*
U.S. Cl. 24—164 **1 Claim**



There is disclosed an insecticide collar particularly for small animals comprising an imperforate strap of impregnated flexible plastic material, and a buckle attached to one end of the strap and having one or more fixed tongues adapted to indent the strap wherever it happens to engage the surface thereof and prevent inadvertent or unintentional withdrawal of the free end of the strap from the buckle.

3,570,078
JEWELRY CLASP

Harry A. Neumann and Oliver C. Sauré, Indianapolis, Ind., assignors to Frank S. Andrus, Whitefish Bay, Wis., a fractional part interest
Filed Feb. 5, 1969, Ser. No. 796,773
Int. Cl. A44b *17/00*
U.S. Cl. 24—201 **2 Claims**

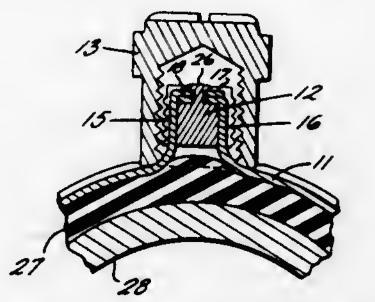


A jewelry clasp wherein an elongated receptacle houses a spring biased ball. An opening is provided in the receptacle top, and forms a lip to hold the ball in position. A slot is disposed in the end wall of the receptacle and receives the shank of a ball which enters the receptacle opening and is held within the receptacle by the biased receptacle ball.

3,570,079
HOSE CLAMP

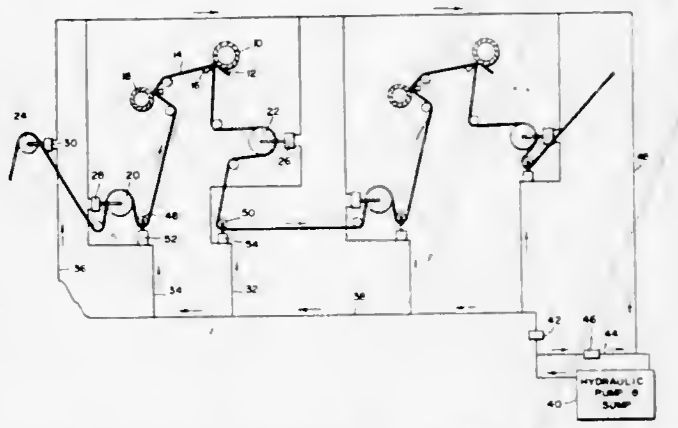
George L. Turner, Hickory Corners, Mich., assignor to American Stamping Co., Battle Creek, Mich.
Filed May 15, 1969, Ser. No. 824,961
Int. Cl. B65d *63/02*
U.S. Cl. 24—278 **12 Claims**

This hose clamp is of a type to be made in various fixed sizes to fit and clamp various specific diameters of hose or the like. The ends of the hose clamp strap overlap each other and are fixedly held in that relative position in various ways on an externally threaded, side grooved, floating nut. That nut in turn engages the threads in an internally threaded nut, so that with the floating nut and its anchored clamp strap mounted in place on the piece of hose which is to be gripped on a male member, the rotation of the internally threaded nut in engagement with the externally threaded floating nut will pull the two end portions of the strap up into the internally threaded nut and tighten the strap on the hose.



3,570,080
CLOTH SHEARING MACHINE WITH AUTOMATIC TENSION CONTROL

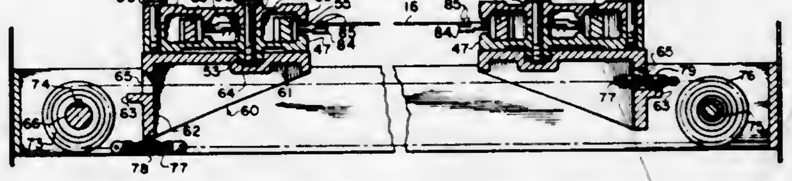
William J. Holm, Springfield, Vt., assignor to Riggs & Lombard, Inc., Lowell, Mass.
Filed Jan. 23, 1969, Ser. No. 793,400
Int. Cl. D06c *13/00*
U.S. Cl. 26—15 **1 Claim**



A cloth shearing machine is provided with a self-compensating tension control system to maintain a constant and uniform tension on a running cloth web as it passes through the machine. The speed of independently driven draft rolls is responsive to the movement of an associated sensing roll which engages the web and moves upon changes in tension of the web. Each sensing roller is operatively connected to a draft roll to control its speed of operation.

3,570,081
APPARATUS FOR HANDLING AND TREATING KNIT FABRICS

Frank Catallo, Elmont, N.Y., assignor to Fab-Con Machinery Development Corp., Peterson, N.J.
Filed Aug. 22, 1967, Ser. No. 662,450
Int. Cl. D06c *3/02*
U.S. Cl. 26—61 **6 Claims**

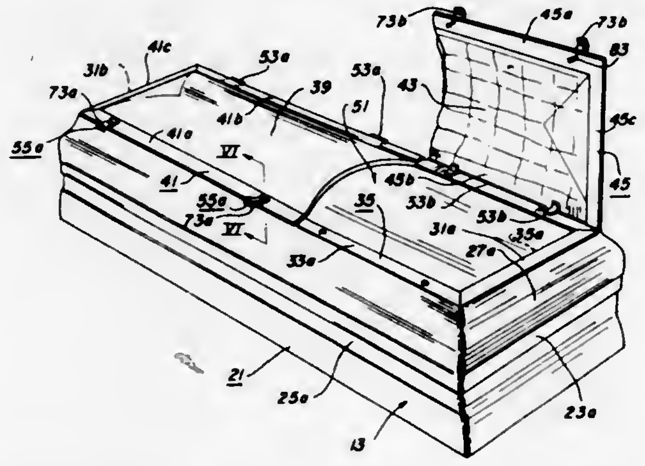


Apparatus for handling and treating fabrics, particularly open width knit fabrics, by means of suitable supports, conveying devices and controls, including an adjustable and flexible over and under pin tentering chain arrangement for effecting rapid spreading of the fabric and for conveying the fabric in a geometrically correct condition through a substantially closed zone at a controlled temperature with a plurality of streams of a gaseous medium flowing in a general direction which is opposite the path of movement of the fabric, the gaseous medium being directed against opposite surfaces of the fabric by means of nozzles in close proximity thereto.

3,570,082

BURIAL CASKET

Leslie G. Gruber, 4530 Shady Grove Road,
Memphis, Tenn. 38117
Filed May 22, 1968, Ser. No. 731,109
Int. Cl. A01g *17/02*
U.S. Cl. 27—6 **3 Claims**

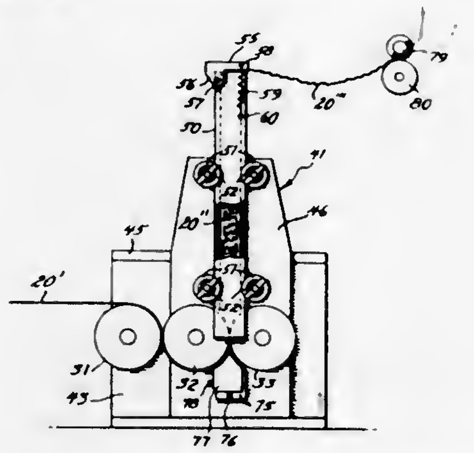


A burial casket formed of sheet metal and including a body having upstanding walls defining a rectangular upwardly facing seating surface and includes a casket lid hingedly secured on said body. The lid being formed of sheet metal and defining a thin outwardly projecting rectangular flange. The lid of the casket being adapted to overlie the casket body with the thin rectangular flange of the lid seatingly engaging the rectangular seating surface of the body.

3,570,083

STRAND-TREATING APPARATUS

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Kennett Square, Pa.
Continuation-in-part of application Ser. No. 678,428, Oct. 26, 1967. This application May 7, 1969, Ser. No. 822,429
The portion of the term of the patent subsequent to Apr. 9, 1985, has been disclaimed
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **22 Claims**

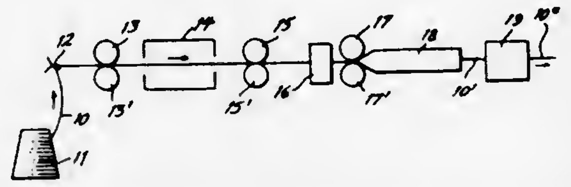


Apparatus is provided for treating drawable textile strands, including means for drawing the same to increased length and means for compressively crimping the drawn material, arranged for operation in essentially continuous manner with a minimum of time and space therebetween. In the extreme the drawing and crimping means are arranged to provide contiguous drawing and crimping zones. Preferably the means for forwarding the drawn strand out of the drawing zone and the means for feeding the strand into the crimping zone are adapted to underfeed the strand from the first to the second.

3,570,084

STRAND TREATMENT

Robert K. Stanley, 620 Meadowvale Lane, Media, Pa. 19063, and Malcolm F. Irwin, 1303 Sherwood Drive, West Chester, Pa. 19380
Continuation-in-part of application Ser. No. 688,119, Dec. 5, 1967. This application Apr. 11, 1969, Ser. No. 815,425
Int. Cl. D02g *1/12*
U.S. Cl. 28—72.14 **15 Claims**

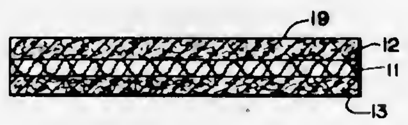


Textile strands are subjected to successive compressive crimping steps, as in successive stuffer crimpers, at essentially constant, though different, infeed and withdrawal or windup rates. Control tension is applied between such successive steps and optionally after the last such step.

3,570,085

METHOD OF FORMING A REINFORCED FABRIC BY A COMPRESSIVE SHRINKING OPERATION

Frederick E. Heinemann, Canton, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Continuation-in-part of abandoned application Ser. No. 401,268, Oct. 2, 1964. This application Oct. 15, 1968, Ser. No. 767,649
Int. Cl. D04h *1/50*
U.S. Cl. 28—72.2 **5 Claims**



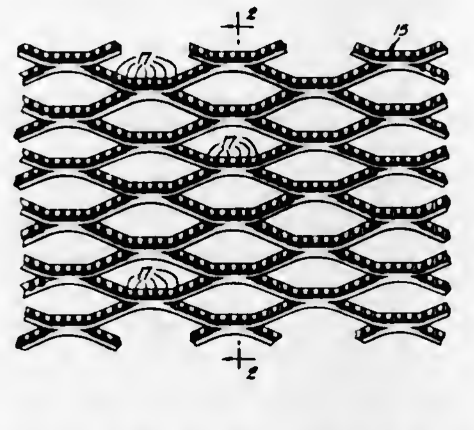
A fabric is made by mechanically interlocking a nonwoven fibrous web into a shrinkable woven scrim and then shrinking the scrim by heat and compression to contract the scrim about the interlocked non-woven fibers. The shrinking and simultaneous crimping of the scrim produces a soft and somewhat extensible felt-like fabric.

3,570,086

METHODS AND MACHINES FOR MANUFACTURE OF EXPANDED METAL

Mark M. Stone, Highland Park, Ill., assignor to Metalex Corporation, Libertyville, Ill.
Continuation-in-part of abandoned application Ser. No. 676,531, Oct. 19, 1967. This application Apr. 21, 1969, Ser. No. 825,098
Int. Cl. B21d *31/04*
U.S. Cl. 29—6.2 **14 Claims**

Methods and machines are disclosed for manufacturing an expanded metal product having a roughened or serrated surface portion adapting the product for use as a non-skid safety walkway or the like. A multi-toothed punching die is reciprocated in a vertical plane with its vertical interior face closely adjacent the vertically oriented die face of an expanding ledge. Sheet metal is advanced along a horizontal bed toward the ledge in timed relation to reciprocation of the punching die which die is also shifted laterally between successive downward strokes to establish the offset aperture pattern of expanded metal.

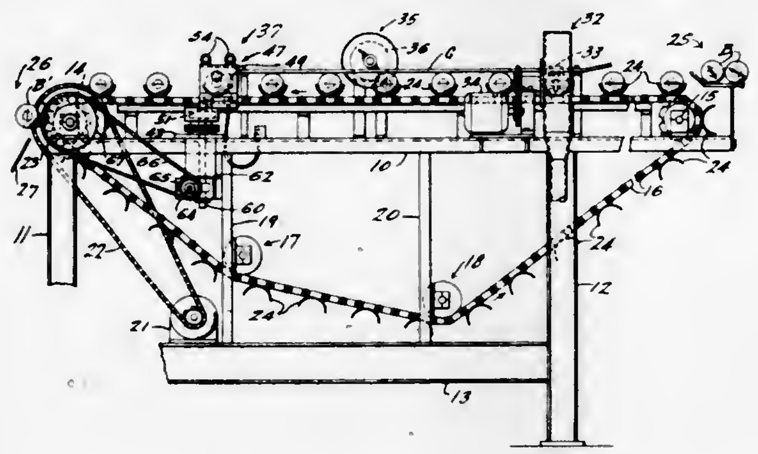


One and only one of the opposed vertical faces of the dies is provided with serrating die means while the other die face is preferably of a planar contour or otherwise formed so as not to interregister with the serrating die.

3,570,087

BOTTLE TRIMMING APPARATUS

Robert J. Palsa, 6133 Acoma Drive,
Toledo, Ohio 43623
Filed Jan. 27, 1969, Ser. No. 793,968
Int. Cl. B23q *7/04*
U.S. Cl. 29—33 **10 Claims**



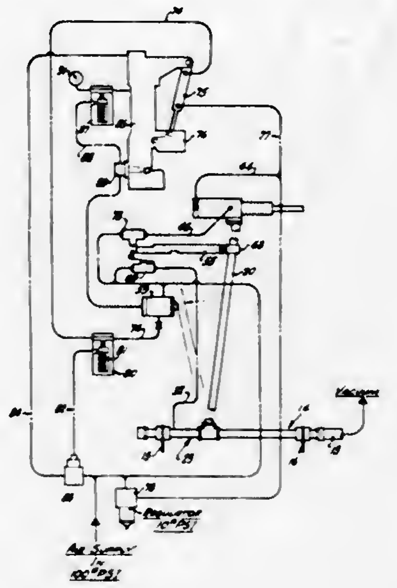
A device for trimming molded plastic articles carried by a continuously moving conveyor, which device includes a mechanism for reciprocating a trimming tool in and out of the path of said conveyed articles in synchronism with the conveyor so that each article is trimmed by the tool. The device includes a power driven tool and article support which are positioned opposite one another on each side of the conveyor. A drill and support are mounted on rotary platforms which cause them to repetitively move into trimming engagement, maintain trimming engagement, and thence disengage each article as it is carried past the rotary platforms by the conveyor.

3,570,088

CLIPPING APPARATUS

Karl A. Klenz, Oakland, Calif., assignor to Rheem Manufacturing Company, New York, N.Y.
Original application June 26, 1967, Ser. No. 648,670, now Patent No. 3,516,222, dated June 23, 1970. Divided and this application June 18, 1969, Ser. No. 862,546
Int. Cl. B65b *51/05*
U.S. Cl. 29—33 **3 Claims**

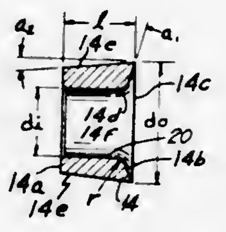
Apparatus for evacuating a flexible container such as a food casing and applying an air tight seal thereto. By means of control valves a vacuum is applied to the container upon initiation of the operating cycle and actuation of the sealing device automatically shuts off the vacuum. Control valves are programmed so that gathering means for constricting the mouth of the container, a retractable probe projected into the container to facilitate evacuation of the container, and a cut off knife for severing the container outwardly of the seal are all actuated at predetermined times in the cycle for performing the required steps substantially automatically without intervention of the operator.



3,570,089

INSIDE BEAD TRIMMING APPARATUS AND METHOD

Richard J. Dodson, Evanston, Ill., assignor to Clayton Mark & Company, Evanston, Ill.
Original application Oct. 19, 1965, Ser. No. 497,927, now Patent No. 3,395,614. Divided and this application Feb. 1, 1968, Ser. No. 730,961
Int. Cl. B26d *1/00*
U.S. Cl. 29—95 **3 Claims**



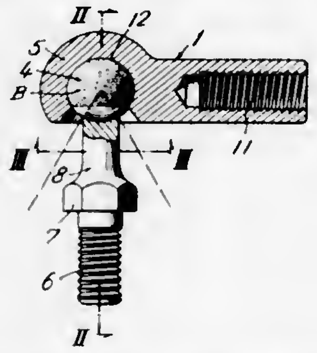
The present invention relates to a tool of the type used with an arbor for trimming the inside bead from welded tubing wherein the tool is of a hollow truncated conical shape and has a rounded surface extending from a cutting edge on the exterior base of the cone to the hollow interior thereof in order that severed weld may be guided through the hollow interior of the tool.

3,570,090

METHOD FOR THE MANUFACTURE OF BALL JOINTS

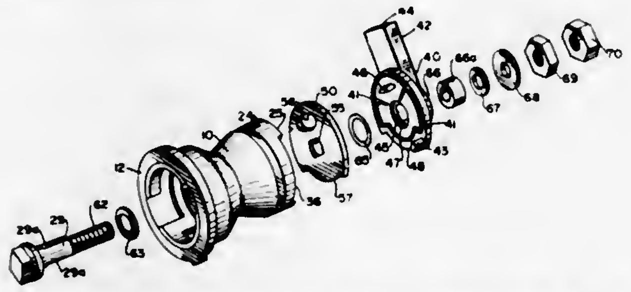
Hiroshi Teramachi, Tokyo, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan
Filed Jan. 27, 1969, Ser. No. 794,097
Claims priority, application Japan, July 9, 1968, 43/47,963
Int. Cl. B23p *11/00, 17/00*
U.S. Cl. 29—149.5 **1 Claim**

This specification discloses a method for the manufacture of ball joints, which comprises preparing a mold consisting of upper and lower halves for forming the joint portion or outer rod of a ball joint, and positioning in this mold a steel ball having a thin film of tin, copper or lead applied over a part of the surface thereof. The manner of positioning is such that the steel ball rests as a "core" on the lower half of said mold. The method of the invention further comprises casting a charge of molten aluminium into said mold to thereby form an outer rod having a spherical head portion made of said cast aluminium which holds the steel ball therewithin, and simultaneously forming a cast aluminium alloy portion of a high bearing performance in said spherical portion of the outer rod. The thus formed outer rod with the steel ball held therein is removed from the mold and formed with an internally threaded bore axially thereof toward the outer end thereof. An inner rod is then joined by friction welding to the exposed surface of the steel ball. The spherical head portion of the outer rod is struck from the exterior thereof to provide a clearance between the spherical head portion and the steel ball so that the steel ball can rotate within the spherical head portion of the outer rod. The ball joint thus obtained is simple in construction and economical to manufacture as well as accurate and excellent in performance.



3,570,091
METHOD FOR CONVERTING VALVES

Richard E. Doremus, Washington Valley, and R Ellsworth Doremus, Clifton, N.J., assignors to Golden Gate Manufacturing Company, Delawanna, N.J.
Continuation-in-part of application Ser. No. 669,111, Sept. 20, 1967. This application Dec. 26, 1968, Ser. No. 787,133
Int. Cl. B21d *53/00;* **B21k** *29/00;* **B22g** *15/26*
U.S. Cl. 29—157.1 **10 Claims**

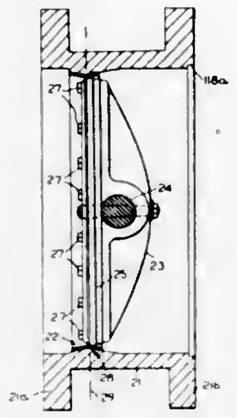


A method and apparatus for converting a valve used in tapping fluid from kegs from one having a tapping port on its end wall to one having an extending member with a tapping port therein and a washout passage in the end wall by attaching an insert piece with the washout passage therein and a valve member having an extending portion to the body of the original valve.

3,570,092
PROCESS FOR MANUFACTURING A SEAT FOR A BUTTERFLY VALVE

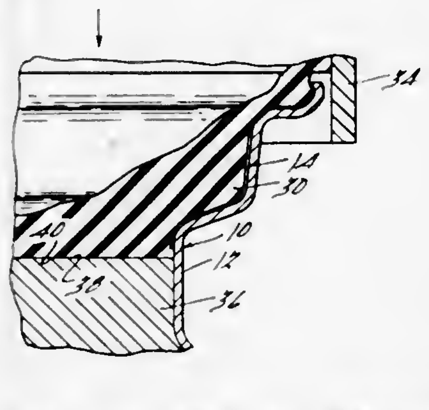
Irving O. Miner, Warwick, R.I., assignor to General Signal Corporation
Original application Dec. 27, 1967, Ser. No. 693,845, now Patent No. 3,511,474, dated May 12, 1970. Divided and this application May 1, 1969, Ser. No. 839,118
Int. Cl. B23p *11/00, 11/02, 19/00*
U.S. Cl. 29—157.1 **5 Claims**

The disclosure concerns a process for manufacturing a butterfly valve body containing a work-hardened, corrosion resistant metal seat insert. The seat is made from a ring of rectangular cross section which is expanded into place in the body, and simultaneously shaped and finished, by a cold working operation employing forming rollers which revolve about the axis of the body. The ring is restrained against axial movement, but permitted to extrude axially, until it has been deformed sufficiently to retain itself in the body. Thereafter, the axial restraint is removed, and the rolling step is continued to compress the ring tightly against continuous, sharp body edges which encircle the axis, to provide integral keys which lock the ring against annular body shoulders, and to give the seat its final shape and surface finish.



3,570,093
METHOD OF MAKING A WHEEL RIM

George E. Gollwitzer, Belleville, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Jan. 6, 1969, Ser. No. 789,256
Int. Cl. B21h *1/10;* **B21k** *1/38*
U.S. Cl. 29—159.1 **7 Claims**

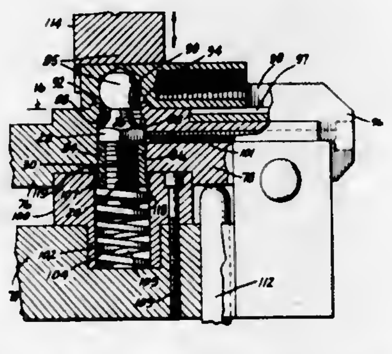


A wheel rim and method of making the same in which the rim is provided with a decorative facing of aluminum or other bright material. The facing, which is in ring form, is attached to the rim by use of a rubber bulging die.

3,570,094
APPARATUS FOR MAKING A BALL JOINT ASSEMBLY

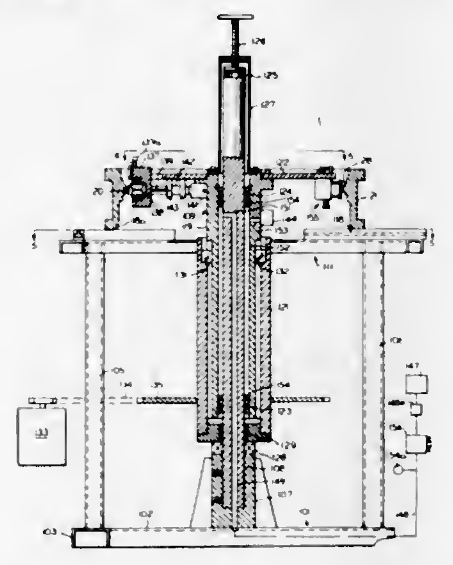
Gilbert E. Davies, John M. Weston, and Gino L. Gasparini, Fort Wayne, Ind., assignors to Tuthill Pump Company
Original application Aug. 16, 1965, Ser. No. 479,860, now Patent No. 3,514,138, dated May 26, 1970. Divided and this application Aug. 18, 1969, Ser. No. 850,812
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 **10 Claims**

Apparatus for fabricating a ball joint assembly of the type including a metallic body having a flat surface with a socket extending inwardly from the flat surface and forming an opening therein, and a ball stud having an elongated shank with a ball on one end swivelly retained in the socket, the shank having a longitudinal axis coincident with a diameter of the ball. A base plate is provided having a backing member mounted thereon, the backing member having an outer surface and a cylindrical bore. A sleeve is telescopically received in the bore for receiving the other end of the shank with the one end and the ball spaced outwardly from the surface of the backing member. A compression spring in the bore bears against the sleeve and base plate. A pair of elongated punch members are provided having opposite ends, one end of each of the punch members being pivotally mounted on the base plate for swinging movement between adjacent positions in which the punch members extend in contiguous end-to-end relation, and spaced positions. The contiguous ends of the punch members have semi-cylindrical recesses therein which are juxtaposed and concentric about the longitudinal axis and which surround the one end of the shank. The punch members have outer sides with semi-circular punch edges projecting therefrom respectively contiguous to the recesses, the punch edges defining a circle concentric with the longitudinal axis and surrounding the portion of the ball adjacent the one end of the shank. The punch edges further define a plane normal to the longitudinal axis which is adapted to have the flat surface of the body positioned thereon with the ball received in the socket so that application of pressure to the body is a direction parallel with the longitudinal axis and toward the punch edges will cause the punch edges to indent portions of the flat surface of the body adjacent the socket opening inwardly toward the ball thereby to retain the ball in the socket.



3,570,095
MACHINE FOR SIMULTANEOUSLY EXPANDING AND SHAPING SEAT INSERTS IN BODIES OF BUTTERFLY VALVES

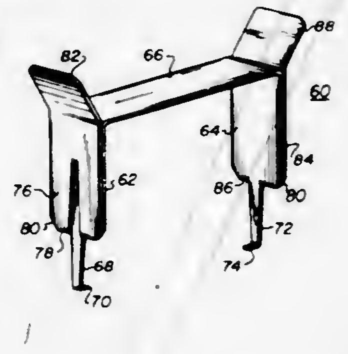
Irving O. Miner, Warwick, R.I., assignor to General Signal Corporation
Original application Dec. 27, 1967, Ser. No. 693,845, now Patent No. 3,511,474, dated May 12, 1970. Divided and this application May 1, 1969, Ser. No. 839,119
Int. Cl. B23p *19/00, 11/00, 11/02*
U.S. Cl. 29—200 **9 Claims**



The disclosure concerns a cold working machine for expanding metal seat rings into place in the bodies of butterfly valves and for simultaneously shaping and finishing the valving surfaces of such rings. The machine includes three uniformly spaced forming rollers which revolve about a vertical axis, which coincides with the axis of the valve body, and which are pressed outward against the seat ring blank by rams supplied from an air operated hydraulic pump carried by the rotating structure. The machine also includes spring loaded guide rolls which engage the upper and lower margins of the seat ring blank at opposite sides of each forming roller and center the blank in the body until it has been deformed sufficiently to be self-retaining. The incorporation of various adjustment features enables the machine to handle valve bodies having diameters between 24" and 72" using the maximum number of common parts.

3,570,096
MODULE EXTRACTION TOOL

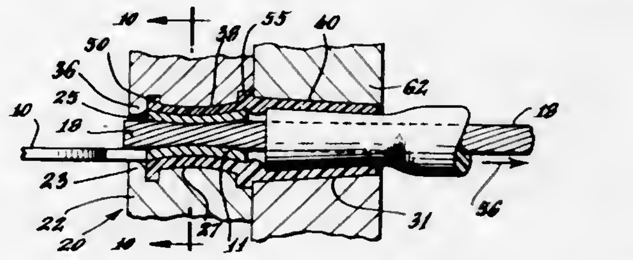
Charles William Sosinski, Linden, N.J., assignor to The Thomas & Betts Co., Elizabeth, N.J.
Filed Apr. 26, 1968, Ser. No. 731,671
Int. Cl. B25b *27/02*
U.S. Cl. 29—203 **6 Claims**



The disclosure is directed to a tool for removing modules from a module mounting rail assembly without disturbing adjacent modules. The tool is constructed of first and second parallel arms joined by a third transverse arm to permit placement of the first and second arms adjacent the sides of a module to be extracted. The first and second arms each terminate in at least one projection, each projection in turn terminating in an inturned rib to grasp the module for removal. Additional arms, in parallel with the first and second arms, help position the nibs in the mounting rail and tabs may be added to such additional arms to further control the positions of the nibs.

3,570,097
CRIMPING DIE

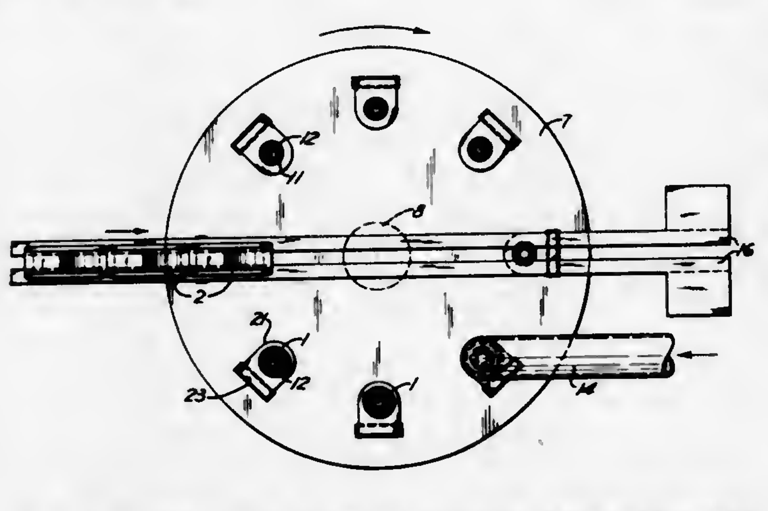
Wade R. Bowden, Jr., Milford, Ernest L. Cheh, Darien, and Nino Suffredini, Monroe, Conn., assignors to Burndy Corporation
Filed Nov. 1, 1968, Ser. No. 772,723
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 **11 Claims**



A two part die crimps a wire conductor to a connector barrel. The barrel is covered by a plastic insulating sleeve that forms a shroud for a short length of the conductor extending out of the barrel. One part of die crimps the barrel to the conductor and is formed with a channel into which the plastic of the sleeve flows during crimping to form a ridge that limits the extrusion of the sleeve so as to preserve its insulating value. The other part of the die presses the shroud portion of the sleeve against the conductor. A stop determines the degree of movement between the two parts of the die and therefore the pressure against the shroud portion of the sleeve.

3,570,098
APPARATUS FOR ASSEMBLING POTENTIOMETER BRIDGING CONTACT DEVICE

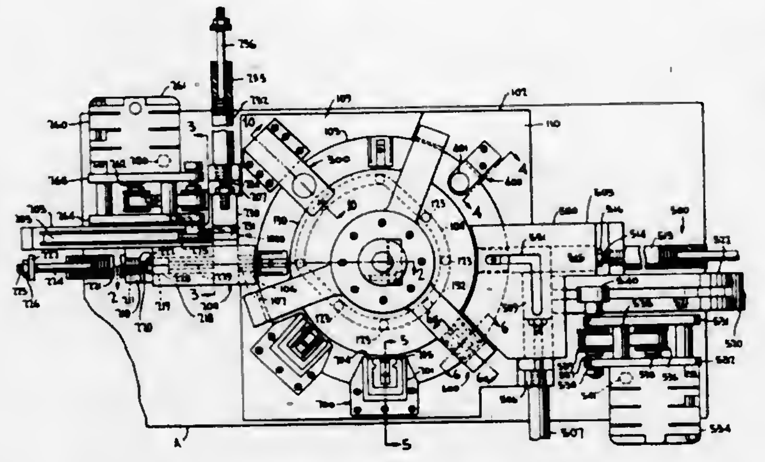
Mogens W. Bang, Ridgway, Pa., assignor to Stackpole Carbon Company, St. Marys, Pa.
Filed Dec. 23, 1968, Ser. No. 786,274
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 **9 Claims**



A coil-receiving post having a free end is provided with a recess having an inwardly converging side wall. There are means for effecting relative axial movement between the post and the laterally spaced legs of a linear motion potentiometer slide to press the free ends of the legs and the converging side wall of the post against each other in order to squeeze the legs together temporarily. There also are means for moving a wire coil axially off the free end of the post and into position around the squeezed legs, and means for then separating the post from the legs to permit the free ends of the legs to spring apart with the wire coil encircling them.

3,570,099
UNIT CARRIER LOADER

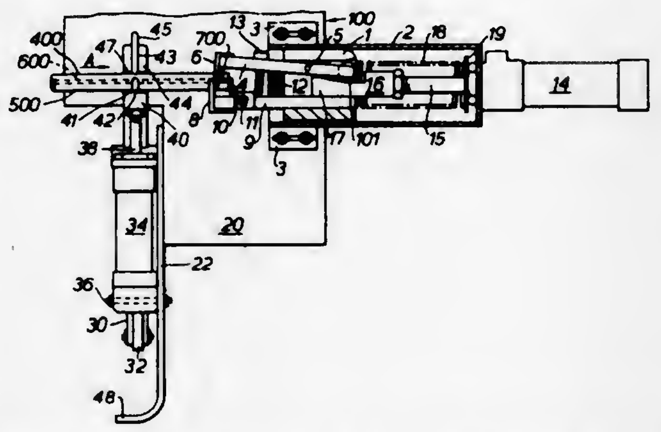
Daniel W. Ackerman, Chenango Bridge, Robert H. Holmes, Marathon, and Albert W. Zemek, Binghamton, N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.
Filed Feb. 7, 1969, Ser. No. 803,524
Int. Cl. H05k *3/30, 13/04*
U.S. Cl. 29—203 **38 Claims**



An apparatus and process for inserting dual in-line lead electrical components into unit carriers having a slotted rotating index wheel with work stations located around the periphery thereof including separate feed mechanisms for the components and carriers, lead forming and straightening dies, a sensing photo-cell assembly, an inserting plunger and two magazines for receiving the loaded carriers. The work stations are powered by pneumatic cylinders operated by a control system which is timed by cams and switches on the index wheel drive train which contains a Geneva drive train to index the wheel to a new work station for each revolution of a pneumatically driven motor. The device feeds the components and carriers to the index wheel where the component leads are straightened, the component is loaded into the carrier and the filled carrier is loaded into a magazine.

3,570,100
INSULATION STRIPPING ATTACHMENT FOR ELECTRICAL CONNECTOR CRIMPING PRESS AND CONNECTOR CRIMPING PRESS HAVING INSULATION STRIPPING MEANS

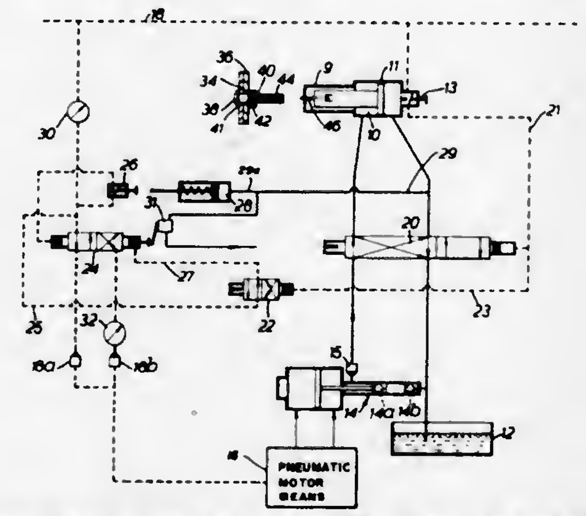
Colin David Kindell, Bushey, and Terence Robert Raynor, Chingford, London, England, assignors to AMP Incorporated, Harrisburg, Pa.
Filed May 1, 1969, Ser. No. 820,816
Claims priority, application Great Britain, May 3, 1968, 21,012/68
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 **11 Claims**



A stripper attachment for a crimping press comprises wire gripping jaws and an insulation stripping device. The jaws are mounted on a jaw-operating cylinder which swings about a pivot from a first position opposite the stripping device and in which position the stripping device strips a wire end held by the jaws to a second position in which the stripped wire end is located over a crimping ferrule on a crimping anvil of the crimping press so that the ferrule can be crimped to the wire end.

3,570,101
HYDRAULIC AND PNEUMATIC SYSTEM FOR CONTROLLING TOOLS

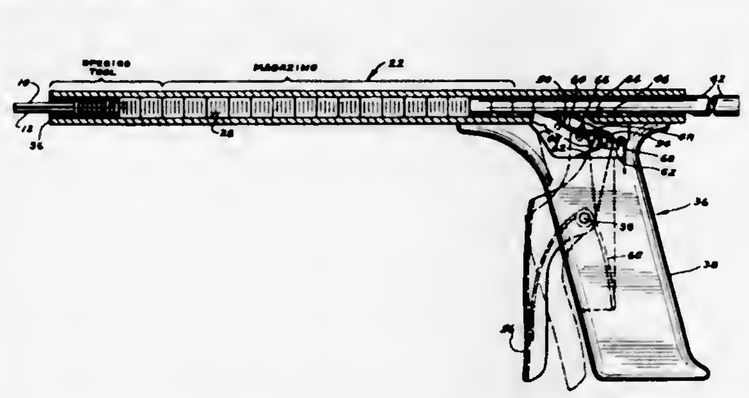
Albert Henry Stead, Northwood, England, assignor to Skyhi Limited
Filed July 1, 1968, Ser. No. 741,518
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 **6 Claims**



The disclosure relates to a method and apparatus for producing a plurality of predetermined output pressure levels from a hydraulic pump, for example for the purpose of anchoring a bolt under tension, and which consists in driving the pump by an air operated motor and positively varying the pressure of the air supply to the said air motor to produce the said predetermined hydraulic pressure levels from the pump which, in the embodiment described, operates a hydraulic bolt-anchoring tool in accordance with a plurality of steps in a bolt anchoring sequence.

3,570,102
DEVICE FOR APPLYING A HELICAL SPRING CONNECTOR TO A PLURALITY OF WIRES OR RODS

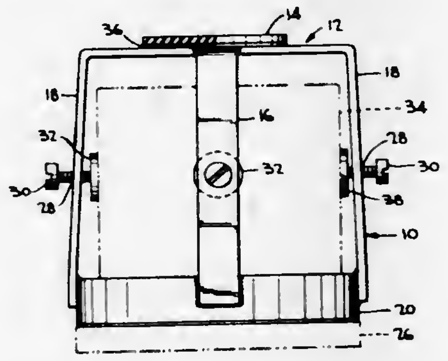
John H. Blomstrand, 214 Hazel Drive, Corona del Mar, Calif. 92625
Filed Feb. 17, 1969, Ser. No. 799,874
Int. Cl. B23q *7/10;* B23p *19/04*
U.S. Cl. 29—212 **12 Claims**



A helical spring connector has longitudinally spaced ends and a series of intermediate resilient convolutions, the spaced ends projecting outwardly. The device for applying such a connector to a plurality of wires or rods includes a tubular member through which the connector is advanced, the forward end of the connector being angularly shifted by cam action with respect to the trailing or rear end as the advancement progresses. Such action transversely enlarges the convolutions for the reception of the rod-like elements. When the forward end reaches the end of the tubular member, it is released and snaps back to its normal position, the enlarged convolutions contracting against the inserted elements. A feeding mechanism is provided for advancing a number of connectors in succession through the tubular member.

3,570,103
GLASS METER INSTALLING DEVICE

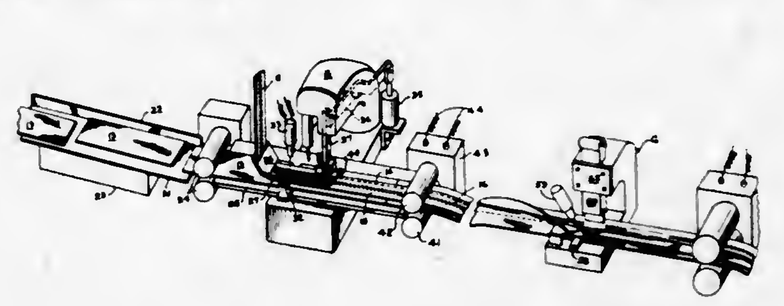
Bobble G. Price, Cordell, Okla., assignor to Southwest Electric Co., Oklahoma City, Okla.
Filed Nov. 12, 1968, Ser. No. 774,615
Int. Cl. B25b *11/00, 27/00*
U.S. Cl. 29—270 **8 Claims**



A glass meter installing device having a plurality of support members extending from a platen disposed at the butt end of the device and supporting a collar adapted to abut the rim of a glass enclosed meter to be installed, and cushioning means disposed on the support members resiliently abut the glass enclosure of the meter to secure the device to the glass enclosure of the meter; the meter is disposed adjacent an installation socket and force applied to the platen is transmitted through the support members and the collar to the rim of the meter to force the meter into the socket without subjecting the glass enclosure of the meter to breakage.

3,570,104
METHOD AND APPARATUS FOR MAKING A CONTINUOUS SERIES OF FLY PIECES

Philip Brehmer Jensen, Naugatuck, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Sept. 18, 1969, Ser. No. 859,149
Int. Cl. A41h *37/06;* B29d *5/00*
U.S. Cl. 29—408 **10 Claims**



A continuous series of individual fly pieces connected by a slide fastener chain is made automatically with a sewing machine and gapping device. Sensing means in the form of photoelectric cells operate in conjunction with feed rolls to control the fly pieces as well as the operation of the sewing machine and gapping device. A light beam senses the presence of the leading and trailing ends of the individual fly pieces so as to effect correct automatic control regardless of the length of such fly pieces and without requiring accurate placement of the fly pieces by an operator.

3,570,105
METHOD OF MAKING NON-BUBBLING DISPERSION-STRENGTHENED LEAD PRODUCTS

Michael V. Rose, Sewickley, Pa., assignor to St. Joseph Lead Company, New York, N.Y.
No Drawing. Original application Feb. 10, 1966, Ser. No. 526,394, now Patent No. 3,499,800, dated Mar. 10, 1970. Divided and this application May 28, 1969, Ser. No. 841,665
Int. Cl. B22f *3/24*
U.S. Cl. 29—420.5 **5 Claims**

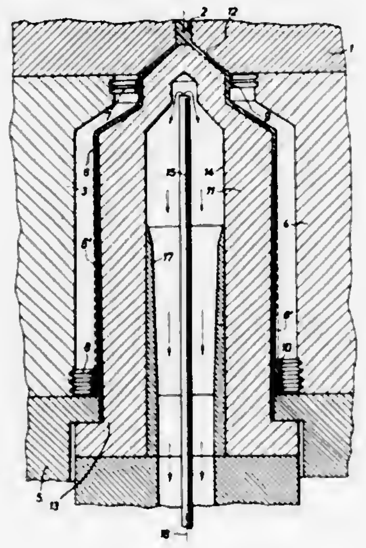
Method of producing lead products strengthened by the dispersion of insoluble solid substances therein and capable of being hot worked without substantial gas evolution. The products are made by heating lead particles not exceeding about 150 microns in particle size, coated or admixed with solid substances capable of dispersion in the lead, at a temperature in the range from about 280° C. to just below the melting point of the lead particles and thereafter subjecting a body of the particles to plastic deformation to disperse the insoluble solid substance in the lead matrix.

3,570,106
METHOD FOR PRODUCING SEAMLESS REFRACTORY METAL TUBING

James A. McGurty and Charles O. Tarr, Cincinnati, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,435
Int. Cl. B23p *17/00*
U.S. Cl. 29—423 **4 Claims**

A method for producing seamless refractory metal tubing is provided which utilizes a composite core filler disposed coaxially within a billet of primary refractory metal from which the tubing is to be formed. The composite core filler comprises an outer core portion which is compatible with the working and metallurgical characteristics of the primary refractory metal, and an inner core portion disposed coaxially within the outer portion. The inner core portion is selected from materials easily removed by chemical leaching. Following an extrusion operation, the inner core portion is first removed through chemical leaching in order to provide an axial passage along the entire length of the outer core portion. The outer core portion is then removed by flowing chemicals through the axial passage formed by removing the inner core portion.

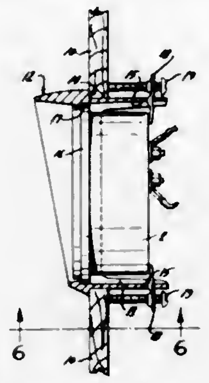
3,570,107
METHOD FOR INJECTION MOLDING AN INFANT'S FEEDING BOTTLE
Heinrich Denzler von Matt, 81 Stalli Konerstrasse, Birmensdorf, Zurich, Switzerland
Filed Nov. 14, 1968, Ser. No. 775,753
Claims priority, application Switzerland, May 20, 1968, 7,436/68
Int. Cl. B29d *3/00, 23/02, 23/20*
U.S. Cl. 29—436 **6 Claims**



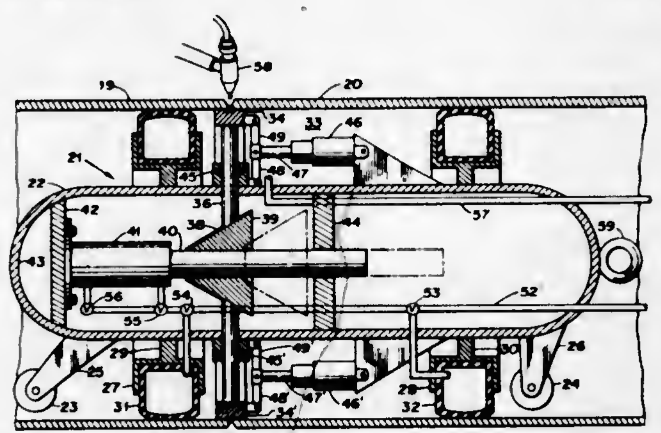
An infant's feeding bottle having an internal bottle wall of cylindrical shape for receiving a slideable follow-up piston is made by injection molding in a split mold having outer mold parts movable relative to an internal core. After injection of the plastic, the outer mold parts are shifted from the bottle body and the core is moved axially downward through an open bottom end of the bottle body. The upper larger diameter portion of the core acts to expand and calibrate the lower, soft and plastic condition, tapering bottle body to a truer cylindrical shape. During removal of the core, the upper portion of the bottle around the core is cooled by a fluid. A follow-up piston of thermoplastic material is molded and then stored for a prolonged period of time in a hollow cylinder to permit shrinkage from an oversized diameter to that desired for providing sealing contact with the cylindrical body wall.

3,570,108
METHOD OF PROVIDING AND INSTALLING A GROUP OF INSTRUMENTS IN A PANEL
Salvatore S. Sarra, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill.
Filed Apr. 23, 1969, Ser. No. 818,732
Int. Cl. B23p *21/00*
U.S. Cl. 29—469 **1 Claim**

A plurality of electrical instruments are prewired in a single harness for shipment, after which they are individually mounted in corresponding individual openings in a panel or dash by inserting the same from the rear and clamping the same to a front bezel peripheral of the openings.

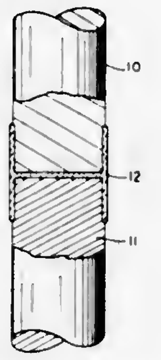


3,570,109
JOINING METHOD AND APPARATUS THEREFOR
Hubert B. Harlan, 230 S. Purdue Ave., and Paul W. Turner, 108 Poplar Road, both of Oak Ridge, Tenn. 37830
Filed June 24, 1968, Ser. No. 740,832
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—491 **5 Claims**



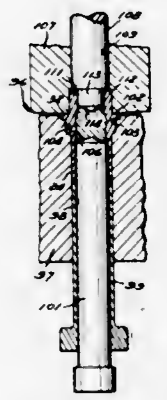
An improved method for joining abutting surfaces of adjacent materials wherein a dam member is placed on the back side of the abutting surfaces to define, in combination with the abutting surfaces, a space to be filled with fluid joining matter, a negative pressure, relative to the ambient pressure on the front (torch) side of the weld, being provided on the back side of the abutting members to force complete filling of at least a part of the area defined by the dam and abutting members. The method is particularly useful in joining large diameter pipe.

3,570,110
METHOD OF BRAZING
Edward J. Zdanuk, Lexington, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Original application Mar. 24, 1966, Ser. No. 537,036, now Patent No. 3,455,663, dated July 15, 1969. Divided and this application Apr. 18, 1969, Ser. No. 817,427
Int. Cl. B23k *31/02, 35/38*
U.S. Cl. 29—494 **3 Claims**



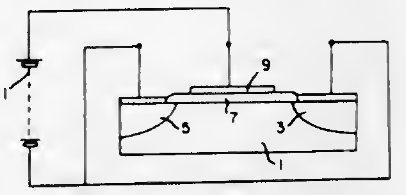
A method of making a brazed joint comprising contacting a tungsten member and a copper member with a brazing alloy of silver, copper and titanium in a vacuum atmosphere at an elevated temperature sufficient to cause said brazing alloy to wet said tungsten member and said copper member, thereby joining said members.

3,570,111
METHOD OF MAKING METAL FITTINGS
Louis B. Courtot, Euclid, and Thomas J. Mack, Cleveland, Ohio, assignors to The Weatherhead Company, Cleveland, Ohio
Original application Oct. 1, 1964, Ser. No. 400,701, now Patent No. 3,442,537, dated May 6, 1969. Divided and this application Sept. 11, 1968, Ser. No. 801,880
Int. Cl. B21d *39/00;* **B23p** *11/02*
U.S. Cl. 29—522 **6 Claims**



Forged fittings such as tube fittings and hose fittings are formed from a blank of composite material of uniform cross-section having a jacket of one metal and a core of a different metal having a different modulus of elasticity. By simultaneously working the composite blank as in a progressive heading machine, the core and shell are worked together to become mechanically interlocked in the finished article even though no actual bonding takes place between the different metals. When the core has a lower modulus of elasticity in the finished article the core is in compression and the jacket is in tension.

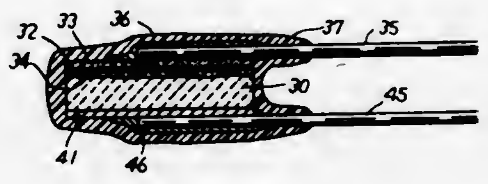
3,570,112
RADIATION HARDENING OF INSULATED GATE FIELD EFFECT TRANSISTORS
Albert L. Barry and Donald F. Page, Ottawa, Ontario, Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence
Filed Dec. 1, 1967, Ser. No. 687,383
Int. Cl. B01j *17/00;* **H01g** *13/00*
U.S. Cl. 29—571 **5 Claims**



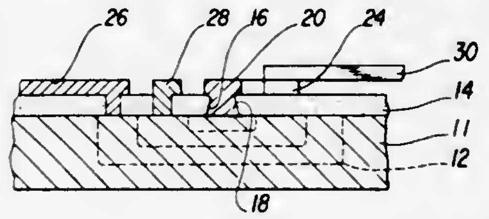
A metal-oxide-semiconductor field effect device is rendered less sensitive to ionizing radiation by subjecting the device to ionizing radiation at a positive gate bias several times larger than the normal operating bias voltage of the device, and then partially temperature annealing the device.

3,570,113
METHOD OF MAKING SEMICONDUCTIVE CERAMIC CAPACITOR
Minoru Chiba, Kyoto, Japan, assignor to Nichicon Capacitor Ltd., Kyoto, Japan
Filed Mar. 17, 1969, Ser. No. 807,734
Int. Cl. H01g *13/00*
U.S. Cl. 29—546 **7 Claims**

A semiconductor ceramic capacitor having a thin layer containing copper on at least one surface portion of a substrate formed of N-type barium titanate containing a small quantity of a rare earth element and a coating containing frit, lead, and powdered silver or silver oxide with the lead, silver and copper being diffused into said substrate and a conductive layer on another surface portion of said substrate to form said capacitor. The invention further provides a method of manufacturing the foregoing capacitor which is made by applying said copper layer and said layer containing frit, lead, and silver in overlying relationship and heating said substrate and layers in an oxidizing atmosphere.

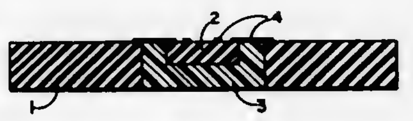


3,570,114
BI-LAYER INSULATION STRUCTURE INCLUDING POLYCRYSTALLINE SEMICONDUCTOR MATERIAL FOR INTEGRATED CIRCUIT ISOLATION
Kenneth E. Bean, Richardson, and Billy M. Martin, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Original application Jan. 29, 1968, Ser. No. 701,460, now Patent No. 3,519,901, dated Aug. 7, 1970. Divided and this application Feb. 27, 1969, Ser. No. 813,379
Int. Cl. B01j *17/00;* **H01l** *1/16*
U.S. Cl. 29—577 **17 Claims**



This specification discloses a method of fabricating an integrated circuit characterized by electronic components being formed in a polycrystalline semiconductor, such as silicon or germanium, deposited at less than 900° C. and at a rate of less than one micron per minute and overlying an isolation layer covering components formed in a base region of monocrystalline semiconductor material. The components in the polycrystalline semiconductor may employ junctions and may be active or passive. More than one layer of polycrystalline semiconductor and more than one isolation layer may be employed.

3,570,115
METHOD FOR MOUNTING ELECTRONIC CHIPS
Bryce E. Barnes, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed May 6, 1968, Ser. No. 726,818
Int. Cl. B01j *17/00;* **H01l** *5/00, 7/10, 7/12, 7/48, 7/54*
U.S. Cl. 29—578 **7 Claims**

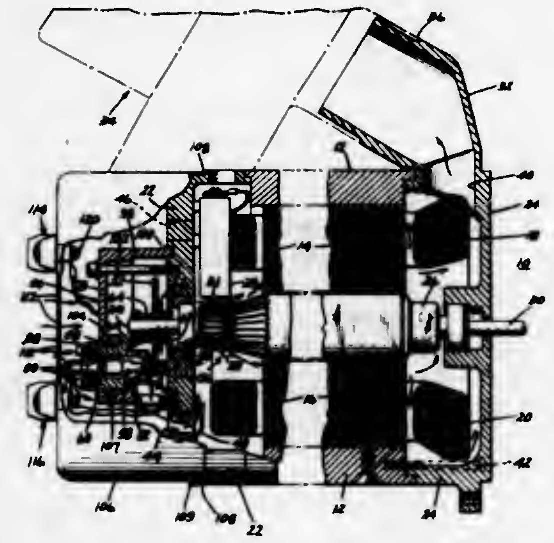


A method for mounting an electronic chip within a circuit board, permitting the use of deposited interconnections. The circuit board is inverted against a Teflon coated sheet, the chip to be mounted is positioned through a hole in the board against the Teflon coated sheet, and epoxy is added from the rear of the hole to fill the interstice between the chip and the perimeter of the hole. After the resin has cured, the Teflon coated sheet is removed and interconnection conductors may be deposited across the resin.

3,570,116

METHOD OF ASSEMBLING AN ELECTRIC MOTOR HAVING SPEED INDICATING MEANS

Fredrick J. Armstrong and Robert A. Susdorf, Fort Wayne, Ind., assignors to General Electric Company
Original application Apr. 27, 1967, Ser. No. 634,183, now Patent No. 3,465,184, dated Sept. 2, 1969. Divided and this application Feb. 3, 1969, Ser. No. 797,380
Int. Cl. H02k *15/00*
U.S. Cl. 29—596 **4 Claims**

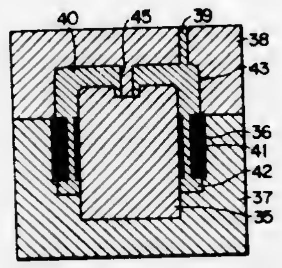


The assembly method includes steps generally directed to mounting and aligning the speed indicating assembly components on the motor and electrically connecting various motor and speed indicating assembly components to sections of a terminal board carried by an enclosure member.

3,570,117

METHOD OF MAKING SQUIRREL-CAGE OUTER ROTOR FOR OUTER ROTOR TYPE SQUIRREL-CAGE INDUCTION MOTORS

Kenichi Kitamura, Yokohama-shi, and Seiichi Watanabe, Zushi-shi, Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan
Filed Oct. 26, 1967, Ser. No. 678,392
Claims priority, application Japan, Oct. 28, 1966, 41/70,766
Int. Cl. H02k *15/02*
U.S. Cl. 29—598 **2 Claims**

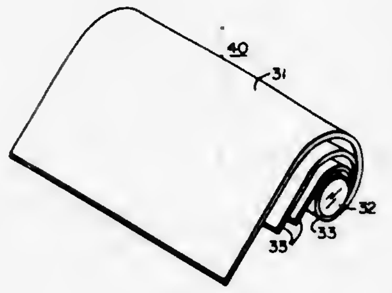


A squirrel-cage outer rotor and a method of making the same wherein annular magnetic laminae provided with slots into which rotor conductors are to be respectively inserted along the inner peripheries are laminated to a proper thickness to form an iron core of a squirrel-cage outer rotor and are die-cast while fixed and held with a jig or die-casting metallic dies on the outer or inner peripheries or in the slots so that the above mentioned iron core may be molded integrally with rotor conductors, an end ring and a housing.

3,570,118

METHOD OF PRODUCING COPPER CLAD SUPERCONDUCTORS

William T. Reynolds, McMurray, and Russell M. Schrecengost, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 10, 1967, Ser. No. 622,266
Int. Cl. H01v *11/00*
U.S. Cl. 29—599 **2 Claims**

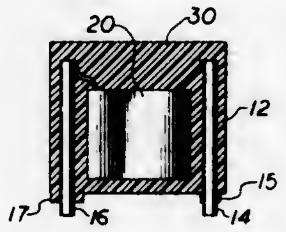


Copper cladding is provided on alloy or compound superconductors such as niobium containing materials in strip or wire form by bonding the super conductive material to the copper through an intermediate aluminum bonding layer. Aluminum foil is placed about the superconductive material and then inserted into a copper sheath and bonding occurs in the rolling thereof or drawing it into the wire. Heat treatment is subsequently employed to improve the superconductive properties of the alloy or to react the constituents to form the superconductive compound.

3,570,119

METHOD OF MAKING AN ENCAPSULATED COMPONENT

Ronald A. Baker, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Continuation of application Ser. No. 614,836, Feb. 9, 1967. This application Sept. 8, 1969, Ser. No. 856,219
Int. Cl. H01f *7/06*
U.S. Cl. 29—602 **3 Claims**

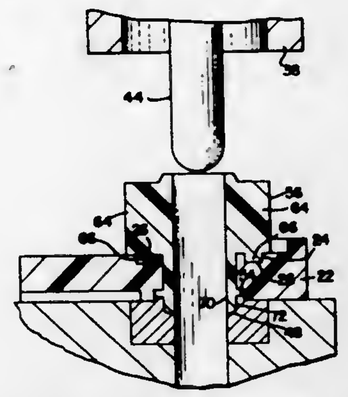


A cavity is provided at one end of a preform of insulative material and a plurality of terminal lead-wires are radially spaced from the cavity within the preform and extend alongside the cavity and from opposing ends of the preform. A component is disposed within the cavity in connection to the portions of the lead wires which extend from the cavity end of the preform, and insulative material is disposed over the component and connections and is sealed to the cavity end of the preform.

3,570,120

METHOD OF MAKING A SWITCH WITH MOLDED BEARING

William E. Adams, Broadview Heights, Ohio, Werner R. Bauer, Radnor, Pa., and John B. Schultheis, Worthington, Ohio, assignors to Robertshaw Controls Company, Richmond, Va.
Original application May 24, 1965, Ser. No. 458,223, now Patent No. 3,392,253, dated July 9, 1968. Divided and this application Jan. 30, 1968, Ser. No. 701,593
Int. Cl. H01h *11/00*
U.S. Cl. 29—622 **9 Claims**

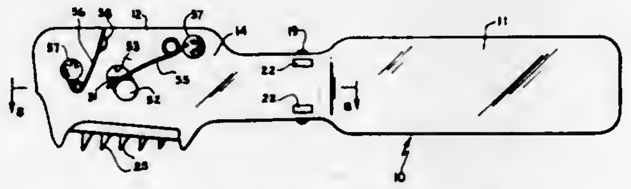


This application discloses a switch construction made by molding a relatively high temperature resistant thermosetting material into a switch base with a shaft opening passing through the base, and forming a shaft bearing in said opening of relatively low temperature elastic limit thermoplastic material, said bearing being formed at a temperature of said relatively low temperature elastic limit. A switch is placed on said base and a switch shaft is inserted in said bearing and operatively connected to said switch.

3,570,121

HAIR-CUTTING COMB WITH FLOATING BLADE

Joseph A. Graceffo, Seneca Falls, N.Y., assignor to Helida R. Graceffo, Seneca, Falls, N.Y., a fractional part interest
Filed Nov. 29, 1968, Ser. No. 780,033
Int. Cl. B21b *21/12;* **B26b** *19/00*
U.S. Cl. 30—30 **9 Claims**



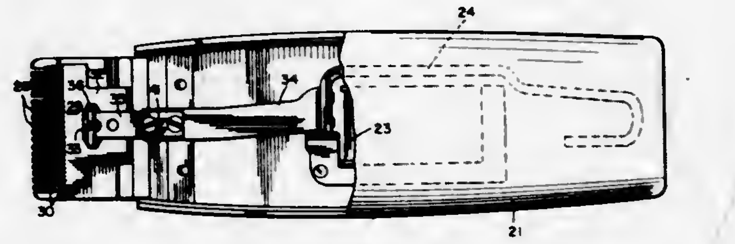
The comb has a toothed head with front and back sides secured together. A razor blade secured to a carrier in a recess between the sides is slidable from a spring-biased extended position with its edge crossing the tooth intervals to a position withdrawn from the teeth. Each tooth has one side curved to deflect combined hair in one direction longitudinally of the comb and the carrier is guided in the recess to slide the blade in the other direction when moved by hair pressure from extended to withdrawn position.

3,570,122

DRIVE FINGER FOR A CLIPPER BLADE

Vernon H. Williams, Columbus, Ind., assignor to Vernco Corporation, Columbus, Ind.
Filed Dec. 11, 1968, Ser. No. 782,829
Int. Cl. B26b *19/02*
U.S. Cl. 30—210 **2 Claims**

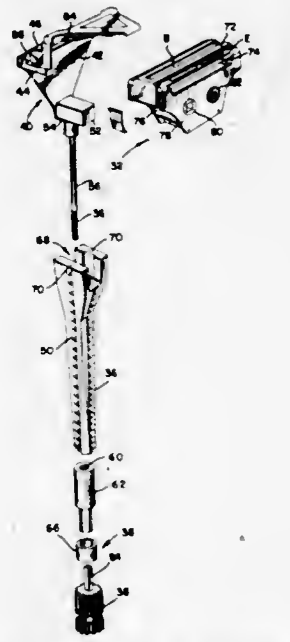
A drive connection between a vibratory armature and a reciprocable clipper blade which is formed to provide a recess in its surface remote from a mating stationary blade, said connection comprising a spring connected to the armature and provided at its distal end with a block received in such recess, the block being formed to maintain movable point- or line-contact with opposing boundary walls of the recess to press the reciprocable blade into cooperative contact with the stationary blade and to transmit the vibratory motion of the armature to said reciprocable blade.



3,570,123

DOUBLE EDGE RIBBON-RAZOR

Leopold K. Kuhnl, Stratford, Conn., assignor to Eversharp, Inc., Milford, Conn.
Filed June 6, 1968, Ser. No. 735,028
Int. Cl. B26b *21/26*
U.S. Cl. 30—40.1 **3 Claims**



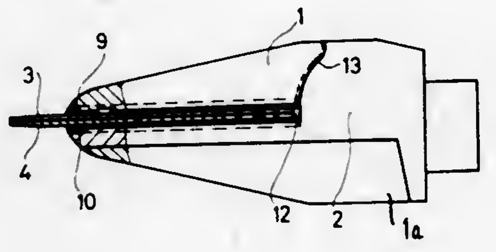
A magazine for use with a holder to form a safety razor, wherein a ribbon-type blade is provided which has cutting edges on both sides thereof. Guide means are provided for maintaining the alignment of the ribbon-type blade without reference to the unused edges thereof, and means are provided for advancing segments of the blade successively into position on top of the magazine unit. Top guide means is disposed over the top of the bridge for imparting the desired angle to the portion of the blade which is exposed for shaving. Various means are described for holding the cartridge unit in position in a handle to form a safety razor unit.

3,570,124

ANIMAL SKINNING APPARATUS

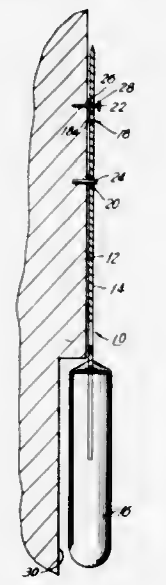
Hans Georg Wezel, Maulbronn, Wurttemberg, Germany, assignor to Schmid & Wezel, Maulbronn, Wurttemberg, Germany
Filed Apr. 1, 1969, Ser. No. 811,745
Claims priority, application Germany, June 25, 1968, Sch 45,103
Int. Cl. B26b *19/12*
U.S. Cl. 30—208 **10 Claims**

An animal skinning apparatus has a support and a cover between which there are located a pair of coaxial toothed cutter wheels which are rotatably carried by the support. The sides of the support and of the cover which face the cutter wheels are provided with grooves extending circumferentially of the cover and support, and sealing strips are located in these grooves and slidingly engage the respective cutter wheels to prevent entry of contaminants into the interior of the apparatus. Portions of the cutter wheels extend outwardly beyond the support and cover for cutting purposes.



3,570,125
KNIFE AND KNIFE SUPPORT

Jerome S. Hahn, Glen Head, N.Y., assignor to Regent Sheffield, Ltd., Farmingdale, N.Y.
Filed Nov. 19, 1968, Ser. No. 777,127
Int. Cl. B26b *3/00*
U.S. Cl. 30—296 **4 Claims**

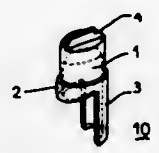


A knife and knife support are provided with pin and cutout means for releasably securing the knife to the support in a manner precluding inadvertent disengagement of the knife. Preferably, the support is provided with a retaining pin including a shank and a broad head, and a positioning pin including only a shank. The knife includes a keyhole-shaped cutout dimensioned to be secured upon the retaining pin and a positioning cutout located with respect to the keyhole-shaped cutout so that the retaining pin can be removed from the keyhole cut out only when the positioning pin is first disengaged from the positioning cutout.

3,570,126
SETTING PROCESS AND DEVICE FOR DENTAL PROSTHESIS

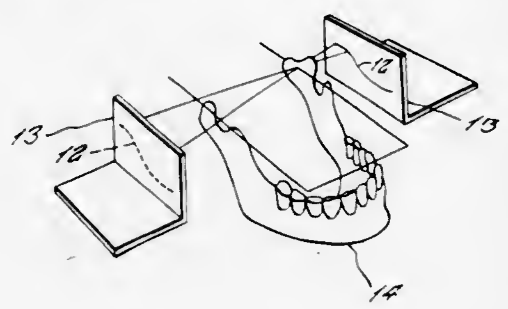
Marc Louis Reynaud, 16 Bd. Gambetta,
38 Grenoble, France
Filed July 5, 1968, Ser. No. 742,927
Claims priority, application France, July 6, 1967,
5,133
Int. Cl. A61c *9/00*
U.S. Cl. 32—17 **8 Claims**

A process and a device is disclosed for taking negative impressions of teeth which is then used to form corresponding artificial teeth. A male positioning member and a female positioning member releasably engage to establish a predefined indexing position. The male and female positioning members cooperate with a moulding ring which is configured to fit around a portion of the tooth to be artificially reproduced. Then a negative tooth impression is made of the moulded tooth and teeth adjacent thereto after which the moulded tooth and male positioning member may be separated as a unit from the tooth impression. The female positioning member is retained in the tooth impression thereby providing for subsequent alignment of the artifical tooth with the tooth impression.



3,570,127
CUT PATH DENTAL ARTICULATOR

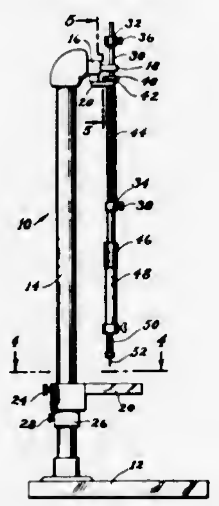
Edwin H. Getz, 60 Olive Place,
Forest Hills, N.Y. 11375
Filed Nov. 27, 1968, Ser. No. 779,391
Int. Cl. A61c *11/00*
U.S. Cl. 32—32 **1 Claim**



A dental articulator which is able to simulate all the movements of a human jaw, the articulator incorporating metal or plastic cut-path guides which are originally obtained by a transfer method from tracings taken directly from the jaw movements of a patient by pantograph means.

3,570,128
DENTAL MILLING AND SURVEY TOOL

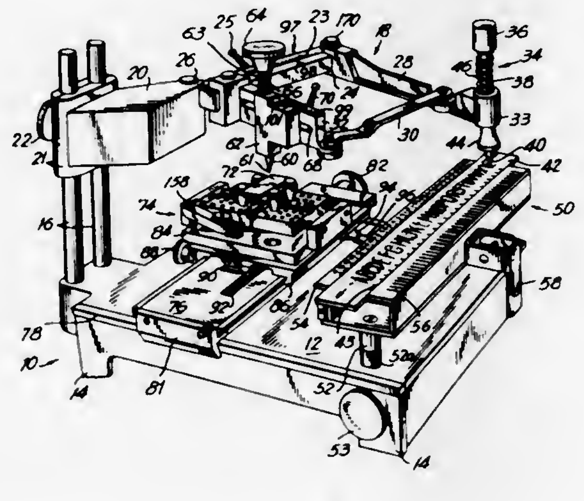
Ralph Irizarry, 232 Newman St.,
Brentwood, N.Y. 11717
Filed Nov. 4, 1968, Ser. No. 773,240
Int. Cl. A61c *11/00*
U.S. Cl. 32—40 **7 Claims**



A guide is provided to permit a dental tool to make a bi-directional cut in the crown of a tooth and survey a dental cast.

3,570,129
ENGRAVING MACHINE

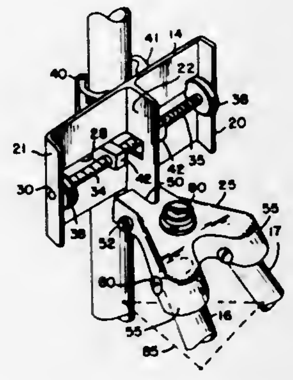
Joseph T. Del Vecchio, Manuet, N.Y., assignor to Granlip Corporation, New York, N.Y.
Filed Mar. 6, 1968, Ser. No. 710,838
Int. Cl. B43l *13/10*
U.S. Cl. 33—25 **10 Claims**



An engraving machine with an engraving tool having a first member reciprocally movable in a plane transverse to the axis of the engraving tool and a second member mounted on said first member and reciprocally movable in that plane at right angles to the movement of the first member. The second member includes jaws on which are mounted the articles to be engraved, which jaws are normally biased closed and are opened and closed simultaneously by cam action.

3,570,130
HOLDING DEVICE FOR SURVEYING INSTRUMENTS

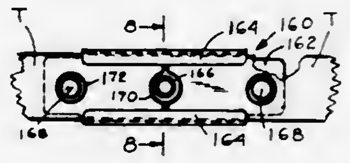
Sheldon Boehm, 5405 Queen Ave. S.,
Minneapolis, Minn. 55410
Filed Dec. 4, 1968, Ser. No. 781,015
Int. Cl. G01c *15/06*
U.S. Cl. 33—74 **8 Claims**



A holding device for surveying instruments and, in particular, sighting instruments such as a range pole or a level rod. The holding device includes a mounting bracket for the rod to be supported which clamps the rod by means such as to leave the front face substantially unobscured and which has a pair of adjustable legs thereon which cooperate with the surveying rod or range pole to form a tripod type support and which legs are adjustable to support the instrument or rod in a reference position.

3,570,131
LAYOUT SYSTEM AND ATTACHMENT FOR FLEXIBLE COILED TAPES

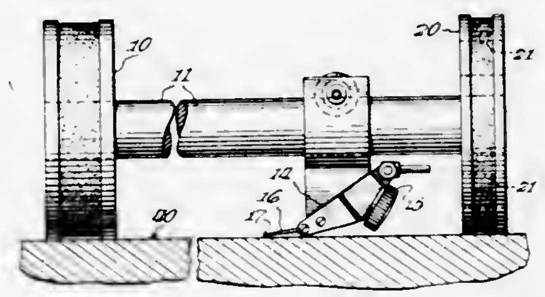
Oswin C. Moll, 1640 Chippendale Circle,
Bethlehem, Pa. 18017
Original application Mar. 29, 1966, Ser. No. 538,414. Divided and this application Dec. 9, 1968, Ser. No. 822,753
Int. Cl. G01b *3/12*
U.S. Cl. 33—138 **7 Claims**



A member having integral retaining means thereon is provided for coupling two flexible, coilable measuring tapes.

3,570,132
SQUARING TOOL

Francesco Guzzo, Melrose Park, Ill., assignor to John L. Hutchinson, Wheaton, Ill., a fractional part interest
Filed June 11, 1969, Ser. No. 832,377
Int. Cl. G01b *5/24*
U.S. Cl. 33—174 **2 Claims**

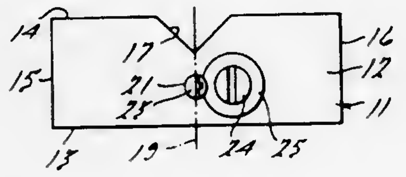


The present invention is directed to a tool for determining, within limits, whether one surface is at right angles to another surface. The tool consists of a circular wheel-like base and a coaxial cylindrical shaft fixed perpendicular to the base. Attached to the shaft is a sensitizer or pickup arm adapted to contact a surface at right angles to the surface supporting the base. Associated with the sensitizer arm is an indicator whose reading is controlled by the movement of the sensitizer arm. Also provided is a second circular wheel-like element adapted to be removably attached to the free end of the shaft, which, together with the wheel-like base, is used to zero the sensitizing arm when the tool is placed on its side with the two wheels resting on the same flat surface.

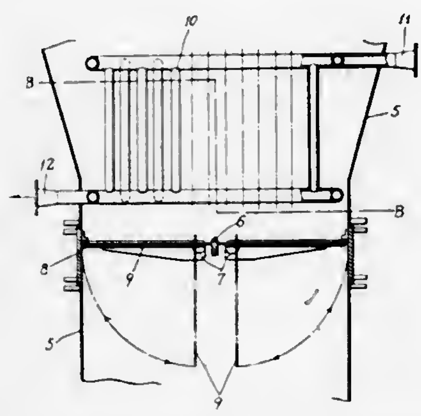
3,570,133
SPOTTING FIXTURE AND METHOD OF USE

Folke Halward, 29625 Bristol Lane,
Birmingham, Mich. 48010
Filed Jan. 22, 1969, Ser. No. 792,942
Int. Cl. G01b *3/00*
U.S. Cl. 33—189 **4 Claims**

A spotting fixture comprising a rectangular plate notched at one edge and having a punch slidably mounted with its axis on a line bisecting the notch and perpendicular to said edge. The fixture is used to drill a locking pin hole in a mold plate or ejector plate assembly of the type having a core pin or ejector pin which is to be held in position by the locking pin. To use the fixture, the notch is placed against the core or ejector pin and the fixture plate is held at a specified angle with respect to an edge of the mold plate or ejector plate assembly. The punch is then struck to indent the surface of the mold plate or ejector plate assembly. The locking pin hole is drilled at the indentation.



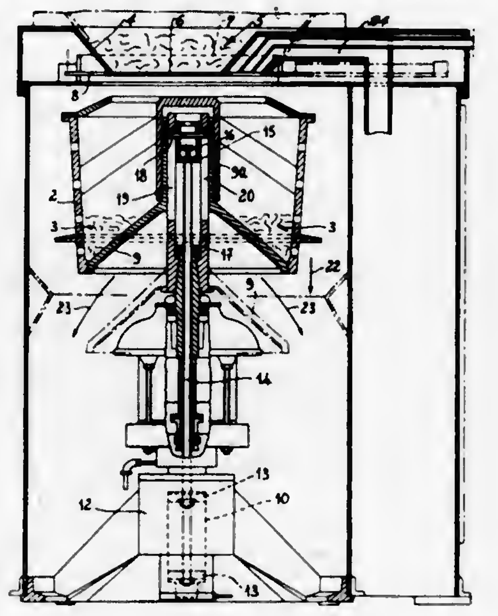
3,570,134
TURNDOWN PERFORATED PLATE TYPE APPARATUS EQUIPPED WITH HOT FLUID PIPES FOR DRYING PULVERANT MATERIALS
Jiyuichi Nara 2-7-8 Higashi-ooi, Shinagawa-ku,
Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 860,642
Int. Cl. F26b *17/14*
U.S. Cl. 34—57 **1 Claim**



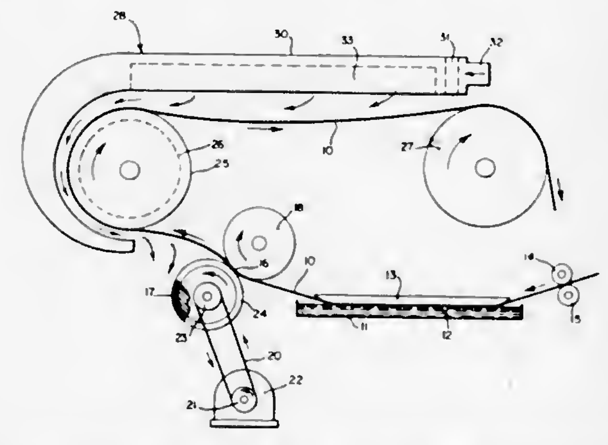
A turndown perforated plate type apparatus equipped with hot fluid pipes for drying pulverant mtaerials, comprising a boiler casing having combinations of twin blade type turndown perforated plate means and hot pipe means for supplying hot air from below the perforated plate means to introduce the heated medium through the swirls of fluidized pulverant material, each of said perforated plate means consisting of a partition plate provided diametrally of the boiler casing, a pair of rotating shafts located parallel to said partition plate and rotatably supported by the boiler casing, and a pair of semicircular frames supporting semicircular perforated plates therein and which are secured at the straight ends to the rotating shafts, said combinations being arranged in a vertical series within said boiler casing.

3,570,135
CENTRIFUGAL DRIERS ESPECIALLY FOR METALLIC OR OTHER PARTS
Joseph Antoine Noel Rousselet, Montalivet,
Annonay, Ardeche, France
Filed Jan. 30, 1969, Ser. No. 795,294
Claims priority, application France, Apr. 17, 1968,
49,915
Int. Cl. B04 *11/00*
U.S. Cl. 34—58 **10 Claims**

A centrifugal drier of the top-loading, bottom-unloading type, as used for metal parts, has a conical stocking or loading hopper fixed above the top of a rotary basket. A sliding drawer, actuated by a jack, with a semi-circular cut-out at the front facilitates even distribution of the load into the basket. The bottom of the basket can be opened and closed by a jack arranged in the shaft suspending the basket. Pulsed hot air can be directed into the basket.



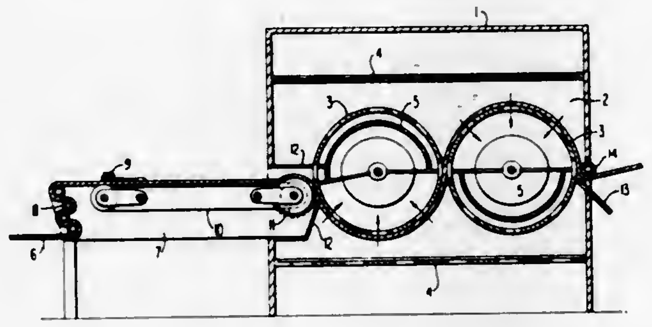
3,570,136
APPARATUS FOR DRYING AN ELECTROPHOTOGRAPHIC RECORDING ELEMENT
Nils L. Hakanson, West Springfield, Mass., assignor to
The Plastic Coating Corporation, Hampden County,
Mass.
Filed Dec. 9, 1968, Ser. No. 782,129
Int. Cl. G03g *13/10*
U.S. Cl. 34—114 **6 Claims**



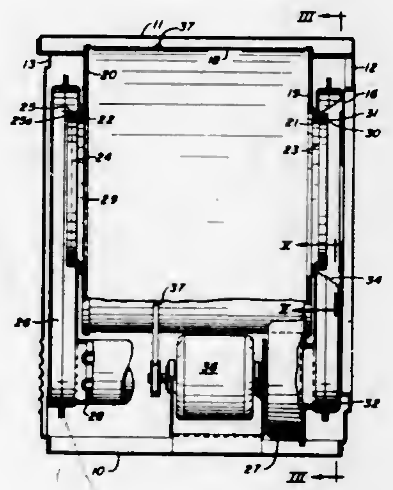
The combination of two rotatably supported rolls disposed in parallel contacting relationship with one another so as to form a squeegee nip, gas circulating means, and, in some embodiments, a heated roll for drying a liquid developer carried on one surface of an electrophotographic recording element.

3,570,137
APPARATUS FOR THE CONTINUOUS TREATMENT OF WEB-SHAPED MATERIALS
Heinz Fleissner, Egelsbach, near Frankfurt am Main,
Germany, assignor to Vepa AG
Filed Dec. 19, 1968, Ser. No. 785,263
Claims priority, application Germany, Dec. 19, 1967,
P 16 35 358.5
Int. Cl. F26b *11/02*
U.S. Cl. 34—115 **24 Claims**

The present disclosure is directed to an apparatus for the continuous treatment of web-shaped materials which comprises a heat-insulated treatment housing, at least one perforated conveying means rotatably disposed within said housing, fan means provided in said housing for subjecting said conveying means to a suction draft and for circulating the treatment medium, heating means provided in the circulation of the treatment medium, inlet means for introducing the material to be treated to the housing, said inlet means comprising a tensioning zone at least partially disposed outside of the housing, needle disc means provided between the tensioning zone and the conveying means for transferring the material being treated from the tensioning zone to the conveying means and outlet means for removing the material being treated from the treatment housing.



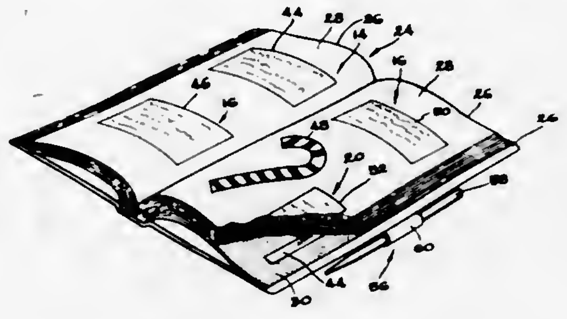
3,570,138
CLOTHES DRYERS
Peyton W. Douglas, Bemus Point, and Russell Patrick,
Jamestown, N.Y., assignors to Blackstone Corporation
Filed Nov. 12, 1968, Ser. No. 775,039
Int. Cl. F26b *11/04*
U.S. Cl. 34—133 **7 Claims**



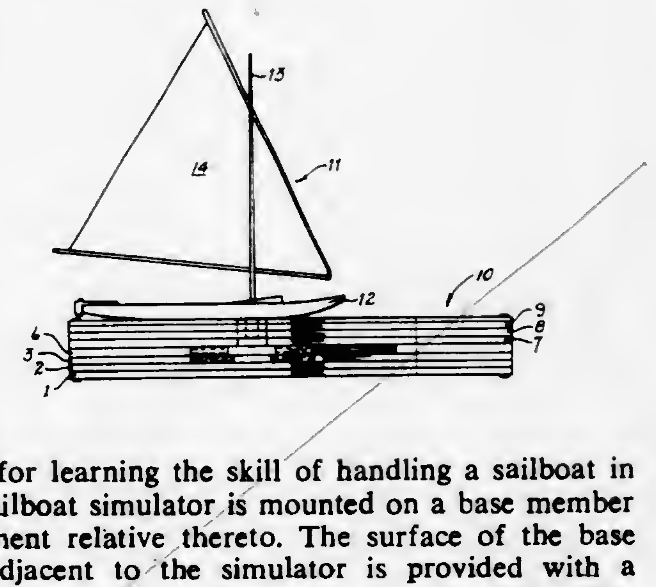
A clothes dryer having a housing with a top, bottom and four sidewalls, one sidewall having an opening coaxial with a rotatable drum in the housing having axial end openings bounded by axial flanges supported in radial ducts, one on the wall surrounding the opening and the other on the opposite sidewall, means for delivering hot air through the ducts and drum and a drive means engaging the periphery of the drum for rotating the same.

3,570,139
TEACHING APPARATUS
Janice S. Ladd, 677 Fairview Ave., Elmhurst, Ill.
60126, and Marillyn H. Emerson, 405 E. Lake Shore
Drive, Barrington, Ill. 60010
Filed Aug. 18, 1969, Ser. No. 850,724
Int. Cl. G09b *1/00*
U.S. Cl. 35—8 **17 Claims**

Teaching apparatus for establishing an association between a selected chemical sense stimulus and an identification thereof. A stimulus producer is provided to produce a stimulus of a chemical sense upon actuation, preferably in the form of a sheet with a coating including rupturable capsules containing a substance which produces the stimulus. A display is also provided which includes an indication of a selected location for the stimulus producer and a stimulus identification adjacent to the selected location for providing an identification of the stimulus. Positioning of the stimulus producer at the location and actuation of the stimulus producer produces the stimulus in physical proximity to the identification means so that an association between the stimulus and the identification is established.



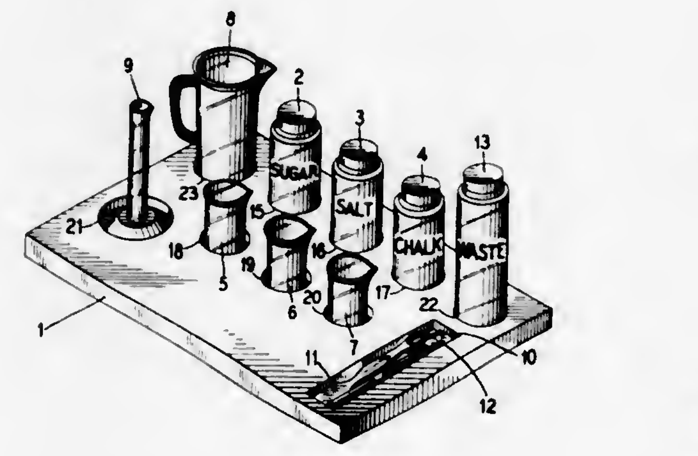
3,570,140
TEACHING AID
Edmund J. Sprong, Fairfield, Conn.
(38 Lockwood Lane, Riverside, Conn. 06878)
Filed July 2, 1969, Ser. No. 838,388
Int. Cl. G09b *9/06*
U.S. Cl. 35—11 **3 Claims**



An aid for learning the skill of handling a sailboat in which a sailboat simulator is mounted on a base member for movement relative thereto. The surface of the base member adjacent to the simulator is provided with a window through which an instruction chart is visible. The chart is subdivided into quadrants containing sailing terminology, so that manual movement of the simulator uncovers quadrants of the chart, thereby instructing the student as to the terminology for describing the condition of the simulator and, by color coding the quadrants, the student is advised of the consequences of the condition of the simulator.

3,570,141
EDUCATIONAL DEVICE FOR TEACHING SOLUBILITY
Jerry N. Koral, 34 Duke Drive,
Stamford, Conn. 06905
Filed Dec. 23, 1968, Ser. No. 786,043
Int. Cl. G09b *23/24*
U.S. Cl. 35—18 **7 Claims**

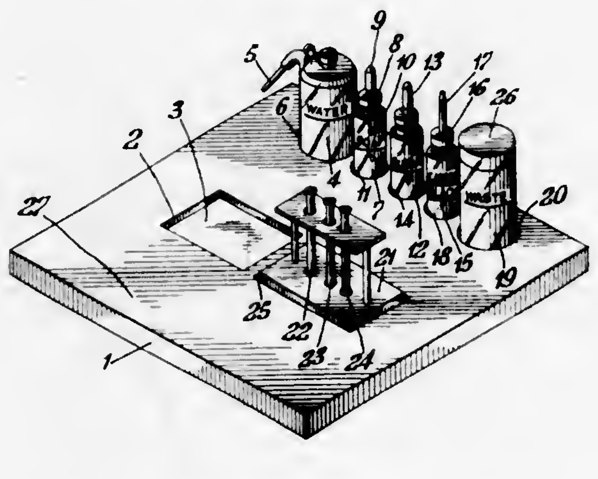
An educational device for teaching young children the scientific concept of solubility. The preferred device consists basically of (1) several containers of different solid materials such as sugar, salt and chalk powder whose solubility is to be determined, (2) a number of containers, e.g. beakers for containing the liquid, e.g. water, in which the solids are to be dissolved, (3) means such as a graduated cylinder for measuring and transferring a given quantity of liquid into each beaker, (4) means such as



spoons for measuring and transferring given amounts of each solid from the containers into the beakers, and (5) a baseboard containing spaces for receiving the various working parts, i.e. the containers of solid material, the beakers, the spoons and the graduated cylinder. The spaces on the baseboard also provide for an ordered arrangement of the various working parts.

3,570,142
SCIENTIFIC EDUCATIONAL DEVICE FOR TEACHING WETTABILITY AND SUSPENDIBILITY

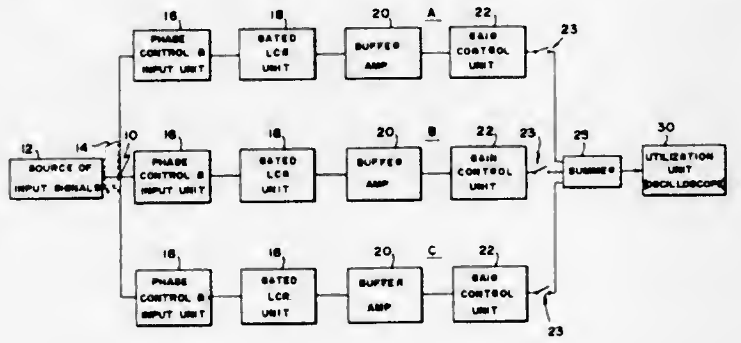
Jerry N. Koral, 34 Duke Drive,
Stamford, Conn. 06905
Filed Dec. 23, 1968, Ser. No. 786,044
Int. Cl. G09b *23/24*
U.S. Cl. 35—18 **6 Claims**



A scientific educational device for teaching, by means of an individual student experiment, the scientific concepts upon which the cleaning action of soap depends, namely the wettability of a surface by a liquid and the suspendibility of solid particles in a liquid. The preferred device consists of a baseboard containing containers for water, soap solution, non-surface active (e.g. sugar) solution and finely divided solid matter; a set of test tubes and sheets of non-wettable paper. The baseboard has recesses therein for locking each of the above component parts of the device into an ordered arrangement, thereby facilitating the teaching process and acting as a source of error control.

3,570,143
WAVEFORM SIMULATOR

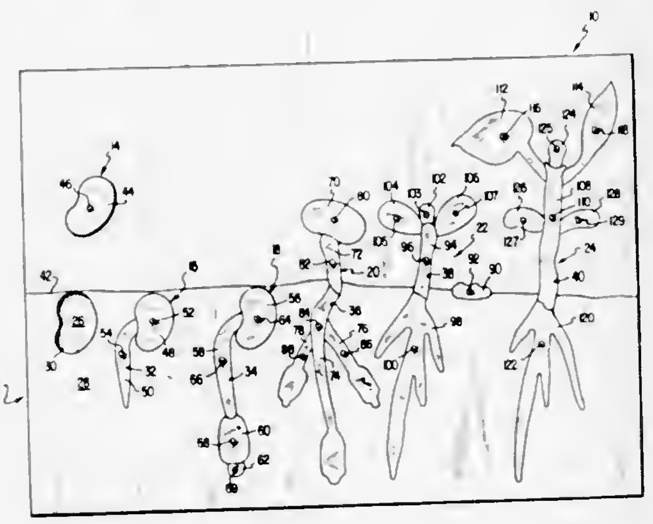
T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, in respect to an invention of Charles D. Moore, Poway, and John H. Malmberg, Del Mar, Calif.
Filed Nov. 8, 1968, Ser. No. 774,265
Int. Cl. G09b *23/18*
U.S. Cl. 35—19 **3 Claims**



An apparatus for simulating a waveform consisting of a mixture of exponentially damped sine waves is described. The apparatus generates a series of damped sine waves of variable amplitude, frequency, damping factor and phase. These waveforms are added and displayed on an oscilloscope. Their parameters are adjustable to obtain a complex waveform which simulates a curve to be analyzed.

3,570,144
TEACHING PUZZLE

Denyse C. McNutt, 19 Alexandria Drive,
Oxon Hill, Md. 20021
Filed June 11, 1969, Ser. No. 832,134
Int. Cl. G09b *23/28;* **A63f** *9/10*
U.S. Cl. 35—20 **6 Claims**

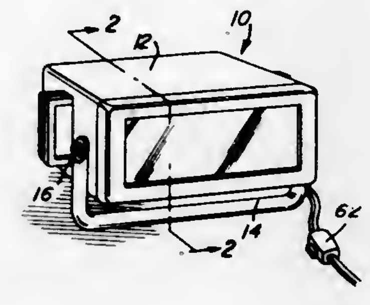


A teaching puzzle and method are described to acquaint an individual with the life cycle of a living organism. A puzzle board is provided with spaced cut-outs which are shaped and sized to receive a different puzzle piece representative of a different stage of development in the life cycle of a living organism. A plurality of puzzle pieces are provided to fit within the spaced cut-outs and represent different stages of development in the life cycle of the organism.

3,570,145
TEACHING AID

Joseph E. Hickey, 174 Eaton Ave.,
Meriden, Conn. 06450
Filed Jan. 24, 1969, Ser. No. 793,653
Int. Cl. G09b *17/00*
U.S. Cl. 35—35 **4 Claims**

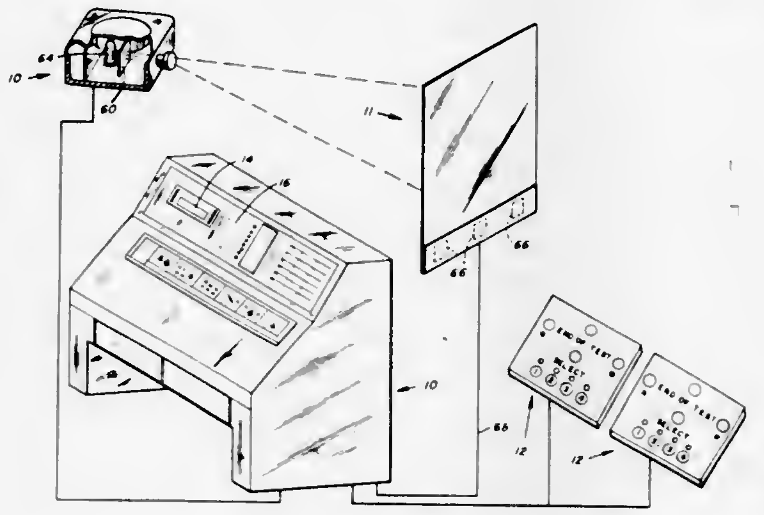
A teaching aid including a slide viewer having two slide tracks in the interior of the viewer thereby permitting the insertion of two overlying indicia bearing slides or cards. Character or word recognition is tested and practiced by having a student insert a second card, identical



to a first positioned card so that congruity is effected. Gate means is mounted in each track so that the cards are insertable in one direction only.

3,570,146
SYSTEM FOR AUTOMATICALLY TESTING APPLICANTS

John R. Golden, Tulsa, Okla., assignor to Gemco, Inc., Tulsa, Okla.
Filed July 3, 1969, Ser. No. 838,790
Int. Cl. G09b *7/06*
U.S. Cl. 35—48 **5 Claims**

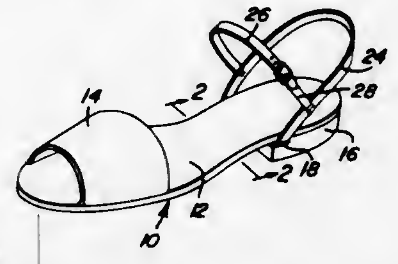


This invention relates to a system for automatically testing applicants. More particularly, the invention relates to a system for automatically testing applicants, including a projecting means for sequentially displaying test questions or a scene or situation to which the questions relate, each test question displaying simultaneously a plurality of answers, all but one of which are incorrect, a plurality of applicant stations having provisions for indicating a selection of each of the possible answers to each question, means of recording the response given by each applicant, and means of automatically disabling applicant stations individually, each at the termination of a preselected number of questions presented, thereby enabling applicants to begin and end test sessions at staggered periods.

3,570,147
CONVERTIBLE SHOE

Winton C. Chin, 1901 E. 23rd St.,
Oakland, Calif. 94606
Filed Jan. 15, 1969, Ser. No. 791,242
Int. Cl. A43b *3/12*
U.S. Cl. 36—2.5 **7 Claims**

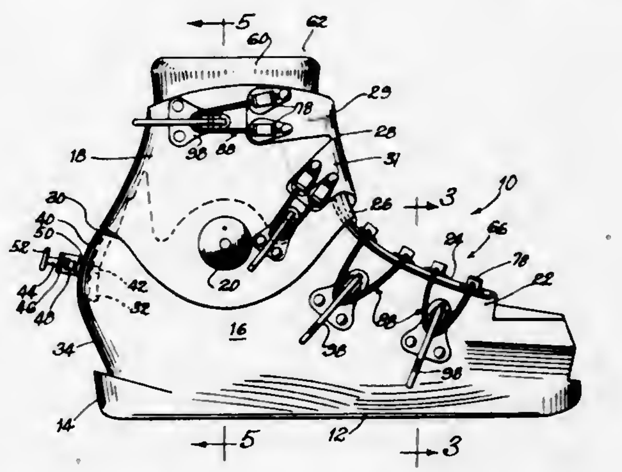
A shoe construction convertible from a sandal-type which does not include a rear heel engaging component to a shoe having a sling engaging the heel of the wearer. The present invention generally relates to shoe structures and more particularly a shoe structure in which the heel engaging sling thereof is readily removably



attached to the shoe to enable the shoe to be converted between the sandal-type having no heel engaging component at the rear thereof and a shoe of conventional construction including a heel engaging sling.

3,570,148
SKI BOOT CONSTRUCTION

Gerard E. Morgan, Lake Forest, Ill., assignor to Riddell, Inc., Des Plaines, Ill.
Filed Aug. 21, 1969, Ser. No. 851,936
Int. Cl. A43b *23/00*
U.S. Cl. 36—2.5 **14 Claims**



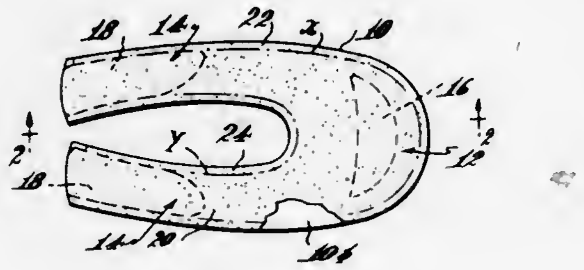
A ski boot having a body portion and a pivotally connected ankle section. The structure permits flexion and extension of the ankle with the movement taking place about two separate axes, one axis positioned on one side of the shoe corresponding with the location of the lateral malleolus bone and the other axis on the opposite side corresponding with the location of the medial malleolus bone. A limiting device is associated with the ankle section to determine the allowable extent of pivotal movement, and the limiting device is adjustable to provide the most beneficial conditions for beginners as well as more experienced skiers. The invention also provides securing means for tightening the boot around the foot, the securing means including a band having its opposed ends secured to one boot portion and a locking member for the loop of the band. The opposed ends of the band are adjustably attached so that tightening or loosening of the band can be accomplished after the loop is locked in place.

3,570,149
COATED SHOE

Herbert Kogert and Johann Schwab, Vienna, Austria, assignors to Semperit Osterreichisch-Amerikanische Gummiwerke Aktiengesellschaft, Vienna, Austria
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,854
Claims priority, application Austria, Sept. 22, 1967, A 8,658/67
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 **3 Claims**

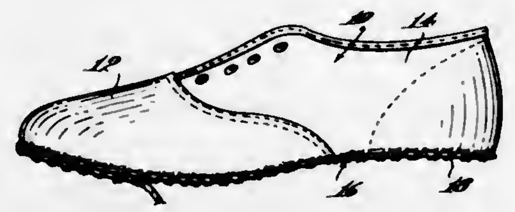
The present invention relates to a shoe whose upper consists of one or more textile layers (possibly coated with rubber or plastics) and of a sole joined to the upper, the whole shoe being coated with a cohesive polyurethane layer which has substantially the same thickness over the whole of the outside of the shoe. The shoe is preferably provided internally with cushion inserts. The polyurethane can be applied to the manufactured shoe by injection moulding, spraying, dipping or painting. Before application of the hot polyurethane, the cushioning material is preferably preheated and/or coated with skiver or synthetic leather.

3,570,150
SHOE UPPER ASSEMBLY
Robert B. Field, 536 Main St.,
Norwell, Mass. 02061
Filed Jan. 27, 1969, Ser. No. 794,174
Int. Cl. A43d *23/00*
U.S. Cl. 36—45 34 Claims



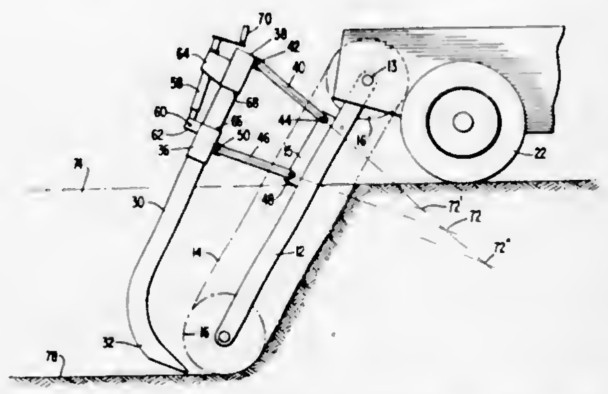
A shoe upper assembly ready for making shoes comprising an outer ply of upper material embodying a forepart and quarters and having outer and inner surfaces, the inner surface containing discontinuities in the form of stiffening means applied to the inner surface adjacent the tip of the forepart and at the rear ends of the quarters and/or seams resulting from sewing of several pieces of upper material together to form a composite structure, a continuous unbroken base layer coextensive with and united to at least that portion of the inner surface of the outer ply which will be within the interior of the finished shoe and will have contact with the foot so as to cover the surface discontinuities, and a pile of elongate fibers of predetermined length anchored at one end to the base layer with their other ends standing perpendicular to said surface.

3,570,151
STRING LASTING
Richard F. Eaton, Hanson, Mass., assignor to Compo Industries, Inc., Waltham, Mass.
Filed Nov. 6, 1968, Ser. No. 773,720
Int. Cl. A43b *23/00*
U.S. Cl. 36—46.5 3 Claims



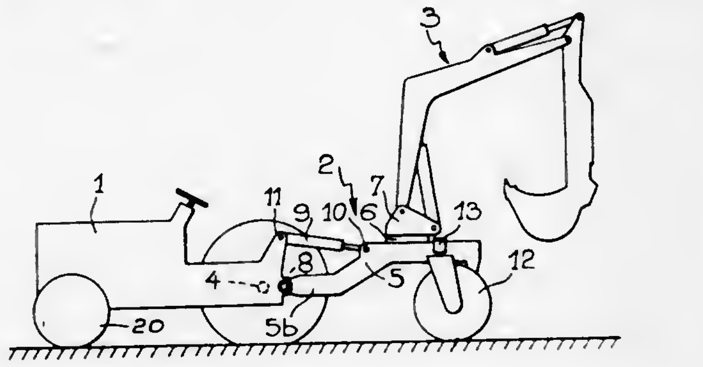
An upper having a string loosely bound to the edge of its lasting margin to enable shortening the edge by pulling on the ends of the string to effect lasting of the upper to a shoe form, and a loop extending across the upper from one side to the other at substantially the shank to effect drawing the sides of the upper at the shank toward each other.

3,570,152
CRUMBING TOOL FOR TRENCHING MACHINES
Kenneth W. Schuermann and Edwin G. Malzahn, Perry, Okla., assignors to The Charles Machine Works, Inc.
Filed Jan. 7, 1969, Ser. No. 789,452
Int. Cl. E02f *5/06*
U.S. Cl. 37—86 8 Claims



A crumbing tool adapted to be connected to the digging boom of a ditching or trenching machine by an adjustable four-bar linkage. When a ditch is being dug, the four-bar linkage permits the crumbing tool to enter the ditch and follow the digging boom down to the desired digging depth. In addition, the amount of down pressure applied by the crumbing tool against the bottom of the ditch is variable by adjusting the relationship between the members of the four-bar linkage.

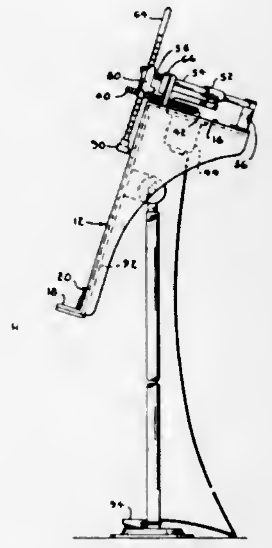
3,570,153
MACHINES OF THE TYPE COMPRISING A TRACTOR AND A BASE, NOTABLY EARTHWORKING MACHINES
Gabriel Guinot, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Le Plessis-Belleville, France
Filed Feb. 26, 1969, Ser. No. 802,597
Int. Cl. A01b *69/00, 63/22;* **E02f** *5/02*
U.S. Cl.37—103 5 Claims



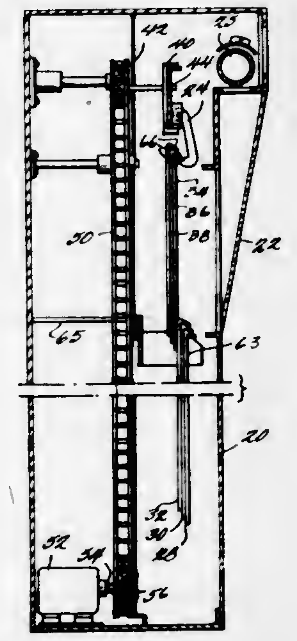
A public works machine having a tractor, a base including a chassis articulated on the tractor about at least one shaft parallel to the rear axle of the tractor, and working equipment mounted to pivot on the chassis. The chassis is articulated on a cross-beam provided with two wheels, preferably free to rotate about a substantially horizontal shaft and situated in the median longitudinal plane of the tractor. The chassis may be clamped as desired with respect to the cross-beam and the tractor.

3,570,154
PAGE TURNING DEVICE
Mabel Cosenza, Lake County, Ind.
(3543 Virginia St., Gary, Ind. 46409)
Filed Dec. 2, 1968, Ser. No. 780,437
Int. Cl. G09f *11/06*
U.S. Cl. 40—35 10 Claims

A page turning device and a manuscript for use therewith which comprises a stand for supporting the manuscript. Said stand carries a lever which is pivotally movable for cyclic operation effective to turn a page 180°. The distal end of the lever is provided with a sleeve member through which a shaft is longitudinally movable. Means are provided on the sleeve member to retain the shaft in position and is momentarily released when the lever member is pivoted to turn the page 180° to allow the shaft to drop by gravity a spaced distance at which point the shaft is regripped. A magnet is provided at the distal end of the shaft which functions to hold a magnetically attractable element connected to each sheet of the manuscript at a level spaced downward from and in vertical alignment with a magnetically attractable element connecting a preceding sheet. The vertical spacing between the magnetically attractable elements on adjacent sheets is equal to the increment that the shaft is lowered during each cycle.

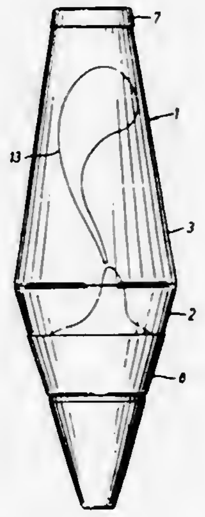


3,570,155
SEQUENTIAL CARD DISPLAY
Carl G. Moller, New York, and Richard P. Scholfield, Armonk, N.Y., assignors to R. P. Scholfield Enterprises, Inc., Armonk, N.Y.
Filed Jan. 30, 1969, Ser. No. 795,275
Int. Cl. G09f *11/06, 11/30*
U.S. Cl. 40—103 19 Claims



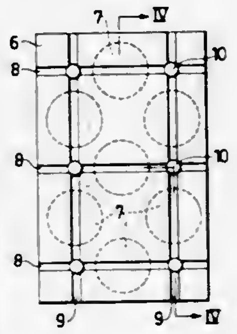
A device for sequentially displaying each of a series of display or show cards making up a complete program and for automatically repeating that program. The show cards are each supported from a dog or pivoted hook by a slotted hook stacked atop the hook of the next outermost card and the outermost card is dropped from view at spaced time intervals as the dog moves laterally and encounters the slot within the hook supporting the outermost card. After all the cards have fallen onto a lifting mechanism, they are returned together to their initial position hanging from the pivoted dog by the movement of an endless belt which also moves the dog laterally and the cycle is repeated. Both floor and counter models can be constructed and in one embodiment two sets of cards are sequentially displayed at the same time, each through a window on opposite sides of the device. In this embodiment a single means for moving the dog and lifting the cards is employed. Further, the cards may be disposed in transparent envelopes and more than one dog can be used to support a set of cards.

3,570,156
DISPLAY DEVICE
Edward C. Walker, Woodspeen, Forest Corner, Ringwood, Hampshire, England
Filed Nov. 13, 1968, Ser. No. 775,401
Claims priority, application Great Britain, Nov. 14, 1967, 51,814/67
Int. Cl. G09f *13/24*
U.S. Cl. 40—106.21 4 Claims



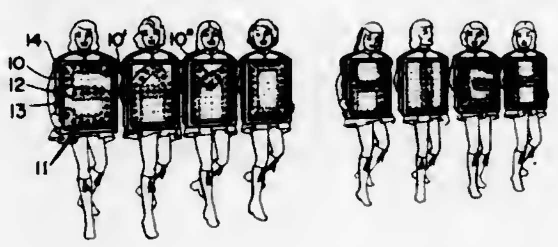
A display lamp in which the light bulb illuminates and heats components contained in a glass vessel, one of the components being a mineral oil and the other water containing an additive effective to raise the coefficient of expansion of the water.

3,570,157
DISPLAY DEVICE FOR DISPLAYING ILLUMINATED SYMBOLS
Axel Erik Ludvig Ohlsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Oct. 7, 1968, Ser. No. 765,544
Claims priority, application Sweden, Oct. 11, 1967, 13,867/67
Int. Cl. G09f *13/06*
U.S. Cl. 40—130 6 Claims



A display device for displaying illuminated symbols has in a solid opaque block a plurality of bores extending from one side and terminating short of the opposite side. A plurality of grooves formed in this opposite side intersect the bores opening into the same and across each other at points other than points in registry with the bores. An opaque pin is fitted in each crossing point. Light bulbs fitted in the bores illuminate the grooved sections intersecting the bores and limited by the pins. The thus illuminated groove sections represent the symbols to be displayed.

3,570,158
PORTABLE ELECTRIC SIGN FOR USE IN PARADES
George Richard Hackett, 772 Hartzell,
Pacific Palisades, Calif. 90272
Filed Nov. 4, 1968, Ser. No. 773,017
Int. Cl. G09f *13/00*
U.S. Cl. 40—130 **4 Claims**

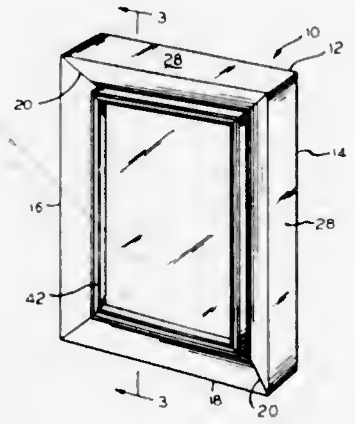


A portable electric sign incorporates a rectangular array of miniature electric light bulbs selected ones of which may be energized to define a desired symbol. The structure is battery operated and several such signs of identical construction may be readily carried by a number of persons in a parade so that by standing in side-by-side formation, words or sentences may be spelled out or displayed by the several signs, each one exhibiting a given letter or symbol. To enable changing of the symbol, a switch means in the form of a rotatable drum is mounted to the rear of the board on which the rectangular array of lights are fixed. This drum includes openings defining row means arranged to be juxtaposed a row of fixed spring contacts connected to first contacts of the light bulbs. Second contacts of the light bulbs in turn connect to one terminal of the battery and the rotatable drum connects to the other terminal. Selected ones of the holes may have screws inserted therein such that these screws only will engage selected spring contacts to effect an energization of selected lights in the array.

3,570,159
PORTRAIT DEVICE AND METHOD OF MAKING THE SAME
Robert Hugh Burgener, Jr., Salt Lake City, and Newell J. Stewart, Venice, Utah, assignors to Memorial Photo Service, Inc., Richfield, Utah
Filed Aug. 21, 1968, Ser. No. 754,288
Int. Cl. G09f *19/00*
U.S. Cl. 40—135 **4 Claims**

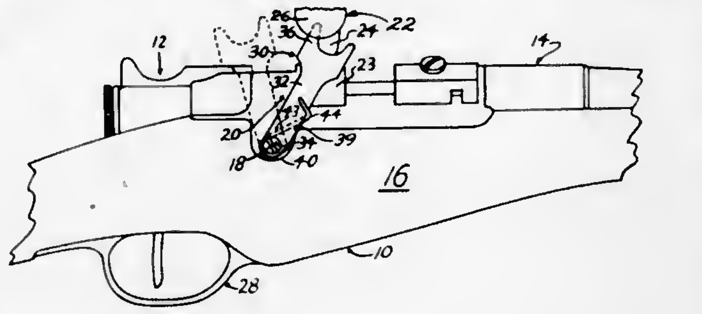
The present invention comprises a portrait indicia for securement to interment markers such as cemetery markers, tombstones, and so forth. The portrait device of the invention includes a transparent, ultraviolet-filter face, is of a plastic sandwich construction, and in a preferred form of the invention is hermetically sealed through a thermosealing method step applied to the periphery of the device. Backing the portrait included in the device is a background layer having a color, contrasting with the portrait, to give a background to the portrait of the person represented. The incapsulated sandwich structure is sealed to the interment marker or stone by means of a silicone adhesive, the latter having a characteristic of serving both as a sealing agent and also a resilient bonding agent.

3,570,160
WIDE WIDTH METAL PHOTO FRAME AND MOLDING STRIP
Maurice Spertus, Highland Park, Ill., assignor to Intercraft Industries Corporation
Filed Feb. 17, 1969, Ser. No. 799,846
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **1 Claim**



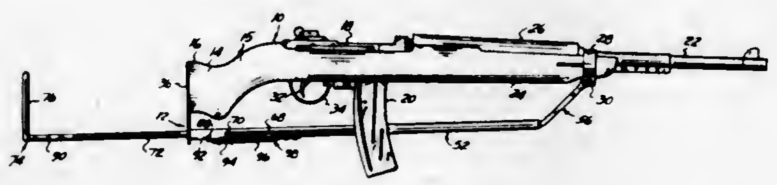
A photo frame molding strip and photo frame made thereof has an intermediate abutment wall made by so forming the molding strip as to afford the abutment wall while simultaneously achieving a shadow-box effect. The marginal edges of the photograph and the covering glass pane abut the intermediate wall, thereby limiting the distance it protrudes into the molding frame sides.

3,570,161
BLOCKING BOLT SAFETY DEVICE
Herbert J. Nordhauser, Box 8652, Albany, N.Y. 12208
Filed Aug. 2, 1967, Ser. No. 657,982
Int. Cl. F41c *17/00, 17/08*
U.S. Cl. 42—70 **2 Claims**



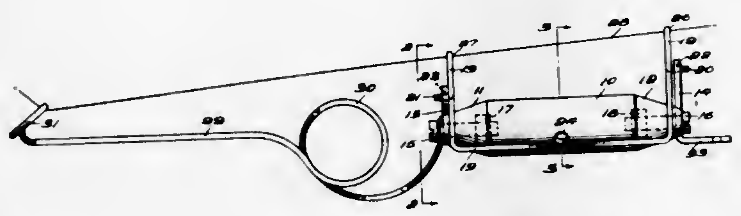
A safety device for use with a bolt action rifle or carbine, wherein the bolt is locked and unlocked by manual operation of a handle, the device having an elongated flat body portion pivotally mounted at one end thereof externally on the receiver, the other end having a yoke receiving the handle for retention therein when the safety is "on," and a spring to return the device automatically to "off," whenever the handle is manipulated to fully lock the bolt.

3,570,162
TELESCOPING AUXILIARY GUN STOCK ATTACHMENT FOR FIREARMS
Jack Suddarth, Comins, Mich. 48619
Filed Nov. 26, 1968, Ser. No. 778,967
Int. Cl. F41c *23/00*
U.S. Cl. 42—72 **10 Claims**



This telescoping auxiliary gun stock attachment has a mounting plate or rearward bracket which is secured to the end of the remaining portion of the shortened regular gun stock of the rifle or other firearm. Extending forward from the mounting plate with its axis offset to the left from the axis of the rifle barrel to avoid conflict with the magazine cartridge clip holder is an elongated tube to the forward end of which is secured an upwardly-inclined and also similarly-offset rod or forward bracket, the upper end of which is secured to the forward sling swivel of the firearm. Telescopingly mounted within the tube is the stem of an auxiliary gun stock having a perpendicularly-bent approximately D-shaped auxiliary butt loop. The stem is an elongated rod carrying a cross pin which projects through and slides in an elongated slot in the tube and is notched at two locations to receive the detent lug on the end of a spring detent arm to hold the auxiliary stock in its extended and retracted positions respectively. This invention enables the firearm to be packed into a smaller space for transportation or storage than a conventional firearm.

3,570,163
FISHING LINE RETRIEVER
Alfred C. Couder, 2100 Toll Gate Road,
Huntsville, Ala. 35801
Filed May 7, 1969, Ser. No. 822,397
Int. Cl. A01k *97/00*
U.S. Cl. 43—17.2 **8 Claims**

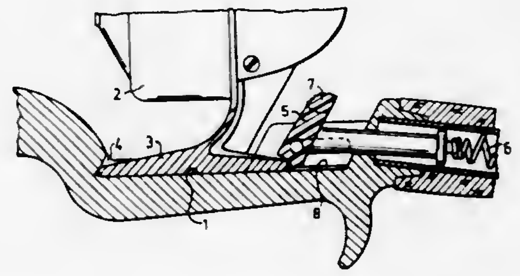


A weighted body member is provided at each end thereof with a pivotally mounted loop. A spring arm projects forwardly from the leading edge of the body and terminates in a looped striking head disposed at an acute angle. A fishing line is received by the loops for guiding the striking head to a snagged fishing article.

3,570,164
MULTIPLE ACTION ROD
Howard B. Tozier, Kenilworth, N.J.
(12 Canterbury St., Andover, Mass. 01810)
Filed July 23, 1968, Ser. No. 746,872
Int. Cl. A01k *87/00*
U.S. Cl. 43—18 **3 Claims**

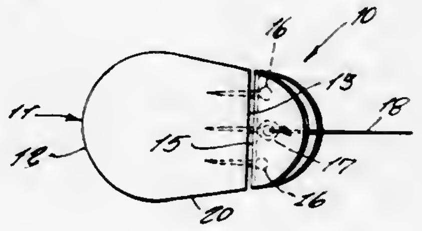
An elongated hollow rod member has a main rod portion, a tip portion and a butt portion. The hollow rod member is adapted to receive a flexible core member within the hollow space provided inside the rod member. The internal core member is adapted to be moved to and from the tip portion of the rod. Optionally, the total rod assembly may be provided with means for adjusting the extent to which the core member extends into the tip portion of the rod. The fishing rod assembly permits the use of a stiff action rod for casting and a fast action rod useful for imparting natural movement to the lure employed by the fisherman.

3,570,165
REEL FASTENING MEANS ON FISHING-ROD HANDLES
Åke Eugen Murvall, Svangsta, Sweden, assignor to Abu Aktiebolag, Svangsta, Sweden
Filed Dec. 16, 1968, Ser. No. 783,861
Claims priority, application Sweden, Dec. 22, 1967, 17,703/67
Int. Cl. A01k *87/06*
U.S. Cl. 43—22 **3 Claims**



A fastening device for a fishing reel on a rod handle comprising a flat supporting surface for the base of the reel foot, an abutment recess at the forward end of the supporting surface to be engaged by the forward end of the reel foot and at the rear end of the supporting surface a locking member displaceable longitudinally of the supporting surface and actioned by a spring to press the rear end of the reel foot forwardly and downwardly onto the supporting surface. The supporting surface has at least one projection forming a stop abutment for the rear edge of the reel foot to prevent the locking member from being pushed back by the reel foot when the reel is subjected to a backwards acting force.

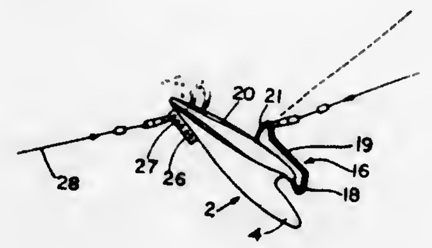
3,570,166
SPORT FISHING LURE
Norman H. Borton, 554 Lake St.,
Adrian, Mich. 49221
Filed Nov. 29, 1968, Ser. No. 779,957
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.03 **1 Claim**



A novel sport fishing lure having a unique new action in swimming, the lure comprising a relatively flat body having the appearance of a flat fish, such as a flounder, and the body having a pivotable scoop hingedly secured thereto so as to create an up-and-down swimming action.

3,570,167
SUBMERGIBLE HYDROPLANER

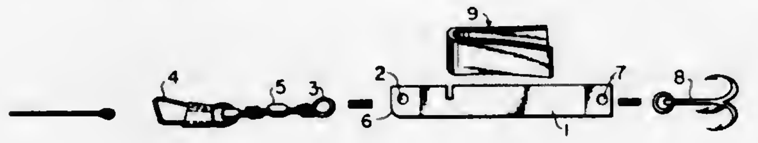
Daniel A. Smith, 291 Madrone Ave.,
Santa Clara, Calif. 95051
Filed Nov. 25, 1968, Ser. No. 778,408
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.06 **20 Claims**



A submergible hydroplaner for attachment to a fishing line in front of the baited hook. A wing on the hydroplaner may be shifted between positive and negative angles of attack to tow the bait to the desired depth while trolling, and bring the hydroplaner and attached fish to the surface after a fish has taken the bait. If the fish is lost while being brought to the surface, the hydroplaner will readjust to once again dive to the proper depth.

3,570,168
FISHING LURE

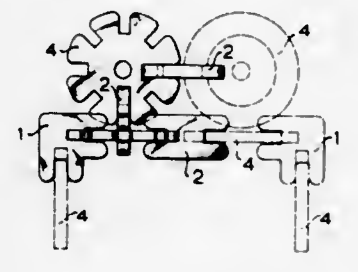
James Patten, 1003 Woodland Ave. NW.,
Albuquerque, N. Mex. 87107
Filed June 9, 1969, Ser. No. 831,347
Int. Cl. A01k *85/04*
U.S. Cl. 43—42.51 **6 Claims**



A fishing lure of sheet material including a body portion, means at one end for attachment to a fishing line, means at the other end for attachment to a hook means and wing elements on opposite sides of the body portion having their trailing edges flared or inclined relative to the body so as to impart a spinning action to the lure as it is pulled through the water.

3,570,169
CONSTRUCTIONAL TOY WITH SLOTTED INTERFITTING PARTS

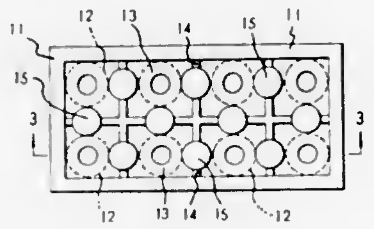
Theodor Jacob, 110 Kinzigheimer Weg,
Hanau am Main, Germany
Filed Apr. 22, 1969, Ser. No. 818,246
Int. Cl. A63h *33/00*
U.S. Cl. 46—16 **5 Claims**



A constructional toy with a large number of slotted and unslotted interfitting parts of different shapes and sizes. Some of said parts are in the form of flat members having open-ended slots, whereas other are hollow base members provided with slot-shaped recesses. All parts are so contrived that edge portions of the flat members can be fitted into said open-ended slots in other flat members or into said slot-shaped recesses in the base members.

3,570,170
TOY BLOCK WITH INTERNAL LATTICE AND LOBES

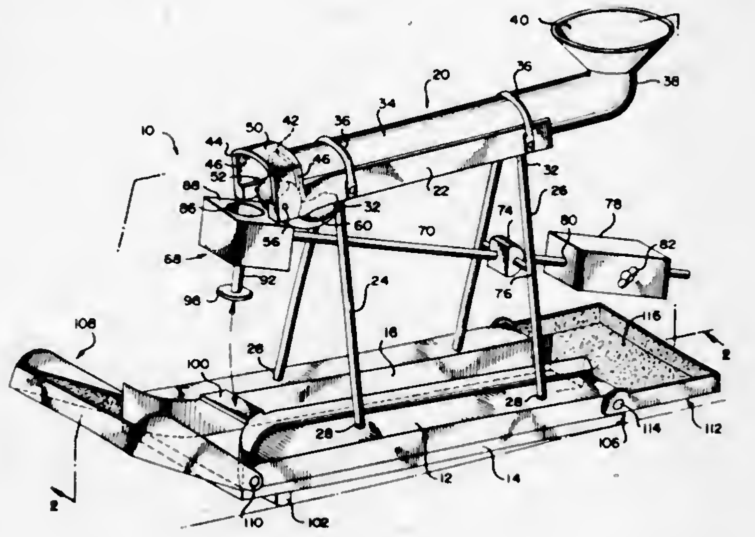
Yoshihiro Kishi, 2–7 Kuramae 1-chome, Daito-ku,
Tokyo, Japan
Filed Nov. 13, 1968, Ser. No. 775,298
Claims priority, application Japan, Nov. 18, 1967,
42/97,170
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 **1 Claim**



A toy building block has a rectangular box-like body with open bottom and integral top and side walls. Projections extend outwardly from the top wall. Ribs inside the body are joined to each other and to the walls of the body at right angles to define rectangular cells. Cylindrical lobes integrally formed with the ribs extending laterally into adjacent cells. Edges of the ribs are coplanar and spaced inwardly of the flat bottom edge of the body of the block. The lobes have free cylindrical end portions extending beyond the ribs and terminating short of the plane of the bottom edge of the body of the block.

3,570,171
AMUSEMENT DEVICE

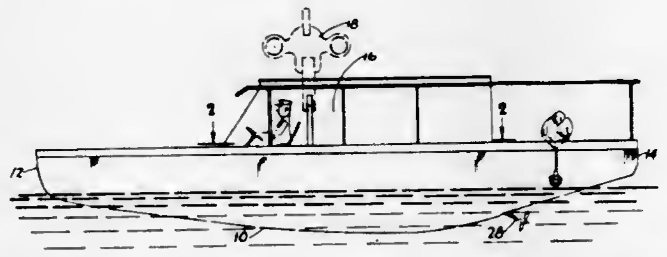
Alvin L. Shook, 301 S. Pearl, Salem, Ill. 62881
Filed Jan. 24, 1969, Ser. No. 793,753
Int. Cl. A63h *29/08*
U.S. Cl. 46—42 **6 Claims**



A ball amusement device including a declined chute overlying a base and having a discharge end guarded by a pivoted catch that permits only one by one gravitational discharging of balls loaded in the chute and a ball transfer lever pivotally mounted intermediate its ends for free vertical swinging movement between the base and the chute with the lever having a ball receiver on one end and a counter-weight on its other end and being moved by the counter-weight to a position wherein the receiver strikes the catch to effect release and transfer of one ball from the chute into the receiver with the thusly weighted receiver moving downwardly toward the base and having a slidable discharge plunger that, upon striking the base, ejects the ball therefrom, the lever operating in continuous seesaw movement to transfer the balls from the chute to the base with the balls collecting in a collection tray mounted on one end of the base under an input hopper end of the overhead chute.

3,570,172
TOY MOTORBOAT

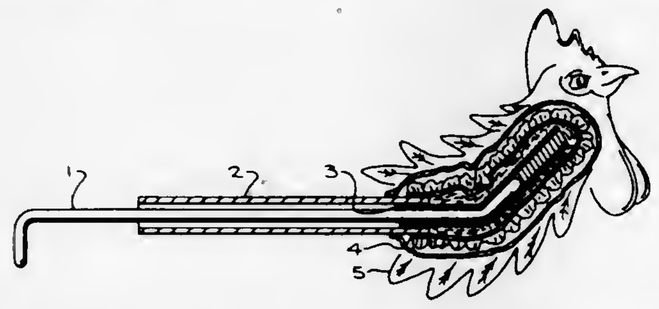
Joseph Lombardo, 1103 1st Ave.,
New York, N.Y. 10021
Filed Dec. 12, 1967, Ser. No. 689,872
Int. Cl. A63h *23/04*
U.S. Cl. 46—93 **2 Claims**



A toy motorboat having propeller means operated by a manually wound spring motor whereby gear ratios can be readily and quickly changed to vary the torque and speed of the rotation of the propeller means and thus vary the operation of the boat in water.

3,570,173
FLEXIBLE FIGURE TOY SLEEVE MEANS WITH MEANS FOR MOVING SAME

William Hayes Case, 308 S. 2nd St.,
Marshalltown, Iowa 50158
Continuation of application Ser. No. 647,051, June 19, 1967, which is a continuation-in-part of application Ser. No. 442,623, Mar. 25, 1965. This application Dec. 31, 1968, Ser. No. 789,659
Int. Cl. A63h *3/00*
U.S. Cl. 46—124 **16 Claims**

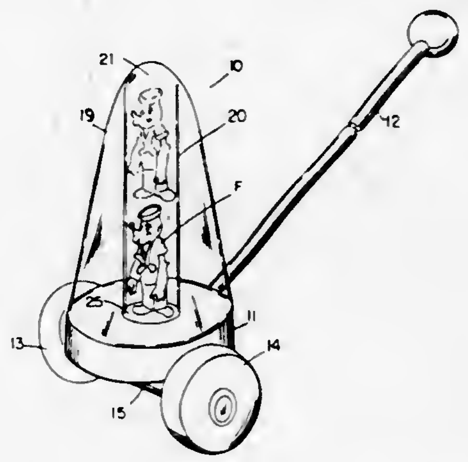


An animation device having a tubular mounting shaft with a hollow flexible life-form sleeve-cover protruding from one end thereof and a flexible filler sleeve-cover within the said life-form sleeve-cover and a flexible sleeve within said filler sleeve-cover. The shaft, cover and sleeve are slidably connected to an axis control rod which is slidably and rotatably mounted within the said tubular mounting shaft so that relative sliding and/or rotational movement between the said control rod and the said mounting shaft will impart a unique and life-like movement as well as a change in flexibility to said life-form sleeve-cover and coextensive filler sleeve-cover and sleeve.

3,570,174
WHEELED ACTION TOY

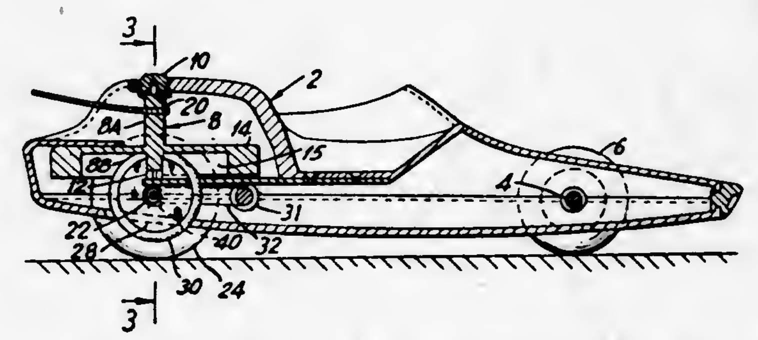
Jerome H. Lemelson, 85 Rector St.,
Metuchen, N.J. 08840
Filed Nov. 13, 1969, Ser. No. 876,326
Int. Cl. A63h *11/06*
U.S. Cl. 46—205 **4 Claims**

A wheeled push toy is provided with means for propelling a small object, such as an elongated simulated figure, upwardly as the toy is pushed. The object freely travels in an elongated tubular housing and is kicked upwardly therein upon release of a spring actuated plug or platform at the lower end of said tubular housing, thus simulating a figure jumping on a trampolene.



3,570,175
DRIVE MECHANISM FOR TOY WHEELED VEHICLE

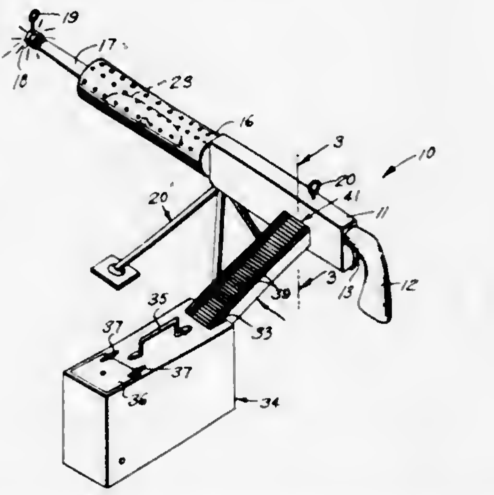
John T. Angier, Essex, Conn. 06426
Filed Aug. 8, 1967, Ser. No. 659,155
Int. Cl. A63h *17/00*
U.S. Cl. 46—206 **7 Claims**



A drive mechanism for a toy wheeled vehicle with a vertical starting shaft having an aperture through which a string or cord can be inserted and then wrapped around the starting shaft.

3,570,176
TOY MACHINE GUN

Henry J. Palmer, 699 N. Broad St.,
Philadelphia, Pa. 19123
Filed Dec. 13, 1968, Ser. No. 783,689
Int. Cl. A63h *33/26*
U.S. Cl. 46—227 **5 Claims**



A toy which simulates a real machine gun having a transistorized amplifier with a cartridge needle and a continuous play record which produces the actual sound of real machine gun fire. The mechanism of this device also includes synchronous light-bulb arrangement in order to simulate real fire coming from the gun.

3,570,177

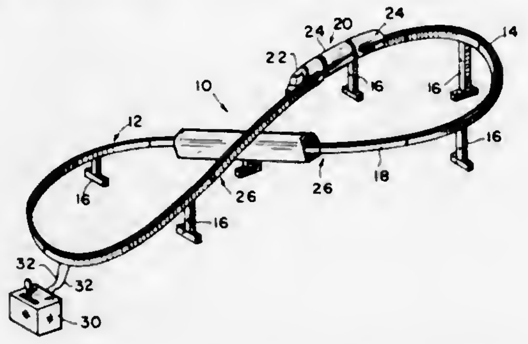
TOY MONORAIL TRAIN SYSTEM

Patrick M. Tomaro, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.

Filed Jan. 29, 1970, Ser. No. 6,880

Int. Cl. A63h *18/12*

U.S. Cl. 46—243 **7 Claims**



A toy train system is described with a monorail track. A train adapted to move on this track is provided with lateral supporting and vertical supporting wheels which ride respectively on side and upper surfaces of the track. The wheels are mounted in a track receiving channel of the train body and are both longitudinally and laterally spaced to engage the monorail in a track hugging manner. In one embodiment stanchions are attached to the underside of selected portions of the monorail track to obtain track elevations. High train speeds may be sustained along the elevated portions of the track without train derailment.

3,570,178

PRODUCING MOVEMENTS IN MODEL FIGURES

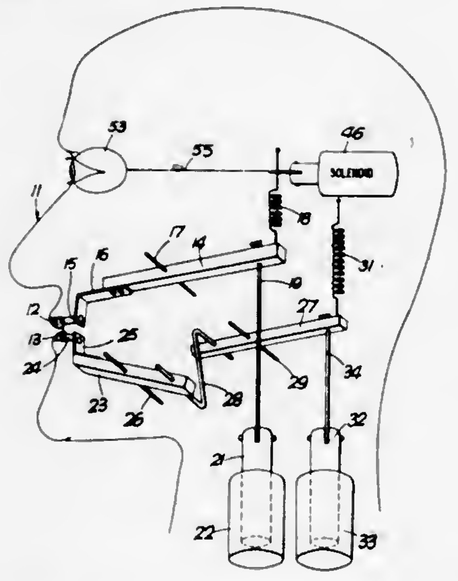
Charles William Green, Bushey, England, assignor to Halas and Batchelor Cartoon Films Limited, London, England

Filed Jan. 6, 1969, Ser. No. 789,297

Claims priority, application Great Britain, Jan. 11, 1968, 1,648/68

Int. Cl. A63h *33/26*

U.S. Cl. 46—243 **6 Claims**



In a model figure for producing related sound and movement effects the lips are movable and are each connected to an electromechanical transducer through a pivoted lever. Electric signals corresponding to sound are averaged by an averaging circuit and applied to the transducers so that the extent of movement of the lips by the transducers corresponds to the sound from which the electric signals are derived. The electric signals also operate a loud speaker.

3,570,179

SWIMMING TOY ASSEMBLY

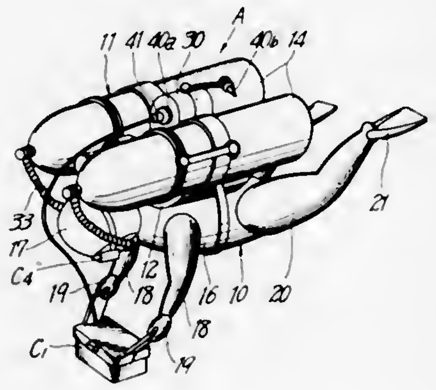
Kazumi Yamakawa, Katsushika-ku, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed May 1, 1969, Ser. No. 820,739

Claims priority, application Japan, May 21, 1968, 43/41,794

Int. Cl. A63h *33/26*

U.S. Cl. 46—243 **9 Claims**



A swimming toy assembly which comprises a swimmer body and a power unit, the power unit being detachably connected to said swimmer body and arranged to drive it through water by a screw propeller. The toy assembly is arranged to be utilized as a driving unit for driving a moving unit, such as an amphibious car, which is arranged to receive the toy assembly and to be driven by it.

3,570,180

ELECTRICALLY ACTUATED WHEELED TOY

Nobuo Oda, Tokyo, Japan, assignor to Gunze Sangyo Kabushiki Kaisha, Tokyo, and Omega Denshi Kogyo Kabushiki Kaisha, Yokohama, Japan

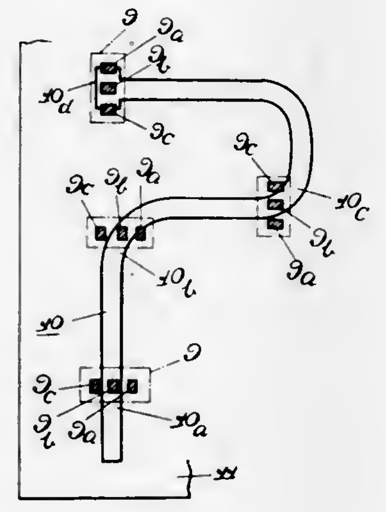
Filed Feb. 19, 1968, Ser. No. 706,498

Claims priority, application Japan, Mar. 1, 1967, 42/12,549

Int. Cl. A63h *33/26*

U.S. Cl. 46—244 **7 Claims**

An electrically actuated wheeled toy has a pair of driving wheels independently driven by respective electric motors. Each motor has a respective energizing circuit connected to a source of electric potential on the vehicle. A sensing member at the front of the vehicle carries three contacts for sliding on a surface on which a runway is drawn or imprinted in electrically conductive material. The runway has a width such that normally only the center sliding contact engages the runway but, on a curved portion of the runway, the center contact and one of the two outer contacts are electrically interconnected. This effects de-energization of one of the motors so that the vehicle automatically turns to follow the curvature of the runway. A terminal portion of the runway is laterally extended so that all three sliding contacts are electrically interconnected, effecting de-energization of both motors.



3,570,181

HYBRID ALFALFA PRODUCTION

William H. Davis, West Bend, Wis., assignor to L. Teweles Seed Company, Milwaukee, Wis.

No Drawing. Filed Jan. 23, 1968, Ser. No. 699,805

Int. Cl. A01h *1/02*

U.S. Cl. 47—58 **10 Claims**

Seed capable of growing hybrid alfalfa is efficiently produced by the selective harvesting of the same from a cytoplasmic male sterile alfalfa seed parent which has been crossed with pollen from a D maintainer type alfalfa plant. The D maintainer type plant utilized in the process is selected so as to cause the formation of seed on the cytoplasmic male sterile seed parent which is capable of growing hybrid male sterile alfalfa plants to the substantially complete exclusion of off-types. The alfalfa plants grown from the seed may be optionally back-crossed with pollen from D maintainer type alfalfa plants.

3,570,182

WINDOW CONSTRUCTIONS

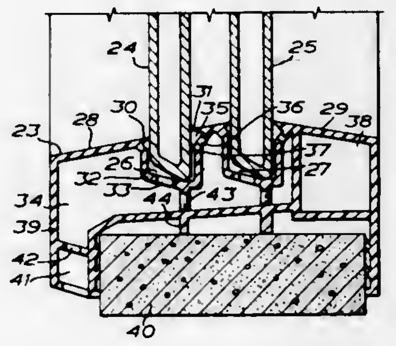
Bjorn Bakke, Bergen, Norway, assignor to A. Knag A/S, Bergen, Norway

Filed Dec. 18, 1968, Ser. No. 784,765

Claims priority, application Norway, Dec. 20, 1967, 171,071

Int. Cl. E06b *7/14, 3/46*

U.S. Cl. 49—408 **8 Claims**



A window construction in which a slidable window is mounted in a frame adapted for location in an outer building wall, the frame defining at the inside face of the window a chamber which enables the pressure on both sides of the window to remain substantially the same under various weather conditions.

3,570,183

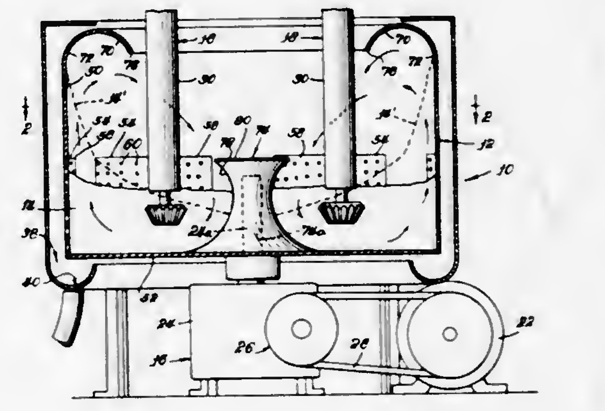
BOWL CONSTRUCTION FOR ROTARY FINISHING MACHINE

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Co., Addison, Ill.

Filed Feb. 11, 1969, Ser. No. 798,321

Int. Cl. B24b *19/00, 31/02*

U.S. Cl. 51—7 **11 Claims**



In a bowl for a rotary finishing machine, a radially inwardly extended peripheral flange is provided at the upper periphery, and an upright hub is integral with the bottom wall of the bowl and coaxial with the bowl.

3,570,184

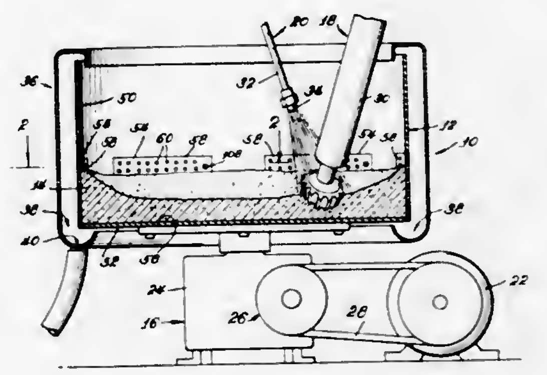
ROTARY FINISHING MACHINE HAVING REMOVABLE SCREEN PANELS

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Co., Addison, Ill.

Filed Feb. 19, 1969, Ser. No. 800,387

Int. Cl. B24b *19/00, 31/02*

U.S. Cl. 51—7 **10 Claims**



In a rotary finishing machine of the type comprising a rotatable bowl adapted to contain a mass of abrasive finishing media, a plurality of removable screen panels are used to cover screen openings in the lateral wall of the bowl. The screen panels may be removed for cleaning. Selection is permitted among screen panels having perforations of various sizes according to the size and type of abrasive finishing media to be used in a given machine operation.

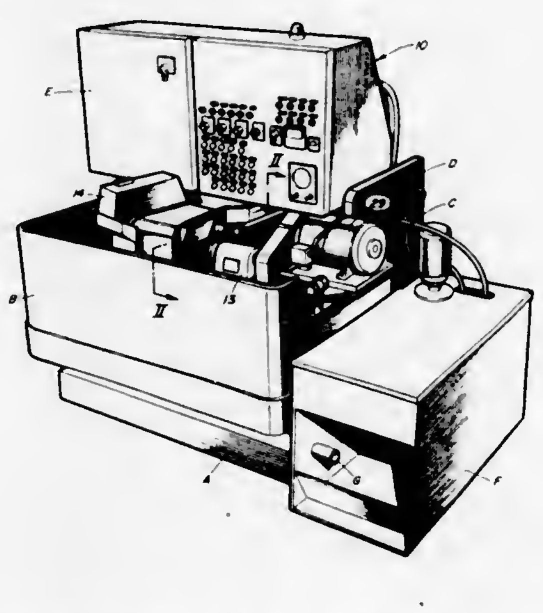
3,570,185
GRINDING MACHINE

Herbert R. Uhtenwoldt, Worcester, Frederick A. Hohler, Holden, and Robert G. Hatstat, Rutland, Mass., assignors to The Heald Machine Company, Worcester, Mass.

Continuation-in-part of application Ser. No. 759,811, Sept. 9, 1968, which is a continuation of application Ser. No. 451,712, Apr. 29, 1965. This application July 9, 1969, Ser. No. 840,324

Int. Cl. B24b *9/00, 49/00, 51/00*

U.S. Cl. 51—37 **3 Claims**



This invention relates to a grinding machine and, more particularly, to apparatus arranged to generate a surface of revolution by the abrasive method.

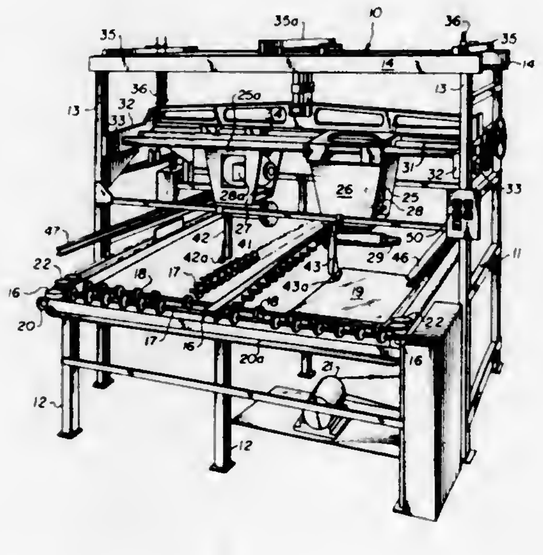
3,570,186
GRINDING MACHINE FOR GROOVING GLASS

Edwin J. Kulwicki, Toledo, Ohio, assignor to Sun Tool Machine Co., Toledo, Ohio

Filed Apr. 18, 1969, Ser. No. 817,449

Int. Cl. B24b *7/00*

U.S. Cl. 51—78 **6 Claims**



A grinding machine for grooving glass surfaces to provide for fingerpulls, miters and plate grooves, especially for mirrors, comprising a grinding head including a motor and a motor driven spindle for carrying a grinding tool, e.g. a grinding wheel, means for selectively moving the grinding head horizontally and vertically, and control means contactable with the glass workpiece for raising and lowering the grinding head into and out of contact with a surface of the glass workpiece.

3,570,187
PLANETARY MECHANISMS WITH FRICTIONAL DRIVING MEANS

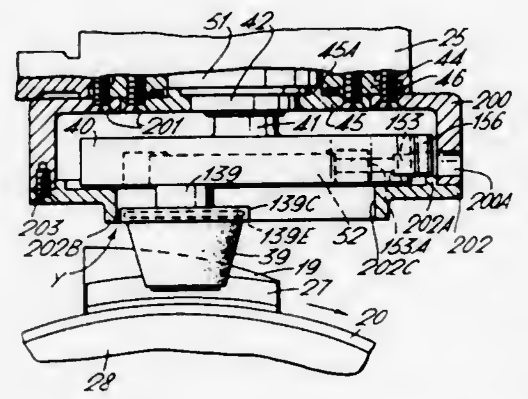
Edward George Preston and Philip Arthur Maw, London, England, assignors to Molins Machine Company Limited, London, England

Filed Dec. 16, 1968, Ser. No. 784,036

Claims priority, application Great Britain, Dec. 15, 1967, 57,038/67

Int. Cl. B24b *3/00;* **F16h** *1/28*

U.S. Cl. 51—90 **5 Claims**



A planetary mechanism in which the planet member is rotated by frictional engagement between a stationary annulus and a driving rim carried resiliently by the planet member. Under stationary conditions there is a clearance between the driving rim and the annulus. On rotation, centrifugal force displaces the rim radially relative to the planet member, so taking up the clearance and providing a drive. In the stationary condition there is no side thrust on the planet member. The planet member may be a grinder wheel for a cigarette machine cut-off.

3,570,188
LAPPING MACHINE

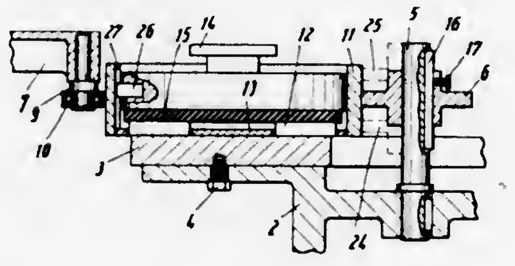
Hellmut Ebner, Mettmann, Rhineland, Germany, assignor to Peter Wolters Kratzenfabrik und Maschinenfabrik, Mettmann, Germany

Filed Apr. 12, 1968, Ser. No. 720,922

Claims priority, application Germany, Apr. 15, 1967, W 43,767

Int. Cl. B24b *5/00*

U.S. Cl. 51—129 **13 Claims**



A lapping machine wherein a single ring-shaped rotary lap supports several ring-shaped adaptors which accommodate work holders for workpieces resting on the lapping surface of the lap. The adaptors held against rotation with the lap by a disk which is coaxial with the lap and by one or more rollers which are mounted on arms carried by the frame of the lapping machine. The peripheral surface of each adaptor abuts against the disk and against the respective roller or rollers. The axial position of the disk and/or the axial positions of the rollers are adjustable to thereby change the pressure between the workpieces and the inner or outer portions of the lapping surface. In this way, uneven wear on selected portion or portions of the lapping surface can be eliminated or intentionally brought about by appropriate adjustment of the disk and/or rollers.

3,570,189
CONTROL ARRANGEMENT FOR GRINDING MACHINES FOR PREVENTING OPERATION UNDER DANGEROUS CONDITIONS

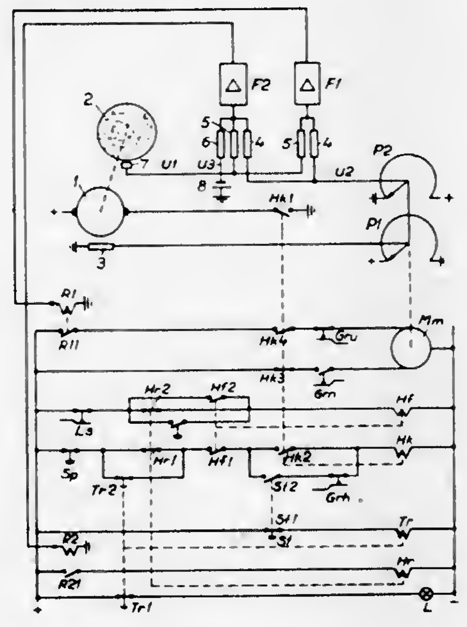
Olle Keding and Per-Ola Fahlman, Vasteras, Sweden, assignors to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed May 1, 1968, Ser. No. 725,870

Claims priority, application Sweden, May 5, 1967, 6,336/67

Int. Cl. B24b *5/00*

U.S. Cl. 51—134.5 **5 Claims**



In a protective device for a grinding machine having a motor driving a grinding wheel, the speed of rotation of the grinding wheel is maintained substantially inversely proportional by a relay which is responsive to the difference between two signals which vary with the diameter and speed respectively. A second relay is furnished additionally with a constant signal and opens a switch in the circuit to the motor when the difference between the first two signals is greater than the third signal. A time-delay relay is provided which, when the motor starter button is operated, bypasses this switch for a long enough time to allow the motor to come up to minimum speed.

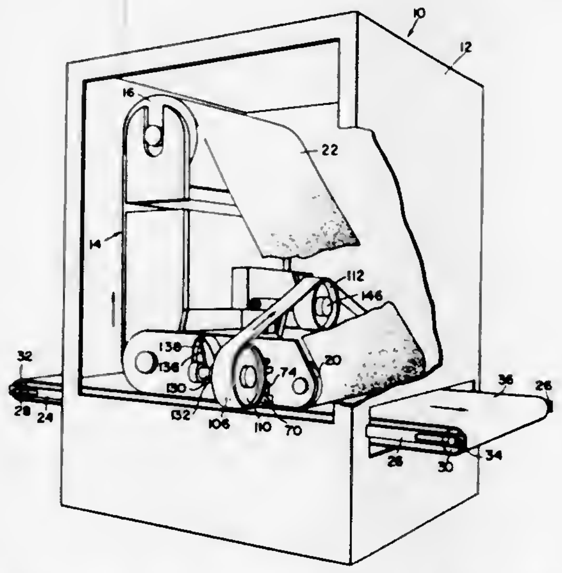
3,570,190
BELT SANDING AND POLISHING MACHINE

Richard D. Rutt, Wilson, and Paul W. Inskeep, Jr., Youngstown, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed Feb. 29, 1968, Ser. No. 709,435

Int. Cl. B24b *21/06*

U.S. Cl. 51—141 **10 Claims**



A belt sanding and polishing machine having a contact roll for applying pressure to an endless abrasive belt for rough sanding a workpiece. An air platen assembly is positioned rearwardly of the contact roll for applying pressure to said abrasive belt to produce a fine finish on the workpiece. A secondary belt moves in a direction of travel normal to the direction of movement of the abrasive belt and has an active run located between said abrasive belt and a graphitized strip of cloth bearing against the bottom of the platen assembly.

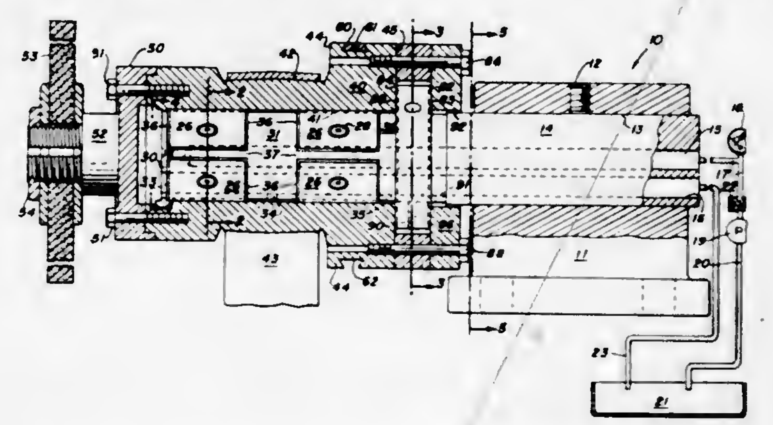
3,570,191
HYDROSTATIC SPINDLE

Alan F. Williams, Palo Alto, Calif., assignor to Tydeman Machine Works, Inc., Redwood City, Calif.

Filed Apr. 22, 1969, Ser. No. 818,364

Int. Cl. B24b *5/10;* **F16c** *35/08*

U.S. Cl. 51—134.5 **19 Claims**



A construction for a hydrostatic spindle journal with an included thrust bearing employs a stationary shaft having a plurality of hydrostatic fluid support bearing pads milled in its outer surface with each bearing pad supplied with a source of pressurized fluid and a tubular sleeve rotatably mounted on the shaft which carries the working element of the spindle. The shaft also includes an integral thrust disc which is received in a circular recess in the tubular sleeve and provides, through similar bearing pads in its radial surfaces, an axial hydrostatic thrust bearing for the tubular sleeve.

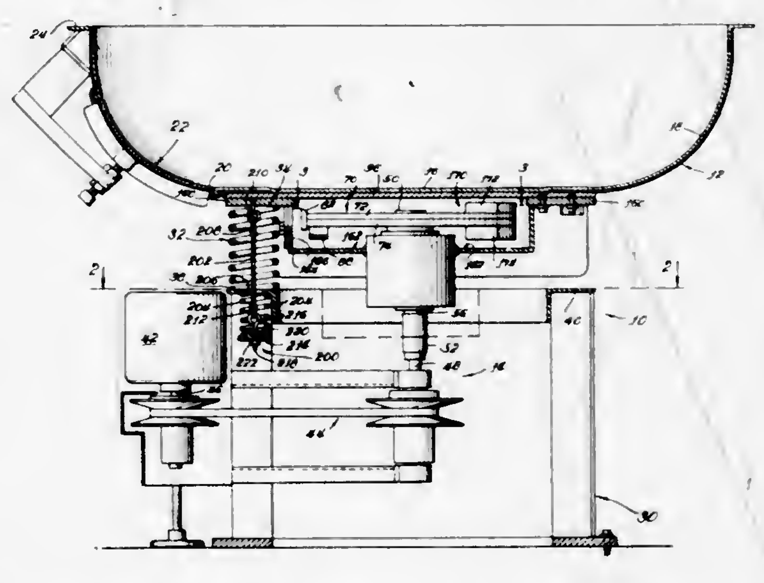
3,570,192
VIBRATORY FINISHING MACHINE HAVING GENERALLY CIRCULAR BOWL

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Company, Addison, Ill.

Filed Feb. 24, 1969, Ser. No. 801,573

Int. Cl. B02c *17/08;* **B24b** *31/00*

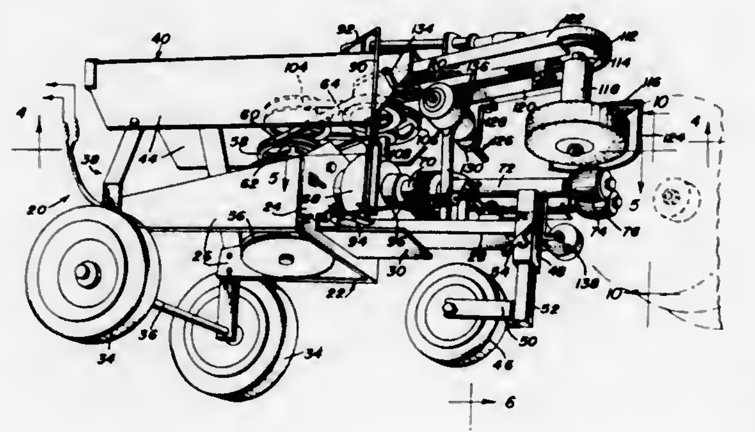
U.S. Cl. 51—163 **14 Claims**



Vibratory motion is imparted to a bowl through a cylindrical hub coupled to a drive shaft for conjoint rotation with the shaft in eccentric relation to the shaft and cylindrical cam means eccentric to the hub. Bearing means are utilized intermediate the cam means and inner surface portions of a housing connected to the bowl to permit rotation of the cam means with respect to the housing.

3,570,193
MOBILE IMPLEMENT SHARPENING MACHINE

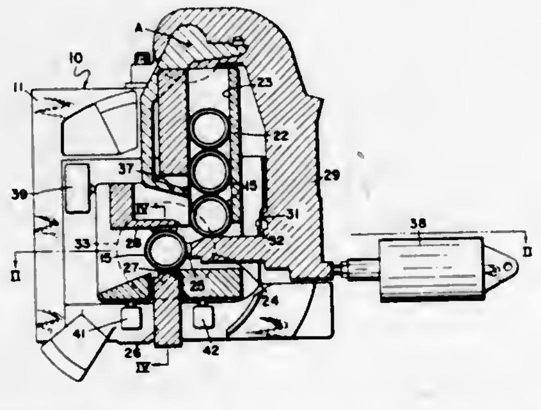
Francis T. Barrett, R.R. 1, Box 165,
Pocahontas, Iowa 50574
Filed Aug. 1, 1969, Ser. No. 846,871
Int. Cl. B24b *23/00*
U.S. Cl. 51—173 **16 Claims**



A wheel supported grinding machine for sharpening round implement blades either under field conditions when the blades are mounted on the implement or under shop conditions when the blades are removed from the implement. The machine includes a depth gauge roller and a pair of cooperating workpiece driving rollers which position the disk or blade to be sharpened in a proper orientation relative to the grinding wheel. The grinding wheel itself is adjustably mounted for selective cushioned engagement with the opposite sides of the workpiece. The wheel support for the machine is adapted so as to actually allow the front of the machine to move so as to follow irregularities in the blade during the sharpening thereof, and thereby prevent binding. The machine in its shop position is in the nature of a highly stable unit provided with a three-point support.

3,570,194
WORKHEAD

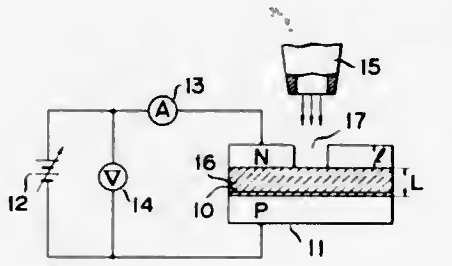
Frederick A. Hohler, Holden, and Richard T. Knorring, Worcester, Mass., assignors to The Heald Machine Company, Worcester, Mass.
Filed Sept. 27, 1968, Ser. No. 763,295
Int. Cl. B24b *5/06*
U.S. Cl. 51—215 **9 Claims**



This invention relates to a workhead and, more particularly, to apparatus for holding workpieces in a machine tool, rotating them and providing for unloading finished workpieces and introducing an unfinished workpiece in its place.

3,570,195
METHOD OF FORMING A RECESS IN A SEMICONDUCTOR SUBSTRATE HAVING AT LEAST ONE PN JUNCTION

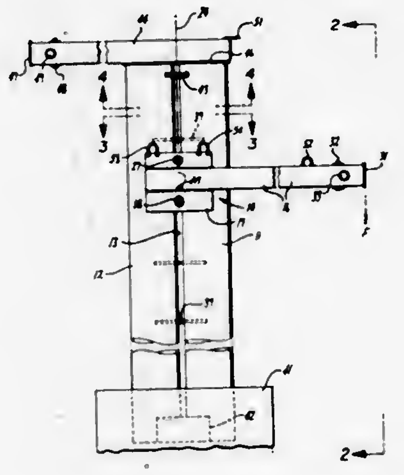
Michio Otsuka, Tokyo, and Syuji Sugioka, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Nov. 13, 1968, Ser. No. 775,316
Claims priority, application Japan, Mar. 21, 1968, 43/17,951
Int. Cl. B24c *1/00*
U.S. Cl. 51—320 **5 Claims**



A method of forming in a semiconductor substrate a recess whose depth can be controlled exactly to a desired extent, which comprises the steps of generating a depletion layer near and at the PN junction of said substrate, boring a part of said substrate starting with the exposed surface down to the depletion layer thereof so as to cause the current flowing through the PN junction to attain a certain level.

3,570,196
TOWER STRUCTURE AND ADJUSTABLE CLAMPING DEVICE

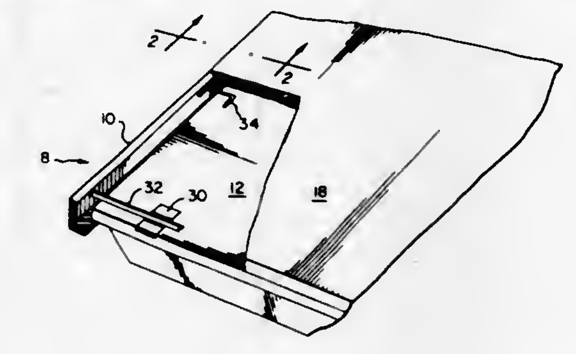
Jan K. Kunczynski, P.O. Box 2181,
Olympic Valley, Calif. 95730
Filed Nov. 21, 1968, Ser. No. 777,799
Int. Cl. E04h *12/00*
U.S. Cl. 52—40 **9 Claims**



A tower structure and adjustable clamping device for use therewith in which the clamp is formed to frictionally engage the tower at selected vertical heights for securing a load supporting arm thereto. The tower is further formed with a vertically extending indexing surface against which the clamp bears and may be secured to position the arm in horizontally, vertically and angularly indexed relation to the tower. The load supporting arm is constructed in a manner which allows the moment induced by loading the arm to be transferred to and resisted by the engagement of the clamping device with the tower and particularly the indexing surface. A tower particularly suited for use as a ski lift tower is described.

3,570,197
FASCIA MOLDING DEVICE

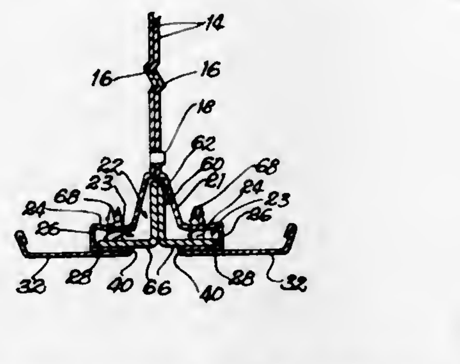
James R. North, Aurora, Colo.
(Rte. 2, Box 101, Castle Rock, Colo. 80104)
Filed Mar. 18, 1969, Ser. No. 808,143
Int. Cl. E04b *1/34, 5/17*
U.S. Cl. 52—73 **1 Claim**



A fascia molding device adapted for securing along an outer edge of a balcony or other structure protruding beyond a building exterior wall comprising an elongated body portion of predetermined decorative configuration, an elongated rearwardly inclining lip portion secured along an upper edge of said body portion, a rearwardly extending flange portion secured along a lower edge of said body portion.

3,570,198
METALLIC STUD STRUCTURE AND STANDARD LOCATING MEANS

Richard R. Ruhnke, Skokie, Ill., assignor to Garcy Corporation
Filed Jan. 9, 1969, Ser. No. 790,026
Int. Cl. A47b *57/08, 96/04*
U.S. Cl. 52—36 **5 Claims**

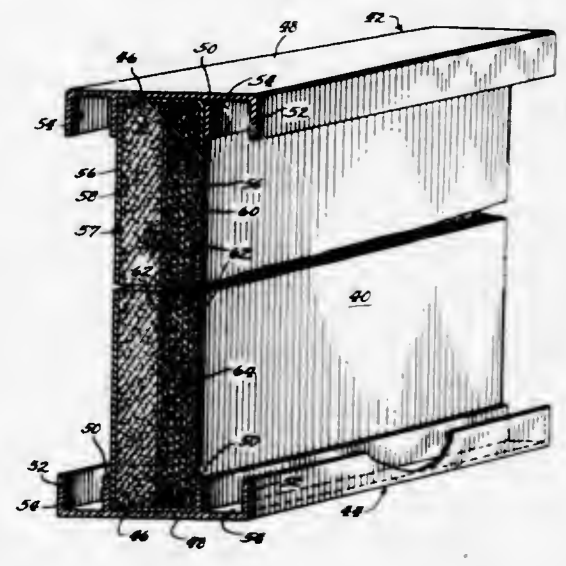


An upstanding metallic wall stud and standard assembly in which the standard assembly is adjustably positioned within the stud structure. Locating means are positioned in stud channels in which the standard assembly is positioned in keyed relation to the standard assembly. The locating means is secured to stud walls as by threaded fasteners which pass through the stud walls and through wings integral with the locating means and which are positioned within the stud structure, thereby to fix the position of the standard assembly with respect to the stud structure.

3,570,199
FIREPROOF PARTITIONS

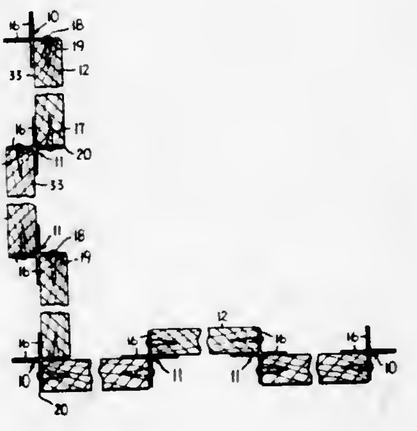
William J. Gartner, Schaumburg, Ill., assignor to De Soto, Inc.
Continuation-in-part of application Ser. No. 702,307, Feb. 1, 1968. This application Oct. 25, 1968, Ser. No. 770,768
Int. Cl. E04b *1/76, 2/04*
U.S. Cl. 52—168 **14 Claims**

A partition for providing thermal insulation to a region on at least one side thereof from sources of intense heat. The partition comprises a wall member which contains within rigid outer walls a sheet-like insulating member of at least two layers. One of the layers, which faces the source of heat, comprises fibrous material having high temperature resistance, while the other layer comprises a porous carrier, preferably having heat insulating properties, containing liquid water interspersed throughout the pores of the carrier. The carrier is enclosed in a water impermeable casing which ruptures upon exposure to elevated temperatures. Typically, a plurality of wall members of the above construction abut each other to form a heat resistant wall.



3,570,200
PARTITION PANEL STRUCTURES

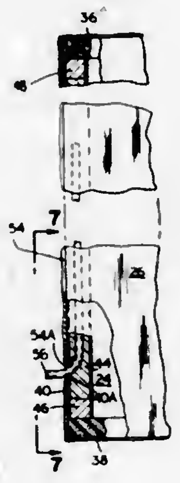
Carl E. Ritner, Wyomissing, and Arthur Baer, Reading, Pa., assignors to Construction Specialties, Inc., Cranford, N.J.
Filed Apr. 14, 1969, Ser. No. 815,903
Int. Cl. E04b *2/60, 2/78*
U.S. Cl. 52—122 **12 Claims**



An interior partition panel structure which includes an extruded vertical post support having a cross-sectional configuration of a cross formed by orthogonally intersecting flat members, and an adjustable base member. Panels join the posts with the panel edges received in corners defined between the orthogonal flat members of the posts, and with adjacent panels at each post having their edges located in diagonally opposite corners. A transom bar mounted along the top edges of the panels is fitted with a removable cover, and a projecting rib of the transom bar serves to align the panels along their top edges. A baseboard slidably received in a slot in the bottom of the panels can be used to fill the space between the bottom of the panels and the floor.

3,570,201
DOOR STRUCTURE WITH A CLOSABLE BREATHER TUBE

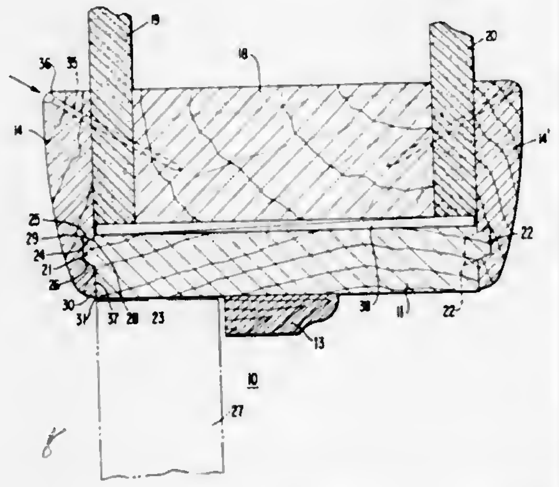
Louis F. Barroero, 1585 Daniels Drive,
San Leandro, Calif. 94577
Filed June 19, 1969, Ser. No. 834,628
Int. Cl. E04g *11/04;* **E04b** *5/12*
U.S. Cl. 52—172 **2 Claims**



A door has two curved glass plates in spaced relation to each other. Resilient sponge strips are disposed between the glass plates adjacent the bottom and top edges of the door. Along the sides of the door, between the glass plates, are tubes having slits which communicate with the space between the glass plates. Sealing means are included about the entire periphery of the door, and the tubes contain moisture-absorbent material such as silica gel, to absorb moisture which may be sealed in between the glass plates. A breather tube is built into the door and allows atmospheric pressure into the space between the glass plates. Such breather tube allows for differences in atmospheric pressure when shipping the door, and is sealed off when the door is in a substantially stabilized condition of atmospheric pressure.

3,570,202
TRIM ASSEMBLY

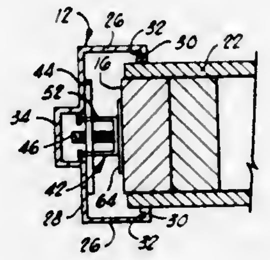
Angelo Castellano, 2710 Walnut St.,
Tampa, Fla. 33607
Filed Dec. 9, 1968, Ser. No. 782,258
Int. Cl. E06b *1/04*
U.S. Cl. 52—211 **7 Claims**



Cooperating cam-locking surfaces such as canted tongue and grooves are formed on trim and frame members such as jamb and header members of a doorway. The tongue is spaced from the finish face of the jamb a distance sufficient such that when the tongue is fitted into the groove a uniform reveal is quickly and accurately established and, simultaneously, when the trim is finished nailed in place by a nail angled in the direction of tongue and groove canting, the canted tongue and groove effect a camming and locking action of the forward edges of trim to the frame member. Consult the specification for other features and details.

3,570,203
DOOR FRAME

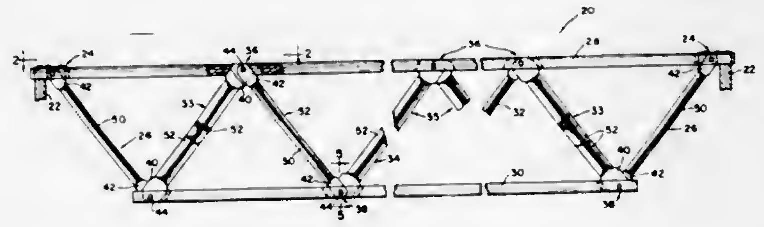
Orval D. Williams, P.O. Box 94010,
Oklahoma City, Okla. 73109
Filed Apr. 29, 1969, Ser. No. 820,157
Int. Cl. E06b *1/19*
U.S. Cl. 52—217 **6 Claims**



A metal frame for a door opening having stiles extending upwardly along the opposite sides of the door opening and a header extending across the top of the door opening. At least one of the stiles has an adjusting mechanism in the upper end portion thereof to react against the respective side of the wall opening and adjust the position of the respective stile and the header to provide the desired size of resulting door opening. The adjusting mechanism is constructed to provide a force on the respective stile which is spread over an appreciable area of the stile to prevent distortion of the stile when the adjusting mechanism is operated. The upper ends of the stiles are firmly secured to the opposite ends of the header to maintain the header in vertical alignment with the stiles during assembly and adjustment of the door frame.

3,570,204
TRUSS JOISTS

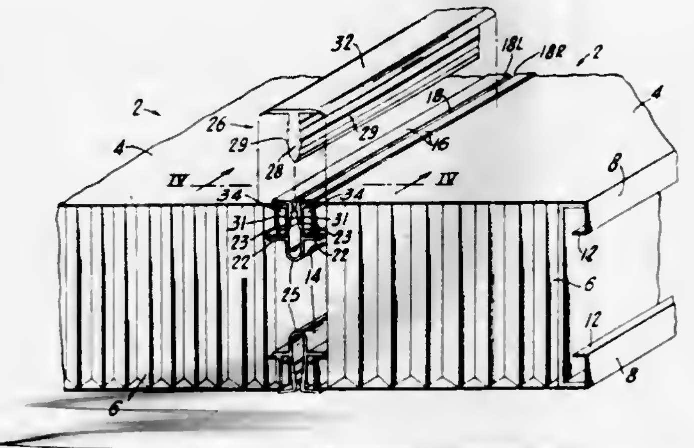
George R. Birkemeier, Portland, Oreg., assignor to Timber Structures, Inc., Portland, Oreg.
Continuation of application Ser. No. 749,253, July 22, 1968. This application Sept. 24, 1969, Ser. No. 860,841
Int. Cl. E04c *3/292*
U.S. Cl. 52—289 **14 Claims**



A truss joist **20** includes compression webs **33** heavier than tension webs **32** and doubled in the higher loaded portions. Joints **36** include knurled pins keyed to the webs and rotatable in the chords. Heel joints **24** include angle members extending beyond the pin **44** over the bearing wall **22** and anchored by nails **84** to the upper chord and by nails **86** to the bearing wall. A high load truss joist **100** includes two boards for each chord with cupped spring washers **160** retaining the boards on pins **134**. Heel joints **114** include vertically spacing angle members secured to the bearing wall.

3,570,205
PANEL JOINTURE

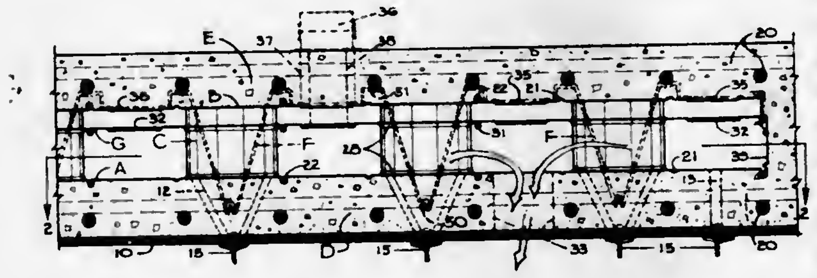
Charles Payne, Coral Gables, Fla., assignor to American Air Filter Company, Inc.
Filed Nov. 7, 1968, Ser. No. 774,016
Int. Cl. E04b *1/40, 1/66*
U.S. Cl. 52—466 **9 Claims**



A novel jointure provides a panel seal that is particularly adapted for environmentally controlled enclosures and that is easily mounted and demounted. The novel seal is described as a continuous U-shaped batten with compressible sealant strips disposed on each side between the panel edges. A spline forces the sides of the batten to flex and compresses the sealant against the panel edge to form a vapor-tight barrier.

3,570,206
MONOLITHIC CONCRETE SLAB CONSTRUCTION

John A. Armistead, 306 E. 1st Ave.,
Easley, S.C. 29640
Filed Nov. 21, 1968, Ser. No. 777,686
Int. Cl. E04b *5/48, 1/38*
U.S. Cl. 52—503 **5 Claims**

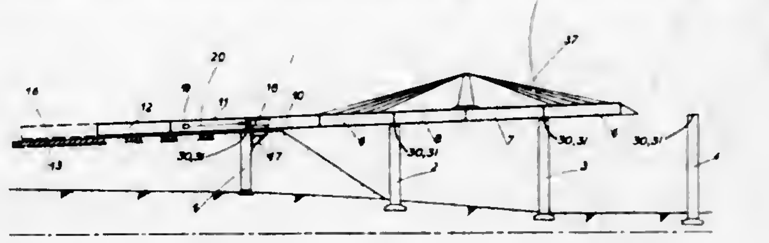


A slab construction for use in multistory buildings which includes a pair of spaced slabs being integrally joined by a plurality of vertically spaced cylindrical members. An omni-directional void is provided between the slab members for accommodating electrical wiring, air conditioning, passageways, etc. The entire slab construction is poured monolithically in concrete, so as to increase the shear strength of the cylindrical connectors.

3,570,207
METHOD OF ADVANCING BRIDGING STRUCTURES MADE FROM PRESTRESSED CONCRETE

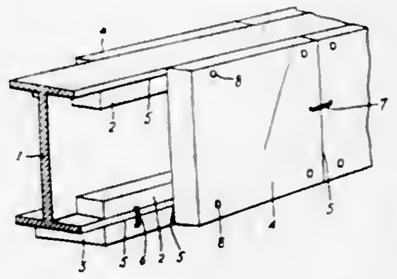
Pierre Launay, 108 Boulevard de la Reine,
Versailles, France
Filed July 10, 1969, Ser. No. 840,672
Int. Cl. E04b *1/06, 1/20;* **E04c** *3/20*
U.S. Cl. 52—745 **4 Claims**

In the construction of a bridging assembly which will rest on abutment piers and intermediate piers, bridging section are coupled together sequentially and the coupled sections are advanced as a new section is added, joints between the sections being temporarily prestressed at assembly and this prestressing being removed after the assembly of sections is in final position and final prestressing has been installed.



3,570,208
METHOD OF FORMING FIREPROOF LAYERS OUTSIDE STEEL SKELETONS AND BEAMS

Sei Nikai and Kiichi Ishii, Tokyo, and Shinsaku Miyake, Soka, Japan, assignors to Nippon Valqua Industries Limited and Kajima Corporation, both of Tokyo, Japan
Continuation-in-part of application Ser. No. 624,844, Mar. 21, 1967. This application Aug. 4, 1969, Ser. No. 847,345
Claims priority, application Japan, Mar. 23, 1966, 41/18,747; Sept. 6, 1966, 41/83,528
Int. Cl. E04b *1/94*
U.S. Cl. 52—746 **5 Claims**

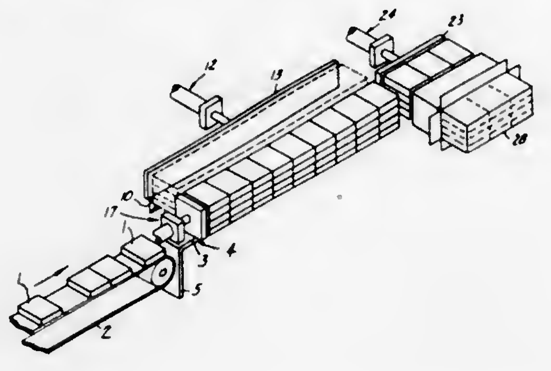


Structures or structural shape frame members, such as beams, columns, and pillars having spaced flanges joined by connecting webs for construction use, are enclosed by molded plates made of a fire-proof material, such as asbestos, cement, vermiculite, perlite, gypsum, rock wool or the like, formed into the required shape. The molded plates are secured to the structural members by applying a fire-proof adhesive agent to the joint portions of the structural members and molded plates and also between the molded plates themselves so that the joint portions can be combined together in a body while using clamps or nails for temporary support thereby forming fire-proof layers about the structural members. For example, a fire-proof material such as asbestos or the like is rendered sufficiently fiber-open and a suitable amount of cement, as a binding agent, is incorporated in the asbestos fibers thus opened and the mixture is fed into a mold under pressure for consolidation into the required size and shape of the molded plates used (blocks and plates) as fire-proof covering members. An adhesive agent made of a mixture of sodium silicate 65% by weight, and asbestos fibers chamotte and fire-proof cement 35% by weight is applied to the joint portions of the structural members and molded members and also between adjacent molded members so that the joint portions can be combined and fixed together while using clamps and nails to form temporary support as the adhesive sets to form fire-proof layers of the required thickness.

Thus it is possible to cover the outside of a structural member including its corners to an exact size by merely securing the fire-proof molded members to the outside of the structural member by means of the adhesive agent, thereby obtaining durable and strong beams and pillars completely covered by said molded fire-proof covering members.

3,570,209
CASING APPARATUS AND METHOD

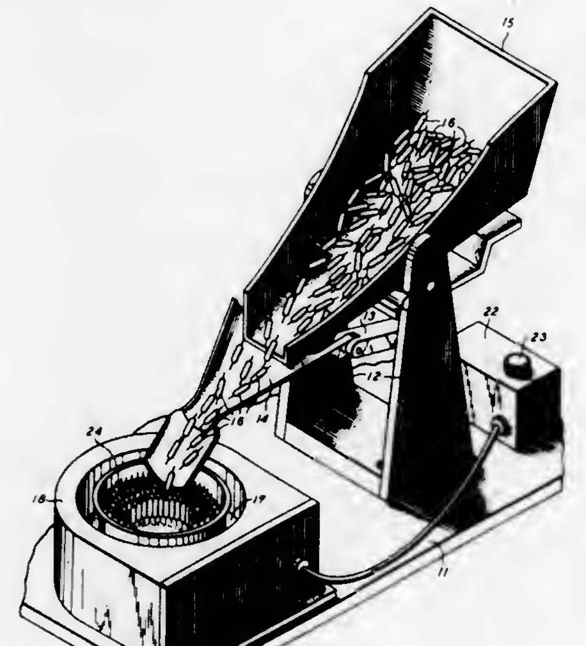
Melvin Salwasser, P.O. Box 548,
Reedley, Calif. 93654
Filed Oct. 15, 1969, Ser. No. 866,480
Int. Cl. B65b *35/40*
U.S. Cl. 53—26 **5 Claims**



A case load of stacked articles is provided by elevating a plurality of articles in a horizontally extending row and repeating the elevating step until a row of stacks is formed. The row of stacks is then shifted laterally to an offset position as a unit and then moved in a direction longitudinally of the offset row to provide caseloads of stacked articles. By providing means for elevating a relatively large number of articles at one time and collecting a number of stacks in an offset position a relatively high casing speed is achieved.

3,570,210
METHOD AND APPARATUS FOR LOADING ELONGATE ARTICLES OF MAGNETIC MATERIAL

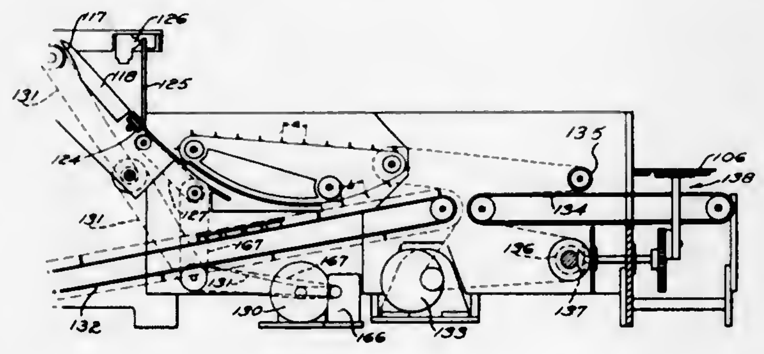
Samuel Pinnolis, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Apr. 9, 1969, Ser. No. 814,748
Int. Cl. B65b *1/08, 19/39*
U.S. Cl. 53—35 **9 Claims**



Elongate articles of a magnetic material, such as dry reed switches, are loaded into a non-magnetic container by placing the container in the center of a funnel-shaped magnetic field such as may be produced by a coil of wire forming an electromagnet. As the electromagnet is excited by an A.C. current, the articles are dropped into the center of the container and the alternating magnetic field (a) aligns the articles vertically within the container, (b) drives the articles toward the walls of the container, and (c) vibrates the articles so that they may be tightly packed.

3,570,211
AUTOMATIC TRAYING APPARATUS

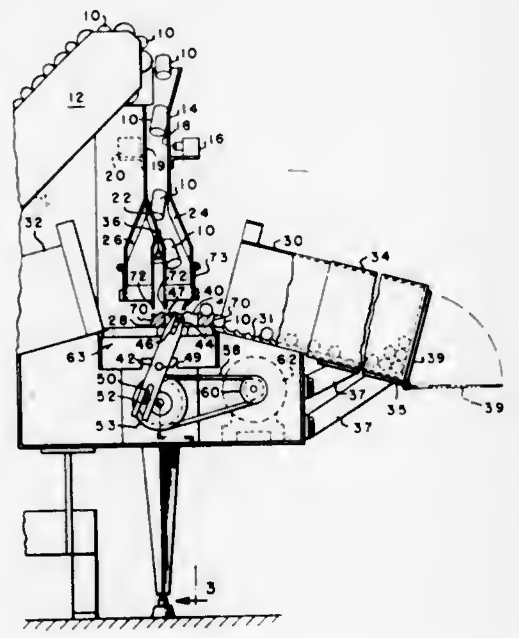
George F. Gordon and Charles C. Austin, both of Austin Gordon Design, Inc., Pine St. Extension, Nashua, N.H. 03060
Continuation-in-part of application Ser. No. 595,822, Nov. 21, 1966. This application Nov. 21, 1967, Ser. No. 684,810
Int. Cl. B65b *57/00*
U.S. Cl. 53—55 **11 Claims**



An automatic traying apparatus for filling trays with containers performs the functions of (1) unscrambling a quantity of containers, (2) receiving and individually separating a compressed stack of trays to deposit trays at intervals onto a conveyor, (3) loading the containers into the trays and (4) stacking the filled trays.

3,570,212
COIN BAGGING MACHINE

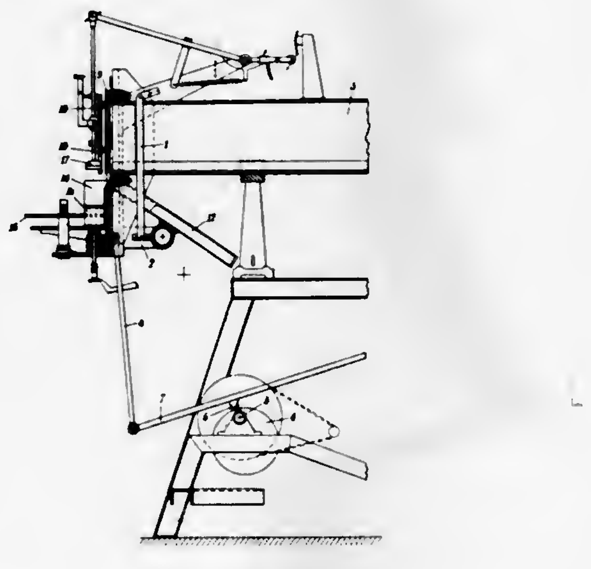
John H. Murray, Spartanburg, and Richard Dalton Wylie, Gaffney, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed June 3, 1968, Ser. No. 733,963
Int. Cl. B65b *57/20*
U.S. Cl. 53—78 **3 Claims**



This disclosure is directed to apparatus to automatically count and bag a predetermined number of rolls of coins. The apparatus includes an automatically controlled diverter which after the detection of a predetermined number of coins is rotated to divert rolls of coins to a new position so that the bagging operation is substantially continuous.

3,570,213
MACHINE FOR CUTTING AND CANNING FOOD PRODUCTS IN PLASTIC STATE, PARTICULARLY MEAT

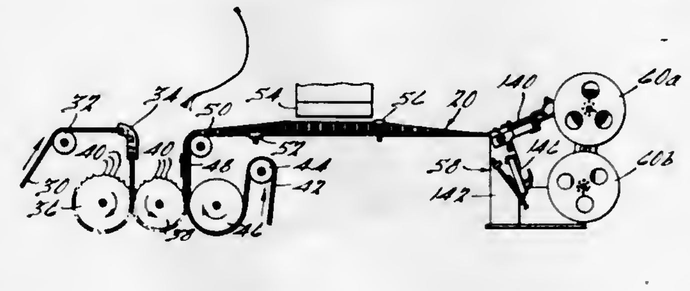
Pietro Sada, Aprilia, Latina, Italy
Filed July 15, 1968, Ser. No. 744,789
Claims priority, application Italy, Feb. 24, 1968, 35,073/68
Int. Cl. B65b *63/00, 1/24, 25/06*
U.S. Cl. 53—123 **1 Claim**



A machine for cutting and canning food products in plastic state, particularly meat, characterized by the combination of a product reservoir which is periodically loaded with the product to be canned, and from which a prefixed amount is caused to issue sequentially from an outlet slot at a filling station. The pre-fixed amount of product is cut and conveyed into a box, from where it is further compacted and arranged within a can. The machine sequentially sends cans to the filling station from a feeding reservoir, in order to impart thereto a distinguishing mark and for ejecting them when the operations are ended.

3,570,214
PACKET FORMING APPARATUS

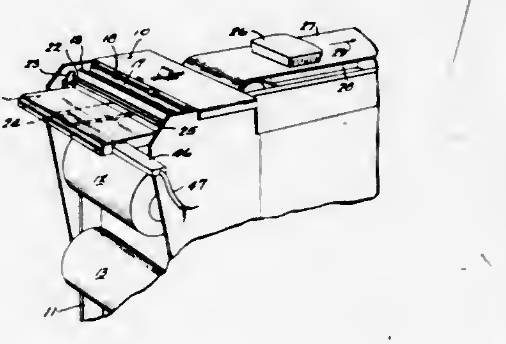
Sanford K. Carlisle, Jr., Andover, Mass., and George F. Gordon, Nashua, N.H., assignors to Diamond Crystal Salt Company
Filed Mar. 27, 1968, Ser. No. 716,605
Int. Cl. B65b *9/04, 47/04*
U.S. Cl. 53—184 **3 Claims**



An apparatus for making a continuous ribbon of interconnected dispensing packets which includes means for forming a plurality of cavities between two webs and filling the cavities with a material to be dispensed, whereafter the cavities are sealed and the resultant ribbon is wound by a winding device on successive reels, each containing a preselected length of the ribbon, without any interruption in the continuity of manufacture of the ribbon of interconnected packets.

3,570,215
WRAPPING APPARATUS WITH MOVABLE HOT PLATE

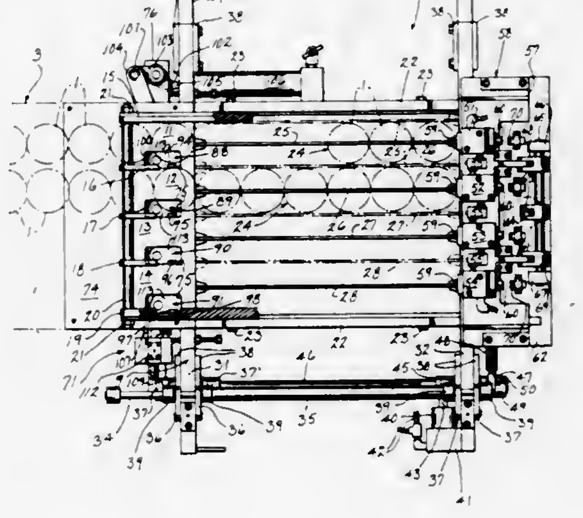
Victor E. Palmer, Greendale, Wis., and John T. Young, Lake Bluff, Ill., assignors to Wrapping Machinery Company, Inc., Franksville, Wis.
Filed Jan. 17, 1968, Ser. No. 698,616
Int. Cl. B65b *67/08*
U.S. Cl. 53—201 **4 Claims**



This disclosure relates to package wrapping apparatus comprising a prewrap table, a conveyor, a package rest, and a portable hot plate removably mounted over said package rest.

3,570,216
FEED CONTROL FOR CASE FILLER

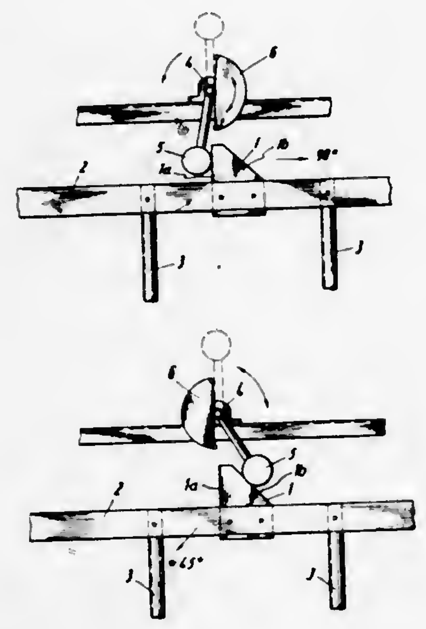
Herman C. Frentzel, 4363 N. Wildwood Ave., Shorewood, Wis. 53211
Filed Nov. 6, 1968, Ser. No. 773,740
Int. Cl. B65b *5/06*
U.S. Cl. 53—248 **10 Claims**



A machine for loading bottles into cases feeds four streams of bottles into stalls in a loader stage. When the stalls are filled, the feed of bottles is stopped, and supporting rails are slid from beneath the bottles allowing them to drop through chutes into the case below. Vertical gate bars at the threshold of the loader stage are mounted on bellcranks which simultaneously swing the gate bars across the streams of bottles to block the paths and stop the feed, while loading stage empties into the case.

3,570,217
CLEANING DEVICE FOR ELECTROSTATIC DUST COLLECTOR DISCHARGE ELECTRODES

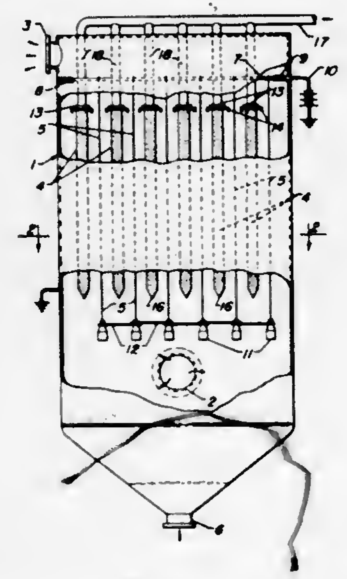
Walter Steuernagel, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Filed July 8, 1969, Ser. No. 839,907
Claims priority, application Austria, July 15, 1968, A 6,820/68
Int. Cl. B03c *3/76*
U.S. Cl. 55—112 **4 Claims**



Dust is shaken from the discharge electrodes in an electrostatic dust separator by means of hitting an anvil secured to the framework, from which the electrodes are hung, with a freely falling hammer which alternately strikes a vertical side and an inclined side of the angles to produce vibrations in different directions and intensity.

3,570,218
ELECTRODE CONFIGURATION IN AN ELECTRICAL PRECIPITATOR

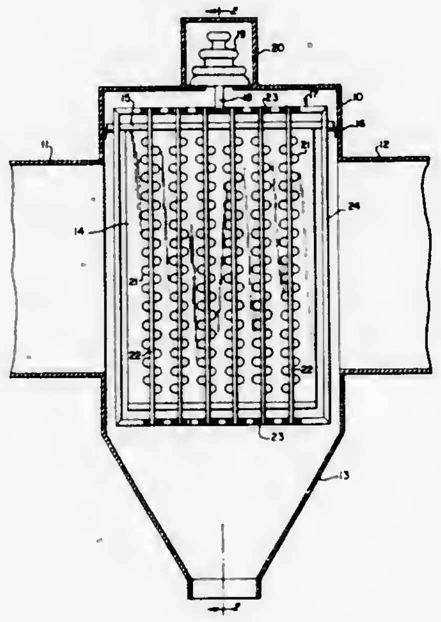
James A. Finney, Jr., Greenwich, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 11, 1968, Ser. No. 783,002
Int. Cl. B03c *3/74*
U.S. Cl. 55—118 **6 Claims**



An improved liquid film electrical precipitator in which each charging electrode wire is located between and maintains electric fields with respect to several separate collector electrodes. A liquid supply means carries liquid to the exterior surfaces of the collector electrodes. Preferably, the lower portions of the collector electrodes terminate in downward vertical points. Downward extensions passing through these points pass between the charging electrodes and the stabilizing and linking apparatus associated with the charging electrodes.

3,570,219
DISCHARGE ELECTRODE ASSEMBLY

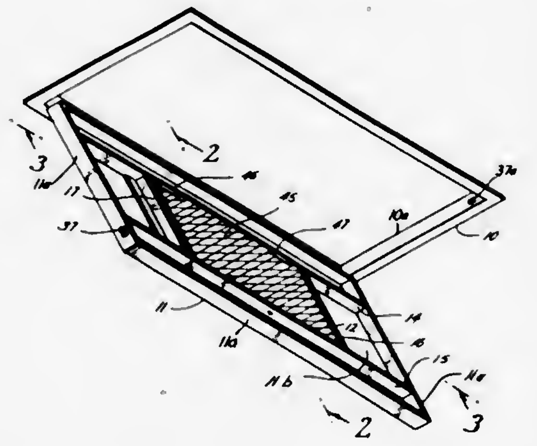
Frederick W. Schmitz, Plainfield, N.J., assignor to Research-Cottrell, Inc., Bridgewater Township, Somerset County, N.J.
Filed Jan. 8, 1968, Ser. No. 696,247
Int. Cl. B03c *3/04*
U.S. Cl. 55—148 **4 Claims**



Discharge electrode assemblies electrical precipitators having extended surface collecting electrodes comprise elongate metallic ribbons disposed with the edges of the ribbons having substantially parallel paths in planes parallel to and spaced from the associated collecting electrode faces and support members maintaining the ribbons rigidly in such position. In preferred arrangements the metallic ribbons are bent into at least partially curvilinear shape.

3,570,220
COMBINED ACCESS DOOR AND FILTER HOLDER

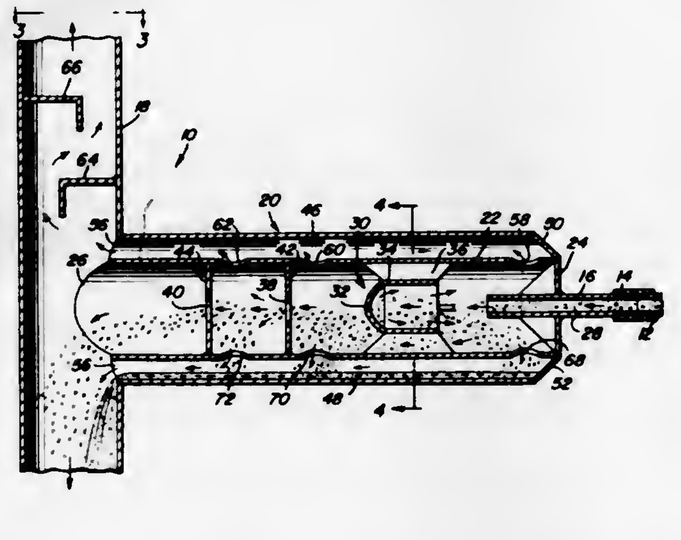
John V. Felter, P.O. Box 7464, Houston, Tex. 77008
Filed Apr. 2, 1969, Ser. No. 812,655
Int. Cl. B01d *46/00*
U.S. Cl. 55—385 **5 Claims**



Combined access door and filter holder wherein the filter holder opens inwardly of the access door, adapted for use of inexpensive filter media supplied in flat sheets or rolls, which is cut to size for placement in the filter holder which holds the filter media in adequately supported condition.

3,570,221
TWO PHASE FLUID-SOLID SEPARATOR

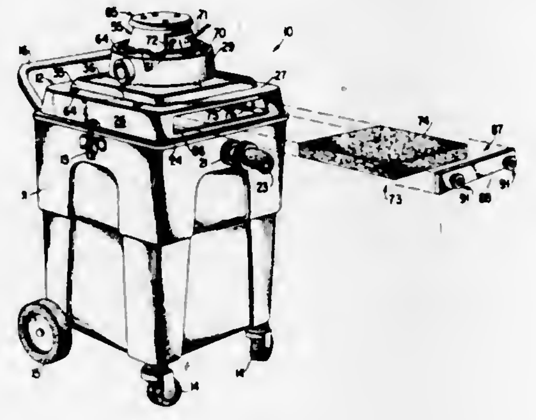
Wilbert J. Oliver, P.O. Box 163, Egan, La. 70531
Filed Feb. 20, 1969, Ser. No. 801,099
Int. Cl. B01d *51/00*
U.S. Cl. 55—418 **11 Claims**



A mechanical separator for removing liquid and solid particles from a gaseous mixture discharged under pressure from a well during a cleaning operation. Axial flow of the mixture through a horizontal chamber is progressively baffled to separate gas from liquid and solid particles. The gas is collected within an upper channel and conducted to a vertical outlet pipe while the liquid and solids are collected in a lower channel for gravity discharge from the outlet pipe.

3,570,222
WET OR DRY SHOP VACUUM CLEANER

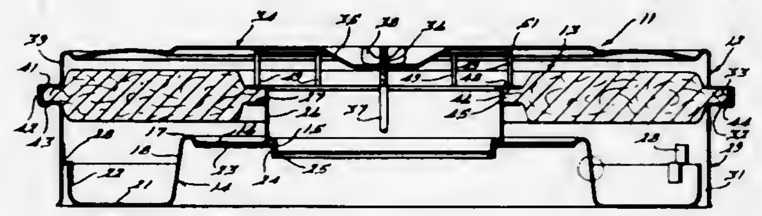
Edmund C. Dudek, St. Charles, Ill., and Richard M. Fegan, Pickens, S.C., assignors to The Singer Company, New York, N.Y.
Filed May 13, 1969, Ser. No. 824,178
Int. Cl. B01d *46/00*
U.S. Cl. 55—472 **9 Claims**



The present vacuum cleaner, which is of the industrial type and is adapted either for wet or dry pick-up, comprises a container adapted to hold the liquid or dry material picked up by the cleaner and a cover which fits over the container and provides a housing for the motor-blower assembly and the filter assembly. A dump valve is provided for removal of the liquid from the container. The filter assembly includes a common furnace type filter that is suspended from an adjustable filter rail inside the cover and which easily can be removed through a frontal opening provided in the cover. A novel removable door closure arrangement and construction disposed over the frontal opening provides an airtight seal with the cover and facilitates removal of the filter when it becomes clogged or when it is necessary to remove the filter during operation of the cleaner for wet pick-up. The motor-blower unit resiliently is mounted on a support bracket constructed and arranged to facilitate assembly of the unit in the cleaner.

3,570,223
FILTER

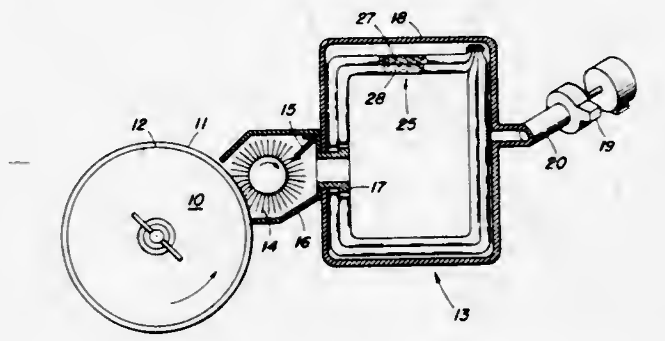
Louis J. Svoren, Racine, Wis., assignor to Tenneco Inc., Houston, Tex.
Continuation of applications Ser. No. 525,636, Feb. 7, 1966, and Ser. No. 694,350, Dec. 28, 1967. This application Jan. 31, 1969, Ser. No. 809,448
Int. Cl. B01d *27/08*
U.S. Cl. 55—510 **4 Claims**



A throw-away type air filter assembly for an internal combustion engine induction system. The air cleaner assembly includes a long life filter element and a filter housing in which the element is permanently retained so that the housing and element are replaced as a unit.

3,570,224
FILTER FOR ELECTROSTATOGRAPHIC DEVELOPER

Carl F. Clemens, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,240
Int. Cl. B01d *46/02*
U.S. Cl. 55—374 **3 Claims**

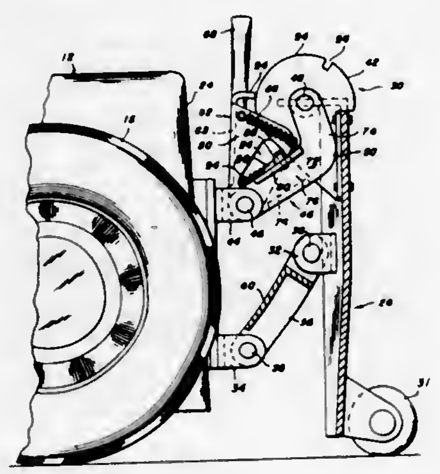


Improved filter for separating an electrostatographic developer material (toner) wherein the filter material is coated with a plasticizer for the toner. The filter is preferably formed from fiber glass and is comprised, in the direction of flow, of a loosely assembled web or mat of increasing density and a loosely assembled web or mat of substantially uniform density. The filter is generally employed in the cleaning station of a xerographic machine and is employed to remove toner particles suspended in an air stream. The filter bag has been found to have a useful life of 18,000 copies or more, as compared to conventional filter bags which have a useful life of about 4,000 copies.

3,570,225

SAFETY SHIELD

Leonard A. Miskiewicz, 219 Sprucewood St.,
Pittsburgh, Pa. 15210
Filed June 2, 1969, Ser. No. 829,575
Int. Cl. A01d *75/20*
U.S. Cl. 56—25.4 **4 Claims**

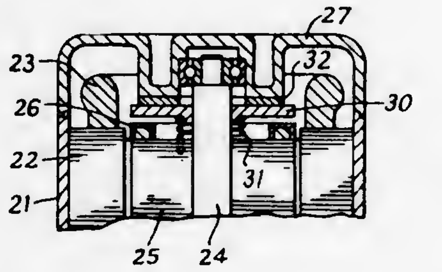


A safety shield for a power driven lawnmower and a control mechanism operatively interconnected between the lawnmower and the safety shield is disclosed. The control mechanism is operative to lock the shield and mower in fixed positions relative to each other when the rear end of the mower is raised a predetermined distance above the ground, and is also operative to terminate electrical energy supplied to the power means driving the mower when the mower is so raised.

3,570,226

ELECTRICALLY DRIVEN LAWNMOWER

Hans Haverkamp and Gernot Neumann, Lipperreihe, near Bielefeld, Germany, assignors to Hanning Elektro-Werke Robert Hanning, Bielefeld, Germany
Filed Aug. 5, 1968, Ser. No. 750,447
Claims priority, application Germany, Aug. 5, 1967,
P 15 82 243.2
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 **2 Claims**



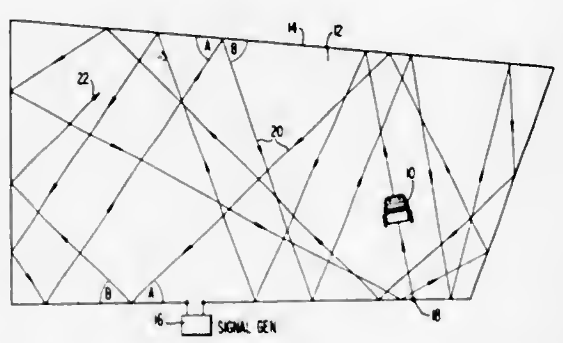
A lawnmower is driven by an electric motor. The motor is provided with a brake which is operated magnetically by the rotor of the motor, and which is applied automatically when the motor is de-energized.

3,570,227

SELF-PROPELLED RANDOM MOTION LAWNMOWER

S. Lawrence Bellinger, Florissant, Mo., assignor to Mowbot, Inc., Tonawanda, N.Y.
Continuation-in-part of application Ser. No. 405,064, Oct. 20, 1964. This application Jan. 16, 1969, Ser. No. 791,566
Int. Cl. B62d *11/08*
U.S. Cl. 56—25.4 **14 Claims**

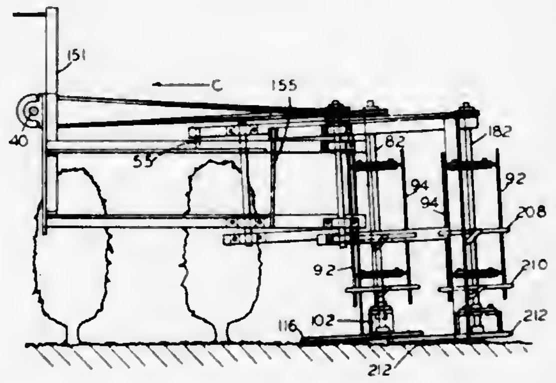
Disclosed is a self-propelled lawnmower for cutting grass in a completely random and unattended manner. The unit is preferably propelled by a battery and comprises a frame supported on a pair of front caster wheels and a pair of rear drive wheels. The drive wheels are coupled to a continuously rotating drive shaft by individual clutch-brake mechanisms. When a boundary wire is sensed by coils on the frame, the drive wheel furthest away from the border is unclutched and braked to pivot or turn the mower. No backup motor or complex steering control is required. A pair of adjustable rotary cutter blade assemblies are carried on the frame.



3,570,228

LEAF REMOVING APPARATUS

Roy W. Phillips, 894 Eddy Ridge Road, Marion, N.Y. 14505
Filed Feb. 26, 1969, Ser. No. 802,482
Int. Cl. A01d *55/18*
U.S. Cl. 56—234 **1 Claim**



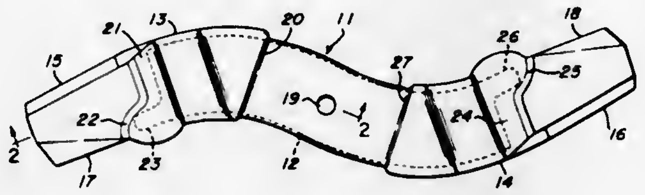
Deleafer for Brussels sprouts plants and the like arranged in a row comprising a transverse frame disposed at a height to clear a row of plants, a pair of arms one longer than the other extending rearwardly from the frame and adapted to swing on substantially vertical axes, a vertical axis cutting assembly rotatably supported on the end of each arm and having tangentially disposed knives of a length commensurate with the height of the plants, means to reversely rotate the knives of one assembly with respect to the other assembly, circular guards for each of said assemblies for engaging and riding around a plant, while the knives cut the leaves extending therefrom, the assemblies being staggered to prevent interference between the assemblies, and being yieldingly urged toward one another.

3,570,229

MOWER BLADE

Abraham L. Freedlander, Dayton, Ohio, and Robert E. Matthews and Wayne C. Garrett, Waynesville, N.C., assignors to Dayco Corporation, Dayton, Ohio
Filed Oct. 28, 1968, Ser. No. 771,207
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. A01d *55/18*
U.S. Cl. 56—295 **5 Claims**

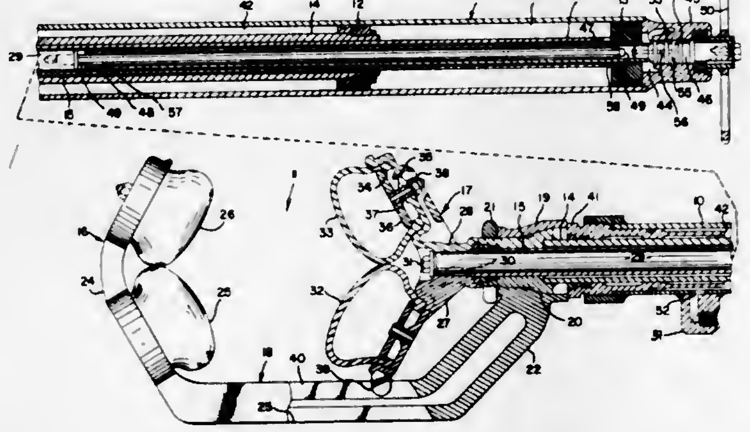
A flexible elastomeric lawn mower blade having outwardly extending arms and integral cutting edges, with a rigid central mounting plate embedded in the arms. The arms and the ends of the plate are offset from and curved with respect to the center portion of the plate, and the ends of the plate have an outwardly extending segment at the trailing edge.



3,570,230

TREE GRIPPING CLAMP AND BOOM AND CONTROL SYSTEM THEREFOR

Stuart D. Pool, Naperville, Edward Svereika, Chicago, and Calvin P. Rickerd, La Grange Park, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed July 9, 1968, Ser. No. 743,360
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 **11 Claims**



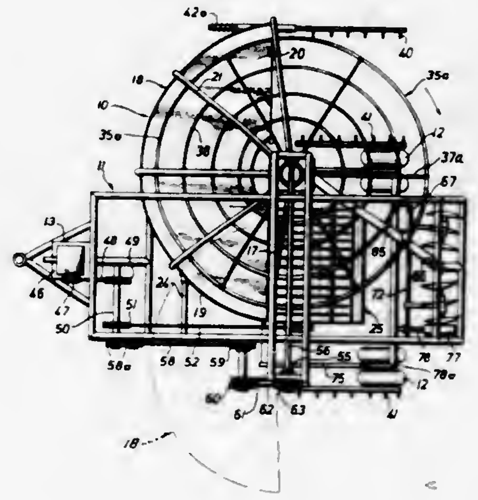
A boom assembly for a tree shaker apparatus wherein the assembly includes a hydraulic cylinder within which a pair of pistons are mounted in axially spaced relation to define a plurality of fluid chambers. A tree gripping clamp includes a pair of jaws connected respectively to the pair of pistons. Hydraulic control means are operative to move the clamp structure relative to the cylinder and to move the jaws relative to each other by controlling the fluid pressure within the fluid chambers. Means are provided for rotating the clamp structure relative to the boom assembly.

3,570,231

APPARATUS FOR HARVESTING PEANUTS OR LIKE CROPS

Dwana K. McCary and Robert E. McCary, both of P.O. Box 350, Dilley, Tex. 78017
Filed Oct. 4, 1968, Ser. No. 765,108
Int. Cl. A01d *79/00*
U.S. Cl. 56—370 **13 Claims**

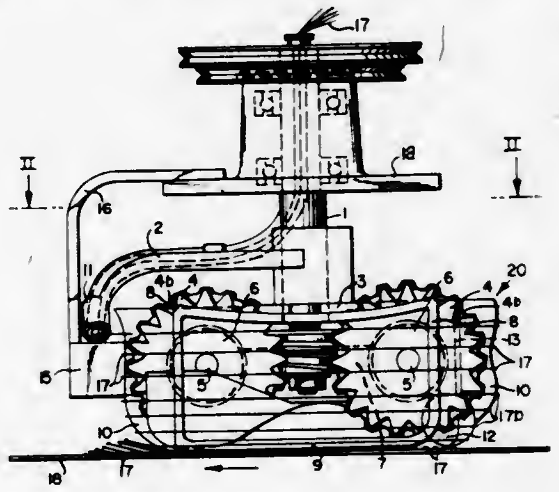
An apparatus for inverting a windrow comprises a frame adapted to be moved forwardly over the windrow, fingers mounted on the frame for rotation about a laterally extending axis for penetrating the top of the windrow, and a plate mounted on the frame rearwardly of the fingers and in the path of the windrow to confine it for turning on itself about a generally horizontal axis. A platform on the frame is open at both sides of its rearward end and has one side positioned to receive the inverted windrow. A wheel is mounted on the platform for rotation about a generally horizontal axis midway between the sides of the platfom, and parts on the wheel penetrate the top of the inverted windrow received on the one side of the platform to carry it to and off the other open side of the platform and thus lay the inverted windrow on the ground surface to one side of the ground surface from which it was picked up. A forward wall on the platform extends across it from one side to the other and is curved concavely with respect to the rearward end of the platform and concentrically outwardly of the windrow penetrating parts on the wheel. The means for picking up and inverting the windrow is fixed in alignment with the frame, and the platform is laterally shiftable of the frame so as to dispose a selected side in position to receive the inverted row and to cause its other side to overhang the frame. Each of the pick-up fingers and wheel is operated independently of the forward movement of the frame, and there is a means on the frame for building up a mound of soil along the ground surface from which the windrow has been picked up.



3,570,232

METHOD AND APPARATUS FOR FORMING RINGS OF THREADS

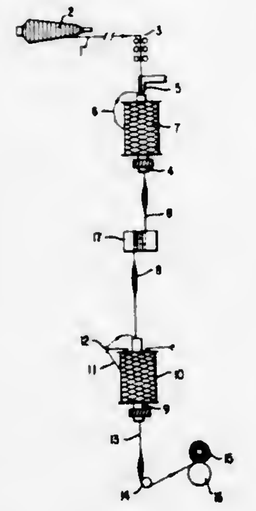
Ernst Erb, Basel, Switzerland, assignor to Etablissements Superba SA, Mulhouse, France
Filed Feb. 25, 1969, Ser. No. 802,114
Claims priority, application Switzerland, Feb. 27, 1968, 2,806/68
Int. Cl. B65h *54/82*
U.S. Cl. 57—1 **11 Claims**



Single threads are drawn off a supply, conveyed through thread-break stop motions and combined in a rope which is passed through the axis of a revolving guide arm to feed the rope into gaps between consecutive teeth on the descending peripheries of toothed wheels. The rear parts of the thread rings formed in this manner are continuously carried downwards by the wheels and pushed into contact with a forward travelling friction belt which conveys them underneath two members slidably pressing the rings in close succession onto the belt which carries them forward in the form of lapped sequences of layers of rings of substantially uniform thickness suitable for submission to conventional treatments.

3,570,233
PROCESS AND APPARATUS FOR PRODUCING FANCY YARNS

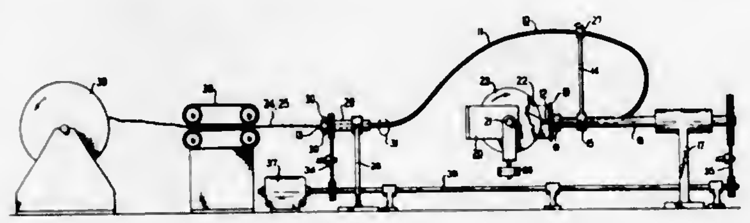
Raoul Nalpas, Marq-en-Baroeul, Gilbert Descamps, Croix, and Etienne Delcroix, Roubaix, France, assignors to Societe Moulinage et Retorderie, Chavanoz, France
Filed Dec. 18, 1968, Ser. No. 784,674
Claims priority, application France, Dec. 28, 1967, 49,473; Nov. 22, 1968, 50,653, 50,654
Int. Cl. B65h *81/08;* **D02g** *3/34*
U.S. Cl. 57—16 **21 Claims**



An improved process for producing fancy yarns, i.e., "nubbled" yarns wherein an effect yarn is wound on at least one core yarn upon passage through a first covering or lapping element with a binding yarn being subsequently wound on the intermediary assembly formed from the effect yarn and core yarn in a second lapping or covering element, the improvement relating to the fact that the speed of the intermediary assembly is varied while the final winding to produce the completed fancy yarn is conducted at substantially constant speed.

3,570,234
PAIR FLYER TWISTING USING FLEXIBLE BOW

Harold W. Friesen and William F. MacPherson, Warren Township, Somerset County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jan. 8, 1969, Ser. No. 789,750
Int. Cl. D01h *1/04, 7/24*
U.S. Cl. 57—59 **6 Claims**



This disclosure describes a flyer-type conductor pair twister in which the bow consists of a flexible tube with two smaller flexible tubes within, through which two conductors are respectively threaded. The entrance end of the tube is fixed so that it does not rotate as the bow rotates. All conductor twist occurs between the bow exit and the take-up capstan. These being fixed points, the twist length is finely controllable.

3,570,235
COMPOSITE MULTIFILAMENT YARN

Mototada Fukuhara, Akira Ueno, Isao Nihei, and Chikara Sano, Mishima-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
No Drawing. Filed Oct. 15, 1968, Ser. No. 767,813
Claims priority, application Japan, Oct. 18, 1967, 42/66,546
Int. Cl. D02g *1/18, 3/24*
U.S. Cl. 57—140 3 Claims

A multifilament yarn comprising a plurality of filaments composed of two kinds of thermoplastic high polymers having different viscosities and arranged in an eccentric disposition in the cross section of each filament. Material high-polymers should preferably be chosen from polyester groups and the difference in viscosities thereof should be larger than 0.05.

A fabric containing the yarns can be provided with enhanced bulkiness together with unique handling quality.

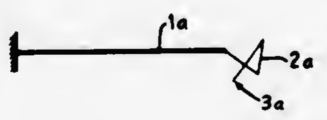
3,570,236
YARN SPLICE

Fernando Alfredo Arguelles, Greenville, S.C., assignor to Fiber Industries, Inc.
Original application June 28, 1967, Ser. No. 649,692, now Patent No. 3,487,618, dated Jan. 6, 1970. Divided and this application July 9, 1969, Ser. No. 862,554
Int. Cl. D02g *3/22*
U.S. Cl. 57—142 **5 Claims**

Two yarns are spliced together by subjecting the yarns, located in a confined zone, to the flow of two directly opposed fluid streams.

3,570,237
MECHANICAL ENERGIZATION HEAD OF A MECHANICAL REGULATING OSCILLATOR FOR WATCH MOVEMENT

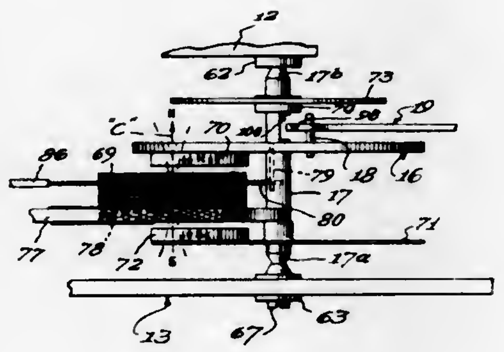
Hermann Steiger, 18 Rue des Paquis, 1201 Geneva, Switzerland
Filed Oct. 28, 1968, Ser. No. 771,043
Claims priority, application Switzerland, Nov. 8, 1967, 15,607/67
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **1 Claim**



The invention concerns a watch movement regulating device which comprises a mechanical regulating oscillator and an energizing head rigidly connected to said oscillator. The free end of the wire shaped energizing head has a cross section very much smaller than that of the oscillator and enters in successive contacts with the toothing of a regulating wheel of the watch movement which is driven in rotation by the watch winding spring. In this assembly the necessary energy to keep the oscillator in oscillation is derived from the said winding spring and delivered through the intermediary of said regulating wheel and the energization head to said oscillator. The oscillator in its turn regulates, through the intermediary of said energization head, the speed of rotation of the regulating wheel.

3,570,238
DIRECT CURRENT ELECTRIC TIMEPIECE

James W. Richmond, Bensenville, and Richard N. Kassner, Lombard, Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Mar. 4, 1968, Ser. No. 710,273
Int. Cl. G04c *3/00*
U.S. Cl. 58—28 **16 Claims**

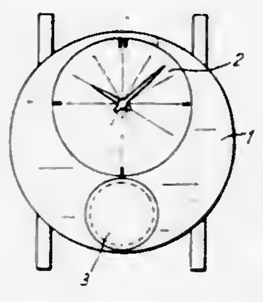


A direct current electric timepiece comprising a balance wheel assembly including a shaft, a balance wheel mounted on the shaft, and permanent magnet means mounted on said balance wheel eccentric of said shaft and movable along an arcuate path in opposite directions from a neutral position lying on a plane extending radially of the shaft. Fixed electromagnetic coil means are centered on the neutral plane outwardly of the shaft and means are provided for selectively energizing and de-energizing the coil means to successively repel the permanent magnet means on the balance wheel, thereby providing magnetic impulse forces for oscillating the balance wheel in opposite directions from the neutral position. An eddy current damper is positioned diametrically opposite the coil means adjacent the path traversed by the magnet means on the balance wheel for opposing the movement of the balance wheel as it oscillates to prevent overbanking of the balance wheel when the battery power is in the high voltage range. The balance wheel assembly drivingly engages an escapement lever which rotates a toothed escapement wheel in synchronism with the oscillation of the balance wheel assembly. The escapement wheel is mounted on a shaft, and spring means is disposed at one end of the shaft for biasing the shaft axially against a bearing supporting the opposite end thereof to provide braking action on the shaft to prevent overtravel of the escapement wheel.

3,570,239
WRISTWATCH WITH MEANS FOR CHECKING RADIOACTIVITY OF THE ENVIRONMENT

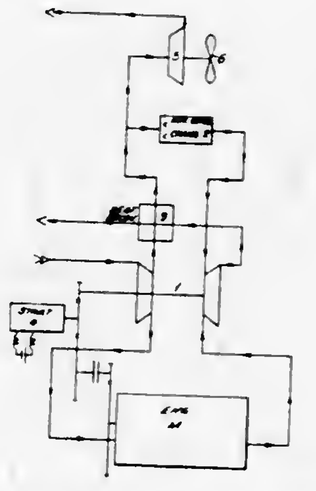
Francois Charles, Bassecourt, Switzerland, assignor to Georges Ruedin S.A., Bassecourt, Bern, Switzerland
Filed May 13, 1969, Ser. No. 824,155
Int. Cl. G04b *37/12*
U.S. Cl. 58—152 **4 Claims**

A wristwatch provided with means for checking the radioactivity of the environment in which the watch is of thermo-luminescent material, the thermo-luminescence located, the checking means comprising an element made of which varies with the radiations to which the element has been submitted.



3,570,240
SUPERCHARGING APPARATUS FOR DIESEL AND MULTIFUEL ENGINES

Jean Melchior, Fontenay-aux-Roses, France, assignor to Etat Francais, represented by the Minister of Armed Forces (Ministerial Delegation of Weapons), Paris, France
Filed May 15, 1969, Ser. No. 824,810
Claims priority, application France, May 29, 1968, 153,339
Int. Cl. F02b *37/00*
U.S. Cl. 60—13 **11 Claims**

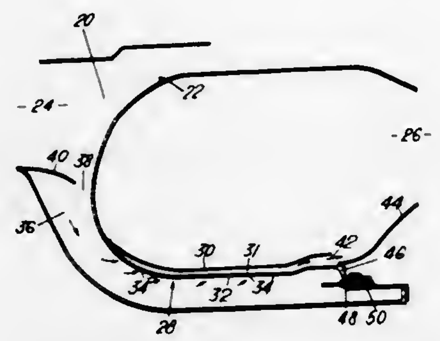


Supercharging device for a Diesel engine comprising a combustion chamber and starting means for the turbo-compressor permitting the same to operate as a gas turbine. Said turbine, started prior to the engine, establishes in the intake manifold such conditions, relative to pressure and temperature, that initial ignition by combustion becomes possible with a low volume ratio. The turbine can also serve for starting the engine and for driving auxiliary services. After the starting of the Diesel engine, the combustion chamber of the device can be shut down. The energy necessary for the turbo-compressor, to enable it to furnish a sufficient supercharging pressure under all operating conditions, is then obtained by modifying the cross-section of the distributor of the turbine. One embodiment of the invention includes a regulating system which maintains the speed of rotation of the turbo-compressor and the supercharging pressure at a constant value.

3,570,241
FLAME TUBE FOR COMBUSTION CHAMBER OF A GAS TURBINE ENGINE

Eric Archie Alexander, Aston-on-Trent, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed July 29, 1969, Ser. No. 845,792
Claims priority, application Great Britain, Aug. 2, 1968, 37,091/68
Int. Cl. F02c *7/18*
U.S. Cl. 60—39.65 **5 Claims**

A flame tube for a gas turbine engine combustion chamber, a wall of the flame tube being double-skinned for at least the greater part of its axial length over at least a portion of its circumference, the double-skinned portion of the wall comprising an internal skin spaced from an external skin to define an axially elongated passage, the passage receiving cooling air and being open at its downstream end to the interior of the flame tube to direct cooling air emerging from the passage across an internal surface of the flame tube wall to effect film cooling thereof, the external skin having apertures adapted to direct jets of cooling air forcefully onto the internal skin, so that no boundary layer is formed in the cooling air flowing through said passage.



3,570,242

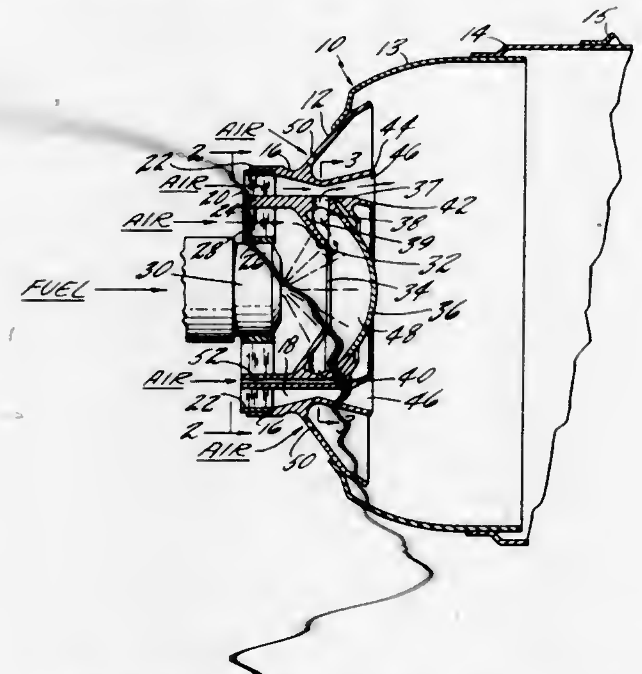
FUEL PREMIXING FOR SMOKELESS JET ENGINE MAIN BURNER

Salvatore A. Leonardi, Rockville, and Robert A. Rubino, West Willington, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation of application Ser. No. 738,216, June 19, 1968, which is a continuation-in-part of application Ser. No. 710,538, Mar. 5, 1968. This application Apr. 20, 1970, Ser. No. 28,252

Int. Cl. F02c *7/22*

U.S. Cl. 60—39.74 **5 Claims**



Air is swirled into a frusto-conical converging annular baffle within a chamber, which causes increased rotary velocity of the swirling air; fuel is sprayed into the air within the chamber. When the swirled fuel-air mixture passes through the axial outlet of the converging baffle, it is centrifugally forced radially outward through tangential or radial ports into the throat of an annular venturi duct through which further air is introduced. This mixture then enters the burner can of a gas turbine for combustion. Additional air passages may be used so as to prevent carbon formation on various surfaces.

3,570,243

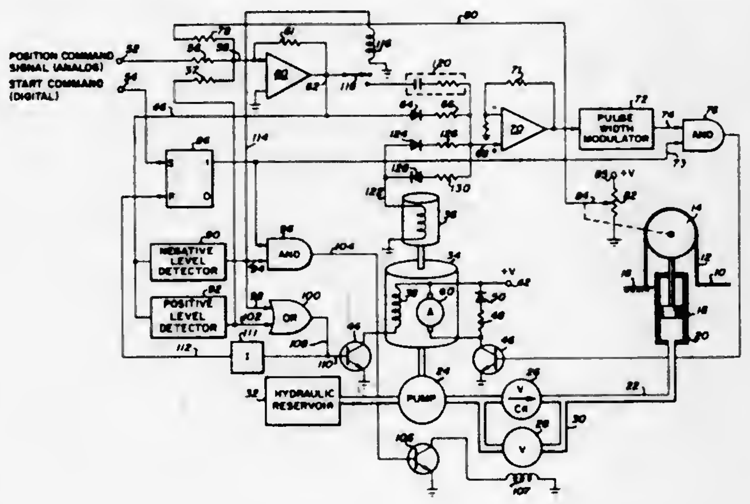
HYDRAULIC ACTUATOR CONTROL SYSTEM

Donald T. Comer and Ronald D. Irvin, Los Gatos, Calif., and Robert E. Jones, Greene, N.Y., assignors to Mobility Systems, Inc., Santa Clara, Calif.

Filed Dec. 9, 1968, Ser. No. 782,026

Int. Cl. F15b *15/18*

U.S. Cl. 60—52 **17 Claims**



A hydraulic control system wherein a positive displacement hydraulic pump means is variably controlled to drive the piston of a hydraulic cylinder to a selected position. The pump means is driven by a shunt-wound DC motor means which is energized in response to the output of an electronic signal generating means which is responsive to the difference between a piston position sense signal and a position command signal. The electronic signal generating means also include an automatic disabling circuit which prevents overshoot and oscillation in the hydraulic cylinder.

3,570,244

POWER PISTON DRIVE FOR ARMATURES

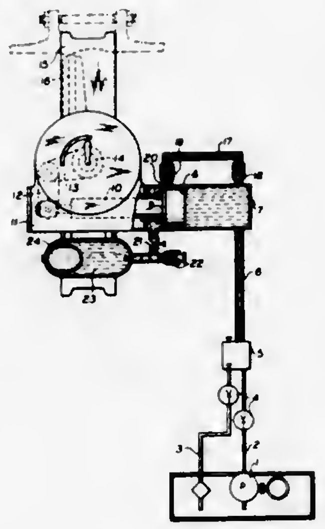
Karl Strobel, Heidenheim, Hermann Krais, Nattheim, and Hans Freisler, Heidenheim, Germany, assignors to Johannes Erhard, H. Waldenmaier Erben, Suddeutsche Armaturenfabrik, Heidenheim, Germany

Filed July 24, 1969, Ser. No. 844,418

Claims priority, application Germany, Oct. 1, 1968, P 18 00 424.5

Int. Cl. F15b *1/02*

U.S. Cl. 60—51 **4 Claims**



A servo-piston drive for a control member for flowing gaseous or liquid fluids, which control member is adjustable between a closed position and an open position by a differential piston movable in a working cylinder, which drive comprises a working cylinder defining a chamber on opposite sides of at least one differential piston and includes on one side a pipeline serving as inlet and outlet and on the other side is connected with a pressure reservoir. A by-pass line connects both sides of the differential piston. Non-return valves in the by-pass line close off the chambers in front of and behind the differential piston. The differential piston is movable in the closing direction of the control member upon exerting of pressure in the pipeline and charging the pressure reservoir, thereby positively opening one of the non-return valves and balancing out the pressures in the chambers in front of and behind the differential piston and charging the pressure reservoir to the control pressure, and upon reversal of pressure in the pipeline, the bypass line is shut off by the other of the non-return valves, so that the differential piston is forced back by the pressure of the pressure reservoir and the control member is opened.

3,570,245

HYDRAULIC DRIVING SYSTEM WITH INERTIAL MOTOR

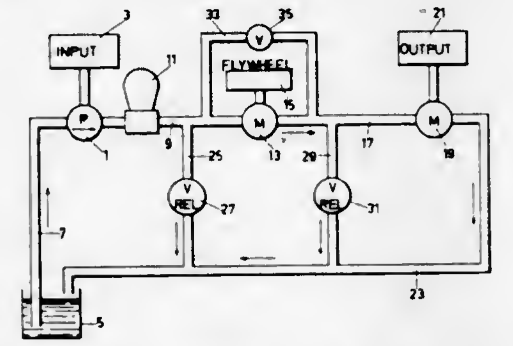
Franciscus Henricus van der Linde, Wassenaar, Netherlands, assignor to N.V. Industrieele Handelscombinatie Holland

Filed Sept. 15, 1969, Ser. No. 857,709

Claims priority, application Netherlands, Sept. 20, 1968, 68131514

Int. Cl. F15b *1/02, 11/16*

U.S. Cl. 60—51 **3 Claims**



A hydraulic driving system has a pump and an output motor driven by the pump. A motor that drives a flywheel is disposed in fluid series between the pump and the output motor. Pressure relief bypasses are arranged between the pump and the flywheel motor, and also between the flywheel motor and the output motor.

3,570,246

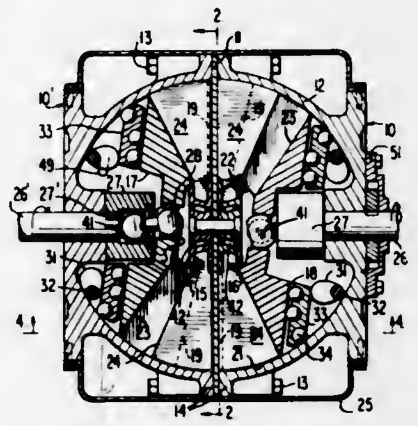
HYDRAULIC TORQUE CONVERTER

Joe Floyd Briggs, 2801 Quebec St. NW., Apt. 445, Washington, D.C. 20008

Filed Mar. 11, 1969, Ser. No. 806,055

Int. Cl. F16d *31/06*

U.S. Cl. 60—53 **13 Claims**



A torque converter comprising a pair of identical hydraulic pumps rotatable about a common axis and operatively opposed to one another so that one pump drives the other. Each pump is so designed that the output of either may be varied independently of its speed making possible variable speed ratios as power is transmitted through the converter.

3,570,247

JET NOZZLE THRUST SPOILING AND THRUST REVERSING MECHANISM

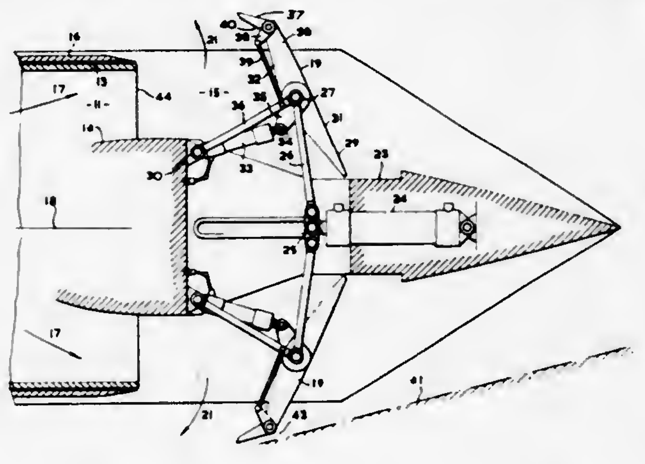
Ralph Murch Denning, William James Lewis, Reginald Harold Wiltshire, and Douglas John Nightingale, Filton, Bristol, England, assignors to Rolls-Royce Limited

Filed Sept. 11, 1969, Ser. No. 857,029

Claims priority, application Great Britain, Sept. 14, 1968, 43,824/68

Int. Cl. F02k *1/20*

U.S. Cl. 60—230 **3 Claims**



The disclosure of this invention pertains to a jet nozzle for jet propulsion engines, the nozzle having a centre body provided with flaps movable to divert the flow of the gases. Each flap is supported on the centre body by a first and a second link, the first link engaging the flap at a point intermediate between the upstream and downstream ends thereof and being adapted to move the flap away from a stowed position on the body, the second link being adapted to pivot the flap about said point into an obliquely rearward position for thrust-spoiling or an obliquely forward position for thrust-reversing.

3,570,248

LIQUID FUEL SUPPLY SYSTEM FOR A GAS TURBINE ENGINE

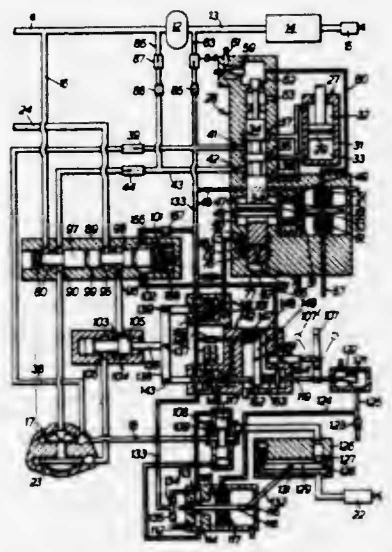
Stanley R. Tyler, Cheltenham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Filed Apr. 25, 1969, Ser. No. 819,189

Claims priority, application Great Britain, May 6, 1968, 21,396/68

Int. Cl. F02k *1/16, 1/18, 3/10*

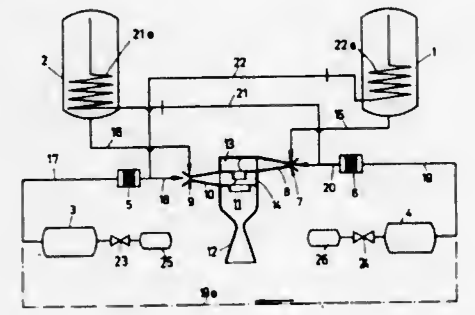
U.S. Cl. 60—237 **5 Claims**



A liquid fuel supply system for an aircraft gas turbine engine has a centrifugal pump arranged to supply fuel to reheat burners at a rate which is regulated by a first flow control means, and arranged also to supply liquid fuel for operating an auxiliary power service which includes a second flow control means controlling a variable area discharge nozzle of the engine. The centrifugal pump has a turbine drive to which the supply of compressed air is regulated by a valve in response to the total flow demand of the first and second flow control means.

3,570,249
METHOD OF OPERATING A ROCKET COMBUSTION CHAMBER AND COMBUSTION CHAMBER SYSTEM FOR PERFORMING THE METHOD

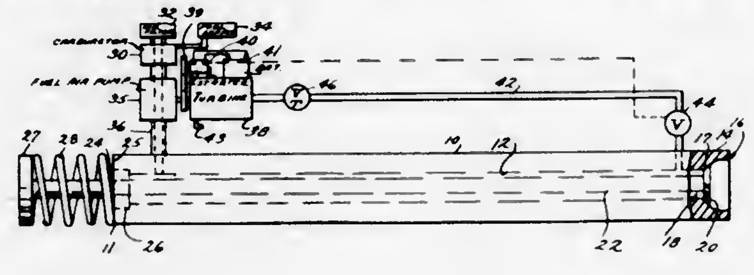
Werner Baum, Frankenbach, and German Munding, Bad Friedrichshall, Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Munich, Germany
Filed Aug. 26, 1969, Ser. No. 853,157
Int. Cl. F02k *9/02*
U.S. Cl. 60—259 **20 Claims**



A method of operating a rocket combustion chamber with hypergolic propellants, including at least one liquid fuel, or at least one liquid oxidizer, comprises utilizing jet pumps to supply the propellants to the combustion chamber. The jet pumps are operated by the catalytic decomposition products of monergols, these decomposition products taking part in the combustion chamber reaction. A propellant supply system and a combustion chamber system are provided for performing the method. A solid fuel or a solid oxidizer may be used, in a known manner, in place of the liquid fuel or liquid oxidizer.

3,570,250
JET ENGINE

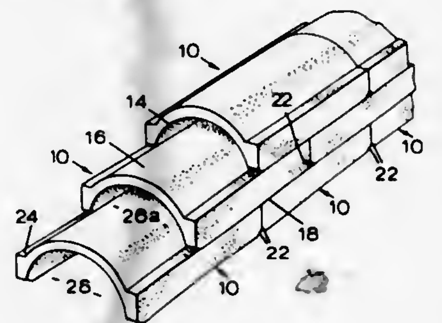
Donald G. Pensel, Star Rte., Glens Falls, N.Y. 12801
Filed Aug. 12, 1969, Ser. No. 849,327
Int. Cl. F02k *3/00*
U.S. Cl. 60—263 **5 Claims**



A jet engine is described having an elongated hollow cylindrical combustion chamber in which the combustion pressure is controlled by a valve operable to vary the opening of the exhaust outlet in response to the combustion level in the cylinder. The valve is spring operated with the spring constant being chosen so that a predetermined pressure in the combustion chamber will open the valve a predetermined amount. A carburetor means is provided for mixing fuel from a fuel source with air, and a fuel pump is provided for pumping this mixture into the combustion chamber by means of an intake manifold. The fuel-air pump is driven by a turbine which is operated by a portion of the exhaust gases generated in the combustion chamber. A throttle valve is interposed in the duct connecting the combustion chamber with the turbine so that the quantity of flow of the exhaust gases to the turbine may be controlled thereby controlling the rate at which fuel is pumped into the combustion chamber which in turn will determine the thrust developed by the engine.

3,570,251
DRAINAGE TILE

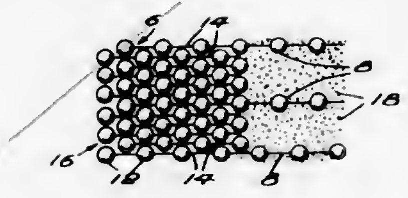
Dennis G. Roberts, 701 5th Ave. S., Port Alberni, British Columbia, Canada
Filed Jan. 8, 1969, Ser. No. 789,827
Int. Cl. E02b *11/00*
U.S. Cl. 61—10 **4 Claims**



The disclosure of the present invention includes a description of a tile which is suitable for use in the formation of ground water drainage channels and the like and a shipper load consisting of a plurality of tiles stacked one on top of the other to form a stable shipper load. The tile is generally arch-shaped and is formed with a pair of support shoulders which extend horizontally outwardly from the outer surface of the arch-shaped tile to support a similar tile stacked on top of a first such tile. The drainage channels may be made from a single layer of tiles or a plurality of layers of tiles arranged one on top of the other. The shipper package is formed by arranging the tiles in a plurality of layers one on top of the other.

3,570,252
CONSTRUCTIONAL WORKS

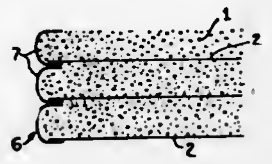
Henri C. Vidal, 17 Rue Armengaud, 92 Saint-Cloud, France
Original application Mar. 26, 1964, Ser. No. 354,947, now Patent No. 3,421,326, dated Jan. 14, 1969. Divided and this application Sept. 24, 1968, Ser. No. 762,033
Int. Cl. E02b *7/08;* **E02d** *5/00*
U.S. Cl. 61—30 **11 Claims**



Earth reinforcement constructed by assembling a mass of pulverulent material frictionally bonded by elongated frictional elements which extends through the mass of particles. The frictional elements include a flexible cable or wire having large radial projections such as balls secured on the cable at regular intervals along the length of the cable. The boundary of the mass of particles is confined by a wall built of layers of the frictional elements layed continously in traversing courses on top of each other. At suitable intervals the elongated frictional elements extend outwardly from the wall into the mass of particles so that the particles fill the space between the reinforcing elements to provide a stable structure.

3,570,253
CONSTRUCTIONAL WORKS

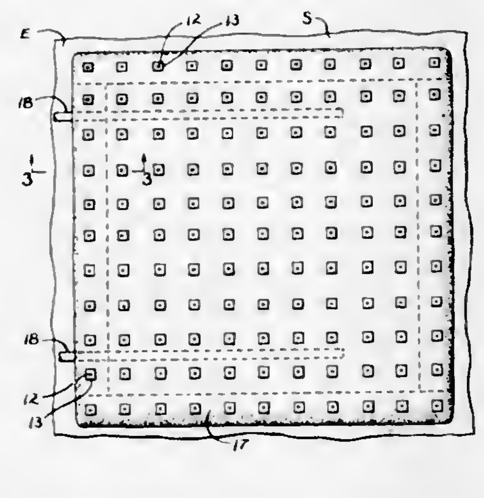
Henri C. Vidal, 17 Rue Armengaud, 92 St. Cloud, France
Original application Mar. 26, 1964, Ser. No. 354,947, now Patent No. 3,421,326, dated Jan. 14, 1969. Divided and this application Jan. 13, 1969, Ser. No. 798,245
Int. Cl. E02b *7/06*
U.S. Cl. 61—35 **10 Claims**



Cladding for a mass of particles that are bound together solely by friction. The cladding is preferably in the shape of elongated channel members which have opposed side walls and a curved front wall. The curvature of the front wall is semi-elliptical. The side walls of adjacent channel members are superimposed on each other and the particles and channel members are retained by friction.

3,570,254
METHOD AND MEANS FOR PROTECTING AN EARTH SURFACE AGAINST SCOUR

Lee A. Turzillo, 2078 Glengary Road, Bath, Ohio 44313
Filed Jan. 17, 1969, Ser. No. 792,175
Int. Cl. E02b *3/12*
U.S. Cl. 61—38 **17 Claims**

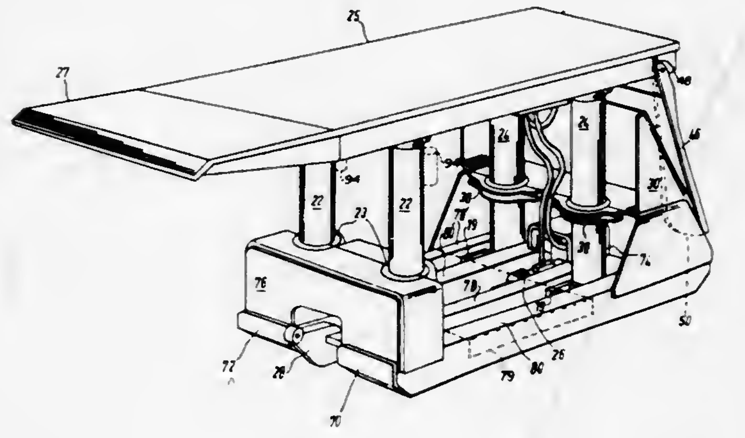


Method and means for forming protective liner body on an earth situs. Porous fabric formed and/or shaped in one of a number of ways as closed container about quantity of loose filler material, such as aggregate. Pressurized, hydraulic cement mortar pumped into formed container to permeate the filler material and expand anchoringly restrained container walls, until fluid mortar oozes through fabric pores. Fluid hardens into solid liner body with filler material discretely dispersed therein.

3,570,255
MINE ROOF SUPPORT

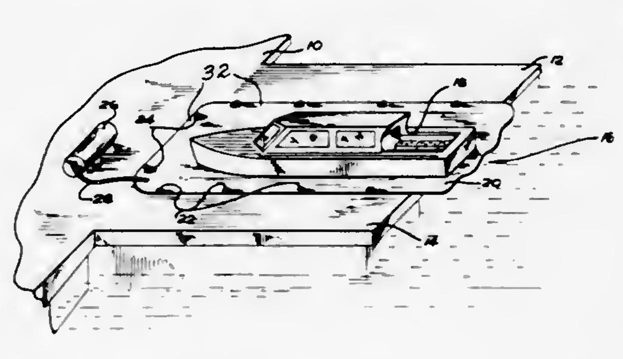
Peter Shuttleworth, Hornsea, England, assignor to Mastabar Mining Equipment Company Limited, Hull, England
Continuation-in-part of application Ser. No. 632,755, Apr. 21, 1967. This application June 10, 1968, Ser. No. 735,698
Int. Cl. E21c *41/00;* **E21d** *11/00, 23/20*
U.S. Cl. 61—45 **19 Claims**

An advancing mine roof support having a solid canopy which is supported above a base frame by a plurality of hydraulic props, mounted at the front and rear of the base frame, which are extendable to raise and lower the canopy. The rear of the support is enclosed by an upstanding shield of wrap-around configuration having two side walls and a sloping rear wall, the shield and base frame together forming a shoe assembly and, with the canopy, serve to protect the interior of the support from roof falls and the flushing of the caved waste. Further protection is afforded by a flap, hinged to the rear of the canopy and arranged to rest against the inclined rear wall of the shield. The flap may include side wall portions to overlie the sides of the shield and prevents waste from entering between the canopy and shield when the former is raised. The base frame is of sledge like construction, having two side members or runners, linked by one or more lateral cross beams. Hinged or lost motion connections are provided between the ends of the props and the canopy and base frame and between the flap and the canopy and hydraulic ram means is conveniently mounted on the base frame for connecting to a conveyor framework or the like, to extend or retract the support relative to the framework and face being worked.



3,570,256
INFLATABLE BERTH

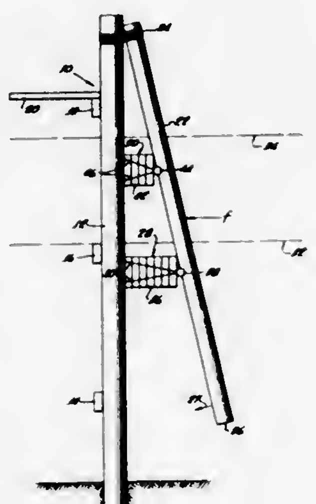
Kenneth L. Thompson, Huntington Beach, Calif., assignor to Ye Dock Master, Inc.
Filed July 15, 1969, Ser. No. 841,704
Int. Cl. B63c *1/00;* **E02c** *3/00*
U.S. Cl. 61—48 **6 Claims**



An inflatable berth for covering the water-submerged portion of a boat hull, comprising an inflatable, waterproof, flexible envelope, having a quilted interior surface adapted to generally conform to the configuration of a boat hull, and means for inflating the envelope for close contact of the quilted surface with the boat hull whereby to entrain water against the hull for stagnation of the entrained water.

3,570,257
DOCK AND DOLPHIN PROTECTOR

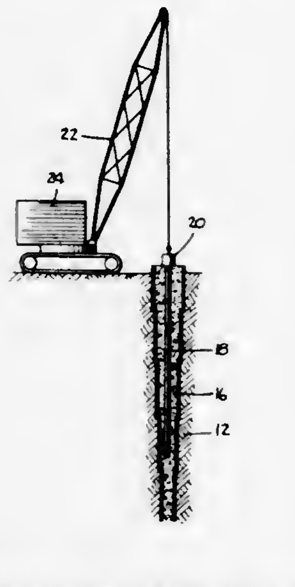
Grant W. Walker, 4339 Lancey Court, Sacramento, Calif., and Duane B. Ford, 2811 Hocking St., Placerville, Calif. 95667
Filed Sept. 17, 1968, Ser. No. 760,143
Int. Cl. E02b *3/22*
U.S. Cl. 61—48 **1 Claim**



A protector for fixed marine structures such as docks, dolphins, etc., which comprises a movable shaft pivotally mounted at one end and freely movable at the other and at least one non-energy storing energy absorption unit between the fixed marine structure at the shaft, the energy absorbing unit comprising a plurality of hollow bodies formed of mildly resilient material normally filled with water and having an orifice which is sized and disposed to permit escape of water from the body at a limited rate commensurate with the severity of impact of a vessel against the movable shaft is disclosed.

3,570,258
METHOD AND APPARATUS FOR VIBRATING CONCRETE COLUMNS

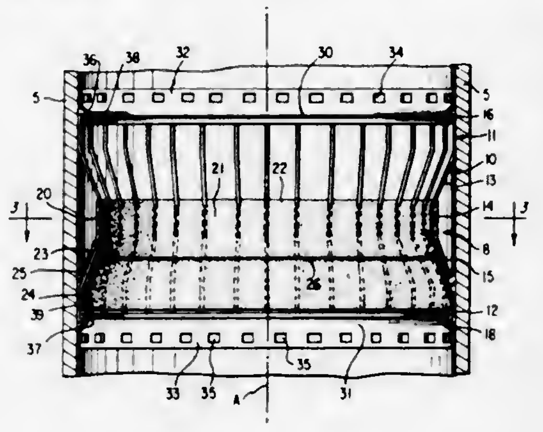
Frank M. Fuller, Washington Township, Bergen County, N.J., assignor to Raymond International, Inc., New York, N.Y.
Filed Nov. 25, 1968, Ser. No. 778,521
Int. Cl. E02d *5/38*
U.S. Cl. 61—53.52 **1 Claim**



Method and apparatus for vibrating a long slender vertical column of freshly placed concrete characterized by lowering an elongated rod having a vibrator at the upper end thereof down into the wet concrete.

3,570,259
ANNULUS SEAL AND PILE WIPER

Ellis B. Thaxton, Arlington, Tex., assignor to Oil States Rubber Co.
Filed Nov. 13, 1969, Ser. No. 876,246
Int. Cl. E02b *17/00;* **B63b** *21/50*
U.S. Cl. 61—63 **9 Claims**



A seal for sealing the annulus between a pile and a hollow tubular member such as a platform leg or a skirt guide through which it extends, the hollow members being located, for instance, at the bottom of a marine drilling platform secured by means of piles to the floor of the sea, and the annulus between each hollow member and pile through it being poured full of cement above the seal when the platform has been moved into place and the piles have been driven.

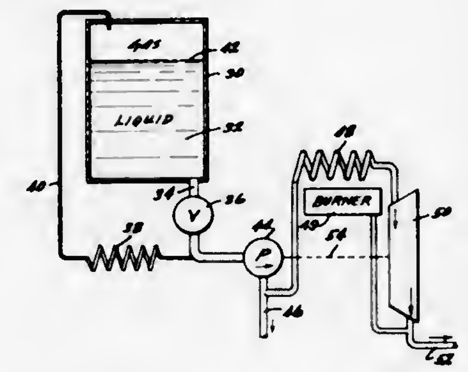
3,570,260
HEAT PUMP

John O. Smith, Swampscott, and Bernard A. Gruber, Boxford, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo.
Continuation of application Ser. No. 407,442, Oct. 29, 1964. This application Oct. 30, 1967, Ser. No. 679,258
Int. Cl. F25d *5/00;* **H01m** *27/14*
U.S. Cl. 62—4 **6 Claims**

A system and method for transferring heat between an enclosure and an exterior heat sink. The method involves operating a fuel cell within an enclosure to be cooled, on a fuel selected from hydrogen or hydrazine and an oxidant selected from nitric acid or nitrogen tetroxide and expending the electrical output of the cell in driving an electrical resistance located in an exterior heat sink.

3,570,261
CRYOGENIC PUMPING SYSTEM

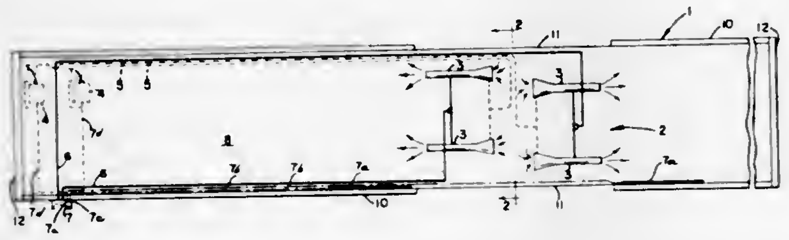
Everett H. Schwartzman, 724 Cloyden Road, Palos Verdes Estates, Calif. 90274
Continuation-in-part of application Ser. No. 504,349, Oct. 24, 1965. This application Apr. 14, 1969, Ser. No. 815,543
Int. Cl. F17c *7/02*
U.S. Cl. 62—53 **5 Claims**



A pumping system is disclosed for use in association with cryogenic fluid, to accomplish fluid flow by utilization of the negative energy stored by the cryogenic fluid. A heat exchange means receives the cryogenic fluid to gasify a quantity thereof and thereby drive a turbine which is connected to motivate a pump. One embodiment includes a burner to supply additional heat to the heat exchanger upon combination of spent gas from a turbine. In another embodiment a second heat exchanger is provided across the fluid interface of a cryogenic tank so as to pressurize the tank. Various check and other valves are also incorporated in the embodiments disclosed for controlling the flow of the fluid.

3,570,262
REFRIGERATION ARRANGEMENT

Harold E. Gramse, Chicago Heights, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Original application Sept. 22, 1967, Ser. No. 669,819, now Patent No. 3,447,336, dated June 3, 1969. Divided and this application Nov. 25, 1968, Ser. No. 785,847
Int. Cl. F25d *17/06*
U.S. Cl. 62—89 **6 Claims**

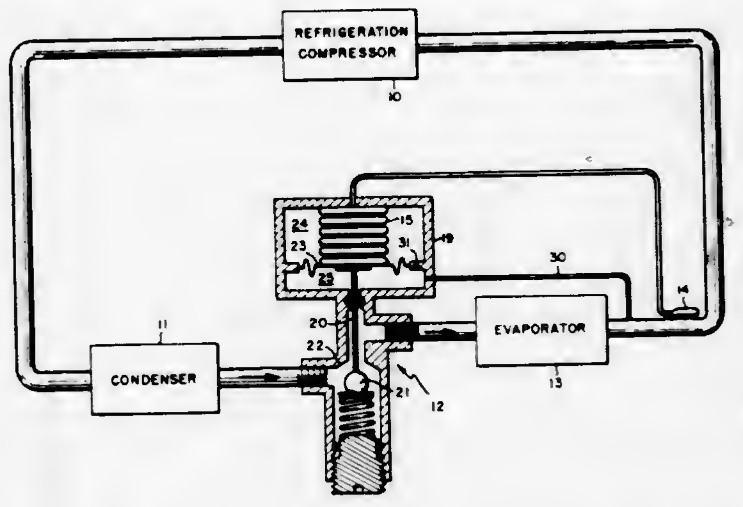


A refrigeration arrangement for a railroad car comprising a source of liquid nitrogen under a vapor pressure attendant to delivery of the nitrogen, under thermostatic control, to a converging atmospheric collector disposed within the car, the collector comprising a heat exchanger including encircling coils of the liquid nitrogen about the collector's scoop, the trailing end of the coil being connected with a tube of low thermal conductivity and low coefficient of friction and extending into the scoop from its widened end to its shortened end, a venturi tube being connected to the end of the scoop and the exiting end of the tube having a nozzle being surrounded by the conical venturi tube end portion of the scoop to develop a venturi or suction action and drawing the atmosphere within the car into the scoop for cooling of the atmosphere and dehumidifying same and for depositing moisture in the form of ice and snow on the interior surface of the scoop which is of high thermal conductivity material, the venturi tube being of low thermal conductivity material and receives the atmosphere and the liquid nitrogen which expands to a gas in the venturi throat, the exit end of the venturi tube being coupled to an exhaust tube opening into the car, the exhaust tube being of low thermal conductivity and having an outside air tube connecting with its entrant part and with an outside air control valve on the car for mixing of outside air and the car atmosphere and nitrogen gas for dispersal into the car environment.

3,570,263
THERMAL EXPANSION VALVE WITH FEEDBACK FOR STABILIZING A REFRIGERATION SYSTEM

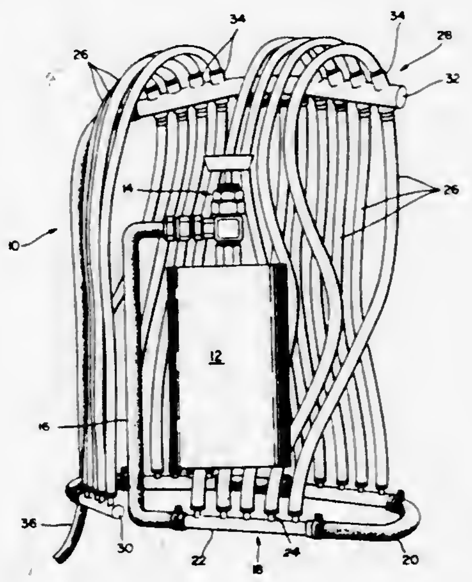
James R. Tobias, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Apr. 28, 1969, Ser. No. 819,848
Int. Cl. F25b *41/04*
U.S. Cl. 62—211 **4 Claims**

A thermal expansion valve for a refrigeration system having a temperature bulb for responding to superheat and an external equalizer with means associated with the temperature and pressure responsive portions of the actuator valve for temporarily offsetting some of the effect of the superheat upon a change in evaporator pressure to stabilize the refrigeration system.



3,570,264
EVAPORANT COOLING SYSTEM

Daniel L. Curtis, Manhattan Beach, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed Mar. 13, 1969, Ser. No. 806,970
Int. Cl. F25d *23/12*
U.S. Cl. 62—259 **3 Claims**

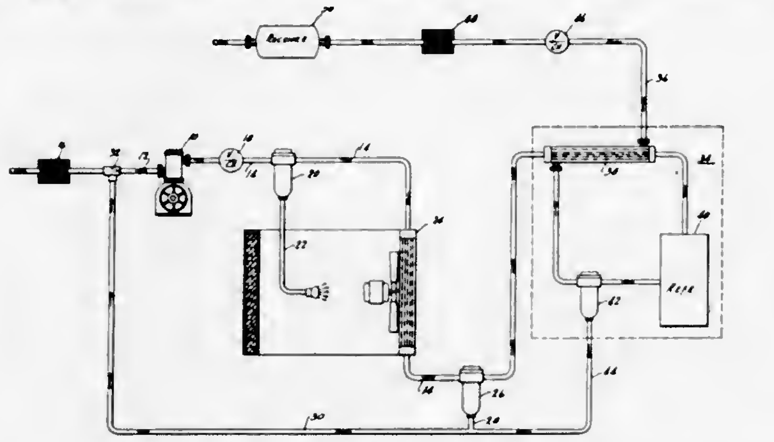


An evaporant cooling system for a light weight garment having a plurality of tubes connected in parallel between an inlet manifold and an exhaust manifold, the tubes being selectively positioned on the body of the wearer, the inlet manifold being near a low point of the wearer for being supplied with a liquid ammonia-water evaporant, and the exhaust manifold being near a high point of the wearer and being provided with an exhaust tube for discharging the expended evaporant.

3,570,265
COMPRESSOR COOLING SYSTEM

Howard J. Henry, Sidney, and Charles W. Berkoben, Troy, Ohio, assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Apr. 21, 1969, Ser. No. 817,856
Int. Cl. F28d *5/00*
U.S. Cl. 62—304 **6 Claims**

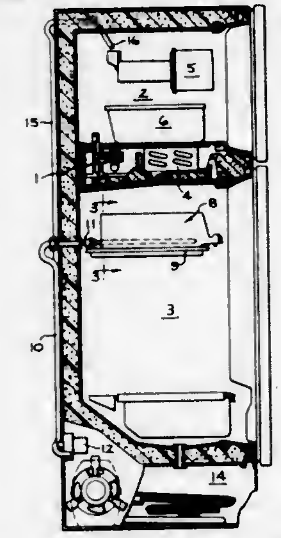
A self-stabilizing cooling system for air compressors embodying evaporative cooling, and in which means are provided for automatically obtaining condensed water vapor from the atmosphere in required amounts for cooling purposes, means also being provided for recirculating



the coolant in the system and for injecting the same into the low pressure inlet.

3,570,266
REFRIGERATOR INCLUDING ICE MAKER WATER RESERVOIR

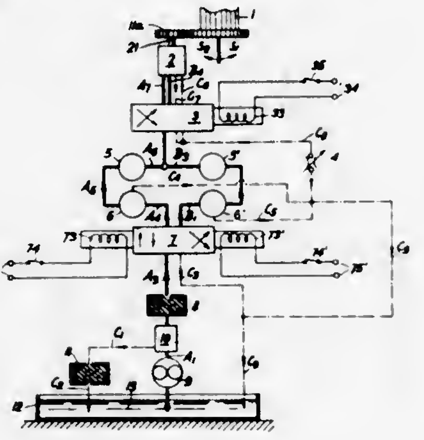
Robert J. Alvarez and Julius B. Horvay, Louisville, Ky., assignors to General Electric Company
Filed June 2, 1969, Ser. No. 829,361
Int. Cl. F25c *1/00*
U.S. Cl. 62—338 **7 Claims**



A refrigerator containing an automatic ice maker includes a water storage tank in the fresh food compartment and means for conducting water from the tank to the ice maker.

3,570,267
HYDRAULIC DRIVE FOR A CIRCULAR KNITTING MACHINE

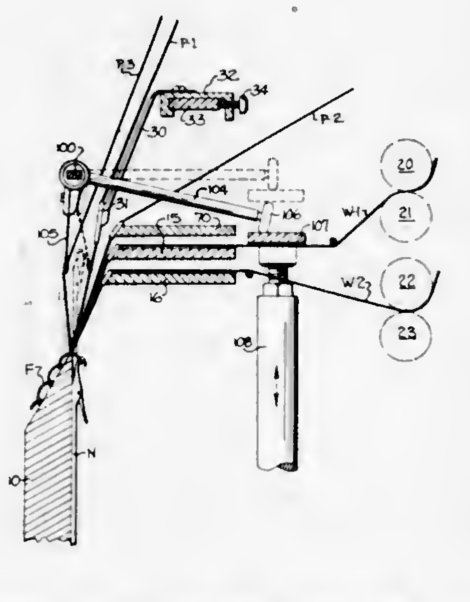
Jiri Kurka, Trebic, Czechoslovakia, assignor to Elitex-Zavody textilniho strojirenstvi generalni reditelstovi, Liberec, Czechoslovakia
Filed Jan. 16, 1969, Ser. No. 791,608
Int. Cl. D04b *9/00*
U.S. Cl. 66—56 **12 Claims**



The needle cylinder of a circular knitting machine is rotated by a fluid operation motor whose speed and direction of rotation is controlled by valve means, including program controlled valves.

3,570,268
YARN GUIDE MEANS FOR CIRCULAR WARP KNITTING MACHINE

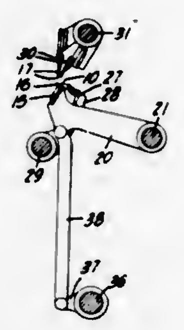
Federico Sanfeliu Nogues, Avenida Generalisimo Franco 606, Barcelona, Spain
Filed Nov. 7, 1968, Ser. No. 773,995
Int. Cl. D04b *25/02*
U.S. Cl. 66—81 **12 Claims**



The circular warp knitting machine is provided with main yarn guiding means to guide base warp yarns to the needles so that a tubular seamless base fabric is formed of interconnected stitch chains. Additional yarn guide means in the form of three auxiliary yarn guide devices are provided for selectively knitting floating and inlaying additional pattern or fancy yarns with the base warp yarns in selected portions of the tubular fabric to form clusters of designs, vertical stripes, or reinforcements in selected portions of the fabric. The three auxiliary yarn guide devices may be operated together or separately to form various patterns in the tubular fabric.

3,570,269
MEANS FOR AND METHOD OF OPERATING THE NEEDLES OF WARP KNITTING MACHINES

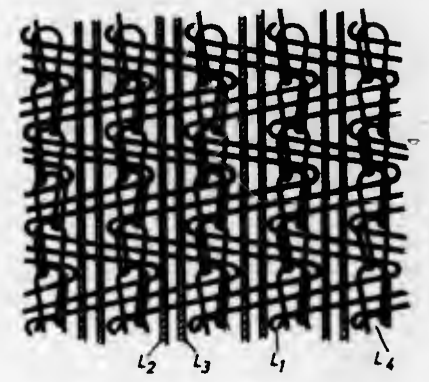
John D. Wenrich, Fleetwood, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed May 5, 1969, Ser. No. 821,784
Int. Cl. D04b
U.S. Cl. 66—86 **4 Claims**



Means for and a method of operating pivoted latch needles of a warp knitting machine along a knitting path in which the latches of the needles are opened and held in open positions by the stitches of one course of a fabric formed by the needles while yarn is lapped around the needles for the next course of stitches of the fabric.

3,570,270
WARP KNIT FABRIC

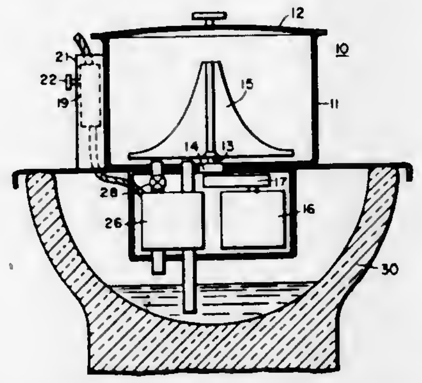
Peter Koppenburg, Buchenweg 2, Obertshausen, near Offenbach am Main, Germany
Filed Dec. 26, 1968, Ser. No. 787,130
Claims priority, application Germany, Jan. 3, 1968, P 16 35 877.3
Int. Cl. D04b *21/20*
U.S. Cl. 66—193 **6 Claims**



A warp knit fabric in which wales of warp stitches are connected by diagonal floats of pattern yarns which also anchor standing threads between adjacent wales, and in which the float portions of each pattern yarn alternatingly pass over and under each standing strands in pairs, the float portions of each pair following each other walewise. The fabric may be knitted on a Raschel machine having a single needle bed, a fall plate, and four guide bars respectively supplying yarn for the warp stitches, pattern yarns, and standing threads in a knitting cycle requiring but one forth-and-back swing movement of the guide bar.

3,570,271
SMALL CAPACITY CLOTHES CLEANING OR RINSING APPARATUS

Edward L. Brown, Carmel, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 17, 1969, Ser. No. 791,900
Int. Cl. D06f *13/02*
U.S. Cl. 68—3 **5 Claims**

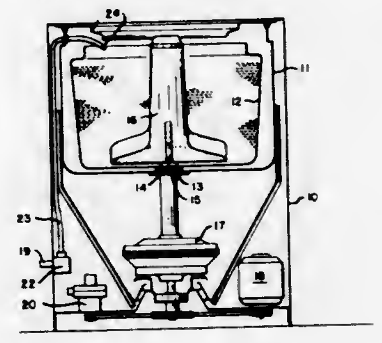


A diaper or small clothes load rinsing apparatus which utilizes the water from a reservoir type source such as a water closet. The apparatus is characterized by the provision of a tub and pump for transferring water from the water closet to the tub and further, by the provision of a dump valve which serves to drain the dirty water from the tub back into the water closet for disposition thereof.

3,570,272
WATER SAVER AND SUDS LOCK ELIMINATION SYSTEM FOR WASHING MACHINES

Peyton W. Douglas, Bemus Point, N.Y., assignor to Blackstone Corporation
Filed Oct. 10, 1968, Ser. No. 766,390
Int. Cl. D06f *23/04, 33/02*
U.S. Cl. 68—12 **3 Claims**

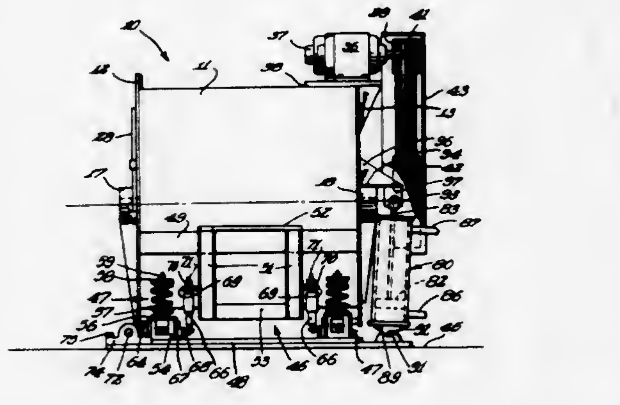
A washing machine is provided with an outer fluid containing tub, an inner concentric spinner tub for receiving clothes to be washed rotatably mounted in the outer tub, means for introducing and removing water from the outer tub, a nozzle for spraying water into the spinner tub and



control means simultaneously acting on a means for rotating the inner tub and a means for supplying water to the nozzle to sequentially rotate the inner tub and spray water therein to remove suds and rinse the clothes.

3,570,273
COMBINATION WASHING-EXTRACTING MACHINE

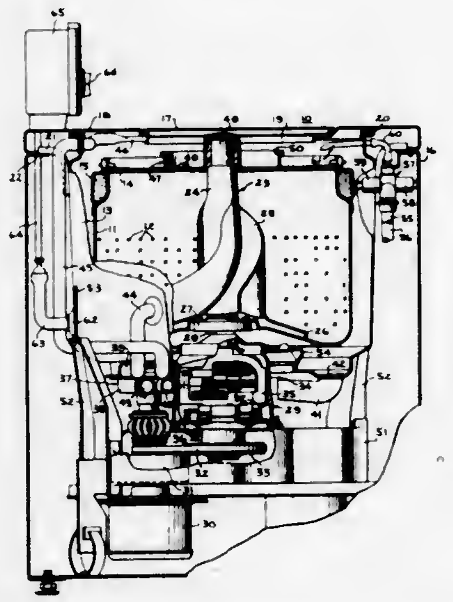
Max Hertig, Syracuse, N.Y., assignor to G. A. Braun, Inc., Syracuse, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,992
Int. Cl. D06f *37/20*
U.S. Cl. 68—23.1 **11 Claims**



A combination washing-extracting machine including a mounting frame directly attached to an outer shell of the machine and pivotally secured to a floor or support surface and power operated means cooperating with the pivotal mounting to form a second order lever arrangement for selectively tilting the machine about a transverse axis to facilitate unloading laundry material contained within a washing drum disposed coaxially of the shell, through an egress opening formed in an end closure of the washing drum. The frame may include vibration absorbing means interposed between the shell and lowermost framing members. A shaft is attached to the frame and includes journal portions projecting laterally outwardly from opposed sides at lowermost edges of an end portion of the frame and journalled in a pair of bearing blocks secured to the support surface. The power operated means includes a pair of fluid-operated cylinders arranged to apply an upwardly directed force to the machine at a point coplanar with a longitudinal axis of the washing drum and at an end of the machine opposite the pivotally mounted shaft. Also, the ingress and egress opening formed in an end of the washing drum is selectively closed by a releasable door means hinged at a lower edge portion to form a shelf in its open position across which laundry material slides during the unloading process.

3,570,274
INFINITE SPEED CONTROL FOR AUTOMATIC WASHER

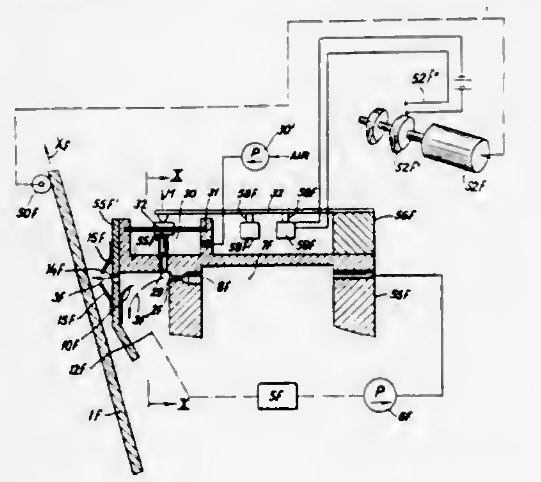
Joseph C. Worst, Louisville, Ky., assignor to General Electric Company
Filed Apr. 24, 1969, Ser. No. 818,918
Int. Cl. D06f *29/00*
U.S. Cl. 68—23.7 **9 Claims**



A variable speed drive means is provided for an automatic washer having a rotatable container, an agitation means mounted in the container, and a transmission means adapted to selectively drive the agitation means and container for washing fabrics and centrifugally extracting fluid from the fabrics. The improvement comprises a wound rotor motor connected to the transmission means to provide power thereto, a control means to vary the electrical impedance in series with the rotor windings of the motor, and energy dissipation means adapted to remove energy by friction during centrifugal extraction. By varying the electrical impedance, a substantial variation in motor speed is achieved.

3,570,275
APPARATUS FOR THE CONTINUOUS DYEING OF TEXTILE WEBS AND THE LIKE

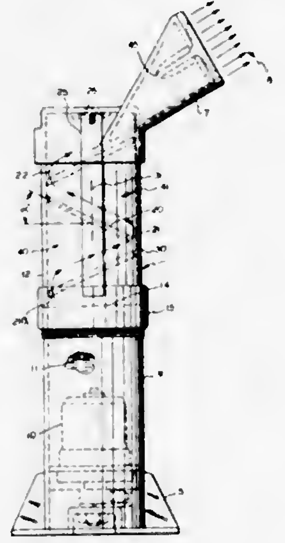
Friedrich Weber, Zittau, and Helmut Fuchs and Karl-Joachim Kummer, Gross-Schonau, Germany, assignors to VEB Halbmond-Teppiche, Oelsnitz Vogtland, Germany
Original application Feb. 8, 1965, Ser. No. 431,129, now Patent No. 3,443,878, dated May 13, 1969. Divided and this application Sept. 16, 1968, Ser. No. 796,622
Int. Cl. D06p *5/00*
U.S. Cl. 68—205 **5 Claims**



An apparatus for pattern dyeing a substantially continuous web in which a continuous stream of a liquid dyestuff is circulated at a treating station along a closed path proximal to or ending against the web and, at selected locations transversely of the web, portions of the dyestuff stream are deflected away from or against the web under the control of a pattern programmer while the balance of the dyestuff stream continues uninterrupted along the closed path. Programmed pneumatic jets, electrostatic or electromagnetic deflection devices, or simple stream blocking and unblocking elements are used to control the deflection of the stream.

3,570,276
PORTABLE CLOTHES STEAMER WITH WATER GAGE

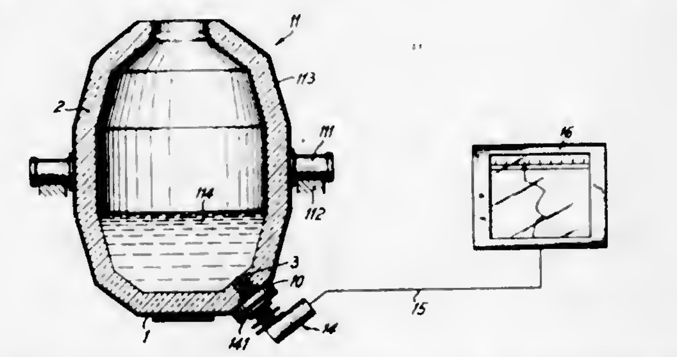
Bernard Frank, Shamokin, Pa., assignor to Franzus Industries, Inc., Shamokin, Pa.
Original application Feb. 27, 1968, Ser. No. 708,657, now Patent No. 3,485,065, dated Dec. 23, 1969. Divided and this application Aug. 29, 1969, Ser. No. 854,241
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. D06c *1/00;* **D06f** *75/00*
U.S. Cl. 68—222 **4 Claims**

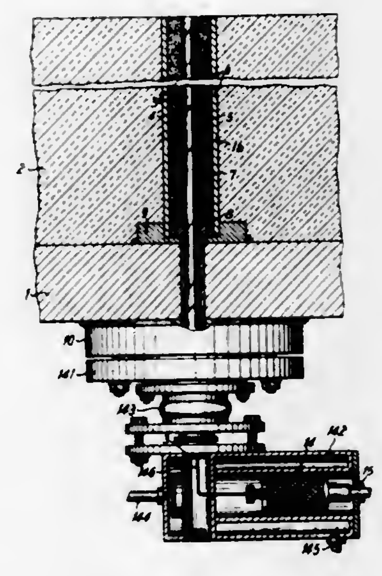


A housing construction is provided for a portable appliance that steams clothes to remove wrinkles. The housing comprises an uprightly disposed cylindrical type hollow watertight member with an electrically heated water chamber inside and which has upper and lower interfitting sections. A steam head is provided for treating a garment and a baffle network between is disposed in a steam conveyance path between the head and the water chamber to prevent spilling of water when the member is tilted and to prevent sputtering of steam flow by condensation of water.

3,570,277
ARRANGEMENT FOR MEASURING THE TEMPERATURE OF A METAL BATH

Wolfgang Dorr, Essen-Stadtwald, Wolfgang Recknagel, Dortmund, and Rudiger Scheel, Ergste, Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed May 26, 1969, Ser. No. 827,783
Int. Cl. G01j *5/04*
U.S. Cl. 73—355 **5 Claims**

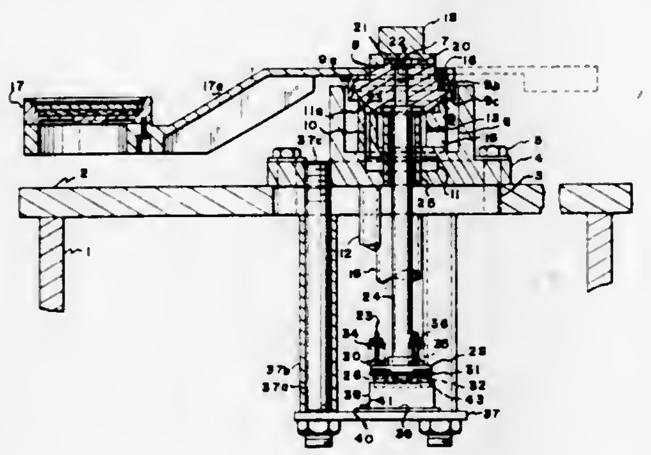




An arrangement for measuring in a continuous manner the temperature of a liquid metal bath, according to which a rod of light permeable high temperature and corrosion-resistant material extends through the wall of the vessel and in the interior of the vessel is embedded in a mass of alkali-free oxides with a high melting point such as zirconium oxide or zirconium silicate while at the end of said rod there is arranged a color pyrometer.

3,570,278
UNIVERSAL BALANCING MACHINE WITH ELECTROMAGNETIC HOLD

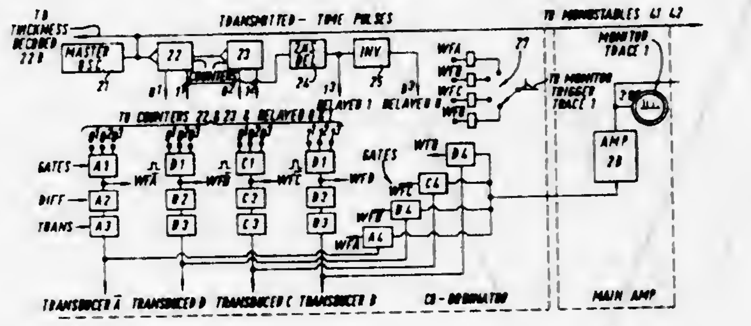
Joseph P. Lannen, 51300 Pontiac Trail, Wixom, Mich. 48096
Filed Aug. 5, 1969, Ser. No. 852,965
Int. Cl. G01m *1/12*
U.S. Cl. 73—483 **5 Claims**



A workpiece carrier is supported for tilting travel upon an arcuately spherical, universal pivot, which pivot rests upon a seat having a corresponding sphericity. Said seat is formed in a casting mounted upon the top surface of a housing, said pivot carries, as part of a unit, the workpiece carrier, a rod elongated downwardly through and beneath said surface to reciprocably swing with said carrier in a simple harmonic motion through a path of travel responsive to, and determined by, the imbalance of a workpiece on the carrier. An annular member having an annular, spherically concave surface is carried concentrically on the lower end of said rod to complete said unit. An electromagnetic device is disposed beneath said surface to automatically and repeatedly release and engage said member to interrupt said travel and reduce, with each engagement, the momentum imparted to the unit, to quickly allow said unit to attain a tilted attitude in which the radial direction and amount of imbalance can be determined, as by a measuring device carried upon the pivot.

3,570,279
APPARATUS FOR AUTOMATICALLY RECORDING THE THICKNESS OF A PRODUCT AND THE LOCATION OF DEFECTS THEREIN

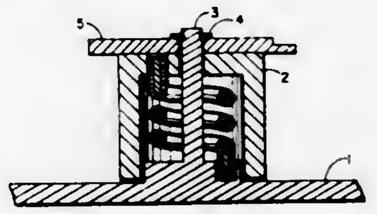
David H. Davies, Corby, England, assignor to Stewarts and Lloyds Limited, Glasgow, Scotland
Continuation-in-part of application Ser. No. 535,766, Mar. 21, 1966. This application June 20, 1969, Ser. No. 835,053
Claims priority, application Great Britain, Jan. 2, 1963, 253/63; Mar. 25, 1965, 12,704/65
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.9 **9 Claims**



For automatically recording the thickness of a product and the location of a defect in the product, an apparatus and method are provided by which the surface of the product is scanned by ultrasonic pulses, the time interval between selected reflected pulses is measured and used to operate recording means to provide, on a recording medium moved in synchronism with the scanning, a record of the thickness and the defect, and a record of the position of the defect relative to the other two dimensions of the product.

3,570,280
CONTROL APPARATUS

Robert L. Aske, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 6, 1968, Ser. No. 773,714
Int. Cl. G05g *17/00*
U.S. Cl. 74—3.5 **5 Claims**

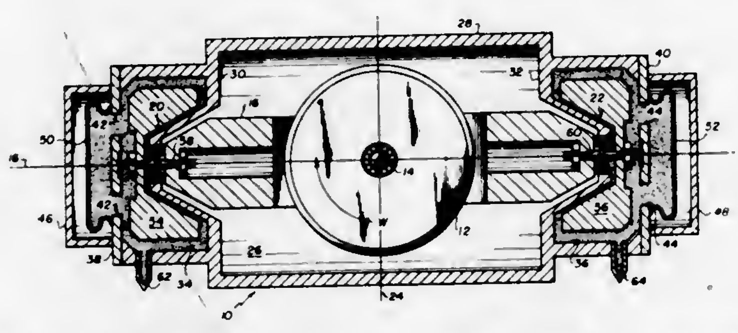


A composite material comprising an elastic material in contiguous relationship with a material having the property of creep under stress. The material is contemplaced for use in various configurations to serve a time delay function.

3,570,281
GYROSCOPE HAVING LIQUID METAL SUSPENSION MEANS

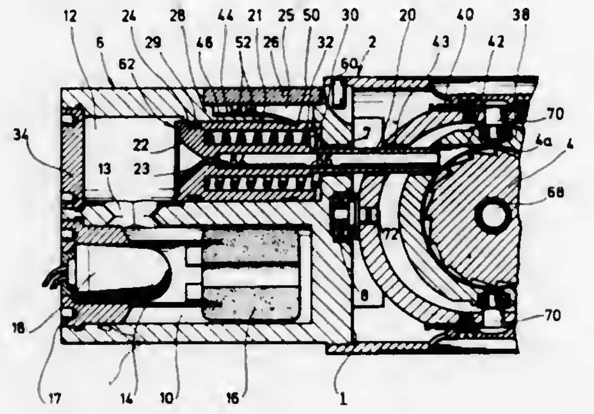
William C. Albert, Waldwick N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J.
Filed Dec. 26, 1968, Ser. No. 786,944
Int. Cl. G01c *19/20*
U.S. Cl. 74—5 **11 Claims**

A single degree-of-freedom gyroscope is provided having its gimbal supported for rotation by a pair of floated trunnions axially displaced along the gyro's output axis. The floats which are solid and homogeneous are suspended in float chambers filled with liquid metal under a positive static pressure. Each float is connected to the gimbal by a shaft comprising a spherical center portion and two axially extending tapered shank portions. The spherical center portion is constrained to rotate with the gimbal in a journal bushing mounted in a wall in the gyro casing with each wall separating the respective float chambers from a central cavity containing the inertia-wheel gimbal assembly. Because of its extremely high surface tension and non-wettable characteristics, the liquid metal is by capillary action prevented from escaping through the clearance between the spherical shaft portion and the bushing into the gyro's center cavity.



3,570,282
GYRO-DRIVING AND CAGING DEVICE

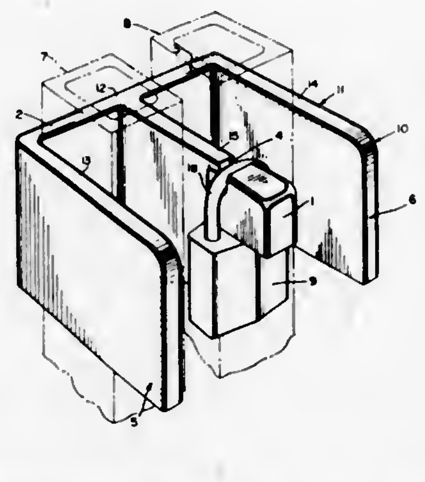
Rudolf Knopp and Herbert Fuhr, Munich, Germany, assignors to Bolkow-Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany
Continuation of application Ser. No. 680,413, Nov. 3, 1967. This application Sept. 5, 1969, Ser. No. 856,904
Claims priority, application Germany, Dec. 15, 1966, B 90,324
Int. Cl. G01c *19/26*
U.S. Cl. 74—5.12 **2 Claims**



A caging device for rapidly accelerating a gyro up to an operating speed or use, for example, in a flying body or a missile, includes a driving mechanism contained in a separate housing adapted to be attached to the housing of the gyro. The driving mechanism includes a piston-nozzle member having a bore therethrough and formed as a nozzle tube which is slidable in a chamber of the drive housing. An additional chamber alongside the piston chamber contains a solid charge and an igniter fuse. The charge is of a size to burn off at a rate sufficient to provide a high flow of compressed gasses which are passed through an opening between the chambers into the piston chamber where the gas initially acts on the piston to displace it slightly in order to release a locking detent which prevents retraction of the nozzle tube from the gyro housing into the nozzle tube chamber. At the initial position of the nozzle tube piston, the end thereof extends into the gyro chamber and through aligned openings of two gyro-support gimbals so that the gimbals are locked against movement during the initial start-up of the gyro. After the solid charge has burned off, the gas pressure reduces sufficiently to permit a returning spring to act on the piston member to pull the tube portion out of the gimbals to permit their free pivotal movement.

3,570,283
SLIDING GATE PROTECTIVE LATCH

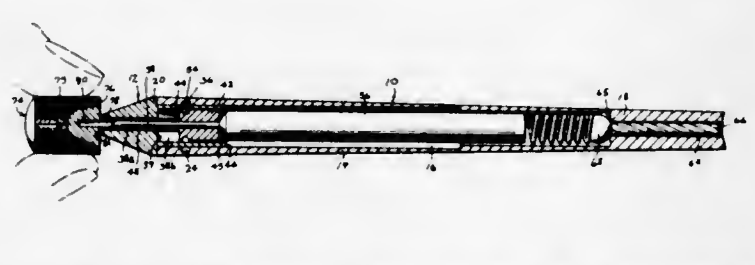
Barnet Males, 2070 Bronx Park, Bronx, N.Y. 10462
Filed June 30, 1969, Ser. No. 838,371
Int. Cl. E05b *73/00;* **E05c** *19/18*
U.S. Cl. 70—14 **10 Claims**



This disclosure relates to latch particularly adapted to secure together adjacent posts of a sliding gate in a manner to be substantially tamper-proof. The latch is constructed to slip over two adjacent gate posts and then have a conventional padlock applied thereto in a manner wherein the padlock prevents the release of the gate posts and at the same time the padlock is in a protected position.

3,570,284
WRITING PEN LOCK

Grover E. Hendricks, Niles, Mich., assignor to Rolamech Patents, Ltd., Chicago, Ill.
Filed Jan. 9, 1969, Ser. No. 790,025
Int. Cl. A44b *17/00;* **E05b** *73/00*
U.S. Cl. 70—58 **8 Claims**

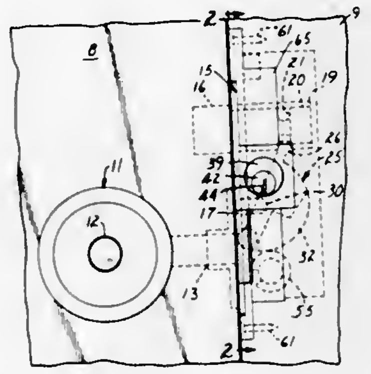


A writing pen having locking first and second barrel members which house an ink cartridge. The first barrel member has a longitudinal bore therein and the second barrel member includes an insert part slidably disposed within the longitudinal bore of the first barrel member. An interlock member is slidably received within the insert part of the second barrel member and serves to cam a detent which is seated in a lateral bore in the insert part of the second barrel member into a recess in the first barrel member and thereby lock the barrel members together.

3,570,285
AUXILIARY DOOR LOCK

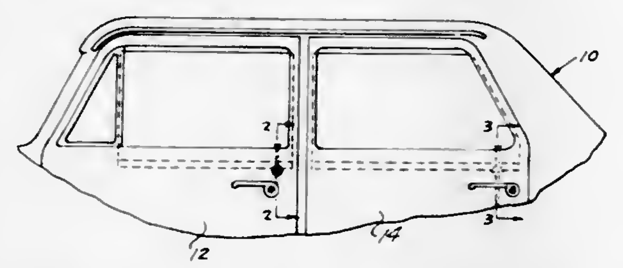
Paul M. Hawkins, Afton Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 771,089, Oct. 28, 1968. This application Feb. 20, 1969, Ser. No. 801,120
Int. Cl. E05b *59/04;* **G08b** *13/08*
U.S. Cl. 70—107 **12 Claims**

An auxiliary lock for two relatively movable building members comprising a slidable bolt movable into locking position upon closure of the members and operation of an existing lock of a conventional type. The auxiliary lock of the present invention also has a key-operated locking device to maintain the bolt of the auxiliary lock in closed position even upon subsequent disabling of the conventional lock. The lock of the present invention is also provided with signaling means actuatable in the event one attempts to separate the closure members by exerting force upon one or the other of the members with the lock in secured position.



3,570,286
THEFT REDUCER LOCK MEANS

Kenneth L. Rohrbough, 1117 Montgomery St., St. Louis, Mo. 63106
Filed Aug. 30, 1968, Ser. No. 756,631
Int. Cl. G05g *5/00*
U.S. Cl. 70—181 **5 Claims**

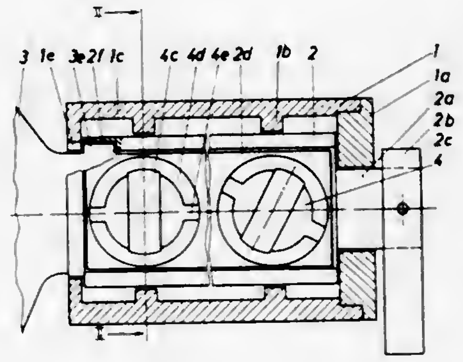


A locking device for use with a vehicle and the like, comprising a key push lock secured to the door of a vehicle with extension means adapted to extend over the rod stop of the inner door lock push-down stem, and extension support means disposed on said door, with said extension being supported on said extension support means, and adapted to pass under the raised window in said door. The present device is further provided with a key push lock attached to the locking housing, which in turn is attached to the steering column housing. The key push lock has at its inner end a lock pin which extends forward into a locking hole to lock the steering column.

3,570,287
MAGNETIC LOCK WITH ROTATABLE LATCHING ELEMENT

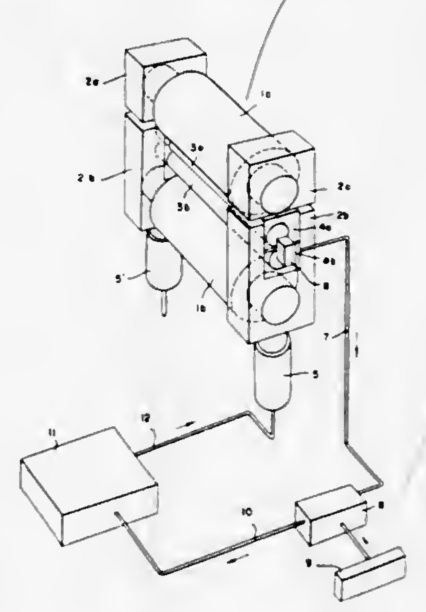
Hermann Hallmann, Cologne, Germany, assignor to Huwil-Werke, Hugo Willach & Söhne, Bezirk, Germany
Continuation-in-part of application Ser. No. 569,212, Aug. 1, 1966. This application Oct. 17, 1969, Ser. No. 867,272
Claims priority, application Germany, July 31, 1965, H 56,738; Feb. 3, 1966, H 58,460; Jan. 16, 1969, P 19 01 968.2
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 **15 Claims**

Magnetic latching elements in the form of rotatable discs or cylinders are located in chambers formed in the core of a lock, the discs or cylinders having a discontinuity which is aligned either with a notch, formed on a movable part of the core, or in the housing, so that, when the notch and the projection are aligned due to the presence of a key having zones of magnetization which rotate the latching elements to proper position, relative movement (rotation, or axial movement) of the element carrying the discs, and the projection is possible, thus operating a locking element or bolt. Preferably, a plurality of discs are used and located with respect to each other in such a manner that mutual attraction of the magnetic zones of the discs cause their remaining in a position inhibiting such movement upon the absence of a key.



3,570,288
ROLLING-MILL ASSEMBLY WITH IMPROVED CONTROL SYSTEM

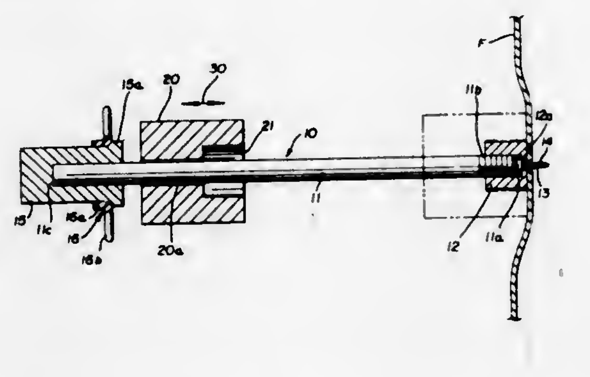
Friedrich Fischer, Franz Gutlbauer, Robert Kracht, and Georg Engel, Essen, Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Oct. 18, 1968, Ser. No. 776,303
Claims priority, application Germany, Oct. 21, 1967, P 16 02 033.0
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. B21b *37/12*
U.S. Cl. 72—8 **8 Claims**



A rolling mill with two rolls has an improved control assembly which comprises electromagnetic or photoelectric sensors which meter the gap between the rolls while remaining out of contact with them. The output of this sensing arrangement is compared with a reference value to yield an error signal which is fed to an adjustment mechanism to change the roller gap if necessary. Further sensors for metering a bending in the rolls can be provided and coupled with a device for straightening the roll. In addition a gauge measuring the thickness of the rolled workpiece can be used to provide a cross check on the functioning of the apparatus.

3,570,289
BODY WORKING TOOL

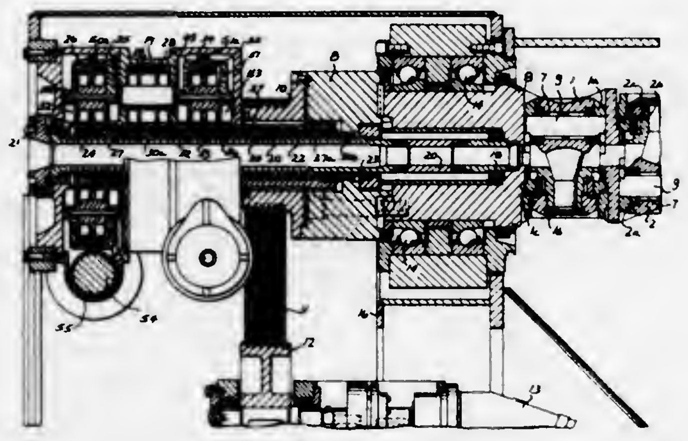
Steven L. Smyers, 1670 Faye Road, Akron, Ohio 44306
Filed Jan. 23, 1969, Ser. No. 793,394
Int. Cl. B21j *13/02*
U.S. Cl. 72—479 **2 Claims**



A body working tool for repairing dents in vehicular bodies. The tool includes an elongated body portion having one end adapted to be secured to the vehicle in the area to be repaired and having gripping means on its opposed end. Stop members are carried adjacent two opposed ends of the body member and a weighted impact member is slidingly received on the body itself and adapted to be slid along the body into and out of contact with the respective stop members. The force of the impact member striking the stop members will either depress the area of the vehicle body to which the tool is attached or pull it outwardly depending upon the direction of movement of the impact member.

3,570,290
STRAIGHTENING MACHINE FOR ROUND WORKPIECES

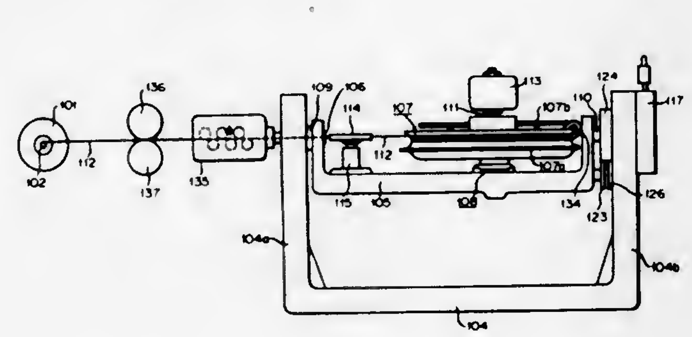
Heinz Hartkopf, Solingen, Germany, assignor to Th. Kieserling & Albrecht, Solingen, Germany
Filed Nov. 14, 1968, Ser. No. 775,687
Claims priority, application Germany, Nov. 24, 1967, K 64,004
Int. Cl. B21d *3/04*
U.S. Cl. 72—78 **11 Claims**



A straightening machine for round tubular or bar stock wherein the straightening rolls are adjustable radially toward and away from as well as angularly with reference to the path of travelling stock. The rolls are disposed in groups and each group of rolls can be moved radially or angularly by one of several input shafts which effect adjustments of roll holders by way of planetary transmissions.

3,570,291
METHOD OF MANUFACTURING EXTENSION SPRINGS

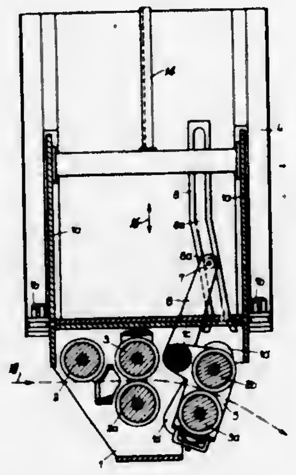
Heijiro Shiguma, Yokohama-shi, Japan, assignor to NHK Spring Co., Ltd., Yokohama, Japan
Filed Oct. 7, 1968, Ser. No. 765,405
Int. Cl. B21f *3/04*
U.S. Cl. 72—142 **4 Claims**



A circular section spring steel wire is wound around a mandrel in such a way that adjacent turns of the spring steel wire on the periphery of the mandrel are in close contact with each other and are simultaneously twisted in such a direction of rotation that the spring steel wire turns on the mandrel when it is wound on the mandrel, the result of a great amount of initial tension being imparted to the extension spring.

3,570,292
DEVICE FOR THE CONTINUOUS PREBENDING, PARTICULARLY, OF HOT-ROLLED PIPES

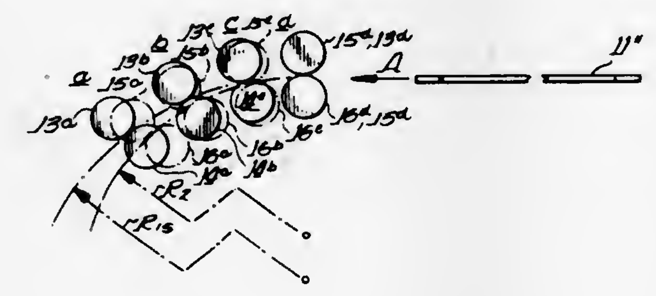
Gerhard Steck, Rheinhausen, and Hans-Dieter Weitermann, Duisburg, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed June 2, 1969, Ser. No. 829,483
Claims priority, application Germany, June 7, 1968, P 17 52 506.3
Int. Cl. B21d *7/08*
U.S. Cl. 72—173 **6 Claims**



A device for the continuous prebending, particularly, of hot-rolled pipes which are to be wound on a subsequent device, includes a multi-roll system having a common drive which is coupled with the supporting frame of the device. The supporting frame mounts a magazine containing a plurality of bending and calibrating rolls arranged in pairs for bending a pipe passed therebetween. The magazine is slidably mounted on the frame so it may be shifted along the frame. One cooperating pair of a calibrating roller and a bending roller is mounted on a movable holder of the magazine. The holder is pivotally mounted so that it will be shifted to vary the bending curve radius of operation of the rollers in accordance with the shifting movement of the magazine on the frame. To accomplish this, the holder is connected to a lever having a roller which is confined in a slot defined on the frame.

3,570,293
BUILDING CONSTRUCTION

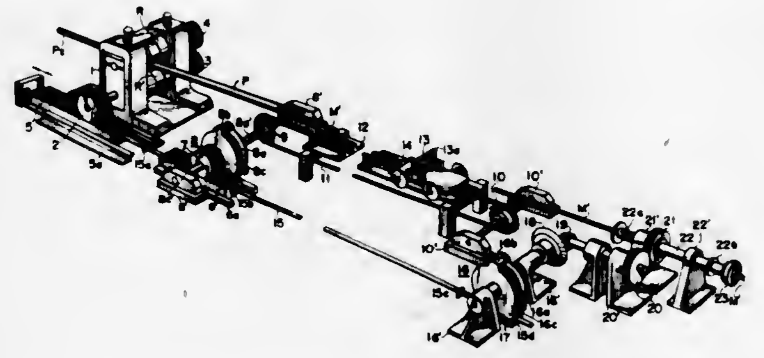
John F. Blaski, 1844 Miner St., Des Plaines, Ill. 60016
Application Apr. 18, 1968, Ser. No. 729,866, now Patent No. 3,505,765, which is a continuation-in-part of application Ser. No. 415,748, Dec. 3, 1964. Divided and this application Aug. 4, 1969, Ser. No. 870,722
Int. Cl. B21b *15/00*
U.S. Cl. 72—177 **5 Claims**



A building construction panel in the configuration of a portion of a frustum of a cone, having curvatures in two directions at right angles to each other, is formed by a series of flanged rollers in succession from a blank piece of sheet metal having arcuate outer and inner edges the radii of which conform to the slant lengths of the conic frustum. A series of such panels are attached end-to-end to form the conic frustums and the conic frustums are joined at their side edges to form the building. The flanged rollers are disposed on two mutually perpendicular radii and on the surface of an imaginary cone corresponding to the conic frustums of which the building is made.

3,570,294
PIPE ROLLING EQUIPMENT

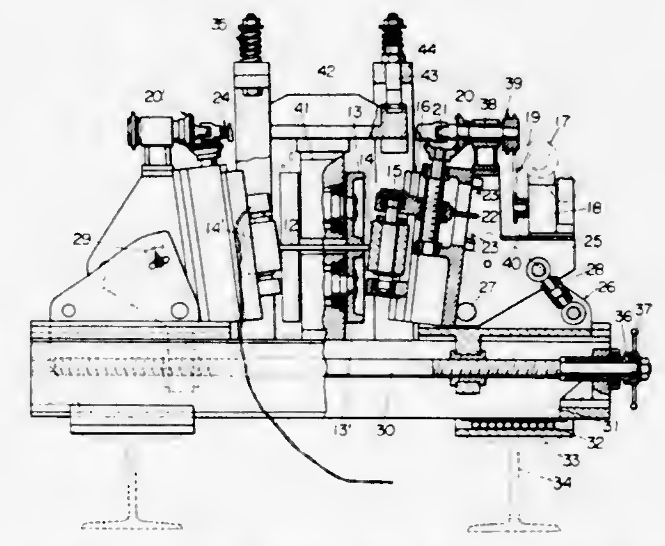
Jintaro Shibata, 22–12 Ohmori-Kita 1-chome, Ohta-ku, Tokyo, Japan
Filed Dec. 4, 1968, Ser. No. 780,983
Claims priority, application Japan, Dec. 6, 1967, 42/77,940
Int. Cl. B21b *17/10*
U.S. Cl. 72—208 **7 Claims**



A pipe rolling mill for shrinkage of a metallic raw pipe to a required external diameter and thickness, wherein a raw pipe, having inserted therein a core rod or mandrel, is pinched between facing rollers. The pipe is initially deformed to an eccentric cross section and rotated through a certain angle while being pressed and drawn backwards. Then the said pipe is reduced along the mandrel surface while being drawn forwards, and its worked portion is extracted from the mandrel and pushed out by a pressing unit, the pipe thus gradually being rolled. The operation is automatically and continuously carried out.

3,570,295
SKELP WEDGE FORMING METHOD AND DEVICE FOR FORGE WELDED STEEL TUBE

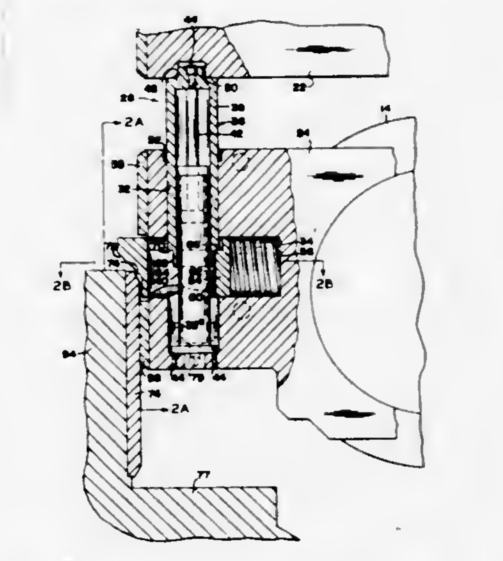
Itsuo Hirose, Hidenori Horii, Kazuo Konishi, Kenichi Matsumoto, and Tetsuo Sata, Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha
Filed Sept. 17, 1968, Ser. No. 760,194
Claims priority, application Japan, Oct. 21, 1967, 42/67,628
Int. Cl. B21b *13/12*
U.S. Cl. 72—234 **10 Claims**



Skelp edge forming method and device wherein a skelp is fed through pressure rollers while edging rollers contact and form the edges of the skelp when the skelp is in its cold condition. The edge rollers are reversibly moved in an up and down direction during the skelp edge forming.

3,570,296
AUTOMATIC SPACER BLOCKS FOR ROLLING MILL WORK ROLL CHOCKS

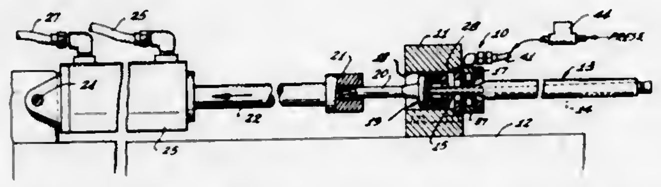
John R. Buta, Salem, Ohio, assignor to Gulf + Western Products Company, Grand Rapids, Mich.
Filed Mar. 27, 1968, Ser. No. 716,581
Int. Cl. B21b *31/00*
U.S. Cl. 72—237 **9 Claims**



A rolling mill including spacer blocks between the work roll chocks automatically locked in place and retractable to hold or not hold the work rolls in spaced apart relationship.

3,570,297
DIE AND METHOD FOR DRAWING METAL TUBES

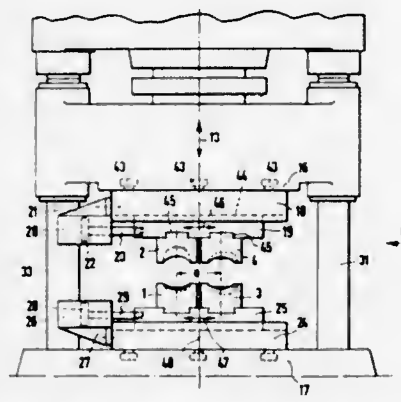
Raymond A. Matthews, 2332 Via Anacapa,
Palos Verdes Estates, Calif. 90274
Filed Sept. 19, 1968, Ser. No. 760,823
Int. Cl. B21c *3/06*
U.S. Cl. 72—276 **17 Claims**



A tube-drawing die and method of drawing tapered tubing using a conventional draw bench and a die assembly having a die ring in the form of a peripherally grooved nylon spool held in a case defining a pressure chamber around the spool. A tube to be tapered is telescoped onto a tapered mandrel and inserted in the die, and the chamber is filled with fluid under substantially constant pressure that is maintained by a relief valve or an accumulator, while the tube is drawn through the die, the pressure being sufficient to collapse the tubing initially around the mandrel and then to iron the tubing smoothly onto the mandrel during drawing. The ends of the die orifice flare arcuately away from the central land, which is the area of minimum diameter of the orifice and is formed on a yieldable annulus having a wall thickness increasing progressively in each direction from the land area. Tubing is tapered from either end of the mandrel, using a reversely tapered mandrel extension when the die is to be guided onto the larger end, and a modified form of the case has axially rigid, radially yieldably bracing fingers in the groove around the spool.

3,570,298
FORGING

Hermann Detzel, 110 Wilhelmstrasse, 7083 Wasseralfingen, and Alfred Maier, 38 Haupstrasse, 7081 Oberalfingen, both of Wurttemberg, Germany
Filed Sept. 24, 1968, Ser. No. 762,042
Int. Cl. B21j *5/02, 13/02;* **B21k** *1/08*
U.S. Cl. 72—360 **12 Claims**

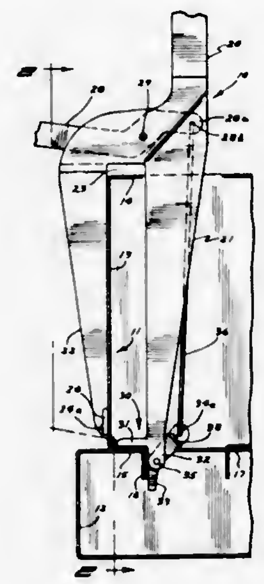


The specification describes a forging method using two die sets which only have the finished dimensions of the forging along planes which intersect 90° in the forging. Along other planes the dies have greater dimensions.

3,570,299
INTERNAL DUCT CRIMPER

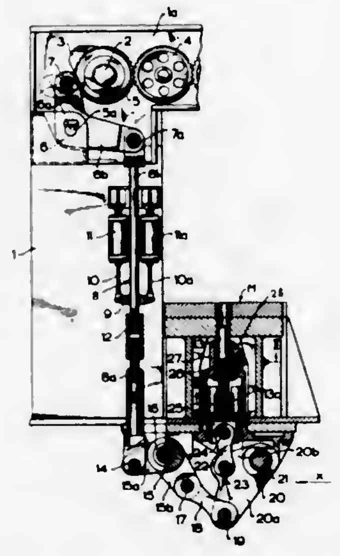
Albert W. Wieters, 7438 Baker Ave. NE.,
Minneapolis, Minn. 55432
Filed Jan. 21, 1969, Ser. No. 792,310
Int. Cl. B21d *5/01*
U.S. Cl. 72—409 **6 Claims**

A crimping device for bending and clenching edges of laterally extending ducts to main ducts including a bifurcated arm structure with a clenching device and anvil provided on the end of one of the arms with means for shifting the clenching member into clenching position against the anvil through the utilization of a connected arm and lever device. The clenching member includes a rotatably mounted shoe with an actuating arm connected thereto which actuating arm extends upwardly along the bifurcated arm to an operative position.



3,570,300
APPARATUS FOR EJECTING ARTICLES IN COLD FORMING PRESSES OR THE LIKE

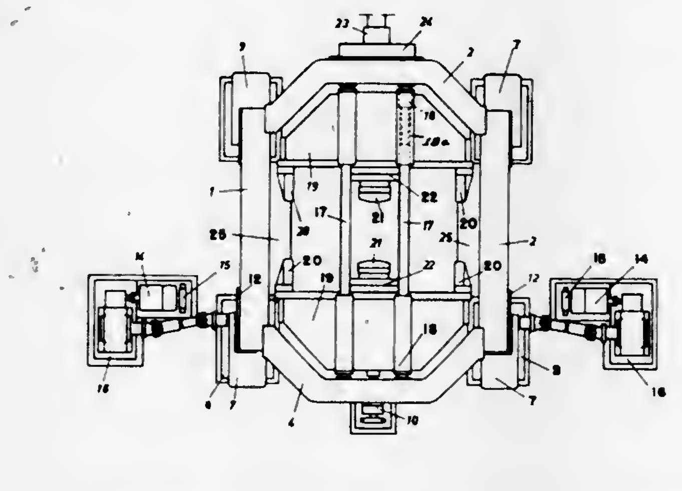
Richard Schulte, Wuppertal-Hahnerberg, Germany, assignor to Th. Kieserling & Albrecht, Solingen, Germany
Filed Oct. 30, 1968, Ser. No. 771,917
Claims priority, application Germany, Nov. 9, 1967, K 63,854
Int. Cl. B21d *45/00;* **B21j** *9/18;* **F16h** *21/16*
U.S. Cl. 72—427 **10 Claims**



A cold forming press wherein the articles are expelled from the matrices by reciprocable knockout pins receiving motion from a reciprocable connecting rod of variable length which is driven by a cam. The connection between the knockout pins and the connecting rod comprises a first bell-crank lever one arm of which is coupled to the rod and the other arm of which is connected to a first link in such a way that the axes of the other arm and the first link make an angle of at least 150 degrees in the starting position of the connecting rod, a second bellcrank lever one arm of which is coupled to the first link, and a second link which couples the other arm of the second lever with a common pusher for the knockout pins and whose axis is at least nearly parallel to the axis of knockout pins in starting position of the connecting rod. Each knockout pin is adjustable axially with reference to the pusher.

3,570,301
GAG PRESS FOR STRAIGHTENING ROLLED SECTIONS

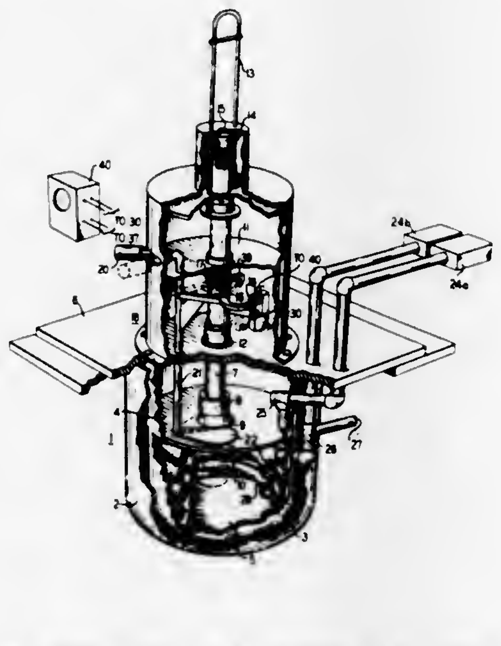
Friedrich Perner, Dahlbruch, Germany, assignor to Siegener Maschinenbau, G.m.b.H.
Filed Mar. 4, 1968, Ser. No. 710,383
Claims priority, application Germany, Mar. 4, 1967, P 16 27 597.1
Int. Cl. B21j *9/12*
U.S. Cl. 72—453 **10 Claims**



The gag press disclosed is employed for straightening heavy rolled sections and essentially comprises an hydraulically actuated gag for exerting pressure on a rolled section supported by liberally spaced supports. The gag and supports are each carried by platens that are adjustably interconnected by threaded tie-rods adapted for rotation. The platens are, in turn, slidably carried by a rotatable frame that is also adjustable in height. By rotating and adjusting the height of the frame, the gag press is located in a desired position for receiving and straightening the rolled section without imposing bending forces on associated roller tables or the like.

3,570,302
METHOD FOR MEASURING THERMAL DIFFUSIVITY

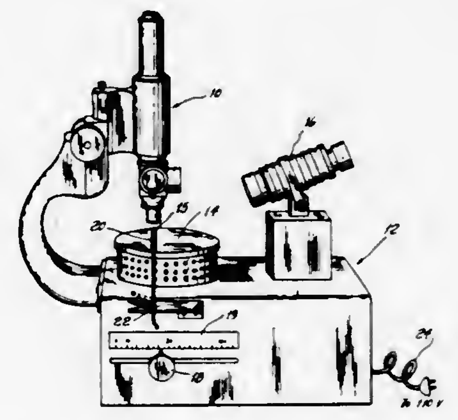
Harold A. Sauer, Hatboro, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Sept. 20, 1968, Ser. No. 761,214
Int. Cl. G01n *25/00, 25/18*
U.S. Cl. 73—15 **4 Claims**



The thermal diffusivity and specific heat of materials in thin sections is measured at low and moderate temperatures by a transient heat flow method which employs a sample probe and a dual chamber vessel. A small diameter sample is held on the probe, which is supported in the upper chamber. After the sample has been equilibrated at a chosen temperature, it is quickly lowered, mechanically, through a trap into contact with a liquid in the lower chamber, which is isolated from the upper chamber, and which is maintained at a different temperature. The lowering is conducted in such a manner that only the under or near surface of the specimen is brought in contact with the liquid. The temperature-time history of the far surface, obtained from a thermocouple attached to the center of this surface, is recorded on an oscilloscope.

3,570,303
MEANS FOR PREPARING PREPREG GLASS ROVING FOR EVALUATION

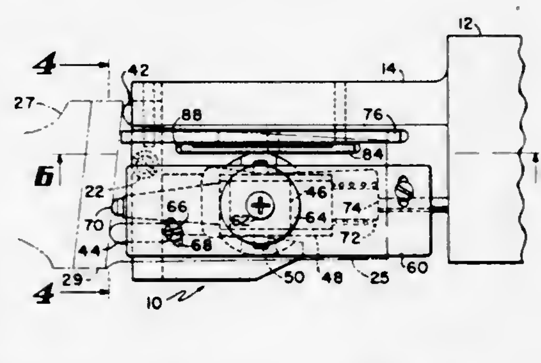
Nathan Fried, Brooklyn, Julius Kaminetsky, Forest Hills, and Maurice Silvergleit, Brooklyn, N.Y., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 6, 1968, Ser. No. 726,951
Int. Cl. G01n *1/00*
U.S. Cl. 73—15.4 **2 Claims**



A technique for preparing preimpregnated glass roving for evaluation, including tensioning a specimen of the roving with about two pounds of force, heating the tensioned specimen with a heat source to about 100° C. in seconds, and coincidentally with the heating, illuminating the specimen and observing the illuminated specimen through an optical magnifier for quantity and behavior of entrained gas pockets.

3,570,304
PROBE HOLDER ASSEMBLY FOR ULTRASONIC TESTING OF TURBOMACHINE BLADES

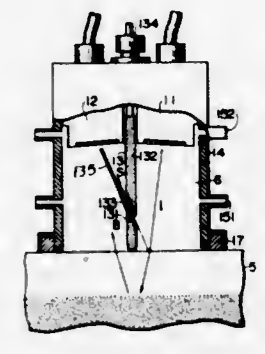
Ernest M. Mihalyak, West Haven, and Paul E. McMahon, Milford, Conn., assignors to Avco Corporation, Stratford, Conn.
Filed July 28, 1969, Ser. No. 845,228
Int. Cl. G01n *24/04*
U.S. Cl. 73—67.5 **11 Claims**



The disclosure illustrates a probe for use in ultrasonic testing of a turbomachine blade secured at its root to a rotor. The probe comprises an elongated base and a guide at one end for accurately positioning one side of the base relative to a blade to be tested. An ultrasonic probe is mounted on fulcrums in the base and is adapted to surface contact the blade at a given distance from its root. A cam mechanism supported by the base positively maintains the blade out of contact with the probe until the first end of the base is accurately positioned at the root of the blade. Additionally, a switch is actuated by the cam means to enable energization of the probe only when the first end of the base is positioned at the root of the blade.

3,570,305
APPARATUS FOR MEASURING DEPTH OF CHILLED LAYER ON CAST IRON ROLL

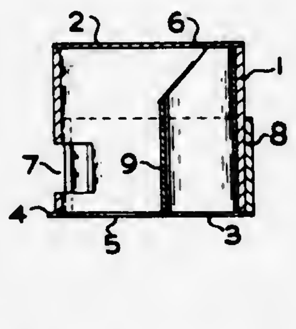
Soji Sasaki, Hitachi-shi, Japan, assignor to Hitachi, Ltd., and Hitachi Metals, Ltd., both of Tokyo-to, Japan
Filed Mar. 11, 1968, Ser. No. 712,089
Claims priority, application Japan, Mar. 20, 1967, 42/17,292
Int. Cl. G01n *9/24*
U.S. Cl. 73—67.7 **8 Claims**



An apparatus for measuring the depth of the chilled layer on a cast iron roll by use of the ultrasonic pulse echo system which utilizes a T-R coupled probe, the improvement being characterized in that there is provided an adjustable slit in a baffle between the receiver and the transmitter so as to adjust an amount of the surface echo signals to be received independently of the boundary echo signals.

3,570,306
CARBURETOR TUNING DEVICE

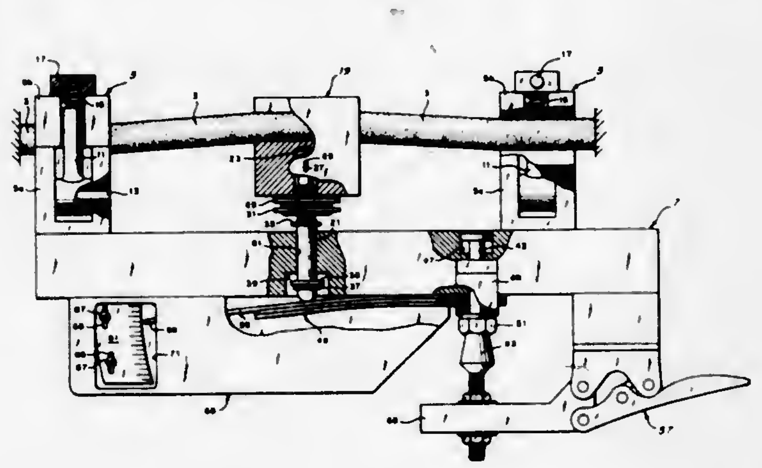
Breck Bowles, Hampton Wick, England, assignor to Les Leston Limited
Filed Mar. 24, 1969, Ser. No. 809,667
Claims priority, application Great Britain, May 13, 1968, 22,688/68
Int. Cl. G01m *15/00*
U.S. Cl. 73—119 **3 Claims**



A device for use in the adjustment of the carburettors of internal combustion engines by producing a whistle sound signal. A cylindrical chamber covered at each end by a flat end wall. A first inlet in other end wall, and a second inlet through a side wall of the chamber. An axial whistle wall in the chamber from end to end having a whistle opening near the first inlet. A mask on the side wall of the chamber adjustable over the second inlet to vary its opening, thereby to vary the velocity of air flow from the first intake to the outlet until the whistle sound signal is produced. Then the air intakes of the carburettors are adjusted to produce the same whistle sound.

3,570,307
TENSIOMETER

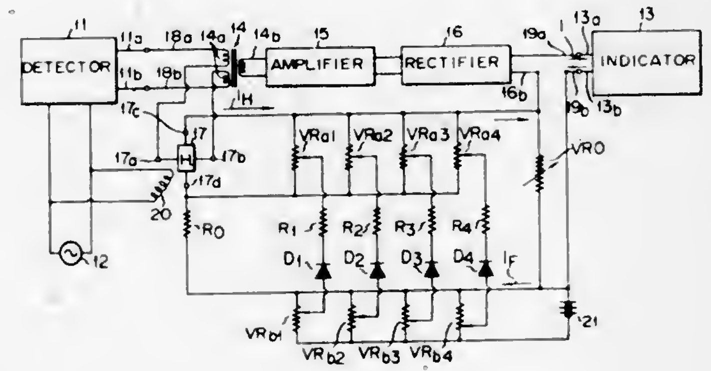
Milton Cohen, Upper Darby, Pa., and John P. Malriat, Pennsauken, N.J., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 29, 1969, Ser. No. 828,901
Int. Cl. G01l *5/06*
U.S. Cl. 73—144 **6 Claims**



A novel and improved device for measuring the tension in a rope or cable constructed of nylon and/or various other similar materials. The device includes a pair of longitudinally spaced hinged bands by which the device is removably applied to the cable to be tested and an element which engages the cable between the longitudinally spaced bands and applies a transverse force on a multiple leaf spring. Flexure of the spring along a calibrated scale indicates the degree of tension on the cable.

3,570,308
LINEARIZING CIRCUIT DEVICE FOR AN ELECTROMAGNETIC LOG

Haruo Kawamoto, Tokyo, Japan, assignor to Tokyo Keiki Seizosho Co., Ltd., Tokyo, Japan
Filed Aug. 14, 1969, Ser. No. 850,013
Claims priority, application Japan, Aug. 20, 1968, 43/71,363
Int. Cl. G01p *5/08*
U.S. Cl. 73—181 **5 Claims**

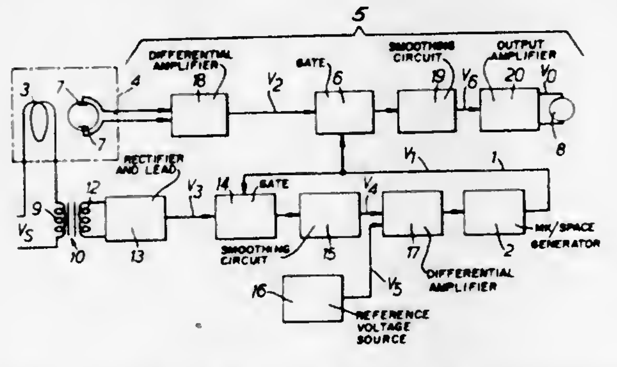


A circuit for linearizing without contact a voltage detected by a detector involved in an electromagnetic log, which does not in many cases bear a linear ratio to the speed of a ship.

Said detected voltage is rectified by a rectifier provided with a negative feedback means consisting of a Hall element, and the rectified D.C. output is supplied to an indicator. Across the input terminals of the Hall element is connected a variable impedance means consisting of a group of diodes and potentiometers. Said variable impedance means varies the ratio which the input current to the Hall element bears to the aforesaid D.C. output, thereby adjusting the negative feedback ratio.

3,570,309
ELECTROMAGNETIC FLOWMETERS

David Wildon Birnstingl, Stroud, England, assignor to Mawdsley's Limited, Dursley, Gloucestershire, England
Filed Oct. 1, 1968, Ser. No. 764,156
Claims priority, application Great Britain, Oct. 3, 1967, 44,868/67
Int. Cl. G01p *5/08*
U.S. Cl. 73—194 **11 Claims**

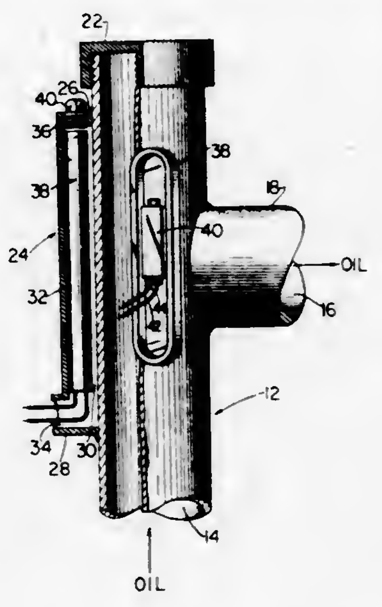


A method and an electrical circuit to compensate for variations in the energizing current in the field coils of an electromagnetic flowmeter. The circuit comprises a compensating feedback loop with an error device and a pulse generator which acts to supply a repetitive output signal with the ratio of the pulse duration to the total periodic time proportional to the ratio of two signals which are injected into the feedback loop and which are respectively proportional to a stabilized reference signal and the energizing current in the field coils. The circuit includes a measuring circuit with a modulator which acts to modulate a signal proportional to the signal detected by the electrodes in accordance with the ratio of the pulse duration to the total periodic time to provide a final output signal which is proportional to the ratio of the electrode signal to the energizing current and hence proportional to the true flow rate.

3,570,310
FLOW-INDICATING DEVICE

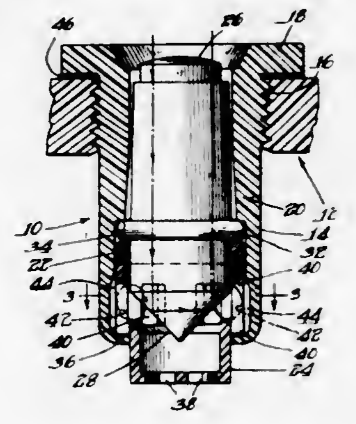
Wesley M. Densmore, Brownfield, Tex., assignor to Cities Service Oil Company, Tulsa, Okla.
Filed Apr. 24, 1969, Ser. No. 819,047
Int. Cl. G01p *5/00*
U.S. Cl. 73—204 **4 Claims**

An apparatus for sensing fluid flow or the lack of same in a conduit is disclosed herein. The apparatus comprises a fluid flow conduit made of a heat conducting material such as brass, an electrical heater mounted in thermal contact on the outside of the conduit, and an electrical switch responsive to changes in temperature mounted on the conduit, whereby an increase in the temperature of the conduit causes the electrical switch to trip. The switch is connected to an indicating and recording device such as a chart which shows the amount of time that it is switched to the high temperature level and vice versa. In operation the electrical heater heats the metal conduit and the fluid flowing through the conduit carries away the heat establishing a conduit temperature which is indicative of a flow through the conduit. If no flow occurs in the conduits, the conduit rapidly heats up to a higher temperature level and causes the temperature sensing switch to trip, remotely indicating to the recording device that the switch is in the no-flow position.



3,570,311
LIQUID LEVEL INDICATOR ASSEMBLY

John F. Nelson, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Mar. 19, 1969, Ser. No. 808,569
Int. Cl. G01f *23/02*
U.S. Cl. 73—327 **5 Claims**

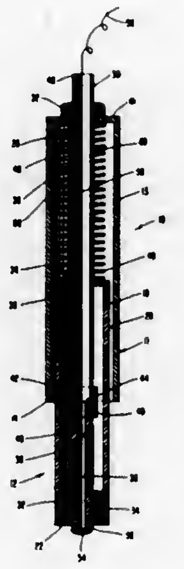


An indicator assembly for indicating liquid levels includes a member of light transmitting material having a body section, the lower portion of which is immersible within liquid and the upper portion of which is exposed so as to provide a liquid level indicating surface. A prismatic surface arrangement associated with the lower portion of the body section is adapted to receive light rays from and reflect light rays to the upper exposed level indicating surface. The light transmitting member is held within an encompassing sleeve-like device which is open at one extremity in the vicinity of the exposed level indicating surface and open at the opposite extremity in the vicinity of the prismatic surface arrangement and includes a screen member attached thereto. The sleeve-like device is mounted in the upper wall of a liquid container.

3,570,312
SKIN TEMPERATURE SENSING DEVICE

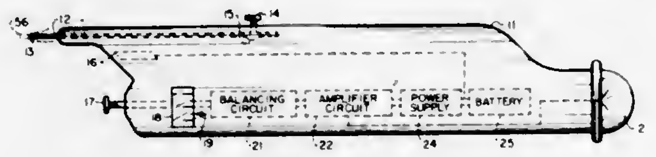
Frank Kreith, 1911 Mariposa Ave., Boulder, Colo. 80302
Filed June 21, 1968, Ser. No. 739,037
Int. Cl. G01k *1/08, 7/22;* **G01l** *1/04, 5/00;* **H01c** *1/02*
U.S. Cl. 73—345 **7 Claims**

A skin temperature sensing device including a temperature sensor and a housing to manipulatively press sensor into a preselected degree of pressure contact with the surface of the skin to measure the temperature thereof. The housing has associated indicating means to visually indicate the degree contact pressure extant between said temperature sensing means and the skin surface.



3,570,313
ELECTRIC RESISTANCE THERMOMETER

Ulrich Anton Frank, Yardley, Pa., and Carlton Stanley Tegge, Laurel Springs, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Nov. 12, 1969, Ser. No. 875,608
Int. Cl. G01k ***7/24***
U.S. Cl. 73—362 **7 Claims**

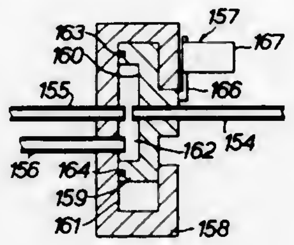


An electrical resistance thermometer device having a resistance sensing unit forming part of a balancing circuit with a calibrated temperature readout dial, and a balancing detector having an amplifier circuit operable at different levels of sensitivity for driving a current passing through a lamp indicator at low and high current levels and thus providing dim and bright light intensity values, so that the lamp gives a dim indication when the balance detector nears balance and a bright indication when the balance detector is at balance. A probe carrying the sensing unit is mounted for reciprocating movement in and out from the device housing.

3,570,314
VALVING ARRANGEMENT FOR AUTOMATED MATERIALS ANALYSIS

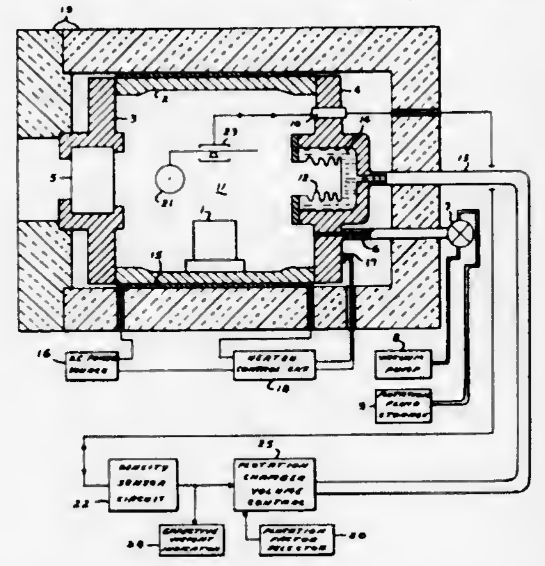
Maurice Wagner, 49 Blvd. Royal, Luxembourg, Luxembourg
Filed Aug. 23, 1968, Ser. No. 754,869
Claims priority, application Luxembourg, Aug. 28, 1967, 54,388
Int. Cl. G01n ***1/14***
U.S. Cl. 73—422 **15 Claims**

A distributor for liquids includes at least a pair of small nonwetting tubes placed in aligned relationship. The tubes are spaced apart only a small distance so that under certain conditions the liquid will bridge the gap between effecting a total transfer of a liquid drop from one to another. A first tube can be selectively aligned with any of a series of second tubes so that samples of liquid from a single source can be routed to any one of a plurality of analyzers. Also the samples may be withdrawn from a plurality of sources. Several arrangements for measuring doses are also disclosed.



3,570,315
FLOTATION TECHNIQUE FOR CALIBRATION OF LOW-LEVEL ACCELEROMETERS

Barry Karl Likeness, Atherton, and Doyle E. Wilcox, Hacienda Heights, Calif., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 11, 1969, Ser. No. 860,135
Int. Cl. G01p ***21/00***
U.S. Cl. 73—432 **6 Claims**



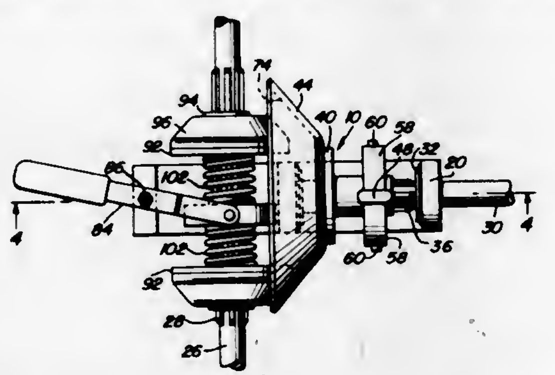
A technique for counteracting the adverse effects of the earth's gravitational field on the laboratory calibration of low-level accelerometers. The one-*g* force of the gravitational field is wholly or partly compensated as desired by immersing the proof mass of the accelerometer in a stationary dense gas which, in accordance with Archimedes principle, produces a buoyant force on the proof mass equal to the weight of the displaced gas and acting parallel and opposite to the gravitational force. The accelerometer and flotation fluid are contained in a sealed chamber having means for controlling the chamber volume and thereby the pressure and density of the gas. A servo system deriving its input from a gas density sensor in the chamber actuates the chamber volume control to automatically maintain the gas density constant at a selected value.

3,570,316
CONE CLUTCH AND REVERSIBLE DRIVE MECHANISM

Richard S. Hornack, 128 Drury Lane, Mayfield Heights, Ohio, and Gustave C. Heyman, 1120 S. Chillicothe Road, Streetsboro, Ohio 44240
Filed June 10, 1969, Ser. No. 831,919
Int. Cl. F16h ***15/20;*** **F16d** ***13/30***
U.S. Cl. 74—191 **6 Claims**

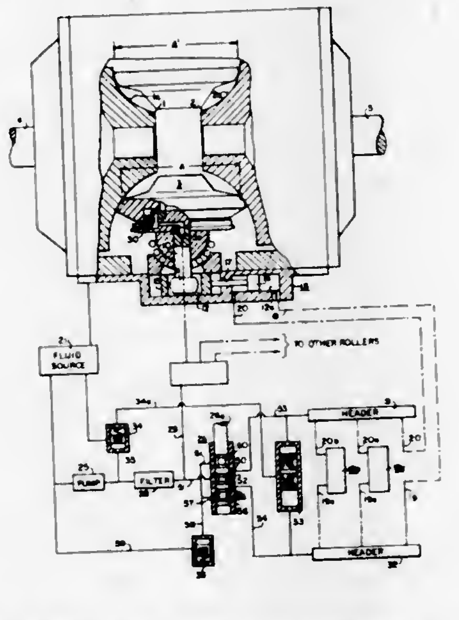
First and second shafts journaled from a support for rotation about axes disposed at generally right angles to

each other. A first friction cone is mounted on one of the shafts for rotation therewith and a pair of second pair of friction cones are mounted in axially spaced relation on the other shaft for similar shifting therealong and for rotation therewith. The second cones, when shifted, are alternately positionable in frictional engagement with the opposite side portions of the first cone, whereby a reversing transmission is provided. In addition, one form of the invention provides means whereby the first cone is adjustably shiftable along its axis of rotation.



3,570,317
TRACTION DRIVE APPARATUS AND CONTROL SYSTEM

Charles E. Kraus, Allendale, N.J., assignor to Excelermatic, Inc.
Filed Jan. 8, 1969, Ser. No. 789,803
Int. Cl. F16h ***15/20***
U.S. Cl. 74—200 **27 Claims**

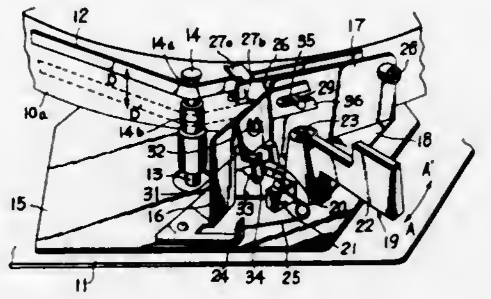


Traction drive apparatus having driving and driven elements such as opposing toric faces and one or more rollers for transferring motion between them and a control assembly for each roller. Illustrated embodiment includes a cam follower on pivot support for roller and cam surface; a piston connected to the cam face is subject to pressure on opposite faces for enabling ratio adjustment for load equalization or speed change. Fluid control means for regulating operation of the apparatus are provided.

3,570,318
TURNTABLE ROTATING SPEED CHANGING DEVICE

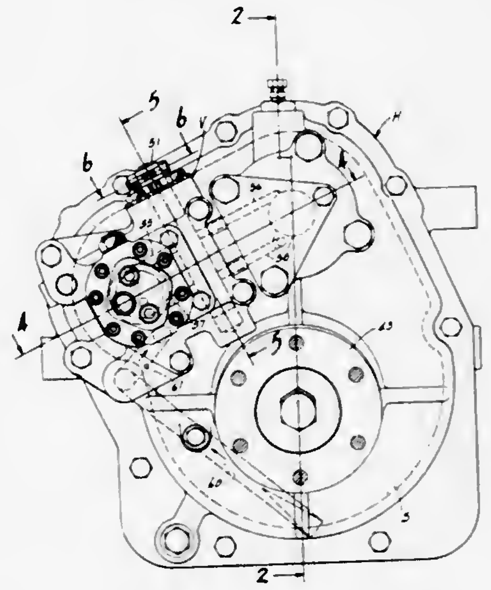
Isamu Nakadaira, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan
Filed Oct. 16, 1969, Ser. No. 866,912
Claims priority, application Japan, Oct. 19, 1968, 43/90,834
Int. Cl. F16h ***7/08***
U.S. Cl. 74—242.3 **7 Claims**

A turntable rotating speed changing device comprising an operation lever member to turn in a horizontal plane parallel to a motor board and a belt shifting lever member for the preferential change of rotation speed of a turntable driven by a belt. The latter shifting lever member is transmitted the turning force of said operation lever member converted of its turning plane, and turned in a plane vertical to said motor board to shift the belt upwardly or downwardly between on steps of a multi-stepped pulley.



3,570,319
REVERSIBLE POWER TRANSMISSION

Bruce C. Arnold, Racine, Wis., assignor to Twin Disc Incorporated, Racine, Wis.
Filed Dec. 17, 1969, Ser. No. 885,860
Int. Cl. F16h ***3/14, 1/12***
U.S. Cl. 74—361 **18 Claims**

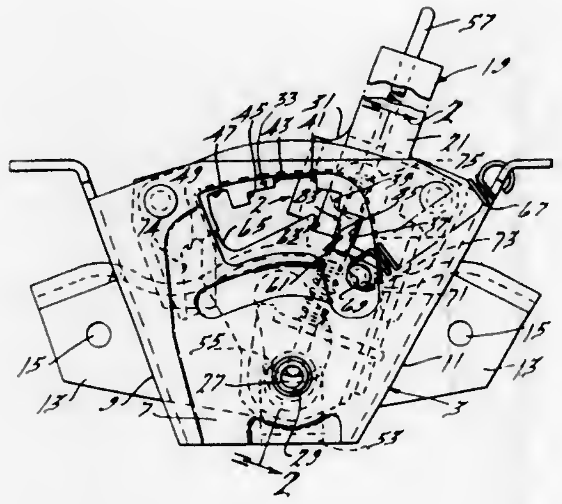


A power transmission for transmitting power from an input shaft and to an output shaft which is inclined at an angle to the input shaft, said transmission having means including a second shaft for driving the inclined output shaft in the reverse direction with equal power to that in which it is driven in the other direction. The transmission includes a clutch means for the input shaft and the second shaft and also includes meshing gears between the input, second and output shafts and which gears are in constant mesh with one another and selectively engaged by the clutches.

3,570,320
TRANSMISSION SELECTOR APPARATUS

James E. MacAfee, Troy, Steve D. Ivan, Roseville, Alojzy Then, Madison Heights, and Robert E. Paquette, Jr., Utica, Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed Apr. 30, 1969, Ser. No. 820,425
Int. Cl. G05g ***5/02***
U.S. Cl. 74—473 **11 Claims**

Selector apparatus for an automatic transmission including a housing, a lever pivotally mounted in the housing, upper and lower gate members having a plurality of shoulders thereon. The gate members cooperate with a

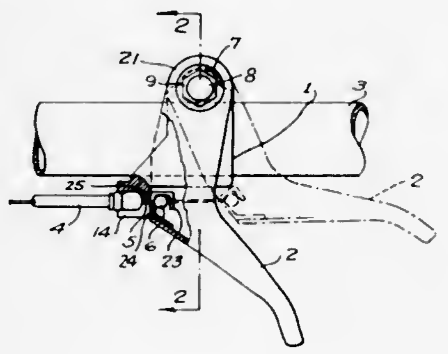


flag on said lever for releasably restraining movement of the lever from one position to another.

3,570,321
HANDLE LEVER FITTING DEVICE FOR MOTOR DRIVEN VEHICLES

Yoshiaki Tominaga, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Japan

Filed Mar. 21, 1969, Ser. No. 809,310
Claims priority, application Japan, Mar. 27, 1968, 43/24,197
Int. Cl. G05g *11/00*
U.S. Cl. 74—489 **7 Claims**

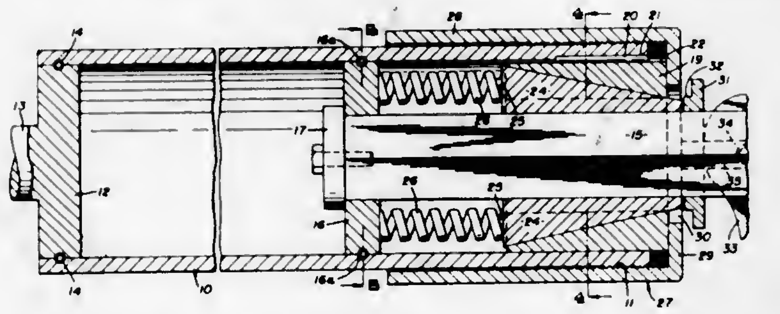


A hand lever fitting including a bifurcated ring clamp for clasping a handlebar, locking extensions on said clamp so positioned as to engage one side of the handlebar and a socket positioned on the clamp to receive the housing tube of a control cable at the opposite side of the handlebar, a hand lever having spaced arms which straddle the locking extensions of the ring clamp, a hook member secured to the lever and resting against said socket, passage means through said socket for passing a control cable whose end is to be grasped by said hook member, aligned apertures in said clamp locking extensions and lever arms, and bolt-like securing means passing through said aligned apertures for tightening the ring clamp about the handlebar while permitting rotation of the lever with respect to the clamp to move the control cable, said securing means serving as a single means to enable installation of the hand lever and the ring clamp as a unit in any desired position and at any desired angle on a handlebar of a motorcycle, snowmobile, or the like.

3,570,322
AXIALLY ADJUSTABLE AND COLLAPSIBLE STEERING COLUMN

Robert A. Krouse, 756 Temple Road, Pottstown, Pa. 19464

Filed Apr. 18, 1969, Ser. No. 817,336
Int. Cl. B62d *1/18*
U.S. Cl. 74—493 **4 Claims**

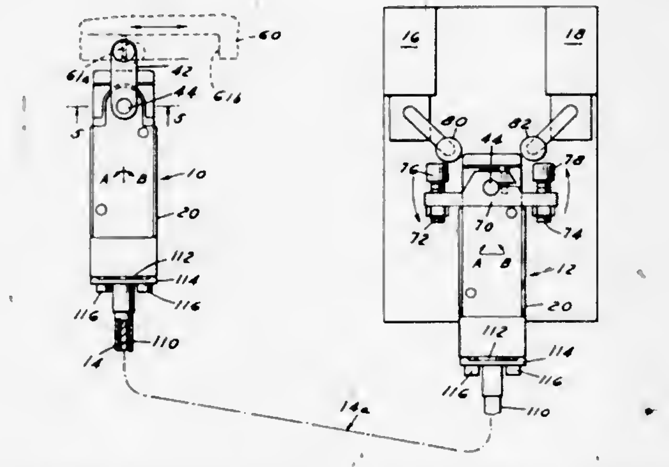


A vehicle steering column embodying relatively telescoping tube and shaft members drivingly connected for unified rotation, but moveable axially relative to one another in response to either intentional manually applied, adjusting forces, or to accidentially applied, impact forces, with means to adjust the resistance of the column to collapse in response to impact forces.

3,570,323
MOTION-TRANSMITTING APPARATUS

Donald E. Learmont, Rochester, Mich., assignor to Verstand Engineering, Inc., Madison Heights, Mich.

Filed May 1, 1969, Ser. No. 820,915
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **4 Claims**



Apparatus for operating one or the other of two limit switches in response to a mechanical movement at a remote point. A master unit has a first member movable in opposite directions from a neutral position in response to the mechanical movement, the direction of movement of the member depending upon the direction of the mechanical movement. A slave unit has a second member movable in opposite directions from neutral and adapted to effect the operation of one or the other of the switches depending upon the direction in which it is moved. A single push-pull linear member or cable transmits the movement of the first member to the second member in either direction.

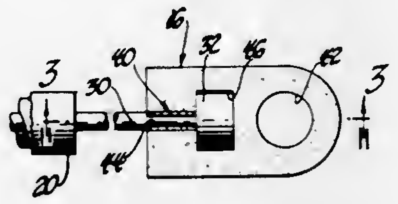
3,570,324
MOTION TRANSMITTING REMOTE CONTROL ASSEMBLY

Winthrop B. Conrad, Franklin, Mich., assignor to Teleflex Incorporated, North Wales, Pa.

Filed May 23, 1969, Ser. No. 827,409
Int. Cl. F16c *1/14*
U.S. Cl. 74—501 **14 Claims**

A motion transmitting remote control assembly including a flexible conduit with fittings disposed at each end

and movably supporting a wire-like core element. The core element includes an anchor means comprising a metal slug or a bent end portion which is snapped into

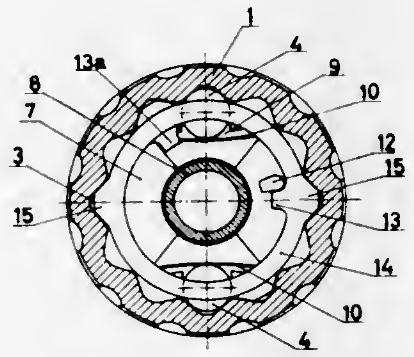


engagement with and retained in a snap-in receiving portion of a plastic terminal means which is adapted to be attached to a control member.

3,570,325
CONTROL KNOB WITH INTEGRAL DETENT AND STOP MECHANISMS

Heinz Ernst Johannes Kroll, Heroldsberg, and Horst Dieter Ziegler, Nuremberg, Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 29, 1969, Ser. No. 861,549
Int. Cl. G05g *5/06*
U.S. Cl. 74—527 **10 Claims**



An integral instrument knob and detent device for controlling rotary switches and like devices requiring multiple discrete angular position shaft control.

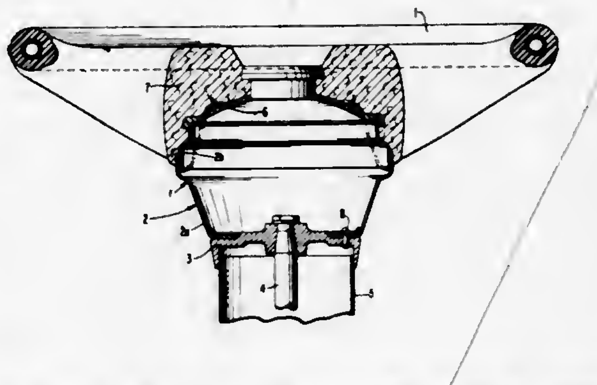
A shaft for the device to be controlled protrudes through a panel, and the knob is installed and tightened thereon. The detent positions are formed by a contoured surface inside a cavity within the body of said knob. Two cylindrical rollers (or balls) are provided, and are held against the contoured surface by a leaf spring mounted on a base adapted for non-moving mounting on the panel. The ball or roller is constrained against any but radial movement. Stops are provided by a pair of rings built to engage the contoured surface, and are therefore adjustable rotationally in integral detent steps.

3,570,326
SAFETY STEERING DEVICE FOR MOTOR VEHICLES

Wilhelm Albrecht, Vaihingen, and Josef Eibl, Waiblingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Jan. 17, 1969, Ser. No. 791,894
Claims priority, application Germany, Jan. 20, 1968, P 16 80 011.6
Int. Cl. B26d *1/00*
U.S. Cl. 74—552 **34 Claims**

A safety steering for motor vehicles in which a deformation member is arranged between the steering wheel and the head piece of the steering spindle which includes only a single section plastically deformable under impact effect that passes over within the area of its largest

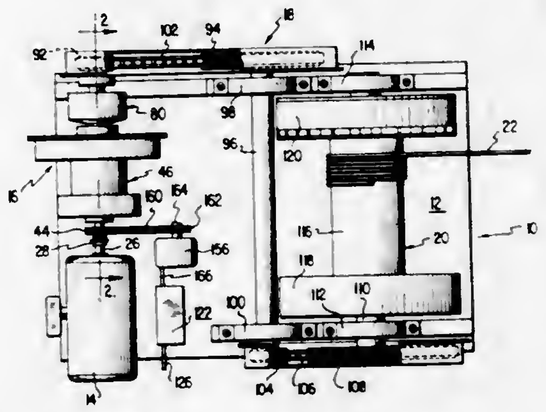


diameter into a substantially non-deformable, inherently rigid section.

3,570,327
MULTISPEED DRIVE ARRANGEMENT

James G. Morrow, Manitowoc, Wis., assignor to The Manitowoc Company, Inc., Manitowoc, Wis.

Filed Dec. 2, 1968, Ser. No. 780,480
Int. Cl. F16h *47/00*
U.S. Cl. 74—718 **9 Claims**

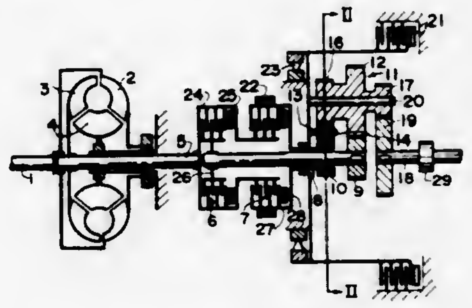


A multispeed drive arrangement for winches and the like comprises first and second adjacent torque converters arranged to drive the winch in low and high ranges respectively. The high speed torque converter drives an output shaft connected to the winch. The low speed torque converter drives a wheel mounted on the output shaft and selectively connected therewith by a clutch.

3,570,328
HYDRAULIC CONTROL SYSTEM OF AN AUTOMATIC TRANSMISSION

Keiji Kogaki, Toyota-shi, Japan, assignor to Toyota-Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Apr. 4, 1969, Ser. No. 813,680
Claims priority, application Japan, May 15, 1968, 43/32,734
Int. Cl. B60k *21/00*
U.S. Cl. 74—867 **5 Claims**



A hydraulic servo mechanism for the first two speeds of a three speed transmission. Pressure on the clutches and brakes for the first two speeds is selectively applied according to the valve spool position of a one-two shift valve which has governor pressure line connected to one end and pressure means connected to the other end. These pressure means supply either line pressure or throttle pressure depending on a check valve regulating said pressure means. According to the present invention, this pressure means has a pressure reducing valve having an output line connected to the one-two shift valve and an input line which couples the check valve to the pressure reducing valve. The interconnection of these output and input lines within said pressure reducing valve is regulated by spring biased valve spool means. Coupled to the pressure reducing valve is an adjustable pilot valve which controls the pressure in the pressure reducing valve. Thus, the pressure reducing valve permits only a predetermined output to be fed to said one-two speed valve and the one-two speed valve is prevented from having fed to it an input greater than the predetermined input.

3,570,329
METHOD FOR MANUFACTURING A PERFORATING TOOL AND METHOD FOR PERFORATING BY MEANS OF THIS TOOL AS WELL AS A DEVICE FOR REALIZING THIS METHOD IN ROTARY PERFORATING MACHINES

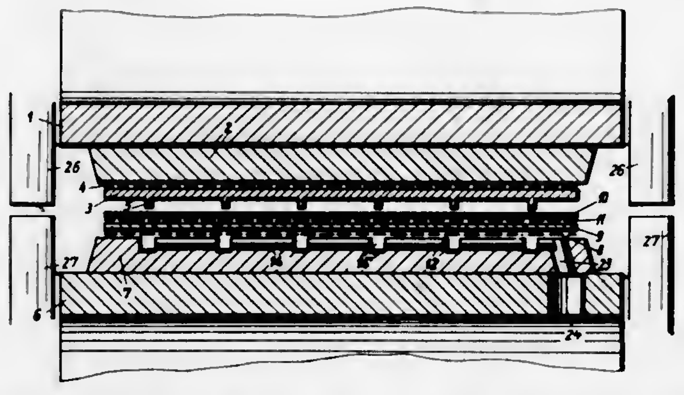
Hans-Bernhard Bolza-Schunemann, Wurzburg, Germany, assignor to Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft, Wurzburg, Germany

Filed Nov. 21, 1968, Ser. No. 785,844

Claims priority, application Germany, Mar. 28, 1968, P 17 61 055.8

Int. Cl. B21k *21/00*

U.S. Cl. 76—101 **10 Claims**



The invention relates to a method for manufacturing a perforating tool and a procedure for perforating by means of this tool as well as a device for realizing this method in rotary perforating machines, necessitating longitudinal and transverse perforation.

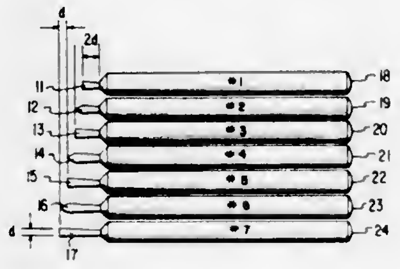
3,570,330
METHOD OF MACHINING INVOLVING PROGRESSIVE STEP TOOL CHANGE

John A. Cupler II, 10 Cupler Drive-La Vale, Cumberland, Md. 21504

Filed Dec. 23, 1968, Ser. No. 786,344

Int. Cl. B23b *35/00*

U.S. Cl. 77—5 **6 Claims**



The disclosure relates to a method of drilling wherein successively longer countersinking and counterboring tools are utilized to extend the length of a bore initially formed by a tool which is relatively short in comparison to the depth of drilling operation to be performed.

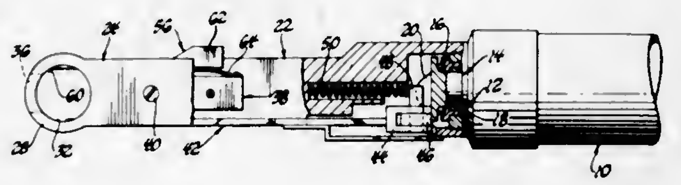
3,570,331
POWER WRENCH

Donald E. Rogers, 975 Fairfax, Birmingham, Mich. 48009

Filed Apr. 12, 1968, Ser. No. 720,877

Int. Cl. B25b *21/02, 13/00*

U.S. Cl. 81—54 **6 Claims**



An improvement in power wrenches for rotating a polygonal member, such as a nut or a bolt. Power means, in the form of an air motor or the like, support spaced and parallel plate members extending from the power means and having aligned apertures in the outward ends thereof. The power means are operable to rotate a cam member. A pull rod, disposed between the plate members, carries a cam follower which engages the cam member. Rotation of the cam member causes straight line movement of the pull rod between the plate members. One side of the nut or bolt, received in the aligned apertures in the plate members, is engaged by the end of the push rod. A pull rod, also disposed between the plate members, engages the opposite side of the nut or bolt and is connected to the push rod by a transverse link. As the push rod is moved in one direction, the link causes the pull rod to move in the opposite direction, thus clamping the nut or bolt between the push rod and the pull rod and causing rotation thereof. As the push rod is moved in the opposite direction, the pull rod, through the link, is returned to its original position.

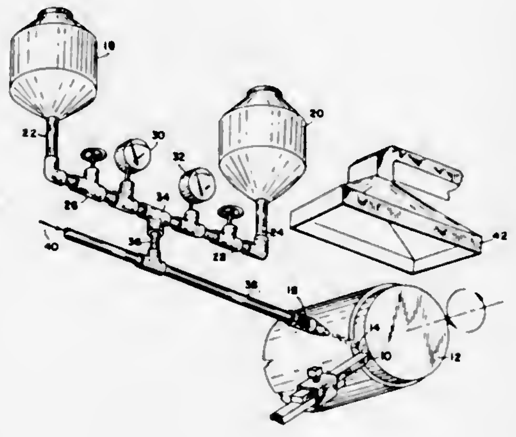
3,570,332
METHOD OF MACHINING SUPER-TOUGH METALS

Frederick A. Beake, Hollis, N.H., assignor to Sanders Nuclear Corporation, Nashua, N.H.

Filed Dec. 18, 1967, Ser. No. 691,494

Int. Cl. B23b *1/00*

U.S. Cl. 82—1 **18 Claims**



The invention disclosed herein relates to metal working processes and more particularly to a new and novel method and apparatus for the machining of super alloys and refractory metals wherein frictional heat is removed from the work and tool utilizing the latent heat of vaporization characteristic of a volatile coolant applied to the area of contact between the work and tool.

3,570,333
AUTOMATIC LATHE

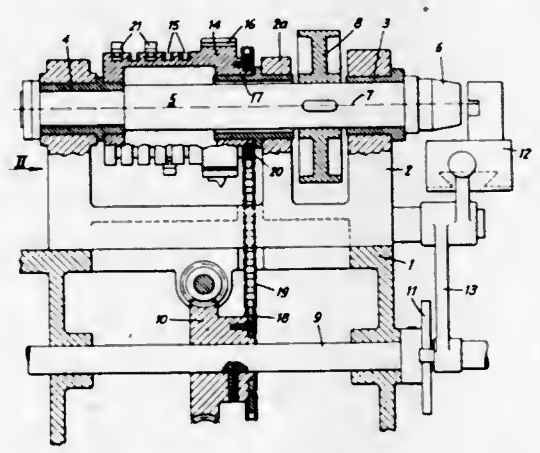
André Bechler, 4 Rue Centrale, Moutier, Berne, Switzerland

Filed Apr. 1, 1969, Ser. No. 811,773

Claims priority, application Switzerland, Apr. 10, 1968, 5,305/68

Int. Cl. B23b *3/00, 3/28, 19/02*

U.S. Cl. 82—2 **5 Claims**



A drum with grooves in which dogs serving to control sequential functions of the lathe are removably secured, is rotatably mounted on, and coaxially with respect to, the work spindle by two spaced bearings that surround this spindle. The drum is rotated through a transmission arrangement by the camshaft.

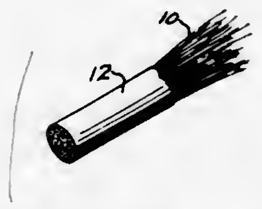
3,570,334
APPARATUS FOR SEVERING RESINOUS IMPREGNATED FIBER WORKPIECES

Henry A. Ball, Glenshaw, Pa., assignor to The Cleanola Company, Glenshaw, Pa.

Filed Aug. 8, 1969, Ser. No. 848,555

Int. Cl. B23b *3/06*

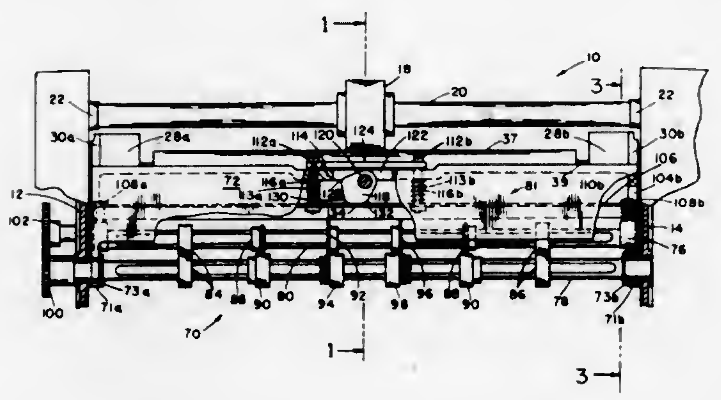
U.S. Cl. 82—59 **10 Claims**



Described is apparatus for severing long slender workpieces formed from strands of glass fibers bonded together by a suitable resin. This is accomplished by means of one or more cutting elements which rotate around a stationary workpiece and are moved into engagement with the workpiece, preferably by centrifugal force. The cutting elements are provided with roughened, but not serrated, flat surfaces which sever the workpiece in what can be compared to a filing action. Preferably, a low viscosity lubricant, such as water, is caused to flow over the workpiece in the area of the cutting elements during a severing operation.

3,570,335
CAM ACTUATED PAPERWORKING ASSEMBLY FOR FOLDING MACHINES

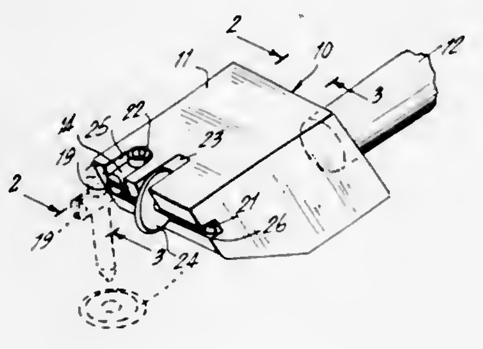
Mario James Marin, South Norwalk, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.
Filed Mar. 17, 1969, Ser. No. 807,719
Int. Cl. B23d *19/06*
U.S. Cl. 83—9 **13 Claims**



The disclosed apparatus is a folding machine for paper sheets which includes a paperworking assembly for performing operations such as perforating, scoring or slitting on each folded sheet. Sheets are fed through the apparatus and folded by means of buckle chutes. They then pass through the paperworking assembly which comprises a pair of rotatable shafts carrying selected combinations of cooperating pairs of feed and working rollers which act to perforate, score and/or slit the folded sheets. The shafts and their rolls may be moved between an operative position and an inoperative position by actuation of a cam which lifts one shaft. This simple procedure makes the paperworking assembly suited for use in heavy machines, or in those in which the paperworking assembly must be frequently made inoperative. The paperworking assembly also pivots from the machine for changing shafts or realigning or changing the feed or working rolls.

3,570,336
HOLDER FOR GLASS CUTTING WHEEL

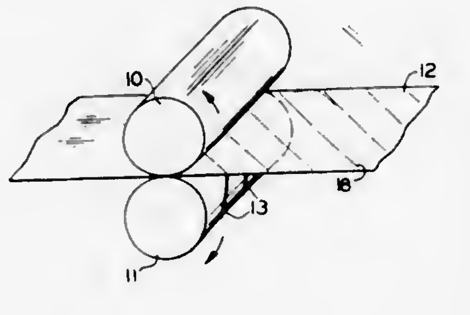
Kenneth G. Galla, Scotch Plains, N.J., assignor to Red Devil Inc., Union, N.J.
Filed Oct. 23, 1968, Ser. No. 769,979
Int. Cl. B26d *3/08*
U.S. Cl. 83—12 **1 Claim**



A glass cutting wheel holder in which the wheel supporting axle is swingably secured at one end to a spring loaded bar. Replacement of the cutting wheel is effected by pulling the bar outwardly of its supporting block, rotating the axle about the bar until the cutting wheel falls off the free end of the axle, replacing the wheel with a sharp wheel and rotating and releasing the axle to permit the cutting wheel to resume the operative position.

3,570,337
PAPER SCORING APPARATUS

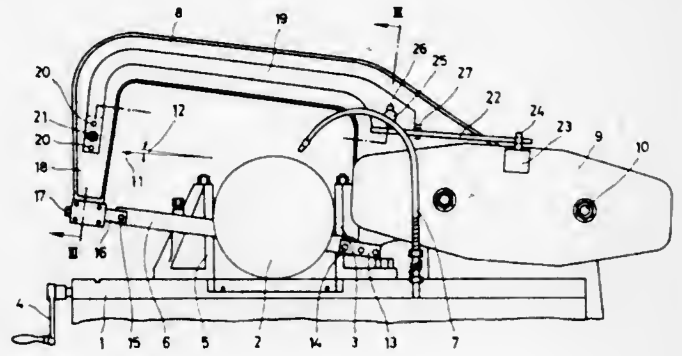
Burton D. Morgan, Hudson, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio
Filed Dec. 11, 1967, Ser. No. 689,435
Int. Cl. B26d *3/08*
U.S. Cl. 83—12 **4 Claims**



Apparatus for scoring paper and other sheet materials including a pair of cylindrical metal rolls associated for pressure engagement with a sheet passed between the roll bight. One of the rolls is smooth surfaced, but the other roll carries one or more small diameter metal wires thereon secured to the surface of the second roll whereby the material passed between the roll bight is scored and/or weakened in the area thereof contacting the wire to facilitate later tearing of the paper at the scored line.

3,570,338
METHOD AND APPARATUS FOR MEASURING BLADE TENSION OF POWER HACKSAW

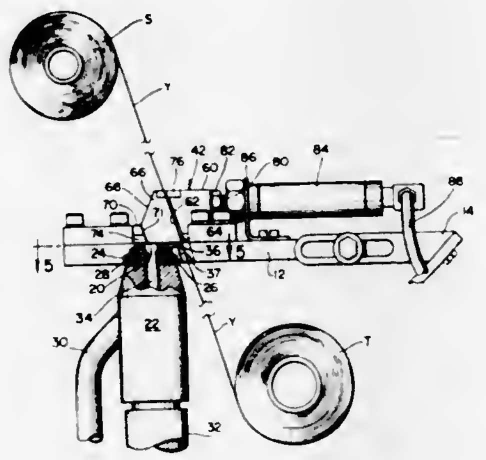
Paul Stolzer, Achern, Baden, Germany, assignor to Firma Karl Stolzer, Achern, Baden, Germany
Filed Feb. 27, 1969, Ser. No. 802,873
Claims priority, application Germany, Mar. 5, 1968, P 16 52 788.1
Int. Cl. B23d *49/04*
U.S. Cl. 83—13 **14 Claims**



In a method and apparatus for measuring the tension of a saw blade positioned in the saw bow of a power hacksaw, particularly during operation of the hacksaw, the angle through which the front arm of the saw bow is bent by the blade tension, relative to the remainder of the bow, is measured and the measurement is transmitted to a control element for interrupting movement of the saw bow as soon as the blade tension either exceeds or drops below a normal operating tension. The measurement may be effected electrically by means of a strain bridge on the saw bow or mechanically by a bow-shaped feeler arm whose front end is rigidly secured to the front arm of the saw bow, with the remainder of the feeler arm being pivoted freely when the front arm of the saw bow is bent. The rear end of the feeler arm acts upon the control element.

3,570,339
YARN HANDLING METHOD AND APPARATUS

Henry A. Vandersip, Cranston, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed Feb. 6, 1969, Ser. No. 797,203
Int. Cl. B65h *29/24*
U.S. Cl. 83—24 **14 Claims**



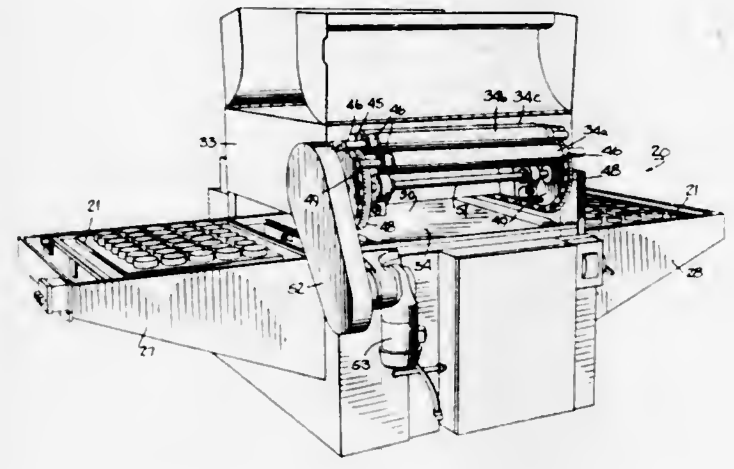
An improved aspirator-shear unit for rapidly moving strand of yarn in which an aspirator nozzle is arranged with its axis in closely proximate more or less parallel relation to the yarn path, a fixed shear blade is situated laterally between the nozzle opening and the yarn, and a movable snubnosed shear blade is projected from an inoperative position on the opposite side of the yarn path from the aspirator nozzle and fixed blade across the yarn path into shearing relating with said fixed blade and finally to a deflecting position with its leading edge generally aligned with the nozzle opening. Preferably the aspirator nozzle axis is inclined at a small angle with respect to the yarn path to reduce the clearance from the yarn path required to physically accommodate the nozzle.

ERRATUM

For Class 83—37 see:
Patent No. 3,570,363

3,570,340
ROLLER DIECUTTING MACHINE OR THE LIKE

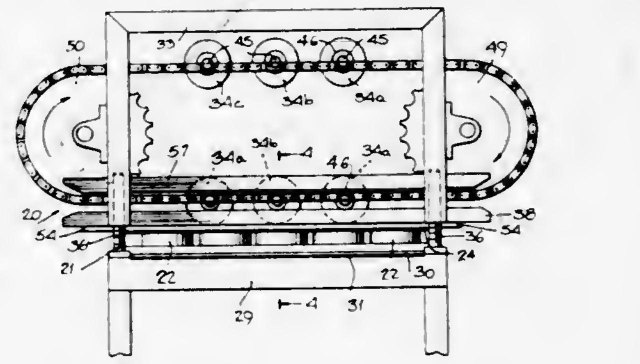
Howard A. Rohdin, Waquoit, Mass., assignor to Packaging Industries, Inc., Hyannis, Mass.
Filed Feb. 13, 1968, Ser. No. 705,112
Int. Cl. B26d *1/02;* **B26f** *1/00*
U.S. Cl. 83—55 **27 Claims**



A roller diecutting machine in which the passage of a plurality of rollers causes a workpiece and a die to be forced into a cutting engagement. In accordance with one of the improvements the rollers are guided by their supporting bearings in a manner which causes the path of travel of the surface of successive rollers to be closer to the workpiece and thereby incrementally increase the cutting force applied by the rollers to the workpiece. Thus the cutting force of successive rollers can be increased by changing the diameter of the bearings which position each roller with respect to the workpiece or by providing different paths of travel for guiding the bearings of each successive roller to be incrementally closer to the workpiece. Other improvements include the directing of the rollers by means of irregular cam surfaces to move in and out with respect to the workpiece as the rollers are advanced. A further improvement includes the use of a contoured or a formed die which is adapted to transmit incrementally increasing cutting forces to a workpiece.

3,570,341
ROLLER DIECUTTING MACHINE OR THE LIKE

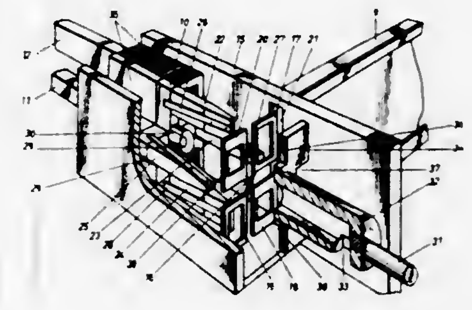
Joseph L. Abbott, Jr., Elnora, N.Y., assignor to Packaging Industries, Inc., Hyannis, Mass.
Filed Feb. 13, 1968, Ser. No. 705,207
Int. Cl. B26d *1/02*
U.S. Cl. 83—55 **27 Claims**



The disclosure relates to a roller diecutting machine in which rollers are used to force a workpiece against the dies. The machine includes a plurality of rollers which roll along a surface of a wear plate, and force the wear plate against the workpiece overlying the cutting edges of the dies. Each successive roller is adapted to have a greater degree of engagement with the wear plate during the movement of the roller across the wear plate. As a result, each roller applies an incrementally increasing cutting force to the workpiece.

3,570,342
APPARATUS FOR SEVERING SLIDE FRAMES OR SLIDE FRAME HALVES AND FOR THREADING THEM ON HANDLING AND CENTERING RODS

Peter Mundt, Wankweg 9, and Arnold Neuhold, Archstrasse 23, Garmisch-Partenkirchen, Germany
Filed Apr. 22, 1968, Ser. No. 723,069
Claims priority, application Germany, Apr. 27, 1967, G49946
Int. Cl. B26d *7/06*
U.S. Cl. 83—93 **6 Claims**



In an automatic operation, slide frames or slide frame halves discharged from an injection molding machine are severed and threaded on handling and centering rods, by which the frames or frame halves can be fed in an ordered arrangement to a welding or mounting machine. A receiving hopper is disposed under the point where the frames or frame halves are ejected from the injection molding machine. A guideway leads from the hopper to a severing device, which is disposed on a lower level and into which the handling and centering rods can be inserted.

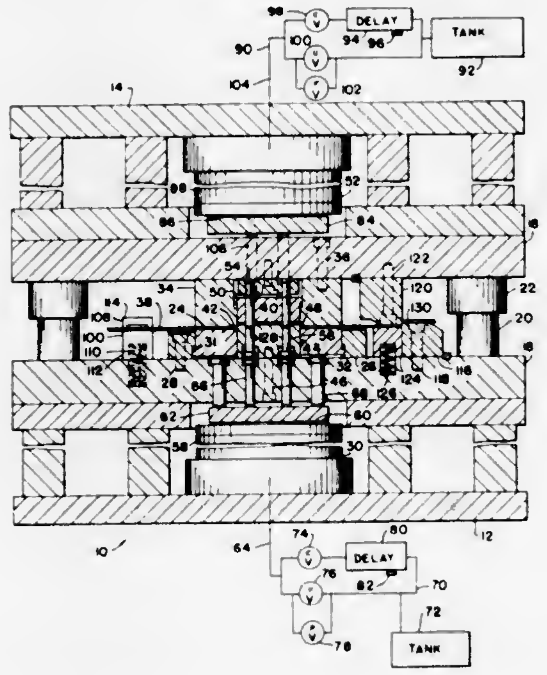
3,570,343
STRUCTURE FOR FINE BLANKING

Ervin E. Wolnosky, Troy, and Waldemar Holz, Redford Township, Wayne County, Mich., assignors to Di-Dro Systems Inc., Dearborn, Mich.

Filed Oct. 18, 1968, Ser. No. 768,698

Int. Cl. B26d *7/02, 7/06*

U.S. Cl. 83—124 **10 Claims**



The structure for fine blanking includes opposed die members one of which is supported by a hydraulic cushion, a die pad supported by a separate hydraulic cushion in an opening in the other die member and a blanking punch opposed to the die pad and having substantially the same dimension as the opening in the one die member positioned within the other die member. A gripping ring is provided on one of the die members at the periphery of a blank to be cut thereby. Piercing punches are provided extending through the die pad and operate in conjunction with piercing pads supported on the hydraulic cushion supporting the one die member. Separate hydraulic delay structure is provided in conjunction with both of the hydraulic cushions.

The fine-blanking method disclosed includes moving the die members toward each other to clamp a metal workpiece tightly about the periphery of a blank to be cut therefrom whereby the gripping ring forces the metal of the workpiece inwardly toward the periphery of the blank to be cut therefrom, cutting the blank between the blanking punch and other die member with substantially no clearance therebetween, and piercing the blank. The die members are then moved away from each other and the slugs pierced from the blank and the cut blanks are sequentially ejected from the upper die member and the blanking punch in accordance with selected separate delay times.

3,570,344
APPARATUS AND METHOD FOR TRIMMING BOOKS

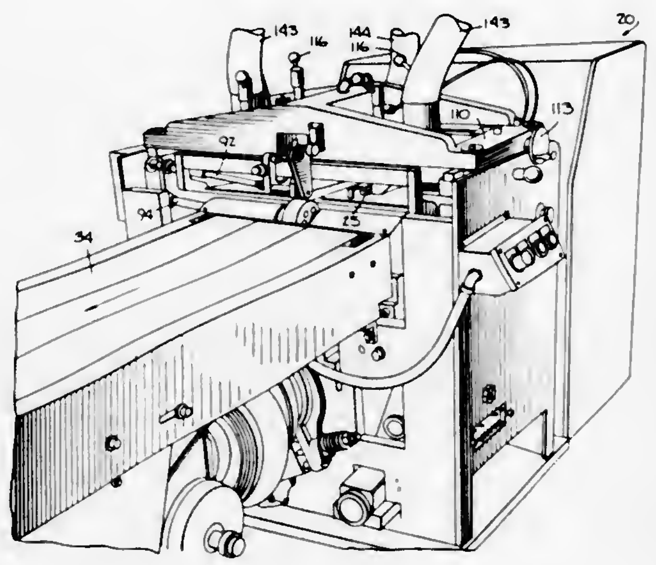
Robert A. Bryson, and Richard A. Lee, Easton, Pa., assignors to Harris-Intertype Corporation

Filed June 18, 1968, Ser. No. 737,971

Int. Cl. B65h *35/06*

U.S. Cl. 83—155 **21 Claims**

The disclosure relates to an apparatus and a method for trimming books or magazines by placing them on a movable support having a resilient supporting surface. The support with a book in place thereon is elevated adjacent a plurality of fixed trimming knives in order that the knives can trim the book as it is pressed against the knives. The support is then lowered and the trimmed book is removed. As a result the vertically reciprocating support and the fixed knives enable books to be trimmed at a single station within the apparatus.



3,570,345
PUNCHING DIE

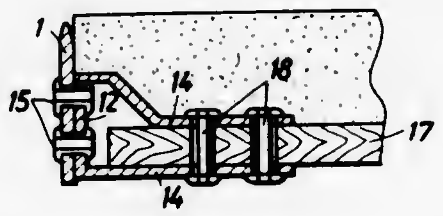
Ernst Spengler, Heusenstamm near Offenbach, Germany, assignor to Roeder & Spengler OHG, Bergen-Enkheim Hessen, Germany

Filed Jan. 30, 1969, Ser. No. 796,646

Claims priority, application Germany, Feb. 3, 1968, July 17, 1968, R36850; P 17 60 899.0

Int. Cl. B26d *7/06, 1/06*

U.S. Cl. 83—128 **19 Claims**



A punching die wherein a strip steel cutting knife having the desired endless or closed configuration of patterns to be cut or punched from sheet material, is attached to a plate which is surrounded by the knife as by a frame. In one embodiment a spacing is provided between the plate facing wall of the knife and the plate all around the plate. In another embodiment the plate facing wall of the knife is provided with a groove to receive the edge of the plate.

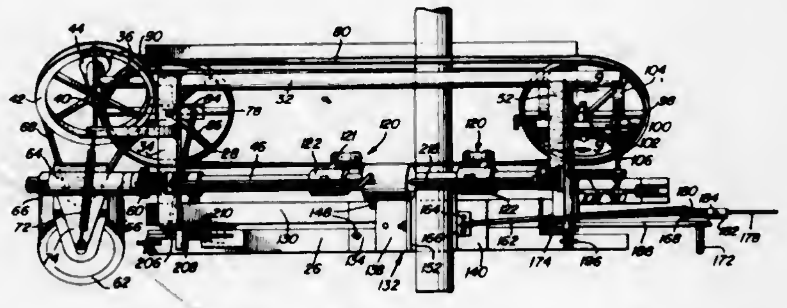
3,570,346
BAND SAW

Walter J. Koinzan, c/o Koinzan Seed & Flying Service Inc., Elgin, Nebr.

Filed Feb. 28, 1969, Ser. No. 803,329

Int. Cl. B26d *1/46*

U.S. Cl. 83—201.05 **18 Claims**



A metal cutting band saw including a vertically pivoting endless blade tensioned and guided for selective raising and lowering relative to a workpiece clamping vise. A single control lever is provided for effecting the vertical movement of the blade or saw band with the frame mounting the blade selectively closing and opening a drive motor switch. The workpiece clamping vise is adjustable so as to clamp workpieces of different sizes therein and, when adjusted, automatically opens and closes in response to a vertical movement of the frame mounted saw blade. The saw blade guides are adjustably mounted and include bearing means whereby a true vertical orientation of the blade and an elimination of any tendency for the blade to roll is achievable. Guide means is provided on the free end of the blade frame for ensuring a true vertical movement thereof and adjustments cooperate with the opposed blade mounting wheels for a proper alignment thereof.

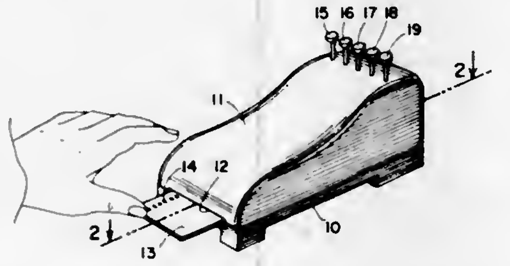
3,570,347
PORTABLE CARD PUNCHING DEVICE

Anton Josef Blaser, 1639 Posilipo Lane Montecito, Santa Barbara, Calif.

Filed Oct. 11, 1968, Ser. No. 766,911

Int. Cl. B26d *5/22*

U.S. Cl. 83—278 **7 Claims**



A portable card punching device for use by students in recording their answers to tests and in similar situations so that the resulting punched card can be processed by computers comprises a frame structure defining a card receiving channel. A plurality of pushrods are provided in a row running across and above the channel such that depression of any one rod will punch a hole in a card received in the channel in a certain position along a row of points on the card corresponding to the position of the pushrod. A mechanical indexing means is provided in the frame structure and interconnected with the pushrods such that upon depression of any one rod, the card will be moved forward an incremental distance in the channel and properly indexed to a next successive row so that only one punch will appear in any one row on the card. The entire device is mechanically operated requiring no electrical connections and is sufficiently portable as to be easily carried around by a person and used as desired.

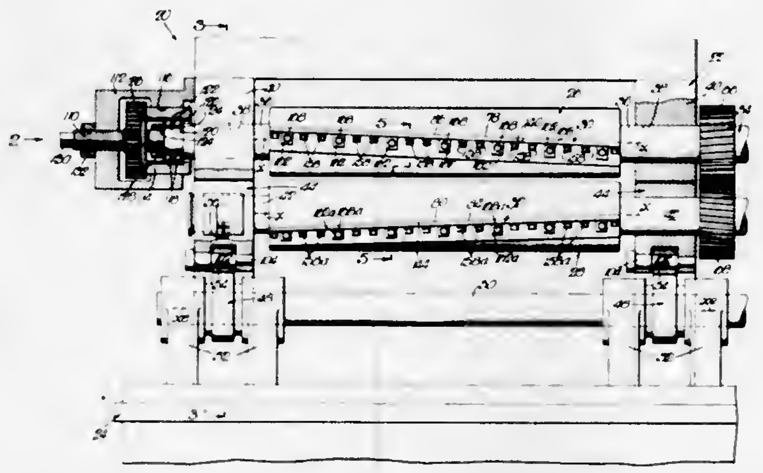
3,570,348
ROTARY SHEAR

Karl W. Hallden, Thomaston, Conn., assignor to The Hallden Machine Company, Thomaston, Conn.

Filed Nov. 25, 1968, Ser. No. 778,593

Int. Cl. B23d *25/12*

U.S. Cl. 83—342 **10 Claims**



For cutting coordination of shear blades which are nonadjustably locked directly to the companion shear drums of a rotary shear, the opposite end bearings of one of the shear drums are mounted in the shear frame for individual adjustability in two transverse directions one of which is to and from the axis of the other shear drum.

3,570,349
SAW FOR DIVIDING WORKPIECES

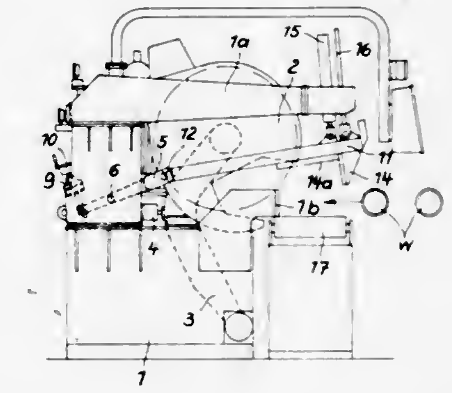
Otto Behrendt, Dusseldorf-Eller, and Helmut Robra, Mulheim(Ruhr), Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 21, 1969, Ser. No. 792,603

Claims priority, application Germany, Jan. 26, 1968, P 16 52 782.5

Int. Cl. B26d *7/02*

U.S. Cl. 83—380 **10 Claims**



A saw for dividing one or more workpieces lying side-by-side parallel to one another in a clamping device, in which the saw is moved while the clamping device is stationary, and the workpieces are clamped in the clamping device in a vertical direction between an upper jaw and a lower jaw, and at the same time are pressed in a horizontal direction against a stationary abutment arranged on the side of the clamping device remote from the saw, so that the clamping device is freely accessible from the other side and also transversely to the direction of motion of the saw. The saw, with respect to its speed of advance, is positively guided, and the upper jaw, for the clamping of the workpieces in a vertical direction, can swing about a pivot, and, for the pressing of the workpieces against the stationary abutment, is provided with a further abutment displaceable relatively to the stationary abutment, so that a so-called drawing of the saw into the material is prevented, and the upper jaw, upon coming into contact with the workpieces, is moved exactly perpendicularly to the bearing plane of the workpieces.

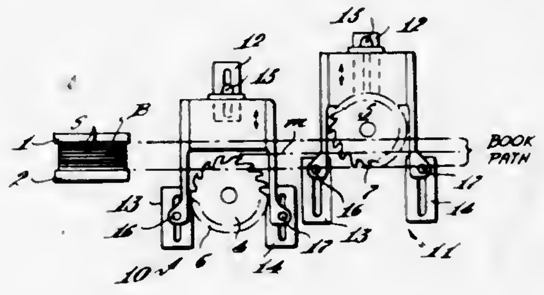
3,570,350
CUTTER FOR BOOK BINDING

Robert E. Fogg, Lynn, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass.

Filed Apr. 16, 1969, Ser. No. 816,487

Int. Cl. B26d *7/06*

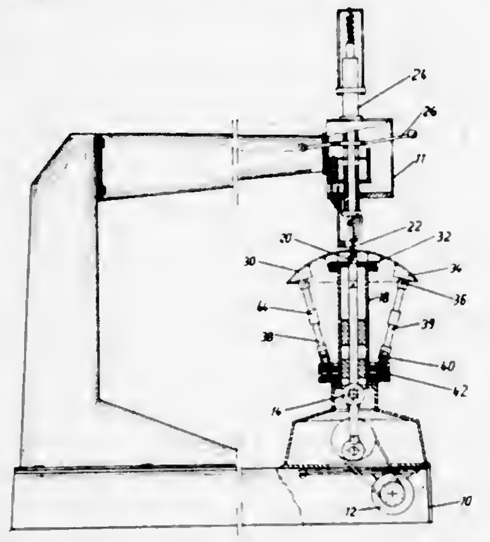
U.S. Cl. 83—404 **3 Claims**



In apparatus of the type in which collated book signatures are held by clamps for travel along a path, the signature folds are trimmed off by apparatus comprising a first rotary cutter on one side of the path disposed to cut laterally part way into the width of one side of the book backbone as it moves past the cutter, and a second rotary cutter on the opposite side of and farther along said path disposed to cut at least to the same width through the other remaining side of the backbone. The rotary cutters are coplanar and lie in a plane parallel to the path of travel. The first cut is substantially halfway through the book, during which cut the remaining uncut side of the book backbone acts as back up means for the first rotary cutter, thereby obviating the need for customary additional back up means. To lesser extent the first cut side of the backbone extending below the clamps acts as back up means for the second cutter.

3,570,351
SAW FOR MACHINING A WORKPIECE HAVING A CURVED SURFACE

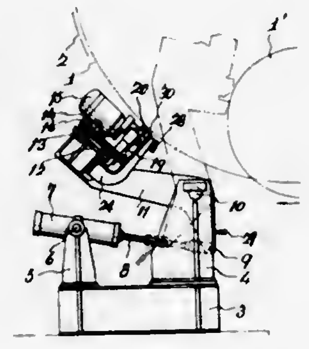
Ernst Maximilian Spengler, Bergen-Enkheim, Germany, assignor to Roeder & Spengler OHB, Bergen-Enkheim Hessen, Germany
Filed Nov. 18, 1968, Ser. No. 776,516
Claims priority, application Germany, Nov. 25, 1967, R-47 443;P16 28 904.6
Int. Cl. B26d *7/06*
U.S. Cl. 83—425 **4 Claims**



A saw with a curved workpiece support which is rotatably, and preferably also tiltably, attached to the saw whereby workpieces having a curved surface may be machined in such a manner that the saw blade extends perpendicularly relative to the curved surface of the workpiece at all times of the machining operation.

3,570,352
APPARATUS FOR AUTOMATICALLY CUTTING AND REMOVING COIL BAND

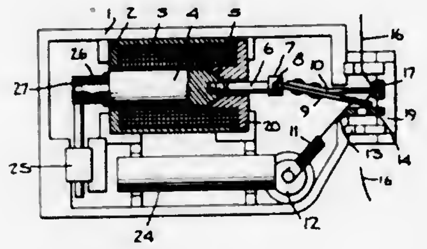
Shichiro Morita, Sasebo, Japan, assignor to Sasebo Heavy Industries Co., Ltd., Tokyo, Japan
Filed Oct. 23, 1968, Ser. No. 769,832
Claims priority, application Japan, Apr. 1, 1968, No 43-21034
Int. Cl. B23d *45/02*
U.S. Cl. 83—467 **3 Claims**



A saw cutter which cuts a coil band. The coil stops at a predetermined position. Here the coil is cut by a saw. The cut piece is placed on a belt and guided by a magnet. It travels along the belt to a pulley where it is bent into a circular shape. It is received by a receiving base operated by a cylinder and thereafter dropped for treatment.

3,570,353
ELECTROMAGNETIC CUTTING DEVICE WITH CHANGE-OVER SWITCH

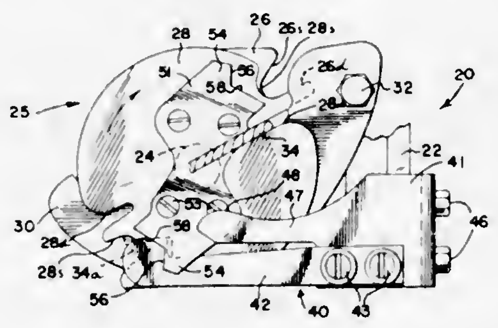
Kurt Hess, Canton, Luzern, Switzerland, assignor to Heberlein & Co. AG, Wattwil, Switzerland
Filed May 6, 1969, Ser. No. 822,249
Claims priority, application Switzerland, May 13, 1968, 7071/68
Int. Cl. B26d *1/09*
U.S. Cl. 83—576 **5 Claims**



Cutting device for thread, rope, wire and the like actuated electromagnetically with means for holding an end of the material to be cut during and after cutting, the cutting movement being automatically repeated if the material is not cut through completely on the previous movement.

3,570,354
GUIDED STATIONARY KNIFE FOR DOUBLE SHEAR KNIFE

Homer N. Grillot, Naperville, and Stuart D. Pool, Wheaton, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Nov. 22, 1968, Ser. No. 778,158
Int. Cl. B23d *31/00*
U.S. Cl. 83—592 **4 Claims**



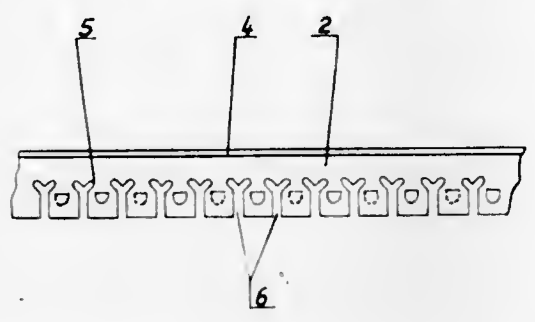
A twine cutting mechanism for balers comprising a cord holder, a rotating blade mounted on the cord holder, a guide axially spaced from the cord holder, and a stationary blade. The spacing between the guide and the rotating blade is such to receive the stationary blade as the cord holder is rotated from its home position to its holding position. The guide acting on the stationary blade maintains the cutting edges in alignment.

3,570,355
ROTATIONAL DIE STAMPING TOOL

Ernst Maximilian Spengler, Bergen-Enkheim, Germany, assignor to Roeder & Spengler OHB, Bergen-Enkheim Hessen, Germany
Filed May 23, 1968, Ser. No. 731,535
Claims priority, application Germany, May 24, 1967, P 16 11 635.1
Int. Cl. B26d *1/12*
U.S. Cl. 83—663 **5 Claims**

The present die stamping tool has a baseplate shaped to

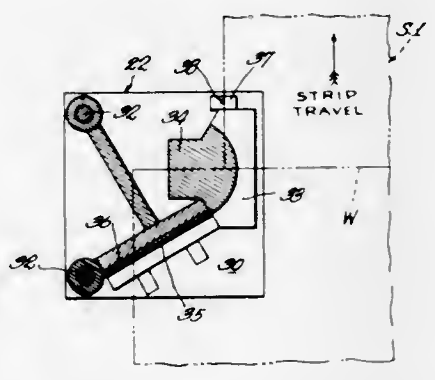
conform to the surface of a rotational body, such as a cylinder. Working blades are held in grooves or slots of the baseplate by means of serrated back edges which may be provided with gripping teeth. The rotational die stamping



tool is made by shaping or bending the baseplate, cutting said grooves or slots, serrating the back edges of said working blades and anchoring said serrated back edges in the grooves or slots.

3,570,356
STRIP NOTCHING APPARATUS

Arthur L. Williams, and Francis A. Bodenheim, Warren, Ohio, assignors to Wean Industries, Inc.
Filed Apr. 29, 1968, Ser. No. 724,904
Int. Cl. B26d *1/08*
U.S. Cl. 83—693 **1 Claim**

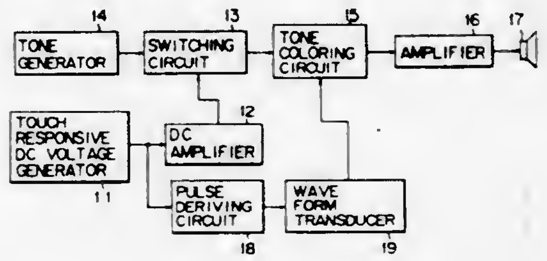


Apparatus for use in a processing line through which strip travels longitudinally, such apparatus functioning to join the trailing end of a first strip portion to the leading end of a second strip portion along a transverse line of juncture to form a continuous strip length. The apparatus includes a flashwelder for joining the first and second strip portions, a trimmer for removing the weld flash from opposite faces of the strip at the line of juncture, a notcher for removing weld flash at the line of juncture at opposite side edges of the strip and including means for removing the abrupt shoulder formed at the line of juncture at at least one side edge of the strip when a relatively narrow first strip portion is welded to a relatively wide second strip portion. The apparatus also includes punch means selectively operable with the notcher to pierce the strip adjacent the line of juncture to facilitate identification of the latter during subsequent processing of the strip. The apparatus further includes means for locating the notcher in predetermined operational relation with the side edge aforesaid of the first strip portion.

3,570,357
ELECTRONIC MUSICAL INSTRUMENT WITH A TOUCH REPONSIVE DC VOLTAGE GENERATOR

Takeshi Adachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki, Shizuoka-ken, Japan
Filed Feb. 5, 1970, Ser. No. 8,892
Claims priority, application Japan, Feb. 8, 1969, 44/9107
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.26 **5 Claims**

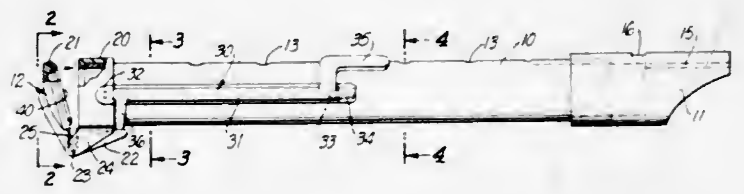
An electronic musical instrument capable of controlling a tone color of a musical tone at the time of rise of the tone as well as the intensity of the tone in proportion to a key-depressing force so as to produce, in particular, a musical sound simulating to that produced by a wind instrument, whereby the expressionability of music can be improved. The said electronic musical instrument comprising a touch responsive DC voltage generator circuit for deriving a DC output at a level in response to a key-depressing force, a tone generator for generating a tone, signal, means for switching said tone signal by the output signal derived from said DC voltage generator circuit, a tone-coloring circuit including a filter for giving a musical tone color to the tone signal from



said switching means, a pulse-deriving circuit for producing a pulse from the DC output of said DC voltage generator circuit at the time of rise of the DC output, the intensity of the pulse being proportional to the intensity of the DC output, and a wave from transducer for converting the pulse from the pulse-deriving circuit into a control signal having a predetermined rising and decaying wave form, said filter circuit having variable impedance means whose impedance is varied by and in response to the control signal from the wave form transducer and as a result the frequency characteristic of the filter circuit being carried in response to the control signal.

3,570,358
MUSICAL PIPE

John C. Guinness, Los Angeles, Calif., assignor to Midas Production, Inc., Los Angeles, Calif.
Filed Mar. 13, 1969, Ser. No. 807,036
Int. Cl. G10d *7/02, 9/00*
U.S. Cl. 84—380 **5 Claims**

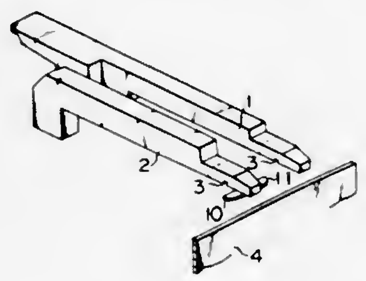


A wind instrument in the form of a musical pipe with means for closing and opening the end to permit operation throughout the full chromatic scale in both the upper and the lower octaves of its compass. A musical pipe with a substantially constant diameter bore and a manually operable end cap.

3,570,359
KEY MEMBER DEVICE

Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan
Filed Nov. 18, 1969, Ser. No. 877,661
Claims priority, application Japan, Nov. 20, 1968, 43 100741
Int. Cl. G10c *3/12*
U.S. Cl. 84—423 **5 Claims**

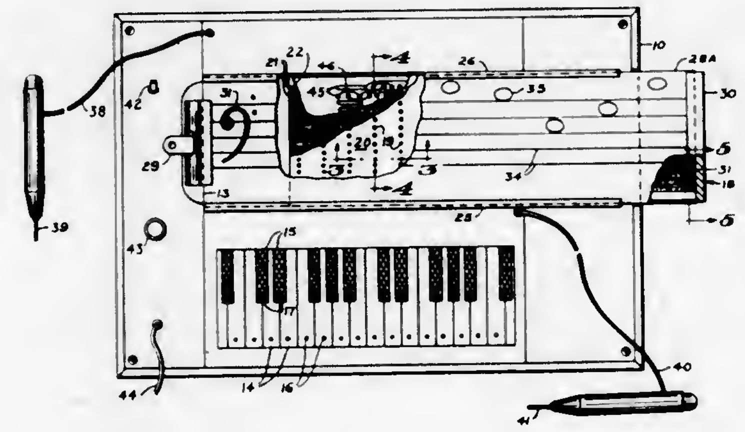
A key member device is provided with a plurality of white key members and black key members regularly arranged by a chromatic scale. Each of the black key members has protrusions sidewise extending therefrom in a manner to contact the upper or lower surface of the adjacent white key members near or at a position at which each of the key members is rotatably supported.



3,570,360

MUSIC TEACHING DEVICE

Harold J. Siegel, 415 Lowell Avenue, Newtonville, Mass.
Filed Apr. 21, 1969, Ser. No. 817,924
Int. Cl. G09b *15/02*
U.S. Cl. 84—477 **11 Claims**

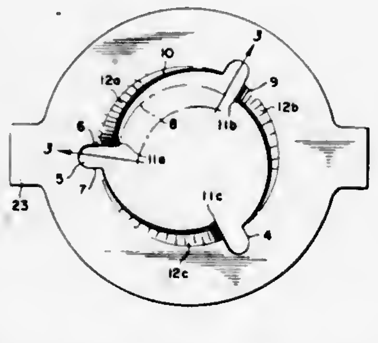


A music teaching device has a simulated keyboard, and a slide for supporting masks or cards printed with musical staffs and notations. The masks are of various lengths corresponding to different musical scales, and serve to position the slide to engage a set of selector contacts with any of various columns of note contacts. Each column is connected with appropriate ones of a set of contacts associated with the keyboard, to form a circuit operable by manual contactors only when the student properly matches a musical notation with the key corresponding to it in the selected scale.

3,570,361

GROOVE CUTTING FASTENER

George A. Tinnerman, 17864 Beach Road, Lakewood, Ohio
Original application Aug. 1, 1966, Ser. No. 569,478, now Patent No. 3,456,705, dated July 22, 1969. Divided and this application Apr. 17, 1969, Ser. No. 816,956
Int. Cl. F16b *37/02*
U.S. Cl. 85—32 **2 Claims**

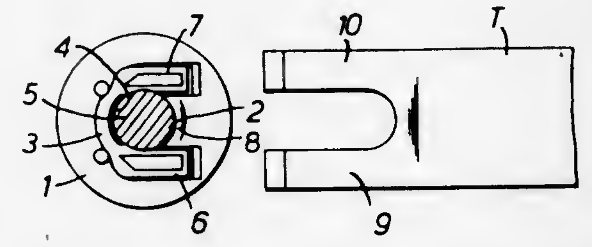


A sheet metal nut element for cutting a groove or thread channel on a smooth shank is formed with a plurality of teeth on the peripheral edge of an aperture which receives a shank. The periphery of the aperture is interrupted by breaks or discontinuities and each tooth is formed by an angle at the intersection of the peripheral edge and the edge of a discontinuity. The edge between the discontinuities is deflected axially to lie in a spiral curve and extend radially inwardly of the spiral curve and form teeth that cut a groove in the shank.

3,570,362

RATCHET PLATE

Leslie Parkin, Bobbers Mill, and Sydney Alan Andrews, Stapleford, England, assignors to United-Carr Incorporated, Boston, Mass.
Filed Apr. 29, 1969, Ser. No. 820,093
Claims priority, application Great Britain, May 7, 1968, 21546/68
Int. Cl. F16b *21/20*
U.S. Cl. 85—36 **3 Claims**

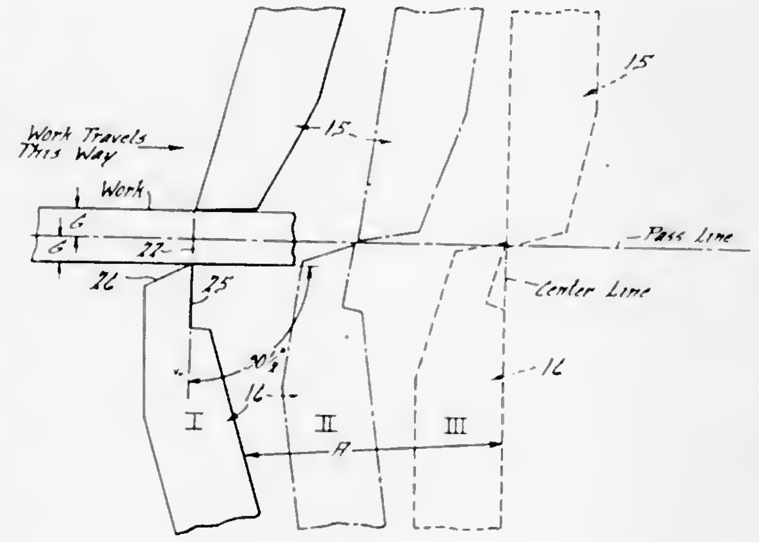


A ratchet plate having a resilient tongue for gripping a rod inserted through an aperture in the plate, the tongue having at least one integral arm extending over the base so as to be engageable by a tool to flex the tongue out of gripping engagement with the rod when the ratchet plate is to be removed.

3,570,363

CROP SHEAR KNIFE AND METHOD OF OPERATING SAME

Wilbur C. Thomas, 8 Clinton Lane, Dearborn, Mich.
Continuation of application Ser. No. 681,850, Nov. 9, 1967, now abandoned. This application Dec. 17, 1969, Ser. No. 882,761
Int. Cl. B23d *25/12*
U.S. Cl. 83—37 **8 Claims**

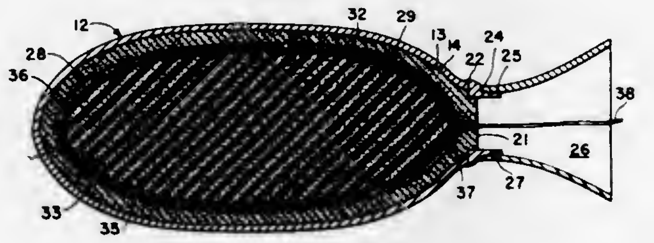


The forward-facing shearing knife of a pair of crop shear knives mounted on adjacent rotatable heads has its shearing face so inclined that when reaching the initial position at which penetration of the work commences, it is approximately perpendicular to the plane of the work, and during the shearing operation it extends angularly away from and rearwardly at an increasing angle with respect to the plane and direction of movement of the stock. The work-engaging end surface of the knife is inclined inwardly and rearwardly with respect to a plane tangent to the shearing edge. The inclination of these two surfaces is such that during engagement with the work the nonradial force vectors on the knife and drum are substantially eliminated, thereby eliminating damaging stresses and improving the shearing of heavy stock such as hot rolled steel plate.

3,570,364

METHOD OF MAKING A SOLID PROPELLANT ROCKET MOTOR

Joseph G. Thibodaux, Jr., 1406 Antigua, Houston, Tex.
Original application Nov. 8, 1961, Ser. No. 151,110, now Patent No. 3,421,325, dated Jan. 14, 1969, which is a continuation-in-part of application Ser. No. 8,200, Feb. 11, 1960, now abandoned. Divided and this application June 22, 1965, Ser. No. 467,820
Int. Cl. F42b *17/00, 9/14;* **C06b** *21/02*
U.S. Cl. 86—1 **5 Claims**



1. A method of making a solid propellant rocket motor having reliable high-altitude capabilities, long shelf life and capable of being fired without the use of a nozzle closure comprising the steps of:

providing a hollow, substantially cylindrical rocket motor casing center section;

positioning and securing a first hemispheroidal casing section along abutting edges of said center section at one end thereof;

positioning this partially assembled motor casing with its longitudinal axis vertically disposed with said hemispheroidal section in a lowermost position;

inserting a combustible mandrel having electroresponsive igniter means thereon in electrical contact with elongated lead wires extending therefrom within the partially assembled casing;

positioning and securing a second hemispheroidal casing along abutting edges of said center section about said mandrel, said second hemispheroidal casing being provided with a central aperture therein and having an annular overlying plate secured about the aperture, said annular plate including an integral rearwardly directed externally threaded annular projection;

suspending said mandrel by said lead wires to space said mandrel from the interior casing wall and provide a propellant receiving cavity therein;

pouring a liquefied curable propellant through said annular projection to completely fill said cavity about said mandrel;

maintaining the propellant filled casing at a predetermined temperature for a predetermined length of time to cure said propellant to thereby seal said mandrel therein and to seal said central aperture;

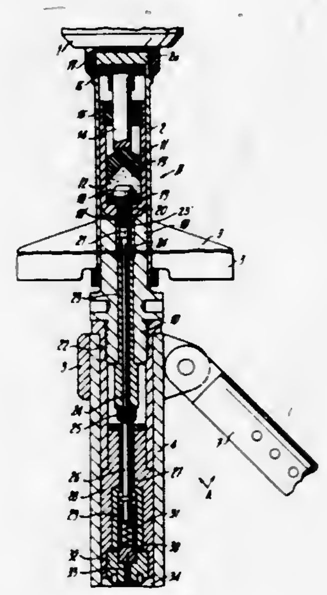
trimming away any excess propellant extending beyond said annular projection after curing;

and threadingly securing an internally threaded nozzle to said externally threaded projection with said elongated lead wires extending therethrough.

3,570,365

BALLISTIC DEVICE COMPRISING A PROJECTILE AND ITS LAUNCHER

Robert Bornand, Meyrin, Switzerland, assignor to Transurvey Holding Company Inc., Societad Anonima, Panama
Filed Apr. 11, 1969, Ser. No. 815,340
Claims priority, application Switzerland, Apr. 11, 1968, 5704/68
Int. Cl. F41f *1/06*
U.S. Cl. 89—1 **9 Claims**

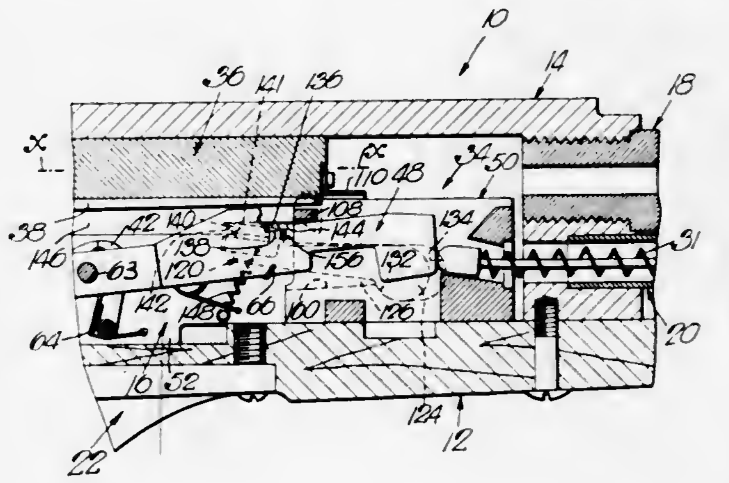


A ballistic device comprises a projectile and a launcher therefor, the projectile having a tube at its rear end in which is disposed a combustion chamber containing a propulsive charge. The charge is compressed on its forward side by a piston that bears against a forwardly extending rod which at its forward end transmits the propulsive force to the projectile. The charge is electrically fired, and the electrical connections are housed in part in the combustion chamber.

3,570,366

DEVICE FOR DISABLING FIREARM ACTION ON CARTRIDGE FEED INTERRUPTION THERETO

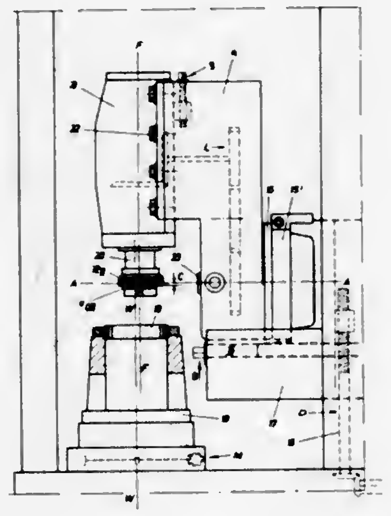
Ewald F. Nickel, New Haven, Conn., assignor to The Marlin Firearms Company, New Haven, Conn.
Filed July 1, 1969, Ser. No. 838,289
Int. Cl. F41d *9/00;* **F41c** *13/00*
U.S. Cl. 89—138 **16 Claims**



The disclosure deals with an action disabling device in a firearm having among its conventional components a spring-closed breech bolt, a tube-type magazine, and a pivoted cartridge lifter. The disabling device is in the form of a spring-loaded latch part having with a fixed member of the action a floating pivot connection over a limited range, with the latch part being in its normal position at one end of its floating range in follower relation with the cartridge lifter such that on overtravel of the latter in lift direction for lack of a cartridge thereon, the part is turned into the closing path of the breech bolt and is on partial closure of the latter shifted by the same to the other end of its floating range at which it not only locks the breech bolt against complete closure but is itself also out of follower relation with the lifter and, hence, free for subsequent spring-retraction from locking relation with the breech bolt on mere manual backup of the latter from its partial closure.

3,570,367
GEAR-HOBBING MACHINE

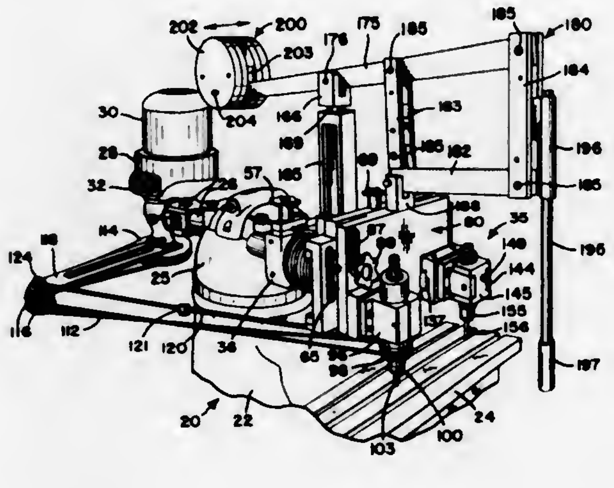
Johannes Looman, and Friedrich Striepe, Friedrichshafen, Germany, assignors to Zahnradfabrik Friedrichshafen, Aktiengesellschaft
Filed Apr. 8, 1968, Ser. No. 719,394
Claims priority, application Germany, Apr. 8, 1967, Z12788
Int. Cl. B23f *5/20, 9/04*
U.S. Cl. 90—4 4 Claims



A gear-hobbing machine having a gear cutter supported for adjustments along its own axis, about an axis perpendicular to its own axis and along the second mentioned axis to obtain a desired cutting clearance angle between the gear cutter and a gear blank.

3,570,368
DUPLICATING APPARATUS

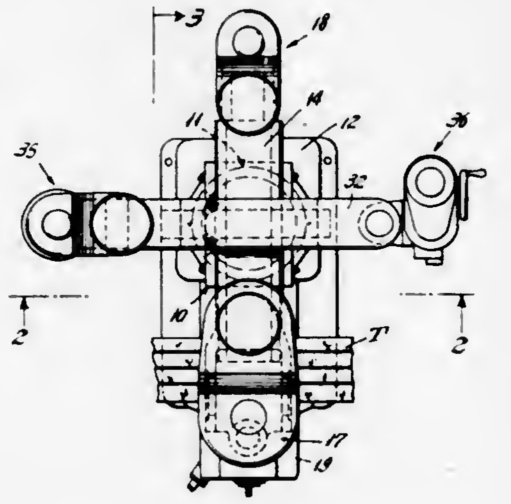
Edward C. Clark, 1015 Springfield St., Dayton, Ohio
Filed Aug. 29, 1969, Ser. No. 854,059
Int. Cl. B23c *1/16*
U.S. Cl. 90—13.1 19 Claims



A vertical turret milling machine having a horizontal support arbor is provided with a three dimensional duplicating device including a bracket which mounts on one end of the arbor and supports antifriction cylindrical bearings on opposite sides of the arbor for receiving parallel spaced cylindrical guide rods. A first vertical plate member rigidly connects the forward ends of the guide rods and supports an adjacent second vertical plate member for lateral movement. A third vertical platelike head member is supported by the adjacent second plate member for vertical movement and carries a rotatable spindle and a stylus positioned in horizontally spaced relation above the table of the machine. An overhead beam is pivotally supported by the mounting bracket and is connected to the head member by a linkage system positioned in a vertical plane and provided with a handle for controlling the lateral, to-and-fro and vertical movements of the head member. A weight is adjustably mounted on the beam to counterbalance the head member, and the spindle is driven by a belt connected to the milling machine motor mounted on the opposite end of the arbor.

3,570,369
TOOL-CARRYING TURRET

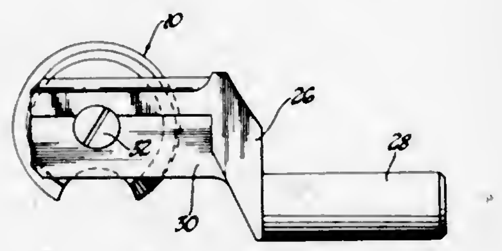
William M Hoddinott, Milford, and Leonard Nelson, Trumbull, Conn., assignors to said Hoddinott assor to Textron Inc., Providence, R.I.
Filed June 6, 1969, Ser. No. 831,099
Int. Cl. B23c *1/12*
U.S. Cl. 90—16 7 Claims



A simple, rugged turret for milling machines embodying slidable cross arms or rams carrying four different tools, preferably power-operated tools which can, by adjusting the position of the cross arms, be selectively employed on a workpiece carried by a worktable of the milling machine, all without altering the setup of the workpiece.

3,570,370
LATHE TRACER STYLUS

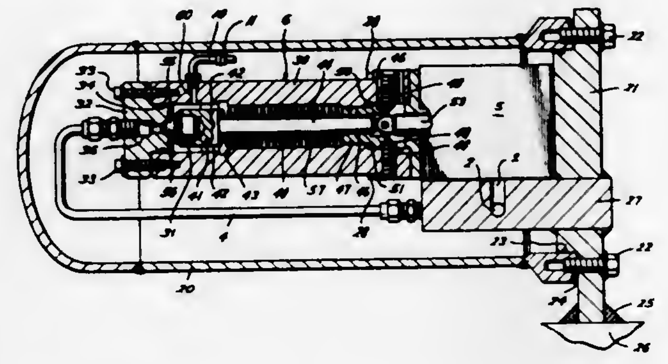
William Ristau, Detroit, Mich., assignor to Speedring Corporation, Warren, Mich.
Filed May 19, 1969, Ser. No. 825,798
Int. Cl. B23q *35/26*
U.S. Cl. 90—62 2 Claims



A stylus for a lathe tracer having a relatively flat body member with a template-engaging edge portion of varying contour so that the relationship between a lathe-cutting bit controlled by the stylus and a workpiece can be changed by engaging the template with a different point on the edge portion.

3,570,371
HYDRAULIC ACTUATOR

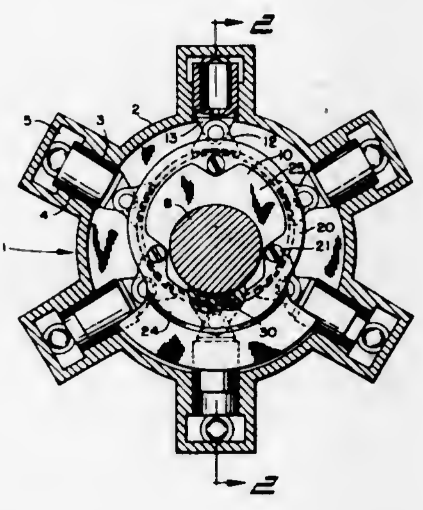
David P. Herd, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.
Filed Nov. 7, 1968, Ser. No. 774,038
Int. Cl. F15b *11/16*
U.S. Cl. 91—412 18 Claims



A hydraulic actuator and related system for activating a control device or the like. The actuator comprises a case with a chamber therein and a shaft longitudinally disposed in the chamber for limited longitudinal movement. An inlet port provides communication between the chamber and a pressure source. A valve seat is provided around the port and a valve member attached to one end of the shaft is biased toward seating contact with the seat. The opposite end of the shaft projects outwardly of the chamber through annular sealing means to contact a control device for activation thereof. The cross-sectional area of the shaft at the annular sealing means is greater than the pressure area of the valve member subjected to the pressure in the port when the valve member is seated. A relief port through the case and conduit means are provided to connect the chamber to a low-pressure atmosphere when the valve member is seated and to a higher pressure atmosphere when the valve member is unseated to substantially prevent fluid pressure loss from the chamber. A restrictive orifice is provided in the conduit to substantially reduce pressure loss from the chamber on initial unseating of the valve member.

3,570,372
RADIAL PUMP WITH HYDROSTATIC LOAD BALANCE

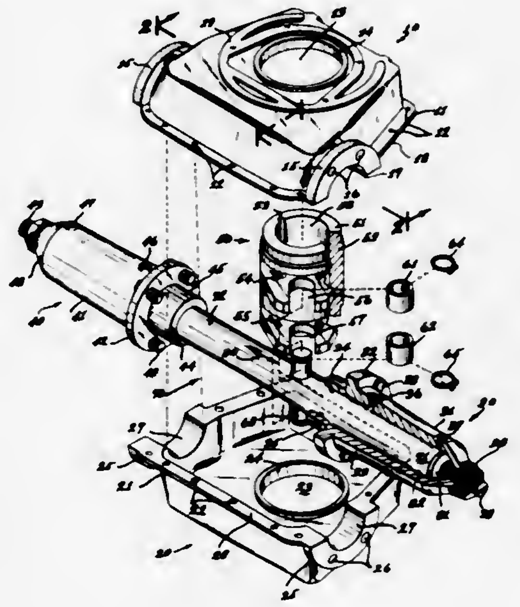
John F. Campbell, Beech Knoll, Timberidge Trail, Gates Mills, Ohio
Filed Nov. 29, 1968, Ser. No. 779,851
Int. Cl. F04b *27/08;* **F01b** *31/10*
U.S. Cl. 91—496 9 Claims



A radial pump having radial plungers which are reciprocated radially inwardly and outwardly by an eccentric on the input or drive shaft. Fluid pressure from the pumping chambers is fed to associated recesses at the face of the eccentric in radial alignment with each plunger to provide a hydrostatic load balance on each plunger at the eccentric face, whereby transfer of force from the eccentric to the plungers occurs primarily through the static fluid within the recesses. Fluid pressure is also fed from the pumping chambers to additional recesses in the journal bearings for the input shaft radially opposite the plungers to provide a hydrostatic load balance on the input shaft.

3,570,373
VALVE OPERATOR AND METHOD OF MAKING THE SAME

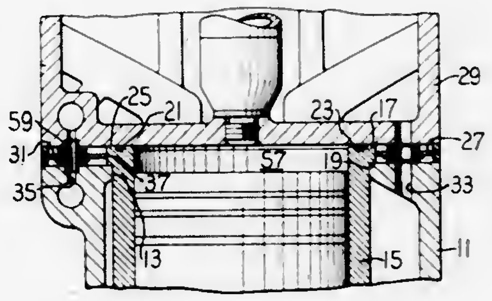
Willem E. Tupker, Sepulveda, Calif., assignor to Bell Aerospace Corporation
Filed Apr. 25, 1969, Ser. No. 819,231
Int. Cl. F01b *9/00*
U.S. Cl. 92—138 8 Claims



The valve operator disclosed includes a housing constructed of substantially identical housing halves joined together at mating surfaces. Cylinder means is secured to the housing and bridges the housing halves.

3,570,374
CYLINDER HEAD GASKET

Michael K. Stratton, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 19, 1969, Ser. No. 808,474
Int. Cl. F16j *11/04*
U.S. Cl. 92—171 6 Claims



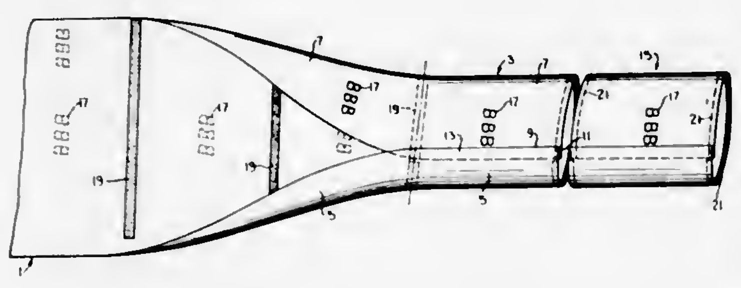
A gasket construction comprising a carrier having a sponge rubber member about the periphery thereof and steel ferrules and rubber grommets situated at various positions in the carrier so as to connect oil and water passages from the cylinder head to the block.

3,570,375
METHODS OF MANUFACTURING PLASTIC BAGS

Russell J. Williams, Sun City, Ariz., and Milton J. Heimos, Affton, Mo., assignors to Bemis Company, Inc., Minneapolis, Minn.

Original application Nov. 25, 1966, Ser. No. 597,169, now Patent No. 3,394,871, dated July 30, 1968, which is a continuation of application Ser. No. 340,995, Jan. 29, 1964, now abandoned. Divided and this application May 14, 1968, Ser. No. 729,122
Int. Cl. B31b *49/04*

U.S. Cl. 93—35 **12 Claims**



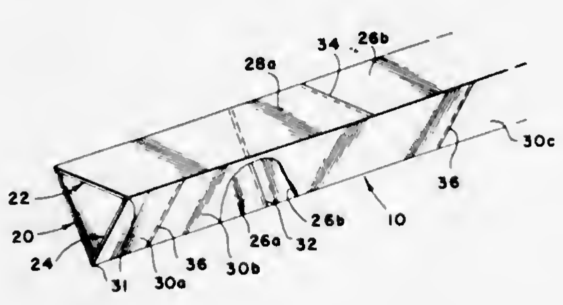
A method of manufacturing plastic bags with a plastic tape folded around one end of the bag and heat-sealed to the bag walls with heat-seal-inhibiting material precluding sealing together of the walls where the tape is sealed to the walls. A method of manufacturing plastic bags with a heat-sealed pinch-type closure with heat-seal-inhibiting material precluding sealing together of the walls where the closure is sealed. A method of manufacturing plastic bags with an interrupted or vented heat-sealed longitudinal seam with heat-seal-inhibiting material in a pattern for forming the interrupted or vented longitudinal seam. A method of manufacturing plastic bags with a valve sleeve sealed in a heat-sealed longitudinal seam with heat-seal-inhibiting material on the inside of the sleeve to preclude sealing together of the walls of the sleeve.

3,570,376
BREAKAWAY POST

Dolphin D. Overton, III; Rudloph B. Rustin, Jr., Mullins, and William E. Hughes, Marion, S.C., assignors to Overton Container Corporation, Mullins, S.C.

Filed Jan. 16, 1968, Ser. No. 698,164
Int. Cl. E04h *12/04*

U.S. Cl. 94—1.5 **12 Claims**



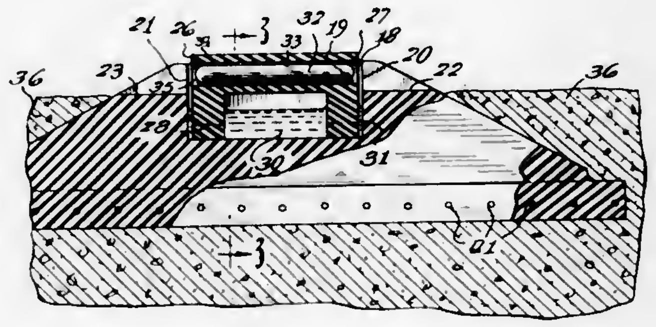
A breakaway post is provided for supporting highway signs or the like. The post is made from independent flat rectangular segments arranged end to end to form three panels, with the segments secured together along their side edges to form a hollow post having a triangular cross section. A plurality of breakaway lines to start the breakup of the post upon impact by an automobile or the like are provided by the ends of the segments. The ends of the segments of any one panel are staggered longitudinally with respect to the ends of the segments of the other panels except at the top and bottom of the post. Staggering of the ends of the segments results in a post having sufficient strength to withstand wind loading even when signs are attached to the post.

3,570,377
EMBEDDED HIGHWAY REFLECTOR MARKER

Boris Gerber, 3807 W. Keeney, Skokie, Ill.

Filed June 11, 1969, Ser. No. 832,361
Int. Cl. E01c *23/16*

U.S. Cl. 94 – 1.5 **4 Claims**



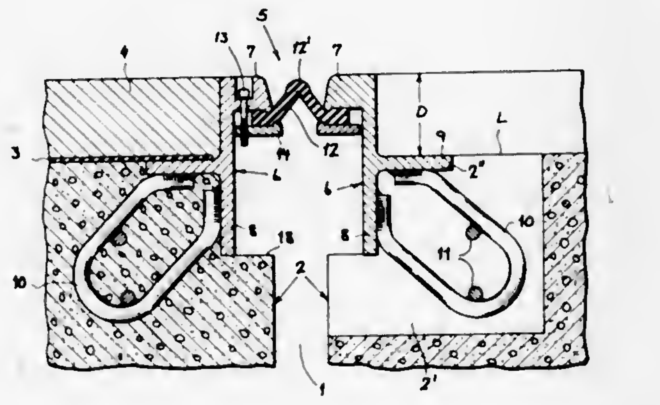
A highway reflector-type marker comprising a base having an upstanding holder formation or box having an upwardly opening cavity, said base and box being of unitary construction and preferably of molded rubber. A resilient pad carrying light reflecting members or lens exposed at opposite ends of the pad is removably installed in the cavity with the lens exposed to reflect light from the headlamps of an oncoming vehicle impinging thereon. The pad and box cooperate to provide a reservoir for fluid such as rain water, and the pad is arranged to protrude above the upper end of the box and be compressed when it is run over by a vehicle to squirt a charge of fluid across the faces of lens for cleaning same.

3,570,378
EXPANSION JOINT FOR CONCRETE SLABS

Heinrich Honegger, Wendelbuck 323, 8196 Wil Zurich, Switzerland

Filed July 16, 1968, Ser. No. 745,147
Claims priority, application Switzerland, July 18, 1967, 10243/67
Int. Cl. E01c *11/10*

U.S. Cl. 94—18 **8 Claims**



Two concrete slabs separated by a gap are interconnected by an expansion joint formed by a pair of metal profiles which have horizontal flanges flush with the upper slab surfaces and vertical webs projecting upwardly therefrom to the top of a traction layer supported by the slabs; the profiles have confronting projections extending into the gap and supporting a gable-shaped sealing strip of elastomeric material clamped onto these projections.

3,570,379
SEALANT STRIP INSTALLING MACHINE

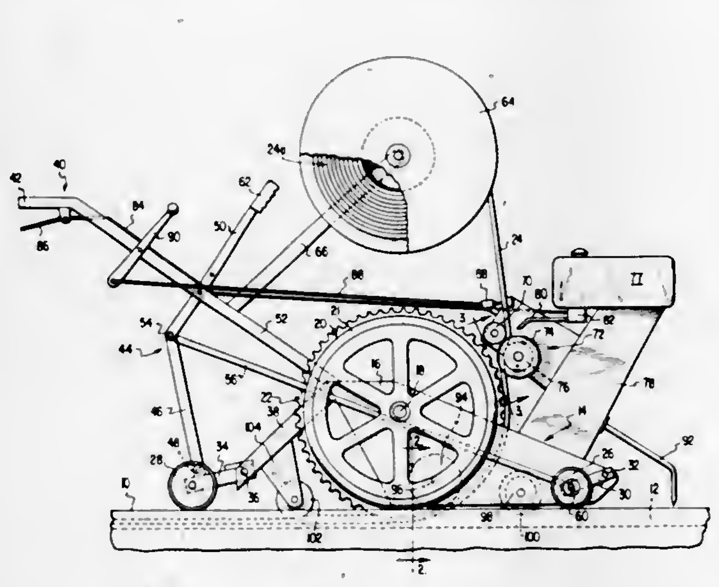
Robert J. Johnson, Timonium, Md. (6720 Whitestone Road, Baltimore, Md. 21207)

Filed June 26, 1969, Ser. No. 836,844
Int. Cl. E01c *23/02*

U.S. Cl. 94—39 **4 Claims**

A sealant strip installing machine including a strip-installing disc keyed to a common axle and a pair of smaller

diameter machine support and disc-driving wheels similarly keyed to the common axle to cause linear compression or "-stuffing back" of resilient strip material contactable with the installing disc and a pair of discs, one on each side of the installing disc, to prevent the strip material from twisting as it is forced into slots in a concrete roadway. The machine may also include means for lowering and raising the machine to operable and inoperable positions relative to a joint to be sealed.

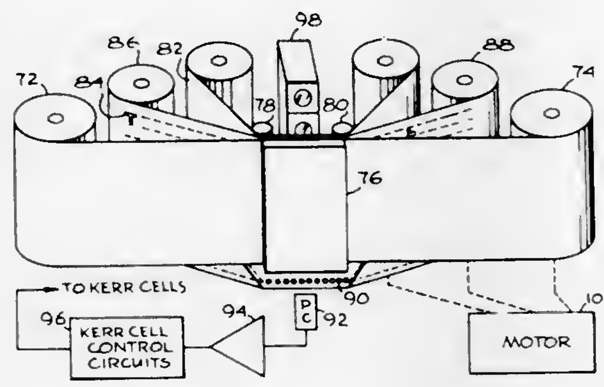


3,570,380
IMPACTLESS TYPEWRITER

Bernard Kamenstein, Paramus, N.J., assignor to Ing. C. Olivetti & C.,S.p.A., Ivrea, Italy

Filed June 7, 1968, Ser. No. 735,407
Int. Cl. B41b *13/00*

U.S. Cl. 95—4.5 **5 Claims**



An impactless printing system is provided wherein a light source is used to illuminate a thermographic material through a character-shaped aperture in a mask. The light source generates enough heat in the thermographic material to cause it to be transferred, in the character shape to a receiving substrate.

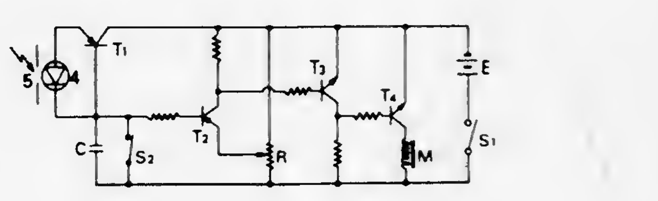
3,570,381
PROGRAMMED ELECTRONIC SHUTTER

Arata Satoo, and Yasuo Uchida, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

Filed June 25, 1968, Ser. No. 739,739
Claims priority, application Japan, July 3, 1967, July 4, 1967, May 30, 1968, 42/57372;42/57685;43/36356
Int. Cl. G03b *7/08, 9/08*

U.S. Cl. 95—10 **3 Claims**

A control circuit and apparatus for automatically controlling the exposure time and aperture opening of a camera is provided in which a photovoltaic cell is mounted on a camera and connected to a transistor controlled triggering circuit for effecting shutter closure automatically in response to a predetermined amount of light incident on the photovoltaic cell. To automatically control the aperture opening a diaphragm is provided in front of the photovoltaic cell and is linked to the lens diaphragm. Both diaphragms are opened at a predetermined rate upon actuation of the shutter release to provide a continuously varying lens opening, the proper aperture opening being automatically determined by the automatic closure of the shutter by the triggering circuit.

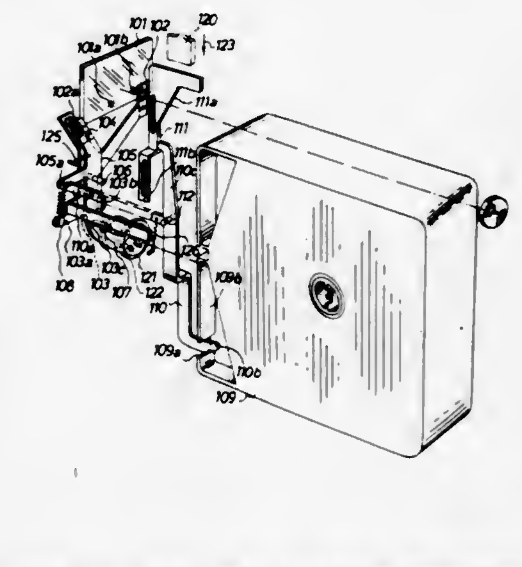


3,570,382
PHOTOGRAPHIC CAMERA WITH FILM TYPE – INDICATING MEANS

Karl Neudecker, Munich; Johann Zanner, Unterhaching, and Anton Theer, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 5, 1968, Ser. No. 757,674
Claims priority, application Germany, Sept. 9, 1967, A28356
Int. Cl. G03b *17/20*

U.S. Cl. 95—11 **22 Claims**



A photographic camera which utilizes magazines provided with coding marks indicating the film type therein has a movable detector which can be engaged by the coding mark of that magazine which is inserted into the camera to thereby move one of several light-transmitting flags into the view finder window. The color and/or other characteristics of each flag are representative of a particular film type. The detector is further movable by a pusher which is caused to change its position in response to attachment of an illuminating arrangement.

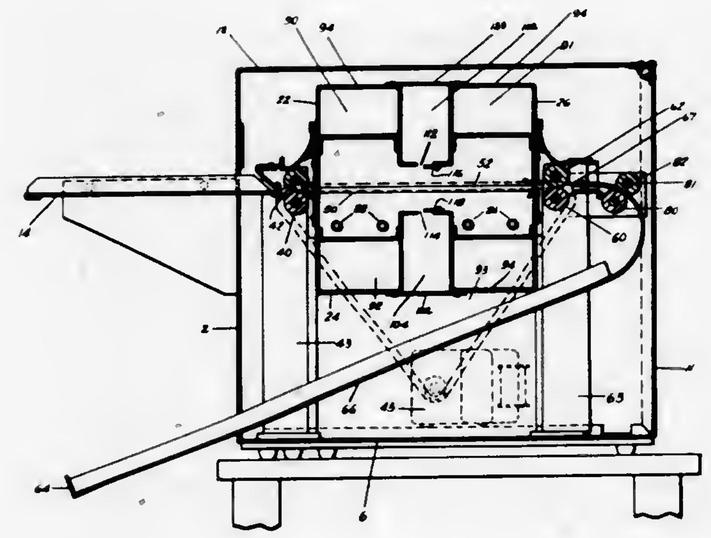
3,570,383
APPARATUS FOR DEVELOPING AND FIXING A THERMODEVELOPABLE PHOTOGRAPHIC MEDIUM

Eugene Berg, Westbrook, Maine, assignor to Scott Paper Co., Delaware County, Pa.

Filed Nov. 6, 1967, Ser. No. 680,873
Int. Cl. G03d *7/00*

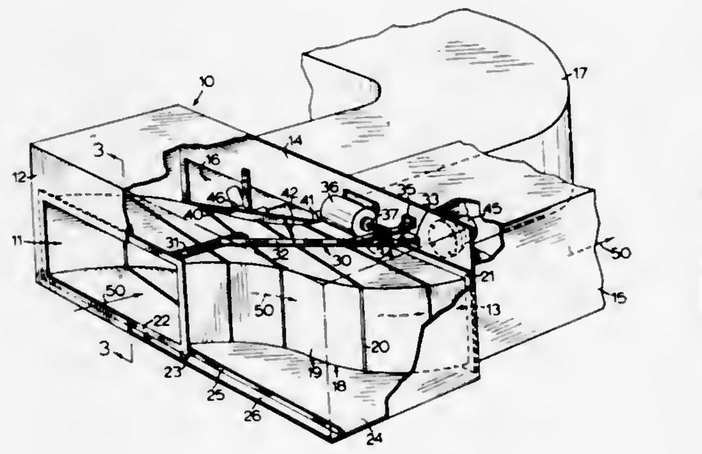
U.S. Cl. 95—89 **4 Claims**

An apparatus for developing a photographic medium by heating the medium to volatilize the chemical components on the surface of the medium and remove the volatilized components from the surface. The developing apparatus comprises a developing chamber, including appropriate heating elements, a gas-dispersing system to supply entraining gases to the surface of the photographic medium and an exhaust system to remove the volatilized components and transporting means for conveying the photographic medium through and out of the developing chamber.



3,570,384
SMOKE AND FIRE ISOLATION DEVICE

Wallace C. McLeod, 19 Mountsfield Drive, London, Ontario, Canada
Filed July 9, 1969, Ser. No. 840,326
Int. Cl. E05f *15/20;* **F24f** *11/02*
U.S. Cl. 98—1 **8 Claims**

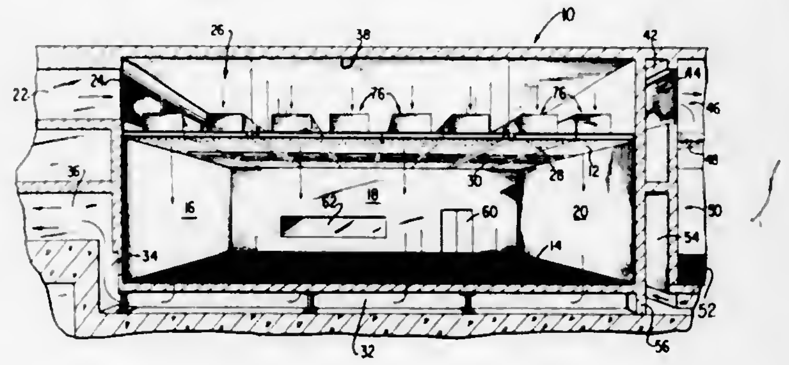


A device for the isolation of smoke and fire in a ventilation system, in which an impervious box is interposed in the ventilation duct. The box has a pair of laterally offset openings in opposite walls of the box with a laterally flexible and a longitudinally compressible smoke impervious and fire retardant duct within the box connecting the two openings. The flexible duct is movable laterally out of registration with one of the openings to bear against the adjacent wall or equivalent plate means, with the consequent compression of the flexible duct providing a positive seal for the duct.

3,570,385
MODULAR PANEL SYSTEM FOR CLEAN ROOM

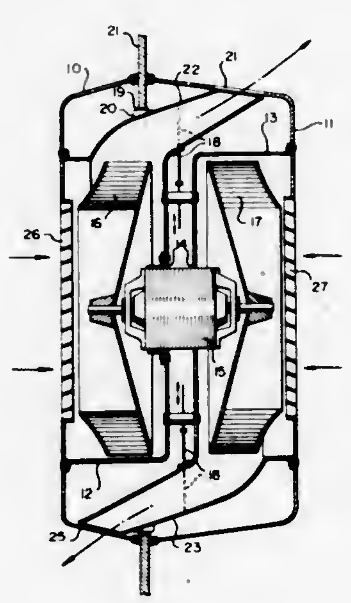
Charles A. Heisterkamp, Westtown, and William K. Walker, Penllyn, Pa., assignors to American Home Products Corporation, New York, N.Y.
Filed Dec. 24, 1968, Ser. No. 786,564
Int. Cl. F24f *3/16*
U.S. Cl. 98—32 **1 Claim**

The disclosure is directed to a clean room design which has a uniform vertical laminar air flow pattern and which will provide a Federal Standard No. 209A, Class 100, environment in sterile gourning areas, around high-speed parenteral drug-filling apparatus, and in like environments. The disclosure is also directed to modular lighting panel designs for use in such a room. A basic modular panel is made up of a frame supporting a perforated panel on the outlet side and an absolute filter on the inlet side. A transition piece connects the filter to the frame, the perforated panel having a substantially larger area than the filter. The modular lighting panels utilize foraminous lenses so selected and located with relation to each lighting unit as to pass substantially the same volume of air per unit time as other modular panels used in the room.



3,570,386
VENTILATING FAN UNIT

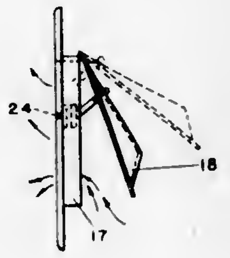
Ludwig Baumann, St. Gallen, Switzerland, and Benno Schutze, Frankfurt am. Main, Germany
Filed Jan. 28, 1969, Ser. No. 794,569
Claims priority, application Switzerland, Jan. 29, 1968, 1359/68
Int. Cl. F24f *13/00*
U.S. Cl. 98—33 **8 Claims**



The invention provides a ventilating fan unit insertable into an opening in a windowpane or the like partition and adapted to propel air from the outside atmosphere into a ventilated interior and at the same time to exhaust air from the ventilated interior to the outside atmosphere, which comprises two half shells which cover the outside and inside respectively of said opening and bear with their peripheral edges against opposite sides of the edges thereof to form a gas and liquidtight joint. Each shell is formed with a central recessed portion the floors of which are detachably connected back to back. To said floors a common fan motor is affixed, the two shaft ends of which extend axially into the recessed portions where they carry flow fans. Each fan propels an air stream in countercurrent to the other. The recessed portions are formed with nozzles projecting from the periphery of said portions and extending through the opening in the partition.

3,570,387
AIR VENTS

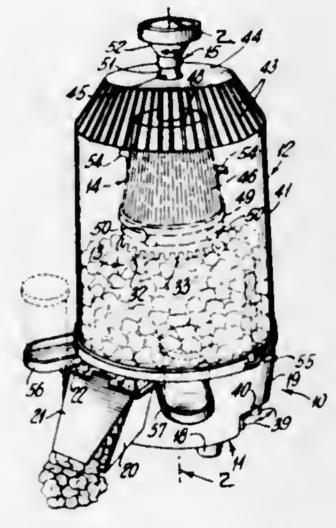
James W. Eggers, 9450 Shartel Drive, Shreveport, La.
Filed Mar. 28, 1969, Ser. No. 811,495
Int. Cl. F24f *13/00*
U.S. Cl. 98—106 **2 Claims**



An air vent of molded plastic for use in heating and air conditioning systems having an integrally molded valve member for the control of air therethrough, said valve member constituting a "living" hinge since it is cast as an integral part of the vent section, said valve member being also adjustable for selected openings with respect to said vent section and a simultaneously but separately formed latch member having quick attachable features for making said selected valve openings.

3,570,388
POPCORN POPPER

Robert Gottlieb, Jackson Heights, N.Y., assignor to Argo Industries Corporation, Jackson Heights, N.Y.
Filed Apr. 25, 1969, Ser. No. 819,261
Int. Cl. A23l *1/18*
U.S. Cl. 99—238.1 **10 Claims**

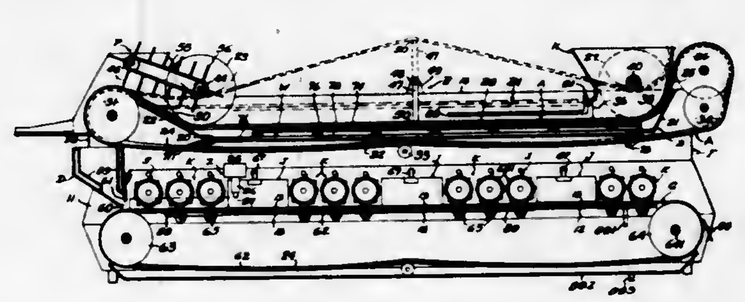


A popcorn popper having an outer housing, a centrally disposed heating device within said housing and means extending upwardly from the heating element with a portion thereof extending through the upper wall of the outer housing whereby corn to be popped may be inserted into the popper without removing the outer housing and at the same time retaining the corn in contact with the heating element until the kernels are actually exploded whereupon the popped corn can be discharged into the container surrounding the heating element, and an additional supply of kernels introduced into the popper. The outer housing includes means for discharging the popped corn therefrom.

3,570,389
APPARATUS FOR PROCESSING PLASTICIZED CHEESE

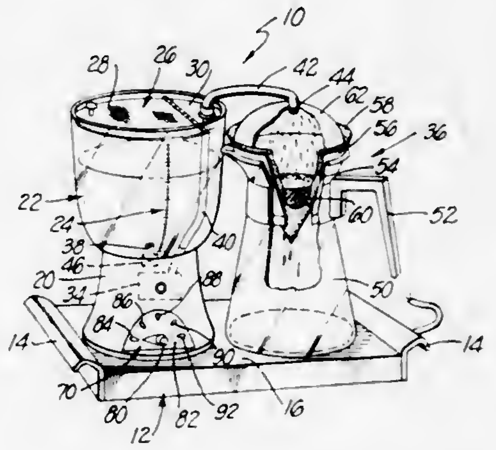
Nicholas E. Pontecorvo, Tarzana, and Wilfred A. Shaffer, Los Angeles, Calif., assignors to American Foods Machinery Corporation, Memphis, Tenn.
Original application July 12, 1968, Ser. No. 744,499, now abandoned. Divided and this application Apr. 16, 1969, Ser. No. 836,185
Int. Cl. A23c *19/02*
U.S. Cl. 99—243 **5 Claims**

Disclosed herein is apparatus for processing raw cheese curd into fine, plasticized, substantially homogeneous cheese such as Mozzarelli, wherein the curd is carried by a stainless steel conveyor belt through an elongated body of water which is heated by steam or hot water circulated in heat-exchange ducts in the bottom of the tank which holds the water; the curd, after being softened and moistened by the heated water, being elevated by its conveyor belt up an incline, out of the body of water and thence discharged over the end of the tank and downwardly onto a kneading belt which carries it beneath successive kneading rollers and finally delivers the fully processed cheese to a receiving apparatus such as an elevator or conveyor. Successive kneading rolls flatten the cheese into ribbon form. Between successive rolls the cheese ribbon is gathered and folded over upon itself preparatory to being again flattened beneath the next roll. Salt may be applied to the cheese ribbon at a suitable station along the kneading ribbon.



3,570,390
COFFEE MAKER, OR THE LIKE

Hans Jordan, 2260 Maravilla Drive, Hollywood, Calif., and Peter C. Jordan, 110 Pleasant St., Lexington, Mass.
Filed Dec. 4, 1969, Ser. No. 881,983
Int. Cl. A47j *31/32*
U.S. Cl. 99—282 **9 Claims**

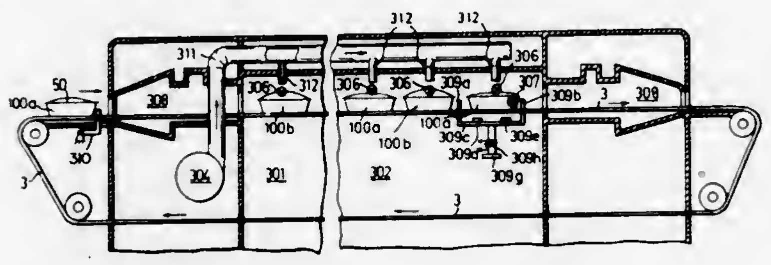


A drip-type coffee maker which maintains the hot water in contact with the ground coffee for at least approximately the same length of time irrespective of the quantity of coffee being brewed, within the capacity range of the apparatus. The coffee maker includes a drip pot, a water reservoir, a heat actuable, flow-through pump for pumping hot water from the reservoir to the drip pot, an electric heater for actuating the pump, and adjustable thermostatic control means regulating the heat output of the heater for causing the pump to deliver different quantities of hot water from the reservoir to the drip pot in approximately equal overall time intervals, the control means being manually adjustable to vary the overall pumping rate of the pump as a function of the quantity of water in the reservoir.

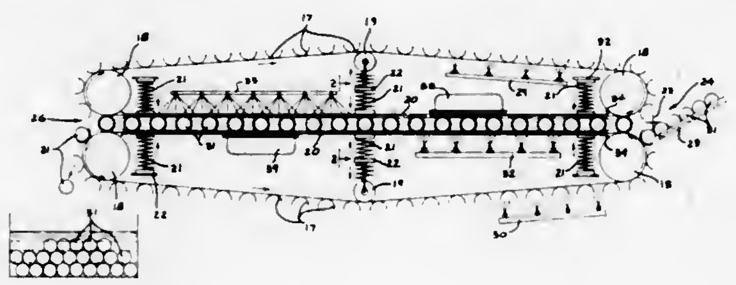
3,570,391
ELECTRONIC OR MICROWAVE FURNACE OR OVEN

Martin Gunnar Rejler, Vaxjo, Sweden, assignor to Rejlers Ingenjorsbyra AB, Vaxjo, Sweden
Original application June 27, 1967, Ser. No. 649,323, now Patent No. 3,490,717, dated Jan. 20, 1970. Divided and this application Sept. 16, 1968, Ser. No. 772,889
Int. Cl. A47j *37/04*
U.S. Cl. 99—326 **10 Claims**

An oven for heating packages (hermetically sealed food units) in which the packages are positioned in heat-absorbing relation to heating means. The packages are adapted to expand in response to excessive heat absorption. Sensing means are positioned to sense expansion of the package beyond a predetermined level. The sensing means activate cooling means which cool the package and counteract the effects of excessive heat absorption by the package.

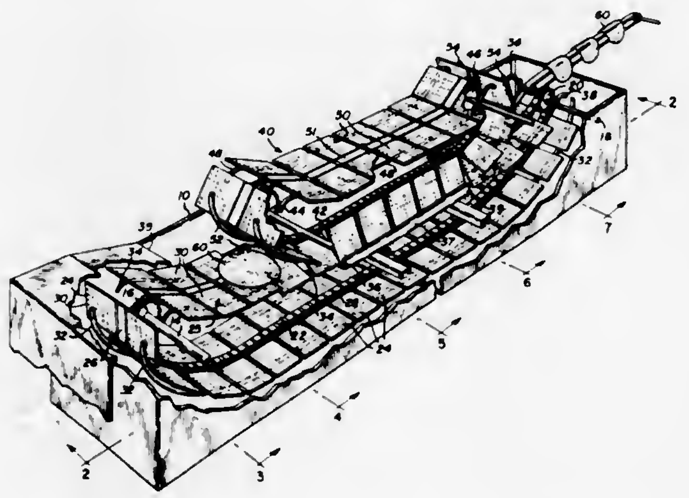


3,570,392
CONTINUOUS COOKING MEANS
Maurice W. Hoover, 3620 Merwin Road, Raleigh, N.C.
Filed Mar. 26, 1968, Ser. No. 716,064
Int. Cl. A23l *3/04*
U.S. Cl. 99—361 **4 Claims**



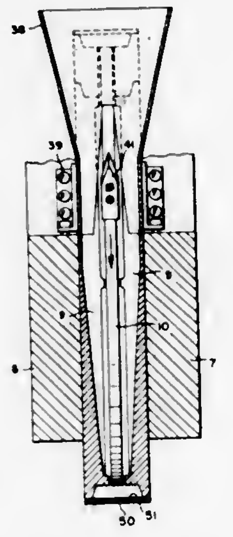
In abstract, a preferred embodiment of this invention is a continuous cooker for canned goods which, through the use of jackets, allows high internal temperatures to be reached in a short time with associated high internal pressures without expanding, deforming or otherwise adversely affecting the shape of the can or its contents.

3,570,393
TACO SHELL FORMING AND COOKING APPARATUS
Frank R. Schy, 1659 Borden Ave., San Mateo, Calif.
Filed Sept. 11, 1969, Ser. No. 857,056
Int. Cl. A47j *37/12;* **A21c** *9/08*
U.S. Cl. 99—404 **19 Claims**



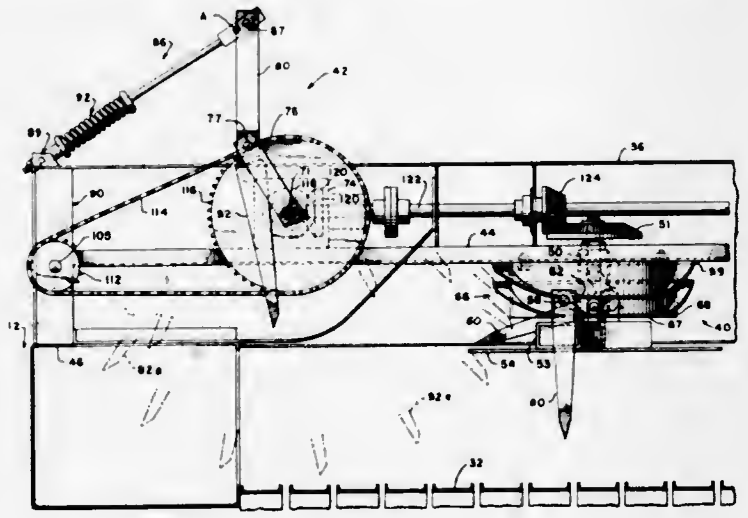
A taco shell forming and cooking apparatus including a beltlike conveyor web formed of a plurality of discrete flexible or articulated segments which are drawn through a cooking bath while being deformed in a predetermined manner. A forming means is disposed above the conveyor web so as to mate therewith as the web is deformed and drawn through the cooking bath. A food product in sheet form placed on the conveyor will be deformed by the mating web, and forming means will be cooked as it is drawn through the cooking bath. Upon emerging from the bath, the forming means is disengaged from the conveyor web, and the shaped and cooked product is removed from the conveyor web before the conveyor web is again returned to its normal configuration.

3,570,394
RUBBER DEWATERING DEVICE
Raymond L. Christy, Akron; William S. McCormick, Cuyahoga Falls; Richard K. Senn, Akron, and Eugene E. Heston, Akron, Ohio, assignors to NRM Corporation, Akron, Ohio
Filed Oct. 16, 1967, Ser. No. 675,643
Int. Cl. B30b *9/02, 3/04*
U.S. Cl. 100—104 **26 Claims**



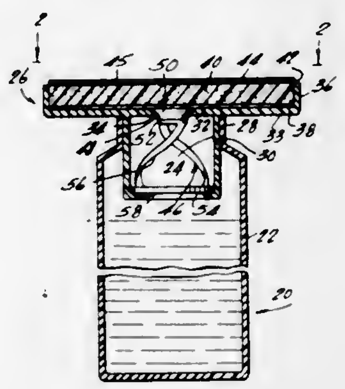
A device for removing water or other liquid from elastomer or polymer slurries including a rotor and stator having opposed surfaces between which the material is directed toward the center during relative rotation therebetween. As the material moves radially inwardly, it is squeezed and/or shredded to release the water which is then thrown outwardly by centrifugal force.

3,570,395
BALER FEEDING SYSTEM
Harry C. Eberly, Narvon, and Raymond E. Fisher, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 31, 1967, Ser. No. 664,685
Int. Cl. B30b *1/00*
U.S. Cl. 100—189 **13 Claims**



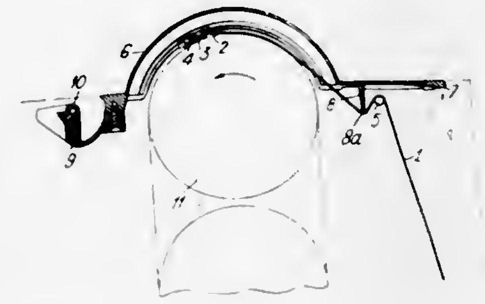
A feeding mechanism for pickup baler in which a rotary feed unit delivers crop material to a set of packer fingers which convey the material into the bale chamber between plunger strokes. The rotary feed unit is mounted for operation about a generally vertical axis and comprises two sets of feed fingers which successively sweep crop material across the feeder platform and into the path of the packer fingers. The angular position of the feed fingers is controlled by a circular cam track.

3,570,396
STENCILLED STAMPING DEVICE HAVING FLUID FLOW VALVE CONTROL
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,956
Int. Cl. B41l *27/26;* **B41k** *1/52*
U.S. Cl. 101—125 **3 Claims**



A stamping device comprising a body having a web provided with a valve opening therethrough. A valve member is disposed in the opening and engages the web for closing the opening. A housing is secured to the body and forms an extension of the web. A stencil is disposed over a fluid reservoir pad in the housing.

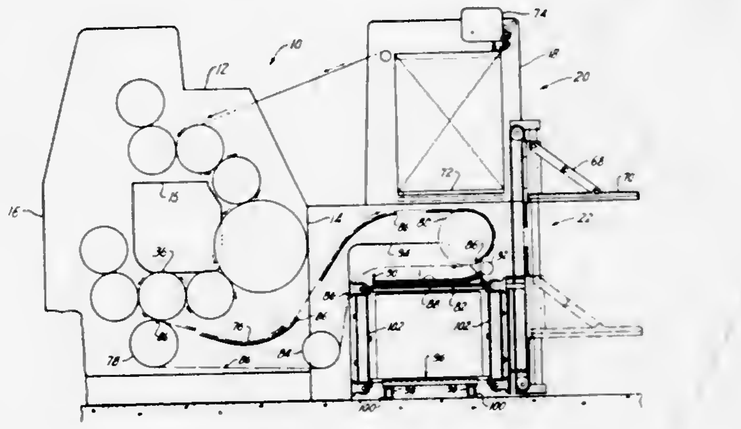
3,570,397
STENCIL DUPLICATORS
Leonard Walter Styles, London, England, assignor to Gestetner Limited, London, England
Filed Sept. 5, 1968, Ser. No. 757,559
Claims priority, application Great Britain, Oct. 13, 1967, 46850/67
Int. Cl. B41l *13/06*
U.S. Cl. 101—127.1 **3 Claims**



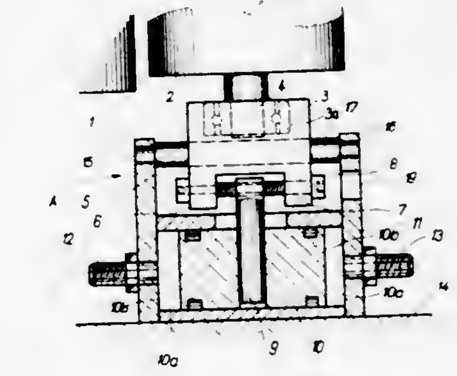
The specification discloses a stencil duplicator including a freely rotatable bar mounted parallel to and adjacent the rising side of the top cylinder so that the lower face of a stencil may roll thereover during application to the duplicator cylinder. In the preferred embodiment the bar is adjacent a further surface which may be in the form of a rib in the top cover of the duplicator so that a tortuous stencil path is defined by the bar and further surface.

3,570,398
SHEET-FED ROTARY PRINTING PRESS
Harry E. Mowry, Pittsburgh, Pa., assignor to Miller Printing Machinery Co., Pittsburgh, Pa.
Filed June 19, 1968, Ser. No. 738,154
Int. Cl. B41f *5/02, 5/16*
U.S. Cl. 101—231 **7 Claims**

This disclosure relates to a sheet-fed rotary printing press in which the sheet-feeding mechanism and the sheet delivery mechanism are located at the same end of the press with the sheet-feeding mechanism positioned above the sheet delivery mechanism. The press includes a pair of side frames in which the cylinders of a first printing unit and a second printing unit are journaled. The first printing unit is positioned above the second printing unit and both printing units include plate, blanket and impression cylinders. Three transfer cylinders connect the first printing unit to the second printing unit and are arranged to transfer the sheets with either the obverse side or the reverse side presented to the second printing unit. The sheet-feeding mechanism includes a feed board that feeds the sheets directly to the impression cylinder of the first printing unit. The sheet delivery mechanism includes an endless conveyor with gripper means that engages the front edge of the sheet as it leaves the impression cylinder of the second printing unit and conveys the sheet to a receiver. The sheet is inverted by the delivery mechanism so that the sheet is deposited on the pile with the freshly printed side facing upwardly. The press side frames include a central opening therethrough for access to the transfer cylinders and the cylinders of the printing units. Other openings are provided in auxiliary side frames for transverse movement of receivers for the piles of printed sheets delivered by the sheet delivery mechanism.



3,570,399
ADJUSTABLE SUPPORT FOR ROLLERS AND PRINTING PRESSES
Willi Fink, Bern, Switzerland, assignor to Winkler, Fallert & Co., Ltd., Bern, Switzerland
Filed Aug. 27, 1968, Ser. No. 755,531
Int. Cl. B41f *31/00*
U.S. Cl. 101—352 **4 Claims**



A support member, adjustably positioning a roller relative to a cylinder in a printing press, is formed of a housing containing a double-acting piston with working surfaces of equal area. Rigidly engaged with the piston and extending laterally from it is a rod which is in threaded engagement with a pin fixed in a bracket. A bearing is mounted in the bracket for receiving one end of a roller. By positioning the piston the bracket is moved by means of the rod. By rotating the pin the bracket is movably positionable relative to the rod.

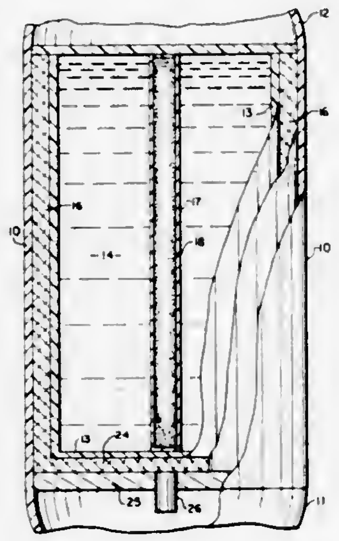
3,570,400
MATRIX MATERIAL FOR MOLDING DUPLICATE PRINTING PLATES

Vincent Squitieri, 128 Salem Road, Billerica, Mass., and Dick J. Wollmar, Old Winter St., South Lincoln, Mass.
Original application June, 1965, Ser. No. 462,446, now Patent No. 3,483,074. Divided and this application Apr. 18, 1969, Ser. No. 840,878
Int. Cl. B41d *3/00;* **B41n** *11/00*
U.S. Cl. 101—401.2 4 Claims

A printing plate matrix and a process for making it where a fibrous base material is impregnated with a heat-cured resin and a thin thermoplastic film is bonded to one face of the base. The exposed face of the film has a metallic coating on it and bears an intaglio reproduction of the face of a printing form.

3,570,401
EXPLOSIVE APPARATUS

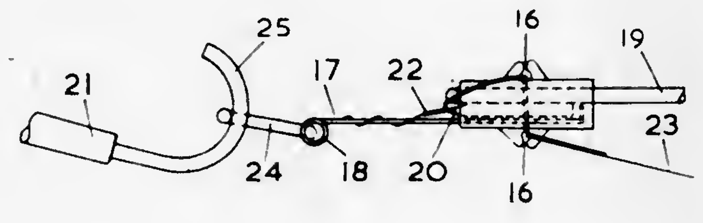
Harold W. Euker, Palos Verdes Estates, Calif., assignor to North American Rockwell Corporation
Filed Aug. 24, 1967, Ser. No. 665,193
Int. Cl. F42b *25/14*
U.S. Cl. 102—6 6 Claims



A fuel-air explosive device is described wherein a body of combustible fuel is surrounded on the sides by a layer of high explosive which, upon detonation, sends a converging shock wave through the fuel and thereby disseminates the fuel radially for combustion with air. Since no oxidizer is carried in the apparatus for combustion with the fuel, high efficiency in the resultant fireball, per unit weight of weapon, is obtained. Means are also provided for simultaneously disseminating fuel upwardly for counteracting the downward velocity of an aerially delivered weapon which tends to drive the disseminating fuel into the ground with decreased efficiency. The downward velocity is countered by a layer of explosive across the forward end of the body of fuel for imparting a longitudinally upward force thereto. In another embodiment unequal explosive layers are provided at opposite ends of the body of fuel for providing both upward and downward forces thereto with a net upward force.

3,570,402
DETONATOR CONNECTOR

David Keay Crichton Anderson, Troon; Keith Brian Ellis; Edward Mullen, Stevenston; Frank McDonald Murray, Kilmarnock, and William Neilson, Stevenston, Scotland, assignors to Imperial Chemical Industries Limited, London, England
Filed Oct. 11, 1968, Ser. No. 766,811
Claims priority, application Great Britain, Oct. 11, 1967, 46,417/67
Int. Cl. F42b *3/10*
U.S. Cl. 102—22 15 Claims

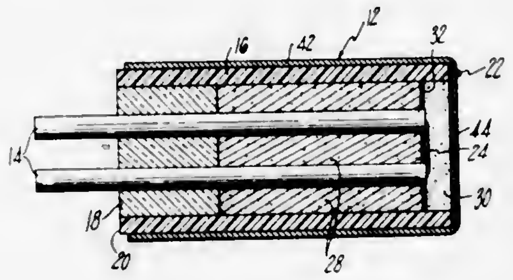


Detonator connector for rapid assembly of detonator fuse cord and detonator contains two chambers. These are connected so that detonation of the detonator in one chamber will effect detonation of the fuse cord in the other chamber.

This connector is for use in marine seismographic prospecting and adds to the speed and safety of the operation.

3,570,403
PYROTECHNIC IGNITER

John D. Hawley, East Hartland, and William M. Smith, Simsbury, Conn., assignors to The Ensign-Bickford Company, Simsbury, Conn.
Filed Nov. 6, 1968, Ser. No. 773,808
Int. Cl. F42b *3/12*
U.S. Cl. 102—28 7 Claims

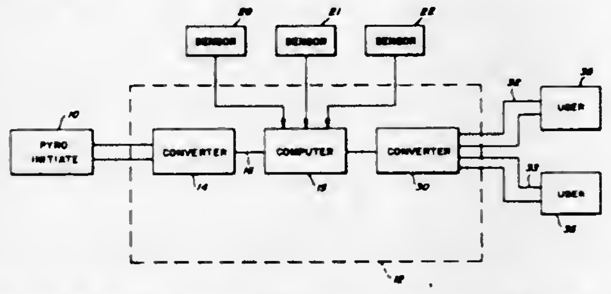


An electrically actuated pyrotechnic igniter having its initiating or first-fire charge and bridge wire located adjacent the output end of the igniter with the main or sustaining charge positioned rearwardly thereof and providing prolonged flame output.

3,570,404
ELECTRICAL PYROTECHNIC PROGRAMMING SYSTEM

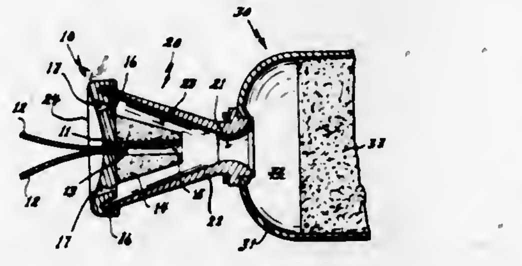
Kenneth E. Pope, Litchfield Park, Ariz., assignor to Unidynamics/Phoenix, Goodyear, Ariz.
Filed June 21, 1968, Ser. No. 739,066
U.S. Cl. 102—70.2 Int. Cl. F42b5/08 5 Claims

An electrical pyrotechnic programming system, including a pyrotechnic signal source for activating an electrical power source. The power source provides current to an electrical switching system, including individual switches responsive to velocity acceleration and barometric altitude. Closure of the switches after actuation of the electrical power source produces a pyrotechnic output signal by igniting bridge wires. The power source comprises parallel connected batteries, the first of which is a type known as a thermal battery, and the second of which is a more conventional nickel-cadmium battery.



3,570,405
EXIT CONE PYROGEN ROCKET IGNITER

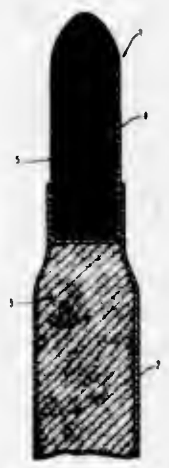
Paul A. Heady, Jr., Felton, Calif., assignor to The United States of America as represented by the Secretary of the Air Force
Filed Aug. 23, 1968, Ser. No. 755,012
Int. Cl. F02p *23/00*
U.S. Cl. 102—70.2 1 Claim



A pyrogen igniter assembly for use with a solid propellant rocket motor. The igniter assembly, which fits at, and within, the exit cone portion of the divergent type nozzle of the main rocket motor, comprises an igniter charge of the solid grain type bonded to a burst disc having a plurality of ports therein. The igniter charge has a centrally located port, at the end of which is positioned an electrically activated initiator embedded in a pyrotechnic charge. Upon application of current, the initiator ignites the pyrotechnic charge which, in turn, ignites the internal surface of the igniter charge. The resultant back flow of gases toward the burst disc ports ignite the outer surfaces of the igniter charge. The main propellant charge of the rocket motor is thus subjected to the hot combustion gas, the radiant energy, and the hot solid particles of the igniter charge and, therefore, ignites.

3,570,406
PRACTICE CARTRIDGE FOR AUTOMATIC FIREARMS

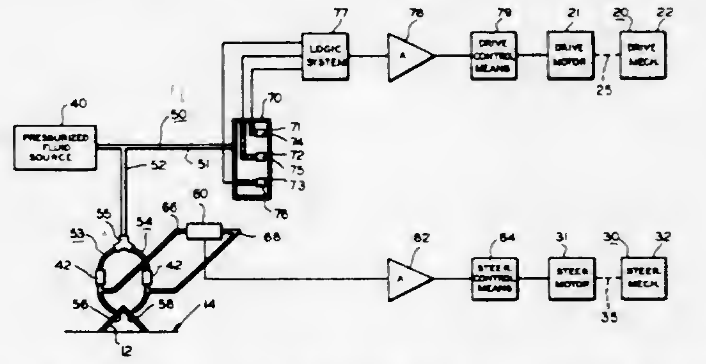
Hubert Frey, Steyerberg, and Hans-Joachim Kaseler, Sieglar, Oberlahr, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed May 31, 1968, Ser. No. 733,362
Claims priority, application Germany, May 31, 1967, D53206
Int. Cl. F42b *9/20*
U.S. Cl. 102—92.7 11 Claims



The projectile of the practice cartridge for automatic firearms consists of a synthetic jacket with a loose bulk granular filling, wherein the jacket will disintegrate upon exiting from the firearm barrel after firing to release the granules, which will be nondestructable during firing. Each granule consists of a heavy metal powder held together by a synthetic binder in the range of about 20 to 45 percent by weight. Each granule is disclike or lenticular in configuration.

3,570,407
AUTOMATIC VEHICLE CONTROL SYSTEM

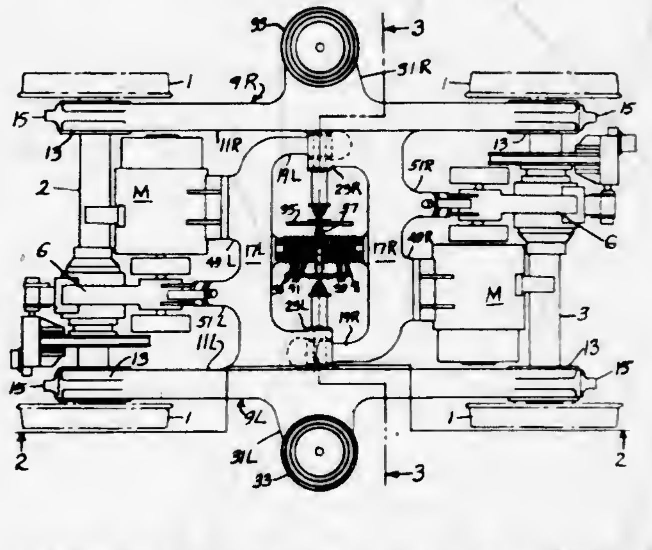
Arthur R. Burch, Battle Creek, Mich., assignor to Clark Equipment Company
Continuation of application Ser. No. 704,742, Feb. 12, 1968, now abandoned. This application Apr. 7, 1970, Ser. No. 24,423
Int. Cl. B61b *13/00;* **B62d** *5/00*
U.S. Cl. 104—242 4 Claims



An automatically controlled vehicle is driven longitudinally along a path defined by an inverted angle iron track. An air pressure system on the vehicle has outlets discharging against opposing surfaces of the angle iron to produce a back pressure at each outlet varying with the distance of the outlet from the angle iron surface. The pressure at each of the outlets is sensed by a differential pressure transducer and a signal varying as the difference between the pressures is applied to a steering system to control the direction of movement of the vehicle. Other air outlets having pressure sensitive switches adjacent to the outlets are located on the vehicle and blocking plates are mounted at selected stations along the track to create a back pressure at the outlets. The back pressure when an outlet is adjacent a plate is sensed and analyzed by a logic system to control movement of the vehicle along the track.

3,570,408
BOLSTERLESS TRUCK HAVING PIVOTALLY CONNECTED SIDE FRAME

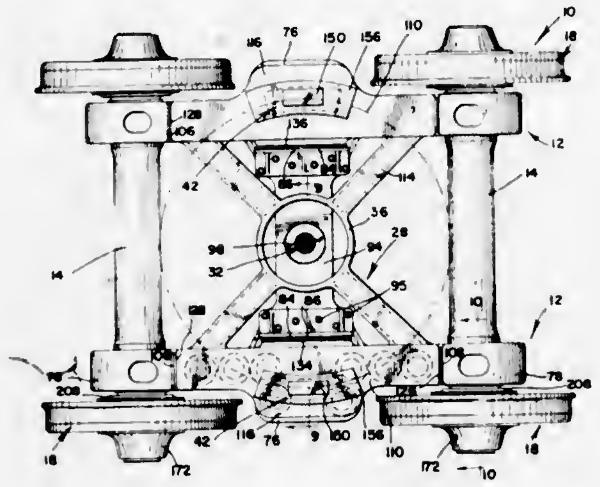
Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., Granite City, Ill.
Filed Oct. 30, 1968, Ser. No. 771,864
Int. Cl. B61c *3/00;* **B61f** *3/04, 5/02*
U.S. Cl. 105—133 9 Claims



A railway truck comprising a pair of wheeled axles, separate side frames supported at their ends on the axles and each having transverse inboard extensions offset longitudinally of the truck from each other on opposite sides of the transverse centerline of the truck and terminating adjacent the other side frame, the terminals of each extension being pivotally connected to the opposite side frame on the transverse axis of the truck, upright combined pneumatic and elastomeric springs carried by the side frames on outboard brackets for directly supporting a vehicle body, and draft-transmitting means for connecting said extensions to the vehicle body at the center of the truck to accommodate transverse vertical and swivel movements of the body relative to the truck while preventing relative longitudinal movements therebetween. The long rigid transverse arms formed by the side frame inboard extensions resist tendencies of the side frames to tilt transversely and thus permits wide spacing of the body support springs on side frame outboard brackets, and provides a stable support for motors, driving gear boxes and the like.

3,570,409
DAMPENED RAILWAY CAR TRUCK

Alfred H. Oelkers, 424 Normandy, San Antonio, Tex.
Filed Dec. 5, 1967, Ser. No. 688,037
Int. Cl. B61f *3/02, 5/12, 5/28*
U.S. Cl. 105—182 **11 Claims**



The invention relates to a railroad car truck in which the side frames are carried inboard of the wheels on supports that are stationary relative to the side frames. The side frames are provided with spring seats that are substantially aligned with the planes of the wheels on either side of the truck and support through spring groups a bolster of special design that supports the weight of the car body at two points on either side of the bolster, which points are aligned with the respective spring groups. The truck bolster is pivoted to the car body bolster by the usual kingpin, but the coupling arrangement involved is such that none of the body weight is supported at the customary center plate area of the bolster, which area is eliminated in the present truck. The truck bolster at its midportion includes a socket structure into which a projection of the body bolster fits for applying longitudinally and laterally acting forces to the bolster from which they are transferred to the side frames through suitable engaging surfaces.

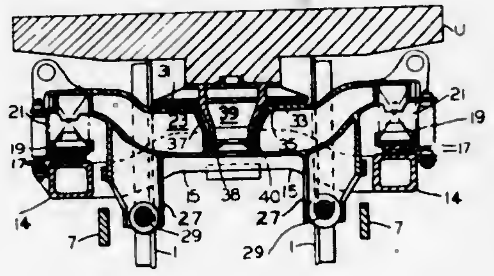
In one form of the invention, the side frames are mounted on tubular housings for the axles, which housings are journaled relative to the wheels through special roller bearing or friction bearing arrangements that are herein disclosed.

In another form of the invention, the side frames are mounted directly on the axles, which are stationary relative thereto, and which have the truck wheels journaled on the respective ends through a special friction type bearing arrangement, with the result that the truck wheels rotate independently of each other.

3,570,410
RAILWAY LOCOMOTIVE TRUCK

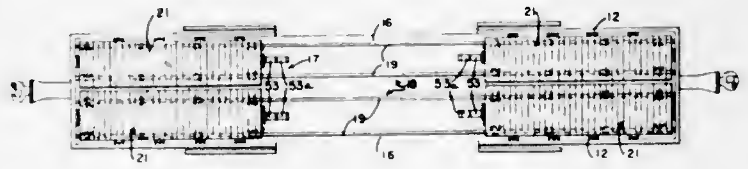
Robert E. Stein, Dorsey, Ill., assignor to General Steel Industries, Inc., St. Louis, Mo.
Filed Nov. 13, 1968, Ser. No. 784,277
Int. Cl. B61c *9/48;* **B61f** *3/04, 5/06*
U.S. Cl. 105—199 **11 Claims**

A railway locomotive truck in which weight transference from axle to axle is substantially reduced by stabilizing the spring-supported bolster against tipping with respect to the locomotive underframe and by connecting the bolster to the truck frame near track level. Stabilization of the bolster is effected by providing a central bearing having a horizontal surface of large diameter, with opposing pivot-forming vertical cylindrical surfaces on the underframe and bolster parts at a sufficiently low level below the top of the bolster that the moment of the tractive force tending to tip the bolster (the product of the tractive force and the height of the pivot-forming surfaces from the rail) is less than the moment of the central bearing load (the product of the central bearing load and the diameter of the central bearing horizontal surfaces).



3,570,411
RAILWAY BOXCAR

Franklin P. Adler, and Glen R. Shaner, Michigan City, Ind., assignors to Pullman Incorporated, Chicago, Ill., a fractional interest to each and Pullman Transport Leasing Company, Chicago, Ill., a fractional interest to each
Continuation of application Ser. No. 619,446, Feb. 28, 1967, abandoned.
This application May 26, 1969, Ser. No. 830,578
Int. Cl. B60p *7/08;* **B65j** *1/24*
U.S. Cl. 105—366 **3 Claims**

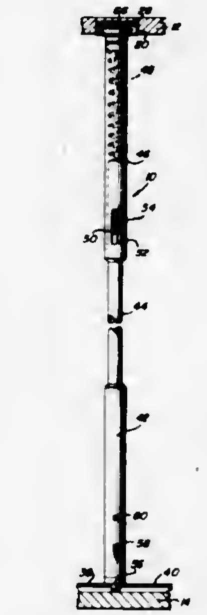


In a conveying arrangement for moving cargo such as stacks of sheet plywood and the like in a railway boxcar, platforms are mounted for lengthwise movement along the car floor from a loading location adjacent the door opening in the car sidewall to stowed positions in the enclosed ends of the car, and each platform includes resilient bumpers at each of its ends, the inner bumper (nearer the door opening) being engageable by a stop lever mounted on a transverse pivot in the car floor biased for rising to hold the platform in a stowed position with its opposite bumper pressed against the car end wall, and each stop lever being depressible, with compression of the engaged inner bumper, to a releasing position below the platform after said bumper expands over the depressed stop lever.

3,570,412
CAPTIVE BRACE ROD AND TRACK

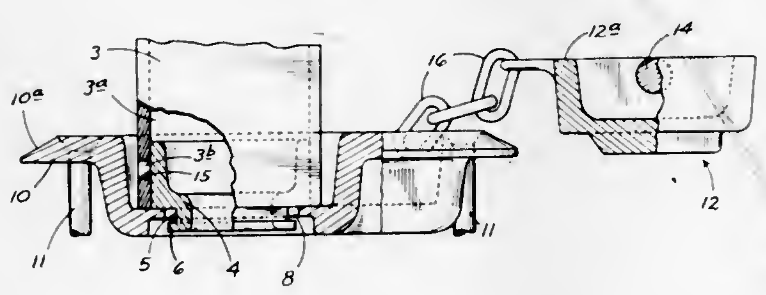
Robert E. Holman, Jr., 10619 Doric St., Dallas, Tex.
Filed Dec. 20, 1968, Ser. No. 785,679
Int. Cl. B61d *45/00*
U.S. Cl. 105—369 **6 Claims**

A spring-loaded telescopic brace rod extending between the ceiling and floor of a load carrying body such as a trailer which is captively supported from a track system in the ceiling to enable movement of the brace rod along the track system when it is in a retracted position with the track system and brace rod including interengaging lock means for locking the brace rod to the track system in the ceiling and a perforated rail in the floor when the brace rod is in extended position.



3,570,413
SOCKET FITTING FOR BRACING POSTS

William Don Miller, 707 American Bank Bldg., Portland, Oreg.
Filed Dec. 26, 1968, Ser. No. 786,942
Int. Cl. B61d *45/00*
U.S. Cl. 105—369 **4 Claims**

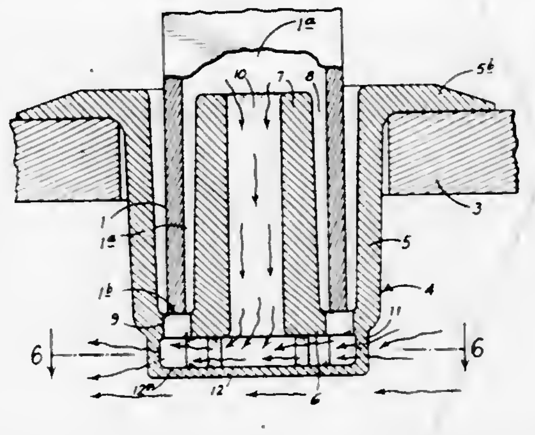


This development concerns load bracing members arranged vertically in a railroad freight car of the boxcar type. It is principally concerned with the loose mounting of said vertically disclosed load braces in related floor sockets so that said braces may easily be engaged and separated respectively when they are axially aligned. They are interfitted to accommodate movement of each brace in its floor socket, but yet inhibits inadvertent detachment therewith. That is said interfit of the braces and sockets at their lower ends accommodate lateral movement freely past axial alignment in any direction, particularly when they bear against cargo.

3,570,414
VENTILATED TUBULAR BRACING AND MOUNT THEREFOR

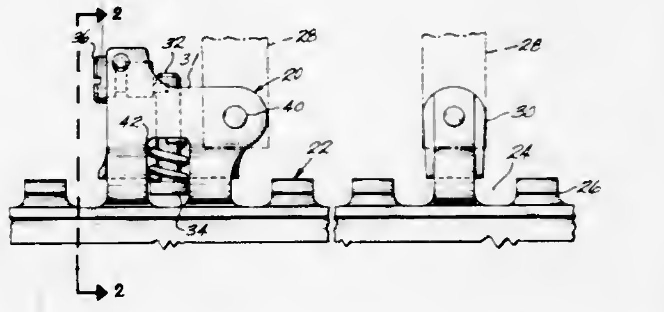
William Don Miller, 707 American Bank Bldg., Portland, Oreg.
Filed Dec. 30, 1968, Ser. No. 787,949
Int. Cl. B61d *45/00*
U.S. Cl. 105—369 **6 Claims**

This invention improves a railway boxcar having vertical tubular load supporting posts provided with ventilating ports extending from the bores of said posts to the interior surface thereof with floor mounts fitting the lower ends of said tubes, respectively, and a constricting upstanding nozzle located centrally of each mount and with an underlying passageway extending across said nozzle to produce high velocity—low pressure in the bore of said nozzle to draw air downwardly from the bore of said post and to exhaust it exteriorily of said boxcar.



3,570,415
TRACK SUPPORTED MOUNTING DEVICE FOR AIRCRAFT

Robert H. Drinnon, Kent, Wash., and Leo Huttas, North Massapequa, N.Y., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 13, 1968, Ser. No. 783,602
Int. Cl. B61d *45/00;* **B60p** *7/08*
U.S. Cl. 105—369 **2 Claims**

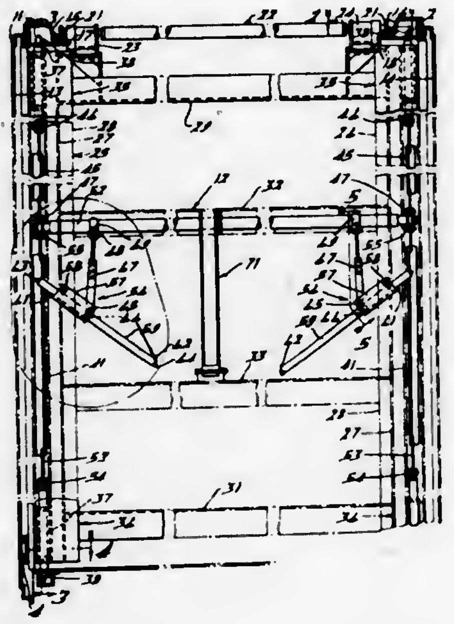


A device for mounting payload units on a rail in airplanes. The base structure has an integral caliper-type configuration for slidable engagement about the head portion of a rail structure. A spring mounted plunger and associated actuating means, such as an eccentric, are carried by the device and upon actuation of the eccentric, the plunger will extend into a rail cutout or detent for securing the caliper engagement and thus locking the device to the rail. Upon further actuation of the eccentric the plunger will contract and unlock the device.

3,570,416
FREIGHT-BRACING APPARATUS

Jackson A. Shook, Northville, Mich., assignor to Evans Products Company
Continuation of application Ser. No. 482,576, Aug. 25, 1965, now abandoned. This application Nov. 27, 1967, Ser. No. 685,980
Int. Cl. B60p *7/14*
U.S. Cl. 105—376 **4 Claims**

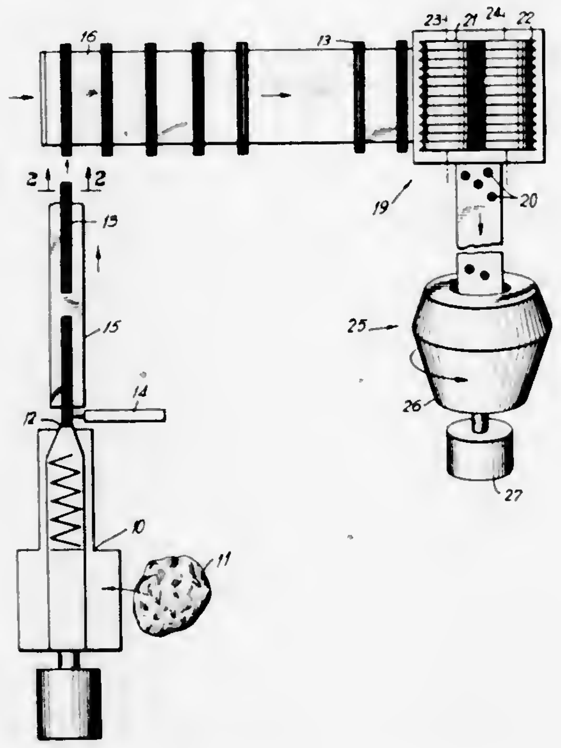
This application discloses an open frame freight-bracing bulkhead assembly having lock pins at its four corners for locking the bulkhead assembly in selective freight-bracing position. The lock pins are actuated by a common torque shaft that extends across the frame and which torque shaft may be operated by a respective operating handle assembly supported at either side of the frame. The operating handle assembly is comprised of a supporting bracket that is pivotally supported upon the frame and is connected by a link to the torque shaft for rotating it upon pivotal movement of the bracket. An elongated handle is slidably supported by the bracket and is movable from a first position wherein it may be operated through a face of the bulkhead to a second



position wherein it extends outwardly of the side of the bulkhead assembly and may be actuated therefrom.

3,570,417
METHOD OF MAKING DECORATIVE CONFECTIONERY PRODUCT

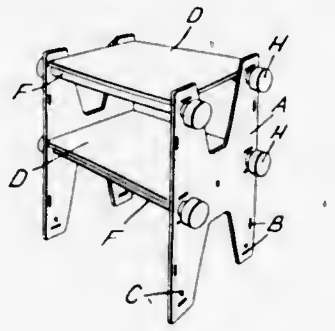
Fred Herrmann, Clarks Summit; Alexander Tomczyk, Laflin, and Harvey Sdorow, Kingston, Pa., assignors to Topps Chewing Gum, Incorporated, Brooklyn, N.Y.
Filed July 22, 1969, Ser. No. 843,304
Int. Cl. A23p *1/00*
U.S. Cl. 107—54 **4 Claims**



The method of making a multicolored confectionery product which includes the steps of extruding or otherwise forming an elongated length of a deformable plastic confection matrix material to provide a corrugated, three-dimensional surface, severing the length at spaced positions to define a series of increments, the formerly attached surfaces of the increments being substantially free of corrugations, and thereafter subjecting the several increments to a surface coloring step whereby the end or severed portions and the outer extremities of the corrugated portions are colored and the land areas between the corrugations are maintained essentially free of color, thus to define a multicolored confectionery item.

3,570,418
ASSEMBLY OF ELEMENTS TO FORM ARTICLES OF FURNITURE

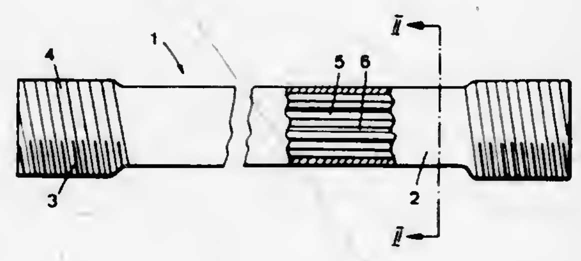
Anthony Edward William Gooding, 400 Durnsford Road, London,S.W.19, England
Filed Dec. 3, 1968, Ser. No. 780,835
Claims priority, application Great Britain, Dec. 6, 1967, 55,559
Int. Cl. A47b *3/06*
U.S. Cl. 108—111 **4 Claims**



The invention relates to an assembly of elements which can be readily placed together to form differing types of furniture. Equally, such furniture may be dismantled and the type of furniture changed, for instance the form may be a chair or a table or a table top with a shelf, etc. It consists of generally two rigid supports between which is placed a rigid element, such rigid element being engaged by means of tongues and slots, and the whole structure being rigidly held together by interconnecting elements adapted to tighten the supports towards each other.

3,570,419
THERMIC LANCE

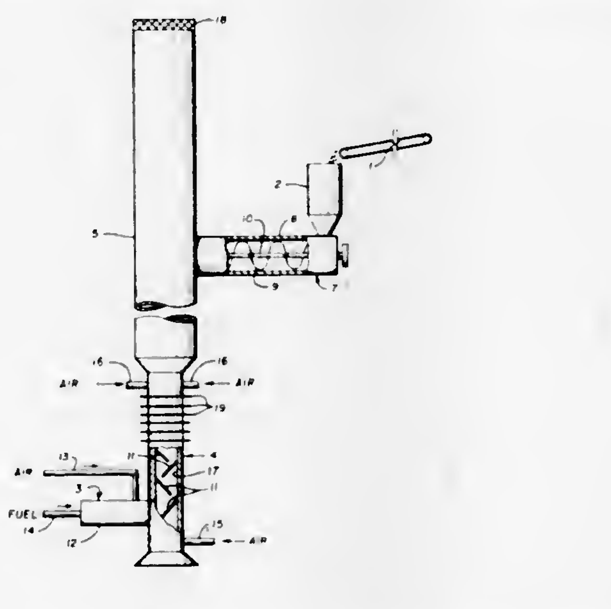
Ernst Brandenberger, Rapperswilerstrasse 15, Wetzikon, Switzerland
Filed Dec. 30, 1968, Ser. No. 787,854
Claims priority, application Switzerland, Jan. 3, 1968, 23/68
Int. Cl. F23b *7/00;* **F23d** *21/00*
U.S. Cl. 110—1 **6 Claims**



A thermic lance which is operated by gaseous combustion and serves for forming openings in concrete, building walls and the like. The lance is equipped with a steel tube packed with a plurality of rods. Oxygen is passed through the tube and the lance ignited to produce an intense heat source that is applied to the material to be cut. The enclosing tube has with the exception of is ends a cross-sectional shape which is other than circular.

3,570,420
PROCESS FOR THE REMOVAL OF HYDROCARBONS CONTAINED IN EARTH CUTTINGS FROM SUBTERRANEAN WELLS

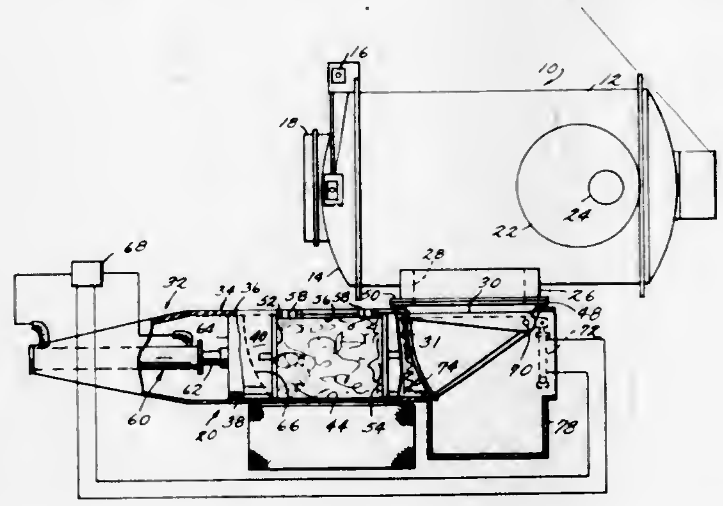
Raymond K. Lewis, and Marion G. Bingham, Harris County, Tex., assignors to Milchem Incorporation, Houston, Tex.
Filed May 7, 1970, Ser. No. 35,488
Int. Cl. F23g *7/00*
U.S. Cl. 110—8 **5 Claims**



The present invention relates to a continuous combustion process for the substantially complete removal of the hydrocarbon content of cuttings from subterranean wells by combustion means which do not emit air-fouling gases. A feature of this invention is the provision of means for retarding the movement of cuttings through an elongated combustion apparatus to subject them to conditions of high temperature and an excess of oxygen to obtain complete combustion of the hydrocarbon content thereof.

3,570,421
LOADER APPARATUS FOR LOADING INCINERATORS AND THE LIKE

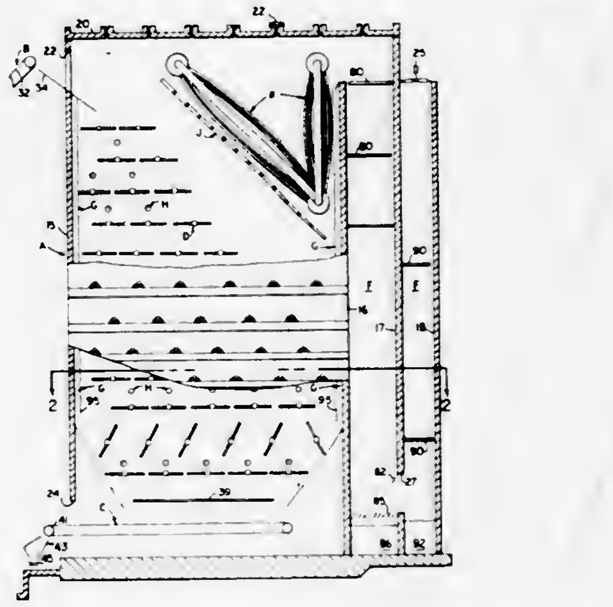
George H. Flowers, Jr., Richmond, Va., assignor to Mini-Municipals, Inc., Houston, Tex.
Filed Apr. 16, 1969, Ser. No. 816,707
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 **23 Claims**



An apparatus for loading other equipment, the apparatus receiving loose material and transferring the material to an area of discharge and then discharging the material to the other equipment transverse to the direction of transfer in the apparatus. The material may be compacted in the apparatus prior to its discharge. Preferably the loader apparatus is used to charge or load an incinerator with rubbish or waste material while the incinerator may be in operation without the danger of flashback through the apparatus. Additionally, by having the loader apparatus arranged to move the waste material in a longitudinal direction and then discharging the same transversely into the incinerator, the apparatus can be positioned closely adjacent to the incinerator thereby requiring less floor space.

3,570,422
INCINERATOR

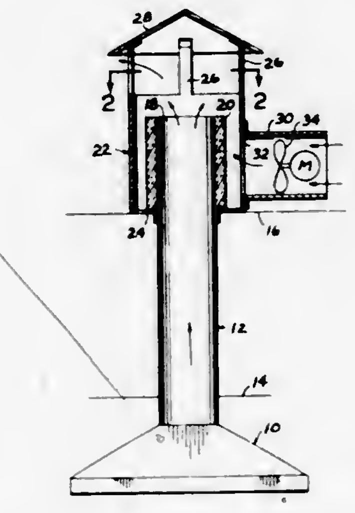
John L. Winther, 263 Calle La Mesa, Moraga, Calif.
Filed Nov. 10, 1969, Ser. No. 875,177
Int. Cl. F23g *5/00;* **F23h** *3/04*
U.S. Cl. 110—8 **9 Claims**



An incinerator of large dimension is provided which is suitable for burning municipal and industrial refuse of widely varying combustibility, particle size and thermal output. A tower structure with a hollowed interior core is provided with an input for refuse at the top, an output for ash at the bottom, and a plurality of grates in horizontal rows between the input and output. Each of the grates includes a central header spanning the interior of the incinerator and a plurality of spaced hollow pipes intersecting the header in coplanar relation. Provision is made to flow water through the header and pipes of each grate to provide a steam byproduct from the combustion and to provide for grate cooling. The grates each can be tilted to permit refuse to fall from an upper grate row to a lower grate row within the incinerator along a path which is away from the incinerator sidewalls.

3,570,423
CHIMNEY ASPIRATOR

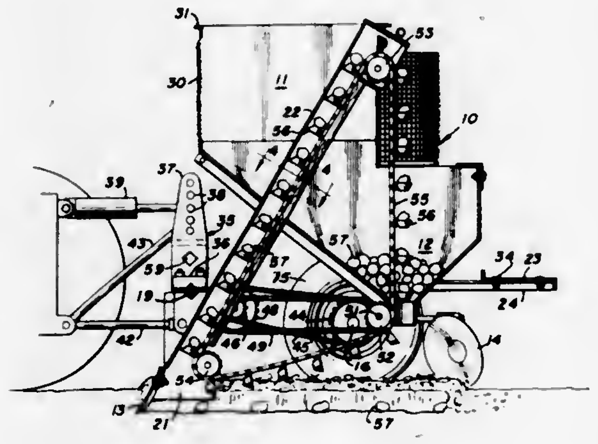
Myron E. Hemmingson, Box 101, Fletcher, Okla.
Filed Apr. 9, 1969, Ser. No. 814,682
Int. Cl. F23l *17/02*
U.S. Cl. 110—160 **1 Claim**



Insulating material surrounds the outwardly disposed exhaust end portion of a chimney and a jacket, having inlet and outlet ports, loosely surrounds the insulated end portion of the chimney. A blower communicates with the inlet port of the jacket and moves ambient air therethrough generating a venturi action for the exhaust end of the chimney.

3,570,424
POTATO PLANTER

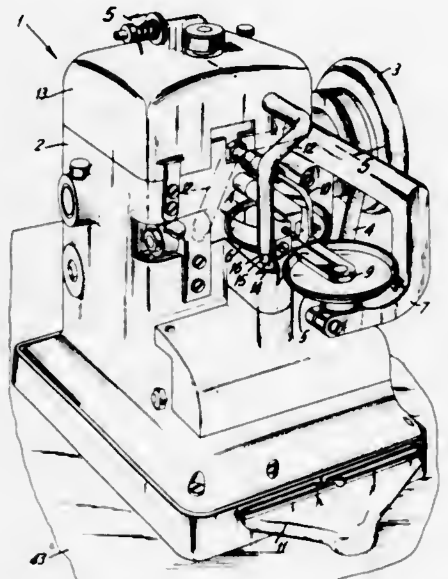
Jack H. Wigham, 4206 N.E. 15th St., Amarillo, Tex.
Continuation of application Ser. No. 716,740, Mar. 20, 1968, now abandoned. This application May 21, 1970, Ser. No. 37,495
Int. Cl. A01c *7/18*
U.S. Cl. 111—78 **3 Claims**



A tractor mounted three point hitch potato planter that drops the seed close to the bottom of the furrow to prevent its rolling, and which planter is closely hitched with hydraulic lift and can thereby be raised off the ground for tight turns and backing.

3,570,425
SEWING APPARATUS

Arthur Shulman, New York, and Henry M. Bonis, Jr., Sands Point, N.Y., assignors to Nabs Leasing Corp., New York, N.Y.
Filed July 16, 1969, Ser. No. 842,187
Int. Cl. D05b *23/00, 35/00*
U.S. Cl. 112—20 **20 Claims**

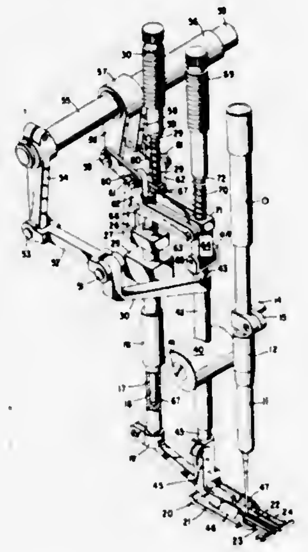


The present invention provides an air and vacuum system for use with industrial sewing machines especially those employed in the fur sewing industry. Such industrial machines generally include a horizontal needle and a pair of horizontal feeding discs. The present invention provides means to aid in material alignment, material working, material guidance and means to prevent fur hairs or the like from fouling the seam line through the provision of guide means, and means in advance of the guide means to direct a flow of air at an angle to the line of feed of the material and vacuum means along a plane away from the axial line between the discs.

The present invention further includes means for the automatic presentation and withdrawing of the air stream carrier to operative and nonoperative positions.

3,570,426
TOP FEED MECHANISM FOR SEWING MACHINES

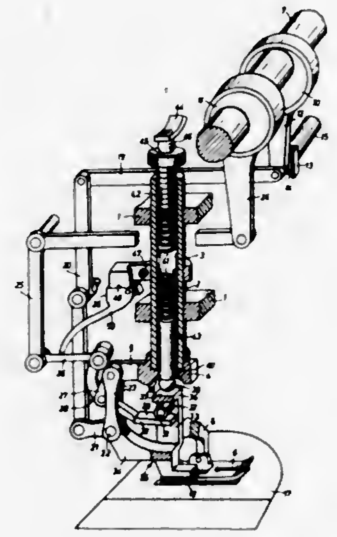
Earle C. Kunes, Middletown, N.J., assignor to The Singer Company, New York, N.Y.
Filed Nov. 25, 1969, Ser. No. 879,831
Int. Cl. D05b *27/04*
U.S. Cl. 112—212 **2 Claims**



A top feed mechanism which can be incorporated conveniently in sewing machines not originally designed for top feeds. The top feeding foot is slidably pivoted in the machine frame between the conventional presser bar and needle bar and is lifted and lowered by a linkage supported on a plunger telescopically arranged in the presser bar so that the presser foot will not be elevated during the feed stroke of the top feeding mechanism.

3,570,427
TOP FEED MEANS FOR SEWING MACHINES

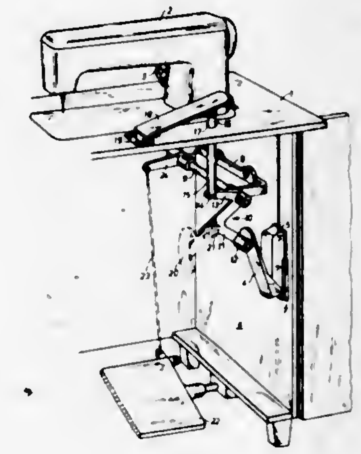
Herbert Wenz, and Heinrich Berg, Kaiserslautern, Palatinate, Germany, assignors to G.M. Pfaff AG, Kaiserslautern, Palatinate, Germany
Filed July 2, 1969, Ser. No. 838,550
Int. Cl. D05b *27/04*
U.S. Ci. 112—212 **4 Claims**



Top feed means for sewing machines having a presser foot and a spring biased top feed foot linked to a feeding and raising drive and connected with a carrier on the presser bar, which top feed foot is connected to a link connected with the feeding mechanism and joined with the carrier by a lever connected with the raising elements, which is pivotally supported by the carrier and reaches below a roller element that is arranged on the top feed foot.

3,570,428
ARRANGEMENT ON SEWING MACHINES FOR OPERATING THE MOTOR STARTER

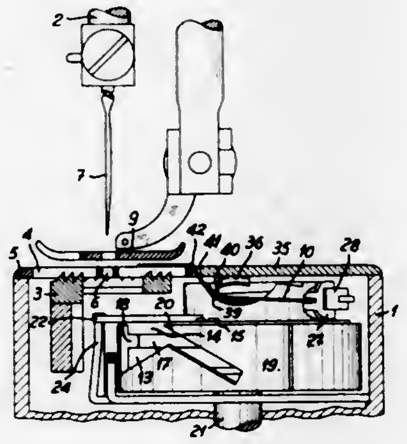
Willi Sternberg, Karlsruhe, Germany, assignor to G. M. Pfaff A G., Kaiserslautern/Palatinate, Germany
Filed Mar. 17, 1969, Ser. No. 807,561
Claims priority, application Germany, May 6, 1968, P31,387
Int. Cl. D05b *69/00*
U.S. Cl. 112—218 **2 Claims**



Arrangement on sewing machines for actuating the motor starter mounted on a wall in the cabinet by operating means such as a treadle, a knee pressure plate or an arm-operated hinged plate, which includes a coupling to be actuated by one of the three operating means.

3,570,429
THREAD GUIDE FOR A ROTARY-HOOK-TYPE SEWING MACHINE

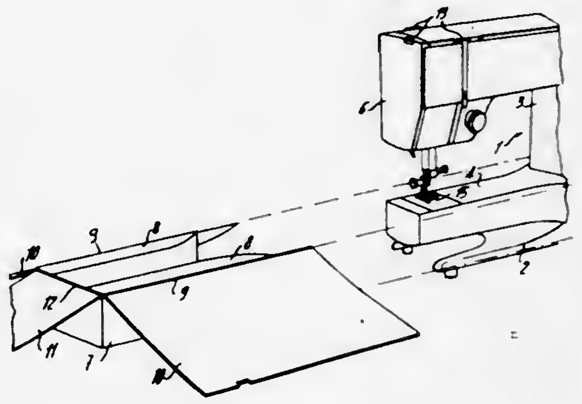
Susanna Bolt, Geneva, and Harald Seifarth, Chatelaine-Geneva, Switzerland, assignors to Mefina S.A., Fribourg, Switzerland
Filed Apr. 1, 1969, Ser. No. 811,854
Claims priority, application Switzerland, Apr. 18, 1968, 6003/68
Int. Cl. D05b *57/10*
U.S. Cl. 112—233 **3 Claims**



A blade or wire, mounted underneath the cover for the guard ring and in the path of the underthread on its way to the needle, is so shaped that when the sewer pulls the underthread tight, while threading the machine preparatory to sewing, it is caused to move under the tension skid automatically.

3,570,430
SEWING MACHINE

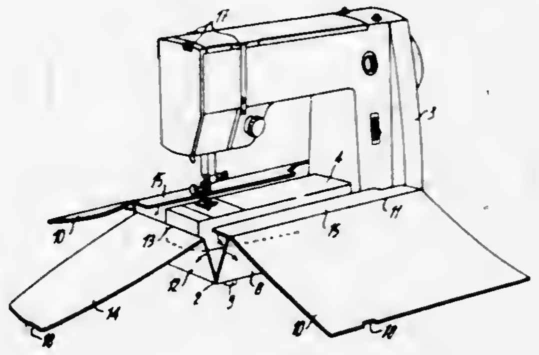
Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland
Filed Mar. 10, 1969, Ser. No. 805,490
Claims priority, application Switzerland, Apr. 5, 1968, 5110/68
Int. Cl. D056 *75/00*
U.S. Cl. 112—258 **3 Claims**



A sewing machine accessory is provided with two side flaps and a front flap and also has a flat top surface which cooperates with the upper face of the free lower arm of the sewing machine when the accessory is slipped thereon, to thereby provide an enlarged work surface. The flaps can be raised to enclose the machine when it is not in use.

3,570,431
SEWING MACHINE

Marcel Fresard, Petit-Lancy, Switzerland, assignor to Mefina S. A., Fribourg, Switzerland
Filed Mar. 10, 1969, Ser. No. 805,504
Claims priority, application Switzerland, Apr. 5, 1968, 5,111/68
Int. Cl. D05b *75/00, 73/10*
U.S. Cl. 112—258 **17 Claims**

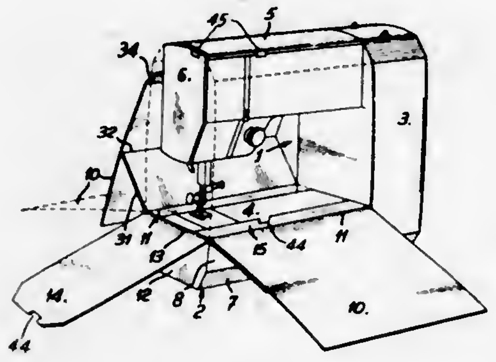


Two wing members that enlarge the upper face of the free lower arm of the sewing machine can be swung out of the way, along with any auxiliary parts enclosing said arm, to expose the arm for sewing tubular pieces.

3,570,432
SEWING MACHINE

Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S. A., Fribourg, Switzerland
Filed Apr. 15, 1969, Ser. No. 816,292
Claims priority, application Switzerland, May 3, 1968, 6,605/68
Int. Cl. D05b *75/00*
U.S. Cl. 112—258 **2 Claims**

A free-arm type sewing machine is provided with a pair of side flaps and an end flap which are pivotally connected to a troughlike member integral with the sewing machine base and spaced from the free lower arm. In their uppermost position the flaps are retained against the head and upper arm of the machine to form an enclosure for the head and sides of the upper arm. The two side flaps are free to slide and pivot in a hinge arrangement so that they can be lowered and their upper angularly bent edges can either be placed adjacent the side edges of the free lower arm to form an enlarged work surface or be pulled away from the arm to expose the latter for the sewing of tubular pieces.



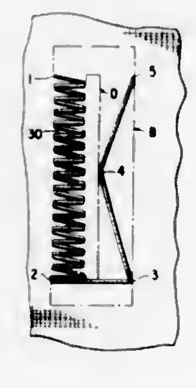
3,570,433
METHOD OF SEWING PARALLEL ROWS OF ZIG-ZAG STITCHES

William Weisz, Rockaway, and Charles R. Odermann, Montville, N.J., assignors to The Singer Company, New York, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,590

Int. Cl. D05b *3/06*

U.S. Cl. 112—264 **2 Claims**



A method of sewing parallel rows of zigzag stitches for the formation of a buttonhole so that each row is formed in a like manner. Each row of zigzag stitches is formed using the same direction of feed. By means of a skip-stitching technique, a line of exceedingly long stitches is formed in the opposite direction of feed within the bight of the zigzag stitches of one row in order to return a work fabric to a common starting point for the formation of the rows. The process may start with a line of stitches formed in the opposite direction of feed in order to position the work fabric at the common starting point so that the rows are uniform, each having zigzag stitches which overlie the line of stitches formed in the opposite direction of feed.

3,570,434
ZIP FASTENER

Pertti O. Gustavsson, Bogesundsgatan 6, Boras, Sweden

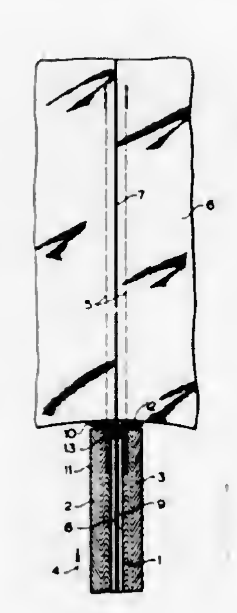
Filed June 4, 1968, Ser. No. 734,262

Claims priority, **application** Germany **and** Sweden, Sept. 6, 1967, June 5, 1967, p. 42,946; 7,840

Int. Cl. D05b *3/12*, *97/10*

U.S. Cl. 112—265 **4 Claims**

A method of simultaneously sewing two halves of a sliding clasp fastener forming part of a continuous fastener tape, with the fastener-coupling members on each half in engagement with each other, to a support such as the top material of a garment. The fastener tape with the desired length of both halves sewn onto the support is severed in a part that is provisionally left disconnected from the support, and in that the tape is provided simultaneously with a connection to join together the interengaging coupling members on the two halves in the region of the severing. The invention is also directed to an apparatus for carrying out the method.



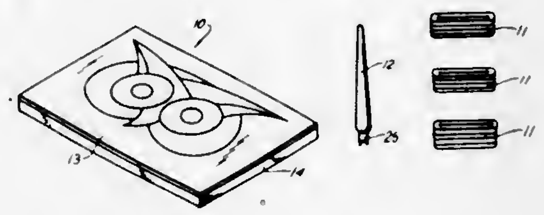
3,570,435
METHOD OF MAKING DECORATIVE ARTICLES EMPLOYING YARN OR THE LIKE

John R. Morrison, 350 E. 52nd St., New York, N.Y.

Filed Dec. 10, 1969, Ser. No. 883,735

Int. Cl. D05c *15/00*

U.S. Cl. 112—266 **10 Claims**



A base is provided having a pierceable elastic surface and a penetrable yieldable interior. The surface is provided with pattern areas defined by demarcations, which may be surface cuts. The free end of a yarn strand is pushed into the base at a point on one demarcation, and the yarn is severed at a point spaced from the embedded end to create a cut yarn strand. The other end of the cut strand is then pushed into the base at a point on another demarcation spaced from the first. These steps are repeated with additional strands placed adjacent to each other, to cover the various pattern areas. The surface may bear indicia indicating the color of yarn to be used and the direction in which the strands are to be placed.

3,570,436
SUBMERSIBLE WATER BICYCLE

Craig Le Vasseur, 8924 Earhart Ave., Los Angeles, Calif.

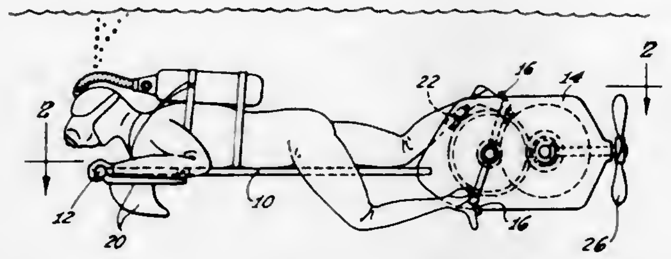
Filed Apr. 28, 1969, Ser. No. 819,799

Int. Cl. B63g *8/00*; **B63h** *16/12*

U.S. Cl. 114—16 **4 Claims**

A submersible water bicycle is provided for use by scuba divers, and others, so that they may propel themselves easily and comfortably beneath the surface of the water at any desired depth. The vehicle includes an inertial wheel which

may be brought up to speed to provide a measure of momentum to the vehicle and a gyroscope effect to maintain the vehicle in a desired angular position with respect to its longitudinal axis.



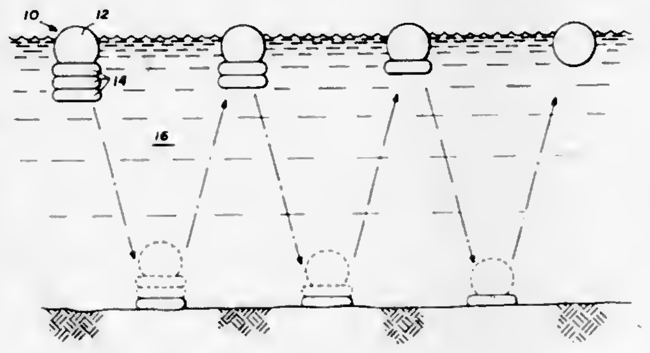
3,570,437
MULTI-CYCLE OCEAN DATA GATHERING SYSTEM

Paul D. Davis, Jr., Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 11, 1969, Ser. No. 798,355

Int. Cl. B63g *9/00*; **B63b** *21/52*

U.S. Cl. 114—16 **2 Claims**



A system for repetitively submerging and surfacing an ocean data gathering instrument package. The system includes a number of vessels each large enough to contain sufficient water to sink the instrument package and the remaining vessels. The package is submerged by flooding one of the vessels and is surfaced by detaching the flooded vessel from the package and the remaining vessels. The package may be submerged as many times as there are vessels in the system.

3,570,438
PROFILED STABILIZING FIN FOR A SHIP

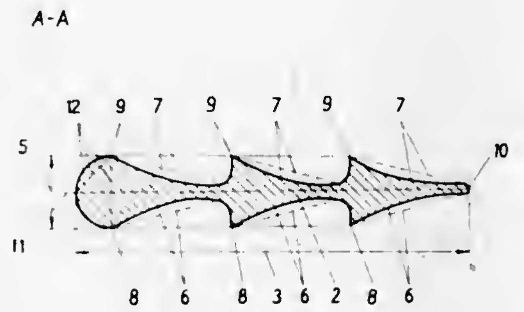
Damian Mackowiak, Biala 3B/18, Gdansk, Poland

Filed Oct. 14, 1968, Ser. No. 767,351

Claims priority, application Poland, Oct. 25, 1967, P123.218

Int. Cl. B63b *39/06*

U.S. Cl. 114—126 **9 Claims**



A ship with stabilizing fins either laterally extending or forming the bilge keel, which fins are fixed and which have thin leading edges, an upper surface that is concave, and a lower surface that diverges from the upper surface.

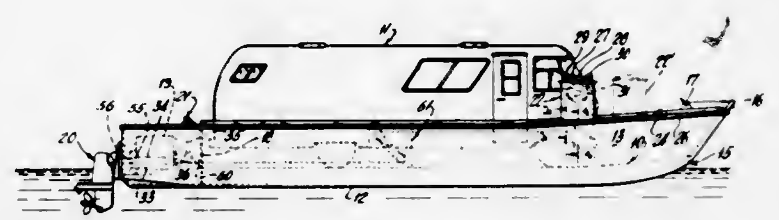
3,570,439
NAVIGATION CONTROL MECHANISM

Charles D. Snelling, 2949 Greenleaf Ave., Allentown, Pa.

Filed Dec. 26, 1968, Ser. No. 787,068

Int. Cl. B63h *21/26*

U.S. Cl. 114—146 **22 Claims**



The invention contemplates a navigable vessel with means for accommodating one of a variety of types of wheeled vehicle. The vessel has provision for its own navigation from a control console or housing which is selectively positionable alongside the vehicle, for best adaptation to the particular vehicle. The nature and placement of the control console is to enable convenient navigation control, from a protected position within the vehicle or from a position outside the vehicle, as dictated by operator preference. The arrangement is such that no control readjustment is necessary, in the adaptation of the vessel to vehicles of different sizes and shapes and to various operator preferences as to mode of operation.

3,570,440
MARINE ANCHOR

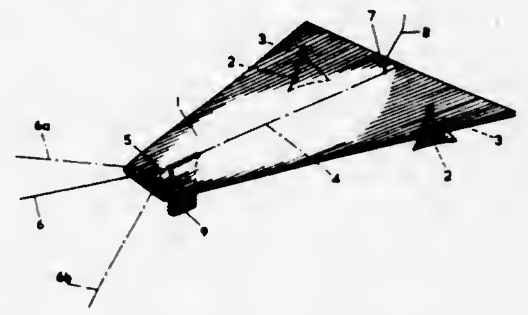
Hendrik Pot, Kinderdijk, Netherlands, assignor to N. V. Industrieele, Handelscombinatie, Netherlands

Filed Feb. 24, 1969, Ser. No. 801,727

Claims priority, application Netherlands, Feb. 26, 1968, 6,802,686

Int. Cl. B63b *21/30*

U.S. Cl. 114—206 **6 Claims**



A marine anchor is in the form of a flat body having plowshaped flukes extending from one or both flat sides of the anchor. The flukes dig into the soil to a depth limited by contact of the flat body with the soil. A leeboard is disposed on the same side of the body as the flukes.

3,570,441
MARINE TOWLINE SHOCK ABSORBER

Norman A. Johnson, Delta, British Columbia, and Leonard D. Hengeveld, Richmond, British Columbia, Canada, assignors to Pneuveyco Equipment Ltd., Vancouver, British Columbia, Canada

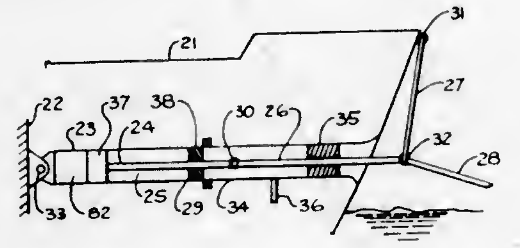
Filed June 2, 1969, Ser. No. 849,534

Claims priority, application Great Britain, June 13, 1968, 28103/68

Int. Cl. B63b *21/24*

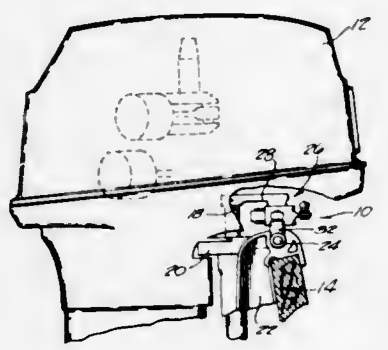
U.S. Cl. 114—235 **12 Claims**

An apparatus for use at the tow end of a marine towline and adapted to absorb shock loads and damp travelling waves in said towline. A marine towline is attached to an element which is restrained by a pendant attached to a tow and by a flexible tension member attached to an extensible member of a pneumatic cylinder, another member of which cylinder is attached to the tow. The geometric relationship of the pendant and flexible tension member is such that a shock load in the towline is initially borne substantially by the pneumatic cylinder but progressively shared with the pendant as the extensible member of the pneumatic cylinder extends.



3,570,442
NO BACK STEERING

William J. Shimanckas, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed May 19, 1969, Ser. No. 825,716
Int. Cl. B63h *21/26*
U.S. Cl. 115—18 **11 Claims**

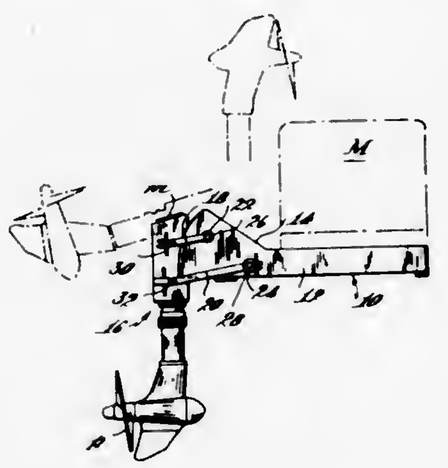


Disclosed herein is a steering mechanism for an outboard motor having a swivel bracket mounted for vertical swinging movement about a horizontal tilt pin, and a marine propulsion unit mounted for pivotal movement on the swivel bracket, the mechanism including a slide support rod connected to pivot about an axis normal to the axis of the tilt pin and a slide lock assembly connected to the marine propulsion unit and mounted for movement axially of the support rod, the slide lock assembly releasably restraining movement of the marine propulsion unit relative to the support rod from steering forces originating in the marine propulsion unit. The slide lock assembly includes a pivot pin mounted for movement axially of the support rod, a pair of levers having apertures slightly larger than the support rod, which levers are biased in angularly disposed relation on the support rod to respectively provide unidirectional restraint in opposite directions to the movement of the pivot pin with respect to the support rod and a slide block connected to a steering control member and mounted to slide on the support rod to selectively release the levers in response to steering movements originating from the steering control member.

3,570,443
OUTBOARD MOTOR SUPPORT

Peter Kitson Dewhurst, Weymouth, Mass., assignor to Mathewson Corporation, Quincy, Mass.
Filed Mar. 18, 1969, Ser. No. 808,264
Int. Cl. B63h *5/12*
U.S. Cl. 115—41 **15 Claims**

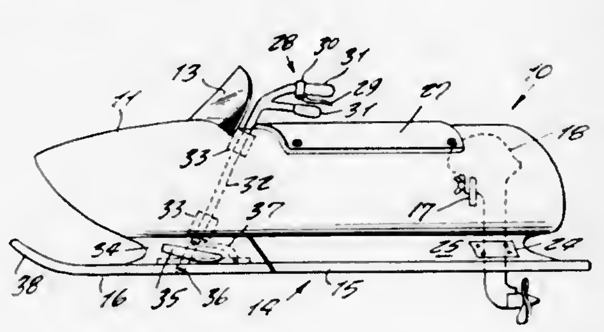
An outboard marine propulsion unit embodying a console adapted to be fastened to a vessel at the stern having spaced parallel arms extending therefrom over the transom for supporting a drive assembly, comprising a propeller and means for effecting rotation thereof, with the propeller submerged in water for rotation about a horizontal axis, and linkage mounting the assembly between the arms for linear and arcuate movement to raise the propeller substantially vertically upward a distance corresponding substantially to its radius and thereafter to swing it along an arc to an inverted position



in which it extends substantially vertically upward from the vessel.

3,570,444
MOTORSKI

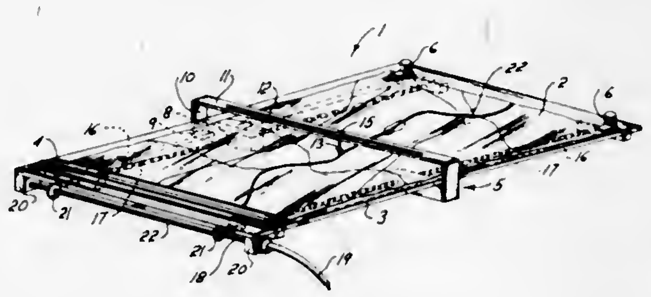
Robert L. Farr, 142 Center St., East Peoria, Ill.
Filed May 16, 1969, Ser. No. 827,477
Int. Cl. B63b *35/00*
U.S. Cl. 115—70 **1 Claim**



A craft for travel upon a water surface, the craft comprising a hull with a cockpit for carrying passengers, the hull carrying an outboard motor at its rear end, and the hull being mounted upon a single front ski and a single rear ski in longitudinal alignment with each other, the front ski being able to be steered manually.

3,570,445
MAP TRACKER

Richard E. Johnson, 24 West Broad, Paulsboro, N.J.
Filed Feb. 26, 1969, Ser. No. 802,449
Int. Cl. B11g *3/00*
U.S. Cl. 116—29 **10 Claims**



Means to approximately automatically track on a map, the course and position of a vehicle. Motion reducing means connected to the vehicle move a pointer forward at a rate proportional to the speed of the vehicle. The pointer has a degree of freedom for additional motion. A map is positioned beneath the pointer and has a desired route marked with a material to magnetically interact with the pointer so that the

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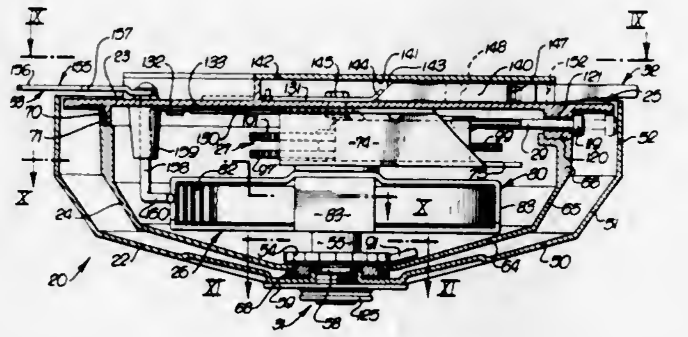
pointer always remains in contact with the route and follows it by moving through the additional degree of freedom.

3,570,446
FIRE DETECTION ALARM MEANS

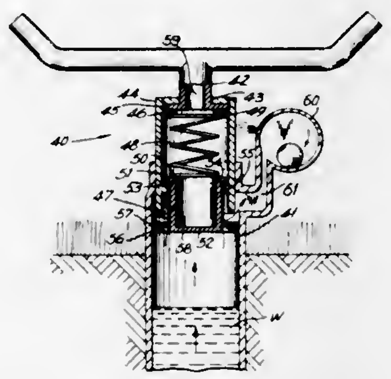
Wesley E. Buford, Covina, and Charles G. Buford, Azusa, Calif., assignors to Emdeko Distributing, Inc., Salt Lake City, Utah
Filed Sept. 23, 1968, Ser. No. 761,433
Int. Cl. G08b *17/00*
U.S. Cl. 116—102 **15 Claims**



A fire detection alarm means in which one or more hammers (and speed governors) have pivotal connections to a rotatable driven member and are held by an arcuate wall in backfolded, coiled, or cocked position with respect to the direction of rotation of the driven member for movement through a preselected angle, said arcuate wall ending in spaced relation to a sound pin for permitting uncoiling or uncocking of said hammer member in response to centrifugal forces with increased speed to strike said sound pin to forcibly drive the pin against a sound shell or bell.

3,570,447
LAWN SPRINKLER ALARM

Mark T. Basseches, Pleasantville, and Paula T. Basseches, Scarsdale, N.Y. Said Paula T. Basseches, assignor to Robert T. Basseches, Chevy Chase, Md.
Filed Nov. 8, 1968, Ser. No. 774,248
Int. Cl. G08b *21/00*
U.S. Cl. 116—112 **11 Claims**

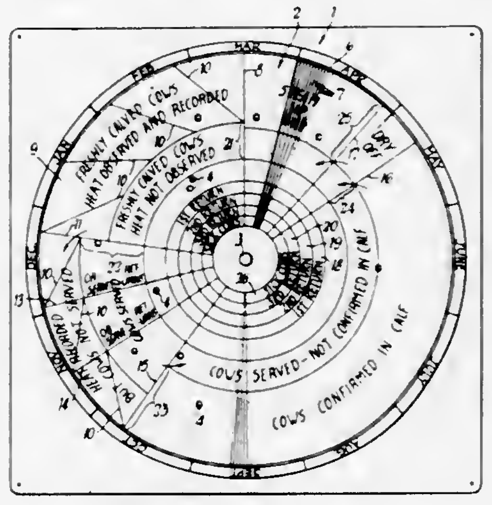


A lawn sprinkler having a warning mechanism incorporated therein for emitting a telltale warning signal responsive to admission of water pressure into the apparatus.

3,570,448
DEVICE FOR HERD MANAGEMENT

Robin Ian Yeoman Gates, 22 Station Road, Redhill, Surrey, England
Filed Nov. 28, 1969, Ser. No. 880,562
Claims priority, application Great Britain, Nov. 29, 1968, 56760/68
Int. Cl. G09f *9/00*
U.S. Cl. 116—133 **3 Claims**

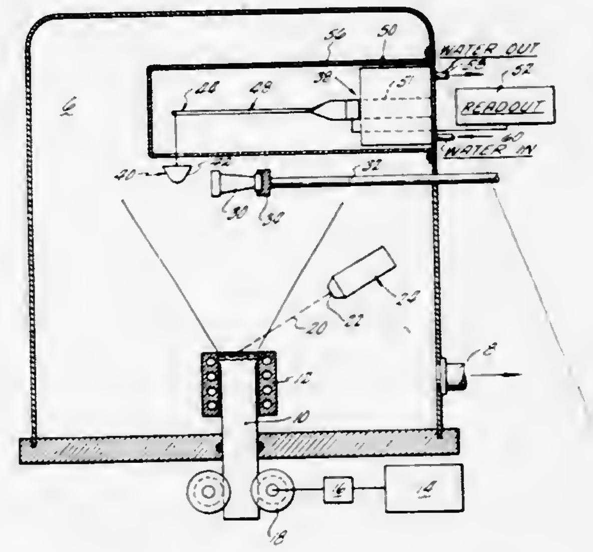
A device for herd management, particularly herds of cows, which records the offspring producing cycle, comprising a board and a transparent disc mounted at its center for rotation over one face of the board, the board having markings thereon representing observations and steps to be taken with an animal, these markings being arranged coordinate with



markings on the disc representing days and months of the year; and marker members for attachment to the disc representing an animal.

3,570,449
SENSOR SYSTEM FOR A VACUUM DEPOSITION APPARATUS

Sol S. Blecherman, Newington; Mitchell J. Bala, Hazardville; Robert B. Lougee, Windsor, and Johannes Grafwallner, South Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 13, 1969, Ser. No. 806,951
Int. Cl. C23c *13/08*
U.S. Cl. 118—9 **10 Claims**

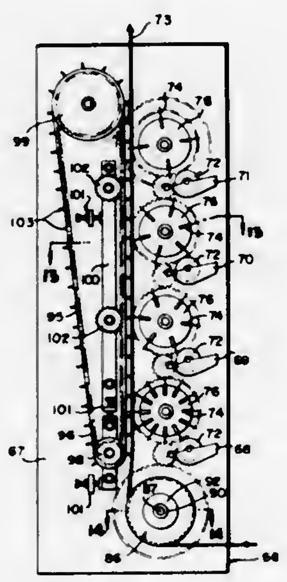


Apparatus for accurately determining, continuously, the coating thickness deposited on an article during a vapor deposition process. The apparatus utilizes a unique pickup plate and strain-gauged cantilever beam positioned within the vacuum chamber to continuously record the coating thickness deposited on the article.

3,570,450
MACHINE FOR CIRCUMFERENTIAL COLOR CODING

Chester J. Geating, 1102 E. Joppa Road, Towson, Md.
Original application Dec. 9, 1968, Ser. No. 782,025, now Patent No. 3,509,850, dated May 5, 1970, which is a division of application Ser. No. 579,026, Sept. 13, 1966, now Patent No. 3,434,456, dated Mar. 25, 1969. Divided and this application Dec. 10, 1969, Ser. No. 883,873
Int. Cl. B05c *1/14*
U.S. Cl. 118—221 **2 Claims**

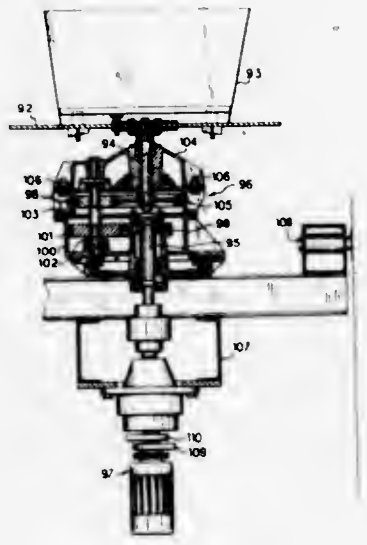
A machine for color coding moving strands which includes plural inkers each having plural inking areas arranged on a circular path on an inker, and having means driven by pulling on the strand for rotating the inkers, each inker being provided with a stationary ink supply into which the inking areas dip and the strand normally moving in a path slightly dispersed from the inking areas, means for actuating the strand into contact with the inking areas, the latter means comprising moving teeth which are synchronized with movement of the many areas and are so located that they never contact an inked area of the strand during passage of the strand through the machine.



3,570,451

ENAMELING APPARATUS

Robert Le Heron, Neuilly sur Seine; Harold Le Heron; Claude Saltel, and Frederic Lebouchard, Revin, France, assignors to Etablissements Porcher, Paris, France
Filed Sept. 12, 1967, Ser. No. 667,142
Claims priority, application France, Sept. 19, 1966, 76,856
Int. Cl. B05c *5/00*
U.S. Cl. 118—308 **15 Claims**

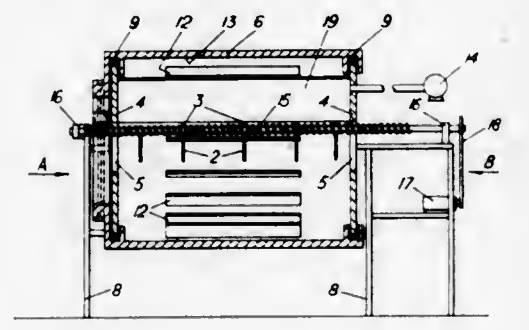


A method and apparatus for enameling metallic products such as cast iron bathtubs wherein the product to be enameled is mechanically conveyed to a preheating tunnel furnace where it remains sufficiently to reach a desired temperature. Then the product is automatically conveyed to a dredging station and oscillated during which enamel is mechanically distributed on the entire product from a dredging element which moves relative to the movement of the product. After application of the enamel, the product is conveyed to an enamel firing furnace and finally it is conveyed to a cooling station.

3,570,452

DRYING PASTED BATTERY PLATES

Eric Goodwin, Hyde, England, assignor to Oldham & Son Limited, Denton, Manchester, England
Filed May 13, 1968, Ser. No. 728,459
Claims priority, application Great Britain, May 31, 1967, 25031/67
Int. Cl. B05c *5/00*
U.S. Cl. 118—309 **8 Claims**

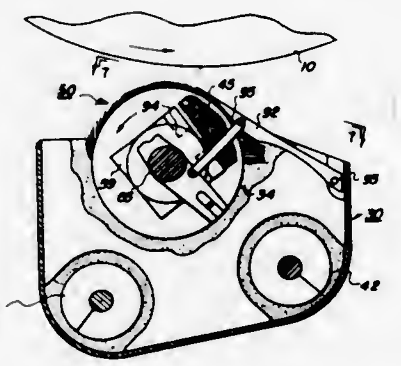


Pasted battery plates are dried by suspending them from conveyor means by which they are moved through a rotatable cylinder having vanes projecting from the interior thereof and which create in the cylinder a dust cloud of dry powder, the plates being moved through the cloud so that dust settles evenly on the surfaces of the plates.

3,570,453

DEVELOPMENT APPARATUS

Larry W. Nuzum, Columbus, Ohio, assignor to Xerox Corporation, Rochester, N.Y.
Filed Aug. 7, 1968, Ser. No. 750,852
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **5 Claims**



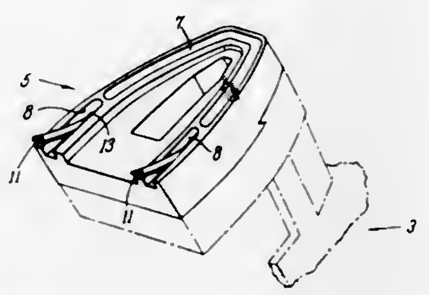
Apparatus to control the stopping and starting function of a magnetic brush developing system in which the magnetic brush is rapidly brought in and out of operative contact with an image bearing photoconductive surface.

3,570,454

ADHESIVE APPLYING DEVICE

George C. Barton, Leicester, England, assignor to USM Corporation, Flemington, N.J.
Filed May 6, 1969, Ser. No. 822,255
Claims priority, application Great Britain, May 10, 1968, 22176/68
Int. Cl. B05c *3/02*
U.S. Cl. 118—411 **4 Claims**

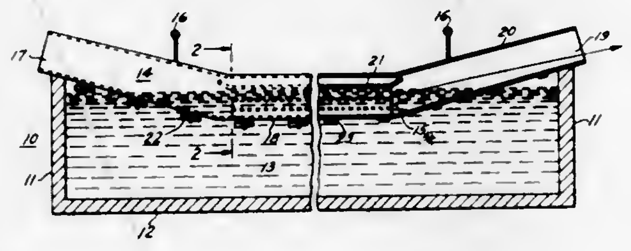
A device for applying adhesive to a shoe bottom through a groove closed at one end by a member biased out of the groove and depressible by engagement with the shoe bottom to adjust the length of the groove according to the size of shoe being operated upon.



3,570,455

ADJUSTABLE COATING BATH GUIDE

John Neil Laidman, Coopersburg, and Laurence B. Caldwell, Bethlehem, Pa., assignors to Bethlehem Steel Corporation
Filed May 8, 1969, Ser. No. 823,093
Int. Cl. B05c *3/02*
U.S. Cl. 118—428 **3 Claims**

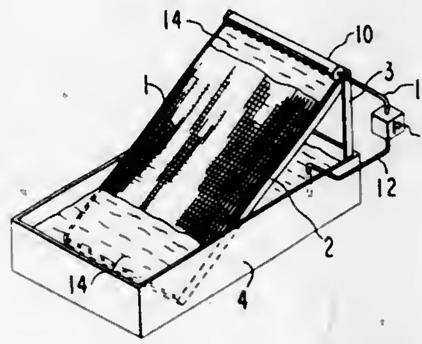


Adjustable apparatus to be partially immersed in a container holding a molten metal bath for guiding metallic members to be coated. The apparatus includes means to adjust its width to accommodate members which are passed through the bath in runs or groups having different widths or cross sections.

3,570,456

LIQUID DEVELOPMENT APPARATUS FOR DEVELOPMENT OF ELECTROSTATIC IMAGES

Guy A. Marlor; John A. Dahlquist, Palo Alto, and Eugene F. Cirimele, Sunnyvale, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Feb. 11, 1969, Ser. No. 798,304
Int. Cl. B05b *5/00*
U.S. Cl. 118—637 **4 Claims**

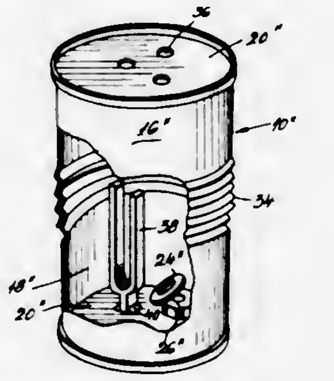


An inclined fine mesh screen of conductive material, in combination with a reservoir or liquid medium having toner therein, supports a body bearing an electrostatic latent image to be developed. Means dispense the toner charged liquid across the upper portion of the inclined screen.

3,570,457

DOG TRAINING DEVICE

Nancy L. Curtis, 10 Park Ave., New York, N.Y.
Filed July 7, 1969, Ser. No. 839,611
Int. Cl. A01k *15/00*
U.S. Cl. 119—29 **4 Claims**

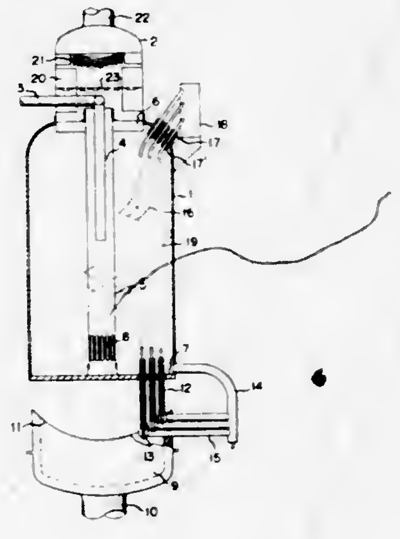


A sound emitting device for correcting behavior in dogs such as anxiety, intracability, coprophagy and the like. The device consists of a hollow cylindrical metal can with loose metal articles inside the can adapted to strike against the side and end walls of the can when the can is dropped or thrown on the floor and the like, close to where the dog is located. In a modification of the invention, the loose metal articles also strike a tuning fork mounted on the inner surface of one end wall of the can.

3,570,458

HEAT EXCHANGER CONSTRUCTION

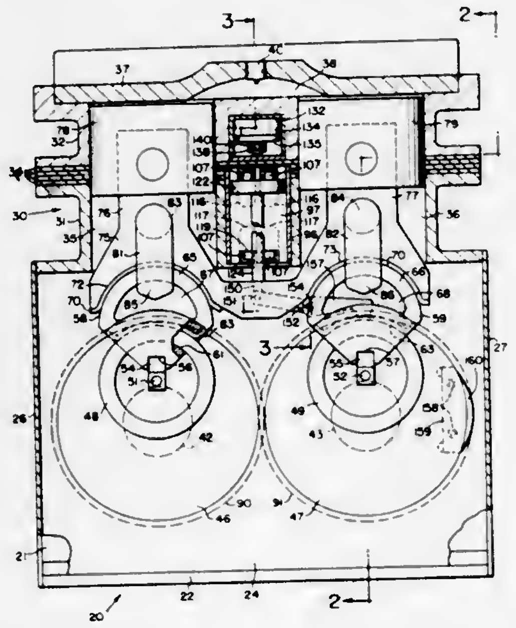
Takehiko Sato, Yokkaichi; Takao Kondo, Tokyo; Toshiji Omori; Hisao Ito, Kobe, and Masaru Terao, Osaka, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan and Mitsubishi Petrochemical Company Limited, Tokyo, Japan
Filed May 9, 1969, Ser. No. 823,431
Claims priority, application Japan, May 25, 1968, 43/35370
Int. Cl. F22b *1/02;* **F28f** *13/00*
U.S. Cl. 122—34 **13 Claims**



A heat exchanger such as a boiler comprises a liquid section having a wall with a plurality of sleeve pipes extending therethrough. The fire tubes for conducting high-temperature gases extend through the respective sleeve pipes and upwardly in the liquid section without being directly coupled to the wall of the liquid section. The fire tubes extend in the form of a gentle curve such as a spiral through the liquid section and extend outwardly through an upper wall of the liquid section through respective additional sleeve elements and connect at their upper ends into an outlet gas chamber. Liquid is circulated by natural circulation from the liquid section through an exterior duct to the hollow sleeve elements and around the fire tubes and back upwardly into the liquid section. The gently curved form of the fire tubes inside the liquid section and their free mounting at their passage through the sleeve elements provides a construction which is capable of withstanding the high thermal stresses which are present in such boilers.

3,570,459
TWO-STROKE CYCLE ENGINE

Van P. Combs, Penfield, N.Y., assignor to Bristol Associates, Inc., Rochester, N.Y.
Filed Apr. 17, 1969, Ser. No. 817,014
Int. Cl. F02b *75/18, 75/32;* **F16h** *21/18*
U.S. Cl. 123—52 **17 Claims**

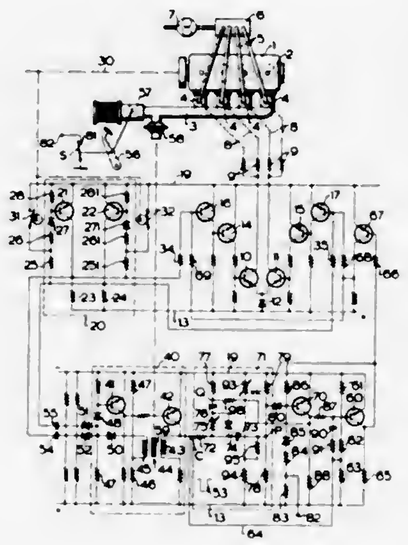


This engine has two crankshafts geared to one another to rotate in opposite directions about parallel axes, and two pistons, which reciprocate side-by-side in two cylinder bores that communicate with a common combustion chamber. The pistons are carried by a double yoke, which is connected by two rocker arms to two crankpins that are carried by flywheels coaxial with the crankshafts. Each pin is surrounded by an annular land that is integral with the associated flywheel. Each land passes through an arcuate recess in the associated rocker arm to guide the arm for limited pivotal movement about the crankpin during reciprocation of the yoke and pistons. The yoke carries a supercharger piston which controls the opening and closing of reed valves to supply fuel to a fuel chamber, which is periodically connected to the combustion chamber by a valve that is operated by a cam carried by one of the flywheels.

3,570,460
CONTROL SYSTEM FOR BLOCKING FUEL INJECTION IN AN INTERNAL COMBUSTION ENGINE

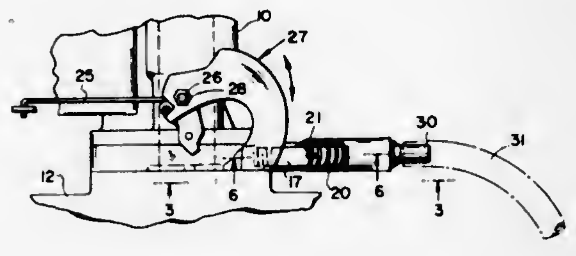
Friedrich Rabus, Stuttgart-Bad Cannstatt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Sept. 11, 1969, Ser. No. 856,997
Claims priority, application Germany, Sept. 21, 1968, P 17 76 103.4
Int. Cl. F02d *33/00, 11/10;* **F02b** *49/00*
U.S. Cl. 123—97 **14 Claims**

Opening pulses for fuel injectors are furnished by a multivibrator. The pulses are applied to a resistance-capacitance network which furnishes a negative pulse having an amplitude which varies with the speed and the temperature of the engine. This signal is applied to the base of a switching transistor whose bias is controlled by the accelerator pedal. The collector of the switching transistor is connected to the base of an auxiliary transistor, whose collector is connected by means of a feedback resistance to the base of the switching resistor. The opening pulse is also applied to the base of the auxiliary transistor by means of a series resistance-capacitance circuit. Blocking of the auxiliary transistor causes transmission of the opening pulse to the injector. The auxiliary transistor blocks only upon simultaneous conduction of the multivibrator furnishing the opening pulse and the switching transistor. The circuit is arranged to block the transmission of the opening pulses in case of speeds exceeding the idling speed while the accelerometer pedal is not depressed.



3,570,461
POSITIVE CRANKCASE VENTILATING DEVICES

Vincent Guarnaschelli, Greenlawn, N.Y., assignor to The Nycal Company, Inc., Carlstadt, N.J.
Continuation-in-part of application Ser. No. 726,109, May 2, 1968, now Patent No. 3,495,578. This application Dec. 2, 1969, Ser. No. 881,532
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 **15 Claims**

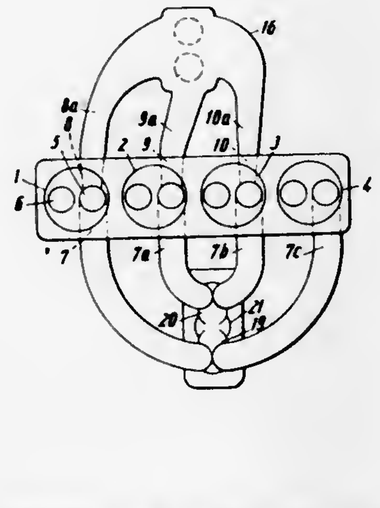


Connected into the downdraft side of the carburetor at one end and adapted to be connected via a conduit into the crankcase at the other end, an adjustable flow control valve is cam operated by the accelerator pedal linkage or mechanism which controls the degree of opening of the butterfly valve, or engine throttle. The valve has a range between a minimum and a maximum flow positions and is adjusted to provide for minimum flow when the throttle is at its minimum opening while the engine is idling and for maximum flow when the throttle is wide open at its maximum position.

3,570,462
SUCTION PIPE HEATING BY EXHAUST GAS

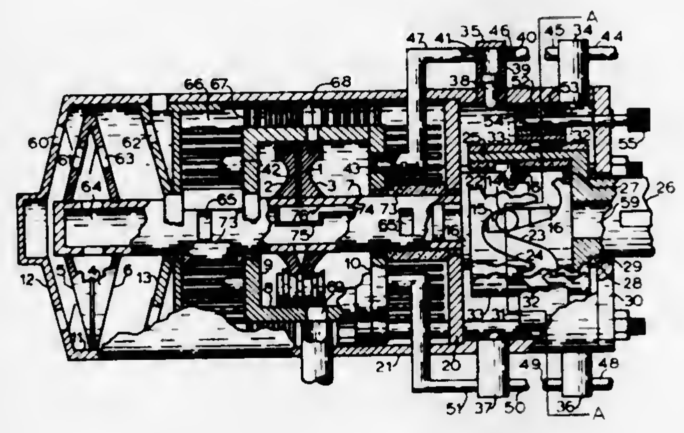
Franz Hauk, Ingolstadt, Germany, assignor to Auto Union G.m.b.H., Ingolstadt, Germany
Filed May 6, 1968, Ser. No. 726,976
Claims priority, application Germany, May 17, 1967, P 15 76 445.1
Int. Cl. F02m *31/00*
U.S. Cl. 123—122 **1 Claim**

In a four-cylinder combustion engine, the heating of the suction pipe by exhaust gas is carried out by a device wherein a separate branch conduit is branched off from the exhaust piping of three cylinders and opens into a preheating conduit having a common wall with the suction pipe.



3,570,463
REGENERATIVE COMBUSTION CYCLE PISTON ENGINE

Daniel E. Nelson, Box 576, Pacific Grove, Calif.
Continuation-in-part of application Ser. No. 437,682, Mar. 8, 1965, now abandoned , and a continuation-in-part of 656,437, July 27, 1967, now abandoned , and a continuation-in-part of 684,377, Nov. 20, 1967, now abandoned. This application Jan. 12, 1970, Ser. No. 870,644
Int. Cl. F02m *31/00;* **F02b** *75/20, 33/10*
U.S. Cl. 123—122D **11 Claims**

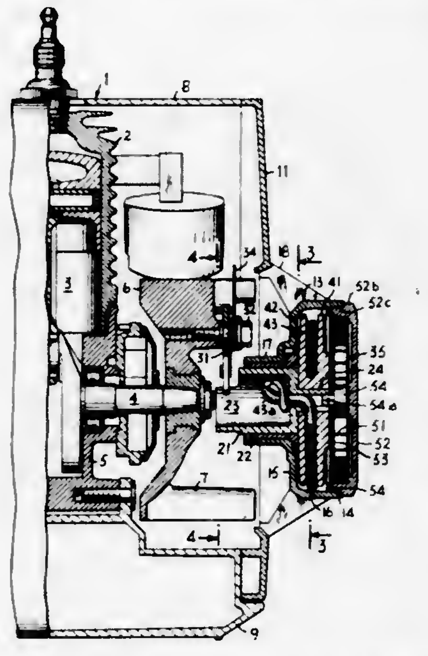


This is a regenerative combustion cycle piston engine with a heat exchange chamber at the outside of a power cylinder, a compressor, a conveyance between the compressor and the heat exchange chamber and a rotary power takeoff.

3,570,464
STARTER MECHANISM

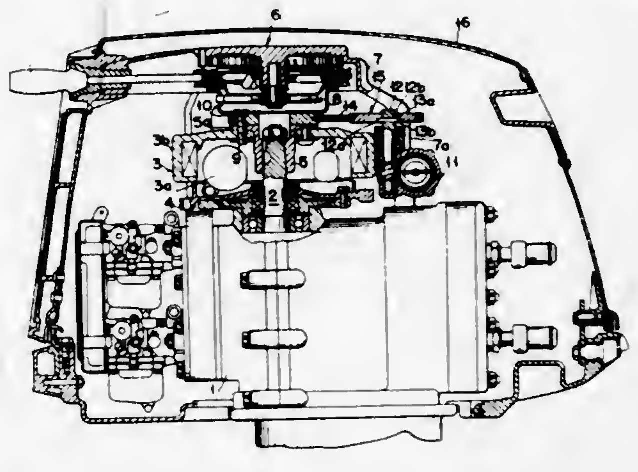
Vincent D. Morabit, Cos Cob, Conn., and Robert D. Olmstead, Briar Cliff Manor, N.Y., assignors to Textron, Inc., Providence, R.I.
Filed May 6, 1969, Ser. No. 822,208
Int. Cl. F02n *1/00*
U.S. Cl. 123—185 **9 Claims**

A rewind starter for an internal combustion engine having a combined flywheel and fan on one end of the crankshaft comprises a cup coaxial with the crankshaft rotatably supported in a bearing provided in a starter housing having a ring of openings to admit air to the flywheel. Pawls on the flywheel are releasably engageable with shoulders on the cup to couple the cup with the crankshaft. A starter pulley fixed on the outer end of the cup is received in a recess in the starter housing closed by a dished cover holding a rewind spring having its outer end secured to the cover and its inner end secured to an arbor rotatable with the cup and pulley.



3,570,465
RECOIL STARTER AND LUBRICATING PUMP DRIVE FOR OUTBOARD MOTOR

Yutaka Masaoka, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-Ken, Japan
Filed Sept. 16, 1969, Ser. No. 858,286
Claims priority, application Japan, Sept. 19, 1968, 42/80979
Int. Cl. F02n *3/02;* **F01m** *1/02, 3/00*
U.S. Cl. 123—185 **3 Claims**

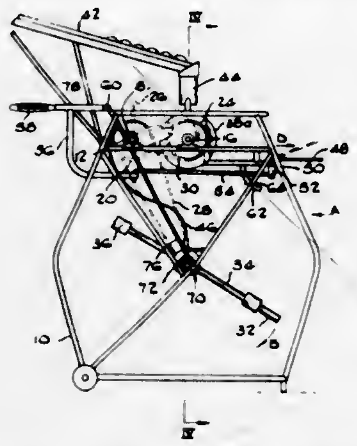


An outboard motor wherein the fitting arrangement of a lubricating pump for lubricating an internal combustion engine is so designed as to be simple and compact, and a transmission gear mechanism for allowing said pump to be driven by the power of an engine is saved from the deposition of water drops or water scales by said arrangement.

3,570,466
APPARATUS FOR EJECTING BALLS

Brian G. C. White; Derek W. Schroeder, Johannesburg; and Donald C. Logan, Randburg, Republic of South Africa, assignors to said Schroeder and said Logan assignors to said White
Filed Aug. 15, 1968, Ser. No. 752,926
Claims priority, application, Republic of South Africa, Aug. 17, 1967,
67/4954
Int. Cl. F41b *15/00*
U.S. Cl. 124—1 **6 Claims**

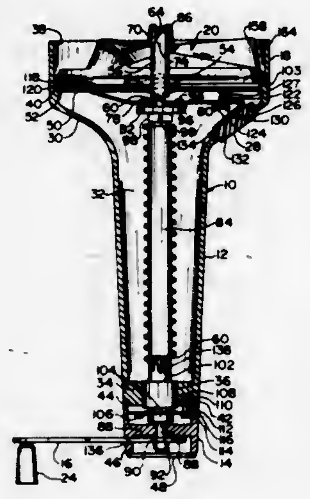
A sports apparatus for ejecting balls, such as tennis, cricket, baseball and similar balls, to provide a service of balls for training practice or for playing a game. The apparatus comprises a framework, a hammer with a striking face and which is mounted for continuous rotational movement about a shaft mounted on the framework so that the



striking face describes a circular path of movement, and a feeder device comprised of a pair of spaced feeder plates positioned so that the striking face of the hammer will pass between them and adapted to feed successive balls to be positioned in the path of movement of the striking face.

3,570,467
BIRD LAUNCHER

Paul Belokin, Jr., Berwyn, Ill., assignor to Woodstream Corporation, Lititz, Pa.
Filed June 16, 1967, Ser. No. 646,648
Int. Cl. F41b *15/00*
U.S. Cl. 124—26 **4 Claims**

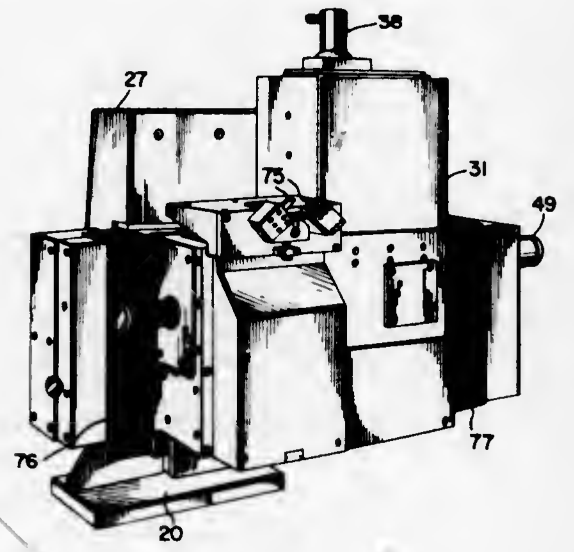


A device is described for launching an aerial target and a target is described for use with such devices. In one embodiment a manually operated mechanical launcher is described having a spring-actuated rotary shaft with means for axially engaging the recessed hub of a target which upon release causes the target to carry itself into the air in a manner peculiarly adapted to target practice and related sports. Both the launcher and target have cooperating concentric cowling walls which allow the target to become airborne with the proper orientation and forward speed for target practice. In one embodiment the target is designed with radial balanced fins or blades joined to a recessed hub within a ring housing and being radially offset from both the hub and housing. Other embodiments are disclosed.

3,570,468
APPARATUS FOR FORMING CONTOURS

Nils Hoglund, Short Hills, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.
Filed May 15, 1969, Ser. No. 824,779
Int. Cl. B24b *53/00*
U.S. Cl. 125—11 **6 Claims**

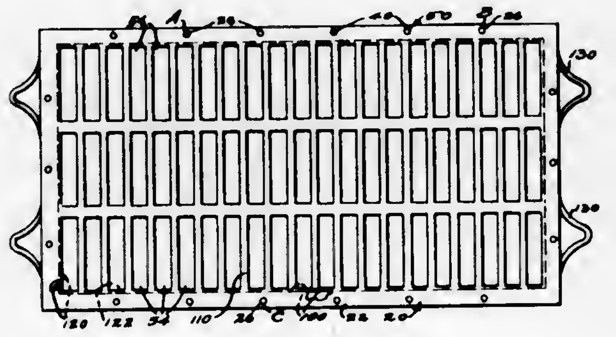
The apparatus, intended for forming contours on or dressing surfaces of grinding wheels, includes a base supporting an adjustable slide guide upon which the main housing is slidably supported on an elongated slide guide fixed at its ends to the adjustable slide guide. Slidably mounted in the housing is a main slide carrying on one side thereof a removably mounted feed cam and a contour cam, both elongated. An adjustable follower mounted on the adjustable



slide guide engages the feed cam. A ratio cam slide has a follower engaging the contour cam and has mounted thereon a ratio cam. A tool slide is mounted in the housing and has a follower engaging the ratio cam. The ratio cam slide is easily removable from the housing to permit quick interchange of ratio cams. Biasing springs maintain the cams and followers in contact.

3,570,469
BARBECUE GRILL WITH DISPOSABLE TOP

Denton H. Jones, 3504 S. 100th Ave., Omaha, Nebr.
Filed Mar. 23, 1970, Ser. No. 21,786
Int. Cl. A47j *37/00;* **F24b** *3/00*
U.S. Cl. 126—25R **9 Claims**



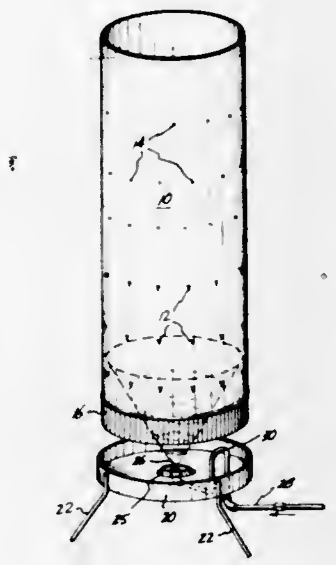
A barbecue grill having a fire holder, a grill top, anchoring means disposed in anchoring engagement with the grill top, the grill top having a central meat-receiving portion which is unsupported by means other than the edge portions of the grill top itself.

3,570,470
SPACE HEATER

Franklin D. Milum, Granger, Wash. (Rte. 2, Box 145, Prosser, Wash. 99350)
Filed Apr. 28, 1969, Ser. No. 819,823
Int. Cl. A01g *13/06*
U.S. Cl. 126—59.5 **3 Claims**

A space heater having an upright tubular combustion chamber has a pan closing the bottom of the chamber and provided with a central fuel atomizing means positioned in an aperture. A conduit delivering fuel to said atomizing means from beneath the pan includes an upstanding loop rising

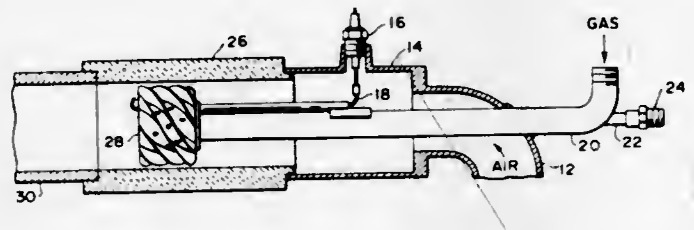
above said pan within said chamber in close proximity to fuel sprayed from said atomizing means. The aperture surrounds



the fuel atomizing means and is disposed in a plane of the pan bottom.

3,570,471
RADIANT TUBE HAVING UNIFORM HIGH-TEMPERATURE DISTRIBUTION

Lazaros J. Lazaridis, Lincoln, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.
Filed Feb. 14, 1969, Ser. No. 799,249
Int. Cl. F24c *3/00*
U.S. Cl. 126—91 **5 Claims**

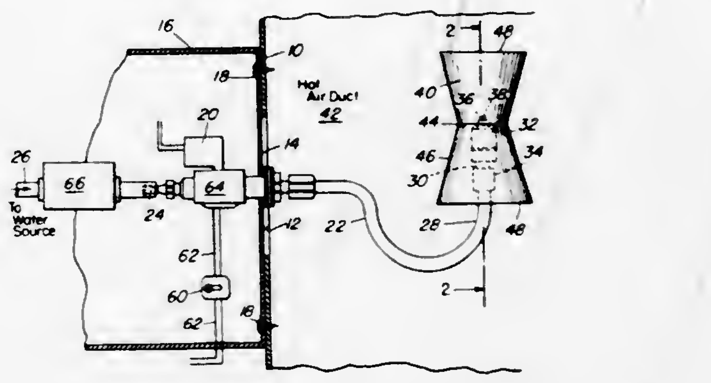


Radiant tube heating apparatus in which rotation is imparted to a fuel-air mixture in a burner head and in which rotation continues after ignition as the flue gases travel in a helical path down the radiant tube. The continuing rotary action disrupts boundary layers permitting efficient heat transfer from flue gases to radiant tube, and further provides uniform temperature distribution along the tube. The rotation is initiated by helical channels formed in the peripheral surface of the burner head. Air is forced through those channels at high velocity and fuel is fed through the interior of the head and into the channels at right angles through a series of spaced orifices. The resultant complete mixing followed by near-adiabatic combustion create extremely high flame temperatures resulting in high radiant tube temperatures and high heat fluxes and heat release rates.

3,570,472
ATOMIZER TYPE HUMIDIFIERS FOR USE IN HEATING PLANTS SUCH AS FURNACES AND THE LIKE

James Santangelo, 365 Sherman St., Passaic, N.J.
Filed Aug. 16, 1968, Ser. No. 753,120
Int. Cl. F24f *3/14*
U.S. Cl. 126—113 **6 Claims**

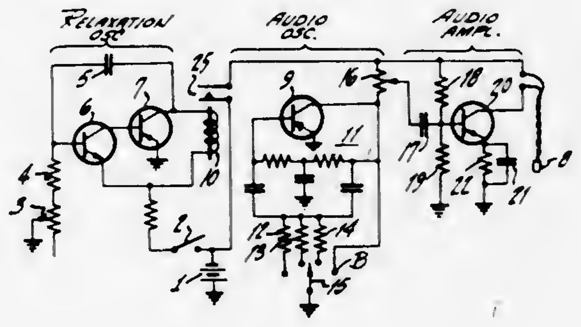
Dispersing means for improving the mixture of water droplets emanating from atomizer-type humidifiers with the hot air conducted from a heating plant is disclosed. The dispersing means is of a configuration e.g. is a constricted tube, so as to cause turbulence in the hot air stream flowing through the dispersing means and it is into this turbulence



that the atomized water droplets are projected. The resulting improved mixture deters "liming" and dripping in the system.

3,570,473
MANUALLY CONTROLLABLE MEDICAL AID OSCILLATOR INSTRUMENT

Robert L. Konvalin, Hicksville, N.Y., assignor to Cargille Scientific, Inc., Cedar Grove, N.J.
Filed Feb. 28, 1966, Ser. No. 530,542
Int. Cl. A61n *1/36*
U.S. Cl. 128—1 **1 Claim**

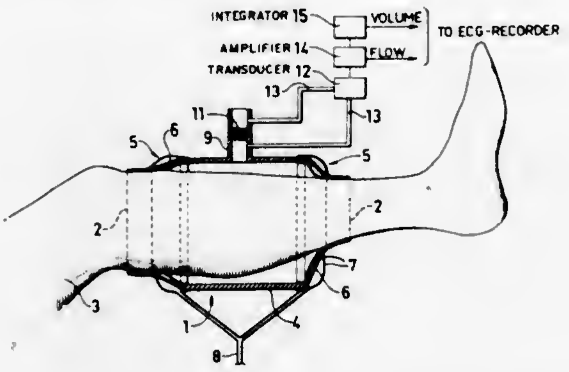


A medical aid instrument producing an audible rhythmical cadence for initiating and sustaining a walking pattern comprising a relaxation oscillator which produces beats in the range of 30 to 120 per minute and has a manual on-off switch under control of the patient. An embodiment of the invention includes a relaxation oscillator, a phase shift oscillator controlled by said relaxation oscillator, and an audio amplifier following the phase shift oscillator. The output of the audio amplifier may be connected to an ear plug or to an electrode assembly adapted to be felt by the patient.

3,570,474
APPARATUS FOR QUANTITATIVE INDICATING OF SMALL AND RAPID VOLUME CHANGES IN A PART OF AN EXTREMITY

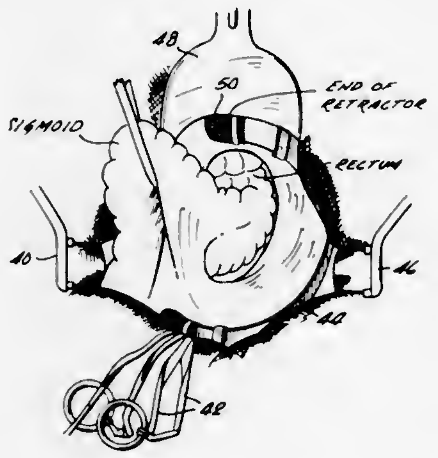
Bjorn Lars Herman Jonson, Lomma, Sweden, assignor to Jarnhs Elektriska Aktiebolag, Industrivag, Solna, Sweden
Filed Mar. 27, 1968, Ser. No. 716,640
Claims priority, application Sweden, Mar. 30, 1967, 4345/67
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 **4 Claims**

In an apparatus for quantitative indicating of small and rapid volume changes in a part of an extremity there is provided a plethysmograph with a rigid shell and a number of pivoted rigid plates at each end of the shell partially overlapping each other. These plates at each end of the shell are enclosed in an evacuable casing and are adjustable to be sealingly engaged with the extremity together with said casing, said plates being locked in their adjusted position by the evacuation of said casing.



3,570,475
SURGICAL RETRACTOR

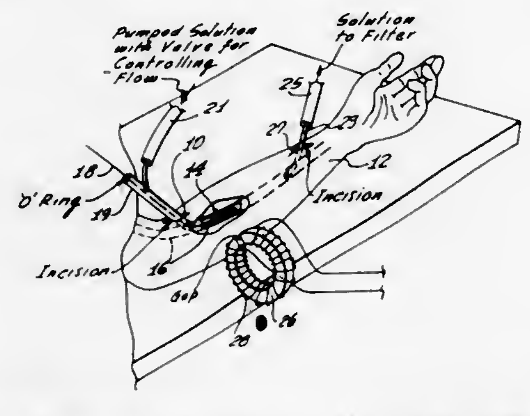
Mandel Weinstein, 30 Deepdene Road, Forrest Hills, N.Y.
Filed Nov. 14, 1968, Ser. No. 775,778
Int. Cl. A61b *1/32, 17/02*
U.S. Cl. 128—20 **5 Claims**



A surgical retractor particularly suited for use in surgical procedures involving the lower pelvic region is constructed of a resilient partially deformable strip of material having rounded edges. The retractor is adapted to be flexed and inserted horizontally into a surgical wound whereby the resiliency of the material serves to retract body portions. In a preferred embodiment, the length of the retractor may be adjustable.

3,570,476
MAGNETOSTRICTIVE MEDICAL INSTRUMENT

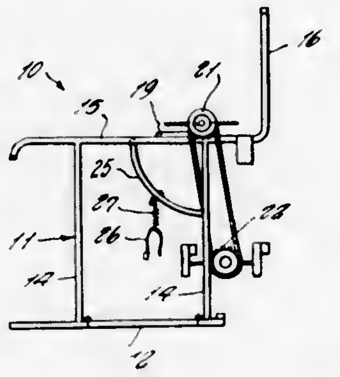
David Paul Gregg, 1936 Ketton Ave., Los Angeles, Calif.
Filed Nov. 18, 1968, Ser. No. 776,575
Int. Cl. A61h *1/00;* **A61b** *17/00*
U.S. Cl. 128—24 **9 Claims**



A medical instrument which may be inserted into an artery of a patient, and which includes a magnetostrictive element that serves to remove cholesterol or other fatty deposits from the interior wall of the artery. The term "magnetostrictive" as used herein is intended to embrace the equivalent elements, such as "piezoelectric" and "electrostrictive" in which mechanical vibrations may be set up by the application of electrical energy.

3,570,477
PARALYTIC ACTIVATING MACHINE

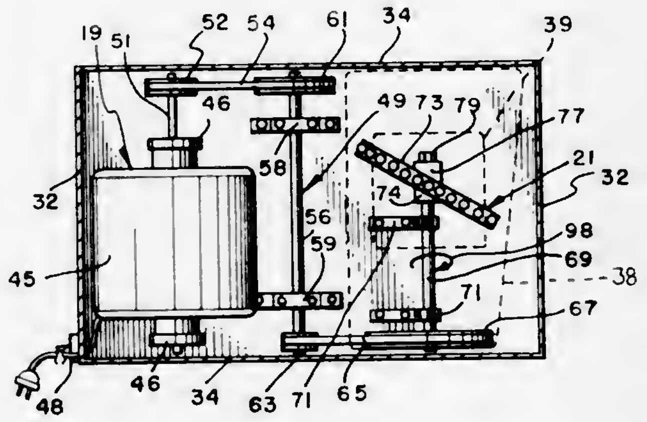
John V. Scrivner, Star Rt. 5, Box 209, Rye, Colo.
Filed Apr. 28, 1969, Ser. No. 819,779
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 **3 Claims**



A machine for use by paralytic patients, the machine permitting the patient to do various exercises directly from a wheelchair, the machine including a frame with leg straps to support the patient's knees, the frame carrying a rotatable handcrank driving a footcrank on which the patient places his feet, thus promoting exercise of the leg muscles and joints.

3,570,478
FOOT MASSAGER APPARATUS

Lester L. Schneider, El Dorado, Kans. (3915 West 19th St., Topeka, Kans. 66604)
Filed Oct. 10, 1968, Ser. No. 766,483
Int. Cl. A61h *15/00*
U.S. Cl. 128—57 **2 Claims**



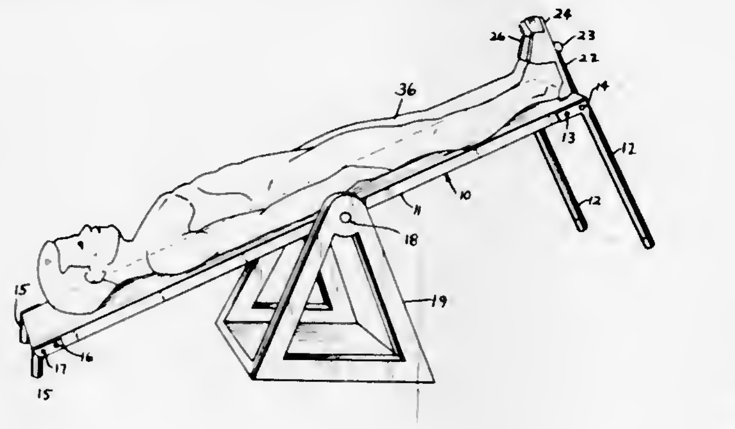
A foot massager apparatus including a massager assembly comprising a support shaft driven by an electric power supply. The support shaft has a massager plate, vertically mounted at approximately a 45° angle to the support shaft. The massager plate carries a plurality of spherical roller assemblies to impart a continuous massaging motion to a foot placed thereagainst.

3,570,479
TRACTION TABLE

Gerald E. Horn, 84 N. Lake St., North East, Pa.
Filed June 3, 1968, Ser. No. 733,956
Int. Cl. A61f *5/00*
U.S. Cl. 128—71 **5 Claims**

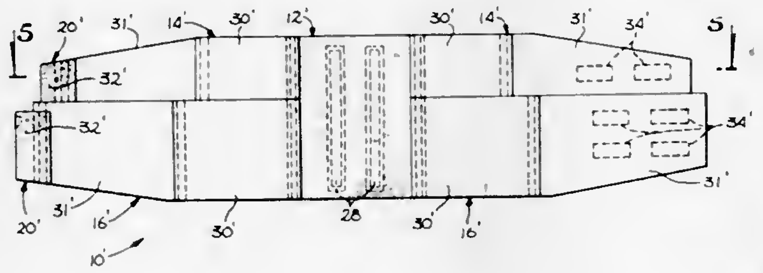
The traction table having a stand and a tablelike top with legs on each end. The legs on one end are about the same

length as the height of the stand so that when the table top is horizontal, it rests on the two long legs. In this position, a person can sit on the table top between the stand and the long legs. When the person attaches the foot holders to his feet and reclines on the table, the table top will overbalance and move to an inclined position, resting on its short legs. In this position the person's head will be over the short table legs, and his weight will be inclined to slide his body over the table top toward the head and a tension or traction will thereby be exerted on his body by the foot holders. If the person's head is attached to the traction holder, a maximum tension will be exerted on his neck. If his body is attached to the table at the belt line, a maximum tension will be exerted on the sacroiliac. Prior traction devices depend on weights, winches and other force delivering devices to exert traction on the body.



3,570,480
MEDICAL CORSET

Frank F. Stubbs, 14725½ Oxnard St., Van Nuys, Calif.
Filed Oct. 11, 1968, Ser. No. 766,748
Int. Cl. A61f *5/02*
U.S. Cl. 128—78 **4 Claims**

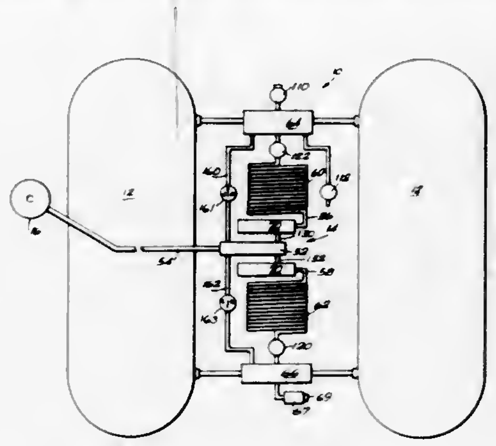


A medical corset to be worn about the waist for supporting the wearer's back and abdominal regions. The corset has a posterior back supporting panel containing metal stays which are bendable to conform to a variety of body back contours, a number of separate elastic, laterally overlapping body bands of different length secured to the longitudinal edges of the panel for encircling the wearer's waist, and fastening means for adjustably joining the bands in front of the wearer's body in such a way as to accommodate application of the corset to a variety of body sizes and shapes.

3,570,481
CRYOGENIC UNDERWATER BREATHING APPARATUS

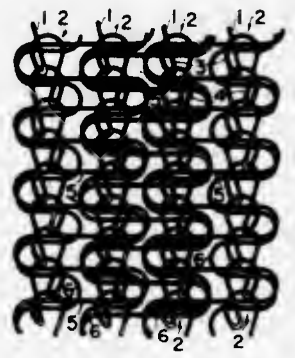
James W. Woodberry, Jr, Titusville, Fla., assignor to Cryogenic Systems, Inc., West Hartford, Conn.
Continuation-in-part of application Ser. No. 641,956, May 29, 1967, now abandoned. This application Oct. 23, 1968, Ser. No. 769,806
Int. Cl. B63c *11/22*
U.S. Cl. 128—142.2 **10 Claims**

Cryogenic underwater breathing apparatus includes a liquid state air storing vessel with outlet ports on antipodal, diametrically opposite ends thereof. Liquid air flows through a selected one of the tank output ports under gravity actuation depending upon the attitude of the tank, with the air being converted to a gaseous state in a heat exchanger and thence flowing to a reservoir and an output demand regulator for consumption. Regulator control valves are provided to maintain the end air product stored in the reservoir at a predetermined pressure above that of the ambient environmental medium.



3,570,482
ELASTIC SURGICAL BANDAGE

Shigeru Emoto, and Hiroshi Yamamoto, Shizuoka-ken, Japan, assignors to Fujiboseki Kabushiki Kaisha, Tokyo-to, Japan
Filed Dec. 9, 1968, Ser. No. 782,030
Int. Cl. A61f *15/00*
U.S. Cl. 128—156 **10 Claims**

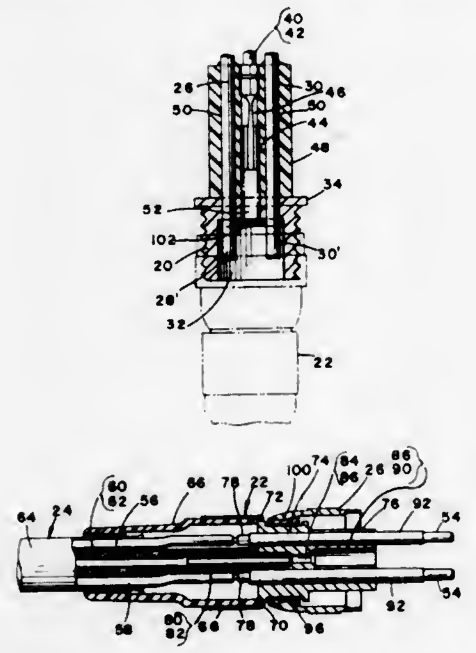


Elastic surgical bandage consisting of chain stitches each formed of nonelastic yarn running reciprocatively across adjoining loops in the chain stitches or across the loops of more than one wale ahead, and polyurethane yarn knitted along the wale, through a portion or all parts of the successive loops in the chain stitch.

3,570,483
DENTAL SYRINGE WITH RELEASABLE HOSE COUPLING

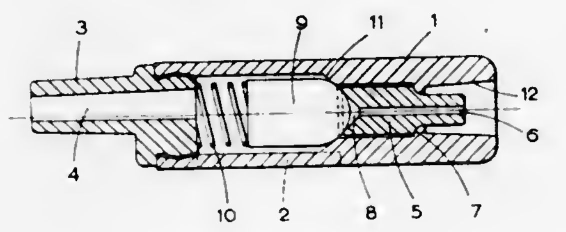
George H. Stram, Hellam, Pa., assignor to Dentsply International Inc., York, Pa.
Filed Oct. 30, 1967, Ser. No. 678,952
Int. Cl. A61c *17/02*
U.S. Cl. 128—173.1 **2 Claims**

A dental syringe provided with a handle having a coupling end and a discharge head for air, water and a spray mist and an electrical heater in the handle. A flexible hose having a coupling end connectable to the coupling end of the handle to supply air, water and electrical current thereto. Coupling means engages with the coupling ends of the handle and hose operable to quickly connect said hose to said handle and automatically connect the conduits and conductors of said hose correspondingly to those in said handle without any disassembly of the syringe. The male coupling body is made of metal and is attached to the flexible hose and has female passages for air and water and for two male electrical conductors, which are surrounded by electrical insulation which extends beyond the end of the coupling body. The female coupling body is made of an electrically insulative material and has male air and water passages and female passages having electrical conductors. When coupled, the insulation around the male electrical conductors extends into the female electrical passages in the female connector.



3,570,484
INTRAVENOUS VALVE ASSEMBLY

Peter Leslie Steer, London, and Paul Hex Venn, Eastbourne, England, assignors to Eschmann Bros. & Walsh Limited
Filed Aug. 20, 1968, Ser. No. 754,064
Claims priority, application Great Britain, Aug. 31, 1967, 39,891
Int. Cl. A61m *05/00*
U.S. Cl. 128—214 **2 Claims**

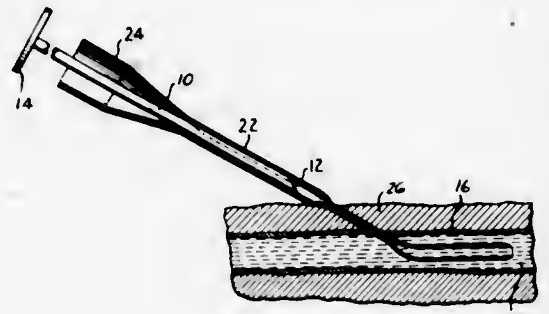


The invention relates to devices for administering intravenous injections of liquids such as drugs, anesthetics or transfusion liquids. The device includes a valve body having a holder for an injection needle. The holder has an outlet passage which communicates with the needle. A nonreturn valve is arranged in the valve body. A valve operating plunger has a portion projecting from the body to enable the valve to be opened by operation of the plunger. The plunger has an inlet passage through which liquid to be injected can pass from a syringe into the valve body and thence pass the nonreturn valve to the outlet passage.

3,570,485
FLEXIBLE CATHETER AND INSERTING APPARATUS

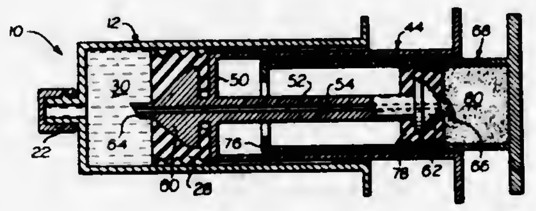
Richard J. Reilly, Deerfield, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed May 6, 1968, Ser. No. 726,875
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **5 Claims**

A cannula is disposed about a stylet with a sharp forward end for incising the wall of an organ having a lumen for receiving the cannula from which, thereafter, the stylet is removable. The cannula may be collapsible for preventing fluid flow relative to the organ upon stylet removal, and thereafter defines a path, for inserting the catheter into the lumen. A slit extending longitudinally of the cannula may be provided to enable rapid stripping of the latter from the catheter which is longer than the cannula.



3,570,486
MIXING SYRINGE

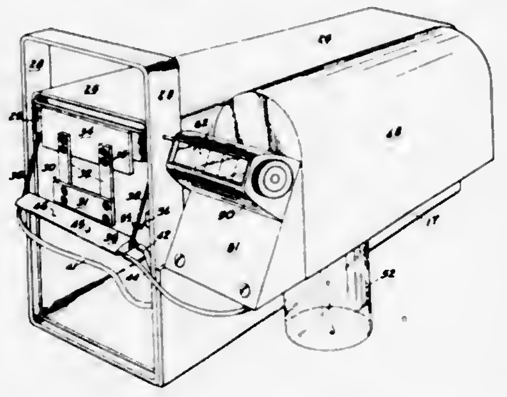
Harvey J. Engelsher, Yonkers, N.Y.; Peter C. Hofstra, Paterson, N.J., and Robert W. McKirdy, Scarsdale, N.Y., assignors to Horizon Industries, Ltd., New York, N.Y.
Filed Oct. 14, 1968, Ser. No. 767,262
Int. Cl. A61m *5/22*
U.S. Cl. 128—218 **10 Claims**



A mixing syringe assembly which maintains the respective constituents of a composition in separate chambers, and which includes a shuttle assembly for interconnecting the chambers for mixing the respective constituents therein prior to use.

3,570,487
CHICK DEBEAKING AND VACCINATING APPARATUS

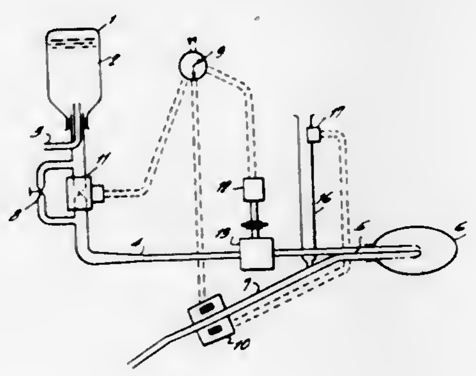
Lamar W. Reynolds, Gainesville, Ga., assignor to Beak-O-Vac, Inc., Gainesville, Ga.
Filed Apr. 3, 1967, Ser. No. 627,842
Int. Cl. A61d *7/00, 17/38*
U.S. Cl. 128—223 **2 Claims**



Chick treatment method and apparatus comprising a heated cauterizing element, a hollow beak receiving and support member pivotal into juxtaposition with the cauterizing element, a vaccine source, a pump connected between the vaccine source and the support member for pumping vaccine through the support member into the oral cavity of a chick, support member cooling means, a counter, and switch means responsive to the pivoting of the support member for energizing the pump and counter.

3,570,488
AUTOMATIC APPARATUS FOR URINARY BLADDER IRRIGATION

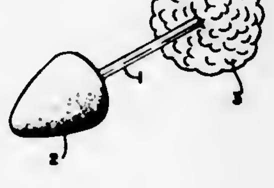
Mordechai Diskin, Haifa, and Amnon David, Ramat-Gan, Israel, assignors to Technion Research & Development Foundation Limited
Filed May 12, 1969, Ser. No. 823,780
Continuation-in-part of Ser. No. 588,643, Oct. 5, 1966, Pat. No. 3,481,334
Int. Cl. A61m *1/00*
U.S. Cl. 128—230 **4 Claims**



An apparatus for the automatic irrigation of urinary bladders includes a means to cycle the inflation, deflation and flushing of the bladder. The apparatus includes a supply vessel, two flow control valves, a supply tube with a bladder catheter and timing means to control one of the flow control valves. A pump, controlled by the timing means, may also be used.

3,570,489
HYGIENIC GUARDING DEVICE

James Graham Brown, Star Rte 5, Varina, Richmond, Va.
Filed July 29, 1965, Ser. No. 475,759
Int. Cl. A61b *19/00;* **A61f** *5/44*
U.S. Cl. 128—275 **3 Claims**



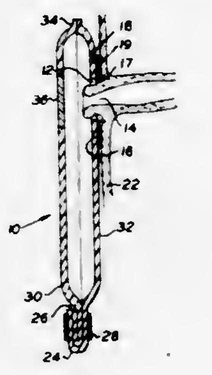
Intended for use as an insert in a lower cavity of the human body to prevent undesired discharge therefrom.

It comprises a stiff but relatively slender stem, to one end of which is permanently secured a plug or head of insoluble material. To the other end of the stem is attached a mass or fluff of soft, fibrous, absorbent material. The stem is sufficiently stiff and strong to serve as an applicator to insert the head or plug up through the anal canal, for example, into the rectum. The stem is of such length that, when the head or plug is thus inserted, the mass or fluff of soft absorbent material will be held snugly against the opening of the anus.

3,570,490
ENTEROSTOMY POUCH

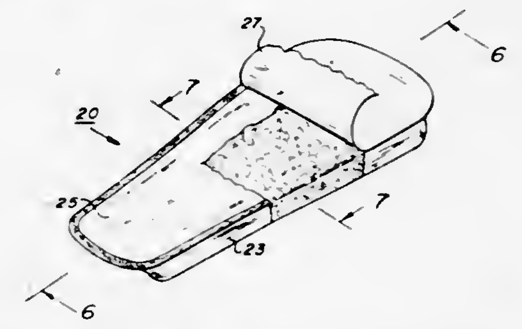
Leon Berger, Merrick, N.Y., assignor to Atlantic Surgical Company, Inc., Merrick, N.Y.
Filed Nov. 15, 1968, Ser. No. 776,181
Int. Cl. A61f *5/44*
U.S. Cl. 128—283 **9 Claims**

An opaque enterostomy pouch having a transparent window which permits visual access to the stoma-receiving opening in the pouch thereby permitting visual verification of its fit and alignment on the user.



3,570,491
DISPOSABLE SANITARY PAD

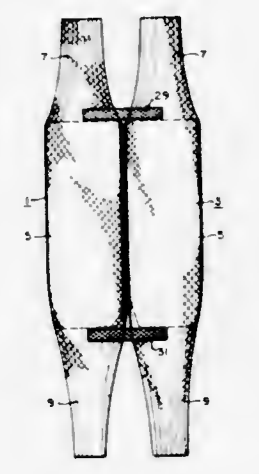
Vincent R. Sneider, 3422 Hallcrest Drive N.E., Atlanta, Ga.
Continuation-in-part of application Ser. No. 735,772, June 10, 1968. This application Feb. 16, 1970, Ser. No. 11,388
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 **16 Claims**



A disposable sanitary pad in which a high absorbency fill member is retained and protected by a thin absorbent cover, both being attached to a thin flexible plastic back member having a thickness of one thousandth to two thousandths of an inch. This plastic back member, on its opposite side, is provided with a nontoxic adhesive surface which, in its shipping and stored condition, is protected by a pullaway cover. The nontoxic adhesive, in its exposed or uncovered condition, is adapted to removably attach the sanitary pad to a portion of a garment such as the crotch of a panty or the like.

3,570,492
SANITARY NAPKIN ASSEMBLY

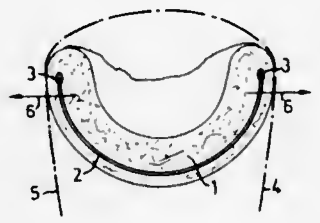
Joseph Bettencourt, Albany, Calif., assignor to Edward Brosler, a fractional interest
Filed Dec. 23, 1968, Ser. No. 786,047
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 **5 Claims**



A pair of sanitary napkins of approximately half normal thickness, and each having a body contacting wall and opposite flow barrier wall, are assembled in alignment with the body contacting wall of one covering the flow barrier wall of the other, the two napkins being hingedly connected at one side to maintain a connection between the two while permitting a reversal of the order of arrangement thereof.

3,570,493
SANITARY TOWEL

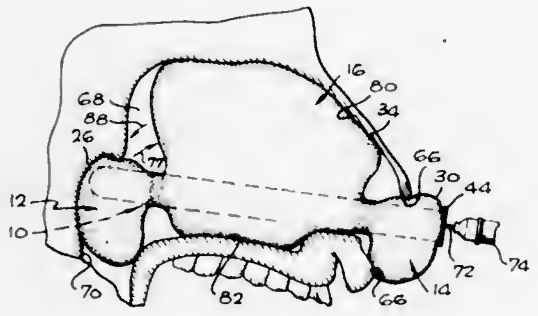
Esko Tapio Olsson, Molndal, Sweden, assignor to Molnlycke AB, Gothenburg, Sweden
Filed Dec. 23, 1968, Ser. No. 786,196
Claims priority, application Sweden, Dec. 29, 1967, 18,087/1967
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 **3 Claims**



A sanitary towel having a member which extends in the longitudinal direction thereof is elastically deformable particularly in the transverse direction of the towel, and is of such width that in the position of use of the towel it is elastically deformed to thereby urge the side edges of the portion of the towel situated between the thighs of the wearer into side leakage avoiding sealing engagement with adjacent leg portions irrespective of any variation in the relative positions thereof. The edges of the towel are curved upward in a prestressed position and are retained in that position by means of a strip of material that extends between the edges of the towel and is of a material that weakens upon contact with liquid, so that the strip ruptures after the towel is in place.

3,570,494
NASAL TAMPON

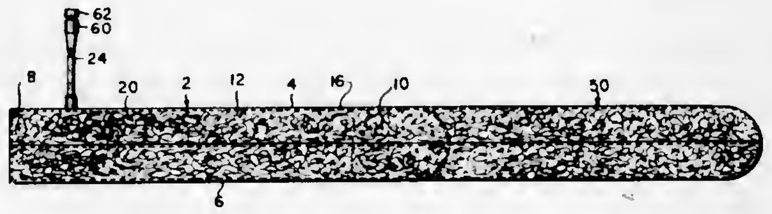
George H. Gottschalk, 8618 S. Sepulveda, Los Angeles, Calif.
Filed Dec. 16, 1968, Ser. No. 783,839
Int. Cl. A61b *17/12*
U.S. Cl. 128—325 **11 Claims**



A self-retaining nasal tampon particularly designed to control nasal hemorrhaging, comprising, according to a preferred embodiment, an elongated flexible tube open at one end and sealed at its opposite end, a plurality of, e.g., three, inflatable sleeves surrounding and sealingly attached to the tube, preferably one such sleeve adjacent the closed end of the tube, one adjacent the open end of the tube and a third inflatable sleeve disposed around the tube intermediate the ends thereof, and including means positioned within the tube to permit facile inflation of each of the inflatable sleeves independently of each other to form respective inflated bags or balloons, and to retain such bags in their inflated position, and also to permit selective deflation of such inflated bags when desired, for removal of the device from the nasal passage.

3,570,495
PNEUMATIC TOURNIQUET

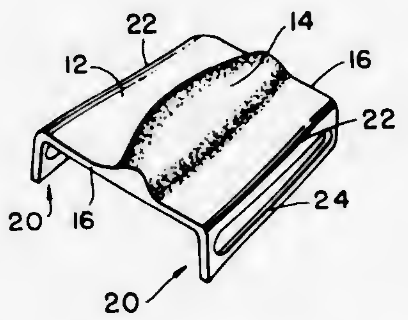
Frank O. Wright, 46 Belleair Drive, Memphis, Tenn.
Filed Apr. 19, 1966, Ser. No. 543,564
Int. Cl. A61b *17/12*
U.S. Cl. 128—327 **9 Claims**



A tourniquet for constricting a person's limb having flexible side members arranged in superposed relation with registering longitudinal and end edges. Three of the edges are sealed to form an elongated pocket with an inflatable bladder inserted therein and the exterior surfaces of the member has means for releasably securing them together. The tourniquet is wrapped about the limb and pressure thereto is controlled by inflating the bladder.

3,570,496
EMERGENCY PRESSURE PLATE

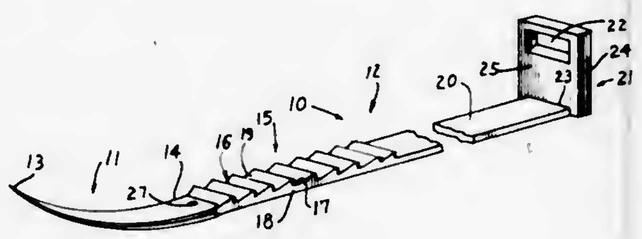
William Sachs, Montvale, N.J. (Apt. 3A, 35 West 89th St., New York, N.Y. 10024)
Filed Nov. 18, 1968, Ser. No. 776,521
Int. Cl. A61b *17/12*
U.S. Cl. 128—327 **3 Claims**



A pressure plate comprising a flat support with an elongate lobe protruding from one side of the support and brackets on the other side of the support for receiving a belt. The belt holds the pressure plate against the body at a pressure point so that the lobe is forced against the pressure point to stop the flow of blood to an injured area.

3,570,497
SUTURE APPARATUS AND METHODS

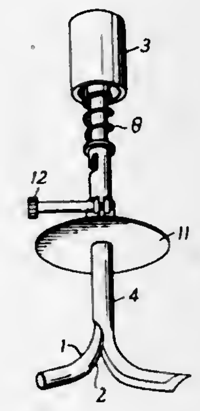
Gerald M. Lemole, 1813 South Blvd., Houston, Tex.
Filed Jan. 16, 1969, Ser. No. 791,708
Int. Cl. A61b *17/06;* **A61l** *17/00*
U.S. Cl. 128—335.5 **10 Claims**



The invention is a suture with needle end, cord of latch notches, and latch collar end. The latch collar has a latch passage therethrough. The needle followed by latch notches is pulled through the tissue and the needle followed by a selective number of latch notches is continued on through the collar latch passage and severance is then made above the last notch pulled through the latch collar as it thus is latched on the tissue surface to complete a stitch much more quickly than can be done by conventionally tying a suture knot.

3,570,498
TROCAR AND CANNULA FOR VETERINARY USE

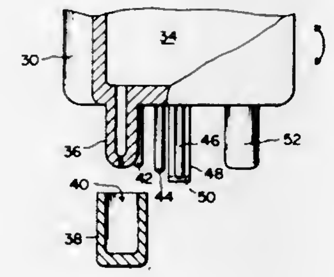
Charles Weighton, 64, Nettleham Road, Lincoln, England
Continuation of application Ser. No. 662,617, Aug. 23, 1967, now abandoned. This application Mar. 9, 1970, Ser. No. 17,033
Int. Cl. A61b *17/34*
U.S. Cl. 128—347 **5 Claims**



A veterinary instrument having a trocar with a curved end and a cannula with its end curved to lie within the trocar during insertion, the cannula being rotatable with respect to the trocar to open out the curved ends after insertion and thereby lock the instrument in position. The parts are held in the closed and open conditions by a pin and slot connection and a biassing spring. A disc can be adjusted to bear against the animal's skin and thus secure the instrument more firmly.

3,570,499
APPLICATOR FOR LIQUID HAIR TREATING PREPARATIONS

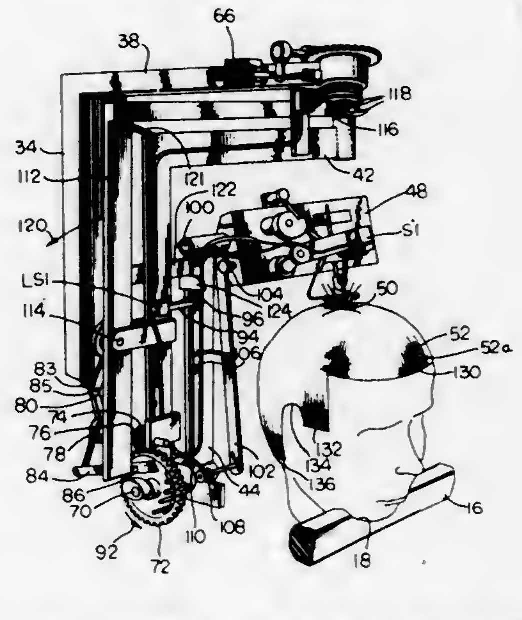
Francesca Ruta, 220 E 57th St., New York, N.Y.
Continuation-in-part of application Ser. No. 490,171, Sept. 23, 1965, now abandoned. This application Nov. 1, 1968, Ser. No. 772,793
Int. Cl. A45d *19/02*
U.S. Cl. 132—9 **3 Claims**



An applicator for liquid hair preparations and the like is provided with a plurality of liquid dispensing nozzles which may be applied to or worked through the hair for selected and selective application to produce a streaked application of the preparation. The applicator is also provided with a plurality of spacer teeth substantially as long as the dispensing nozzles to permit the operator to guide the applicator along the scalp by means of the dispensing nozzles and the teeth to vary the distance between the nozzles and the scalp, and said teeth also serving to aid in separating the flow of preparation to provide the streaked effect. The applicator is a container made of deformable squeeze material for control of the preparation dispensing.

3,570,500
METHOD AND APPARATUS FOR TREATING HAIR

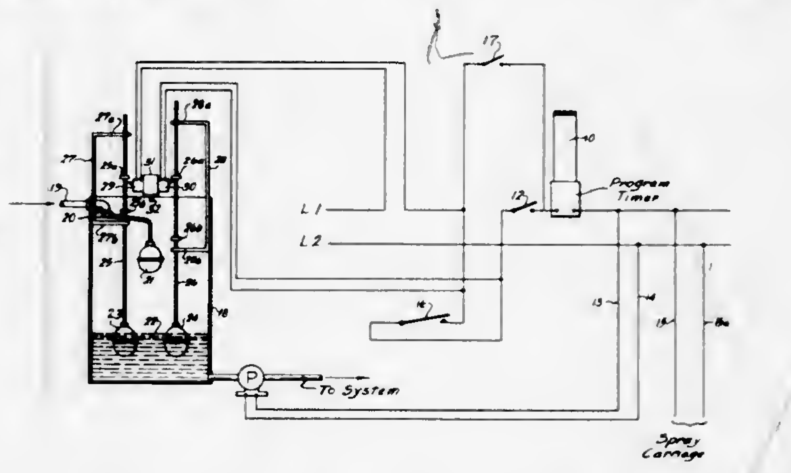
Ronald G. Berry, 135 E. Woodland, Fort Wayne, Ind.
Filed Nov. 5, 1968, Ser. No. 773,443
Int. Cl. A45d *24/36*
U.S. Cl. 132—45 **17 Claims**



This invention pertains to an apparatus and a method of using it, in which the hair on an individual's head is measured in a plurality of uniformly distributed regions on the head and a record made of the measurements and thereafter the hair is engaged in the same regions and drawn out to the measured length in conformity with the recording and is cut off at that length.

3,570,501
SAFETY CONTROL FOR AUTOMATIC CARWASH PUMP

Lois G. Dale, 1613 Grant St., and Thelma V. Davis, 321 N. 24th St., Unionville, Mo.
Filed Mar. 12, 1969, Ser. No. 806,611
Int. Cl. B60s *3/04;* **B08b** *3/02*
U.S. Cl. 134—45 **2 Claims**

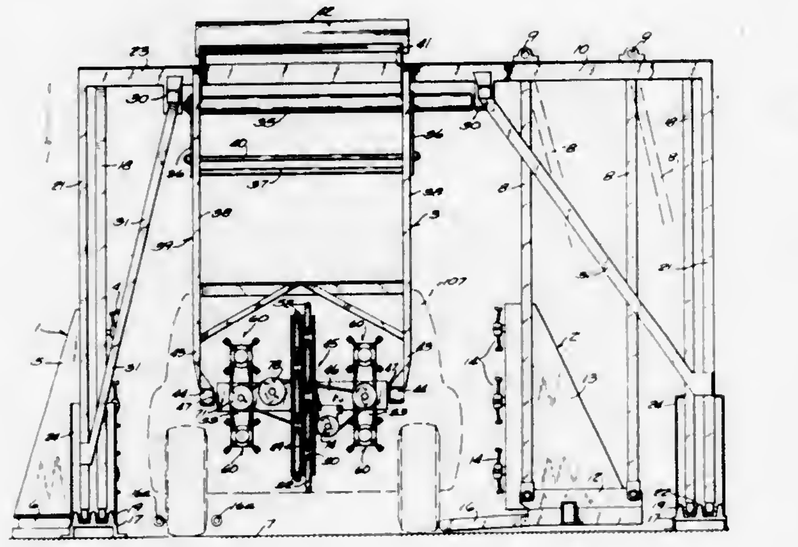


A safety control system which is operable to shut off the pump and other carwash equipment in the event that the supply of water to the pump is depleted below a predetermined level. The carwash is interrupted in midcycle and provision is made for completing the cycle even though the car may in the meantime have departed while the system was inoperative.

3,570,502
VEHICLE WASHING APPARATUS

Le Moyne E. Farnsworth, Racine, and John H. Jurkens, Wauanakee, Wis., assignors to John H. Jurkens, Dane County, Wis.
Filed June 16, 1969, Ser. No. 833,555
Int. Cl. B60s *3/02*
U.S. Cl. 134—45 **17 Claims**

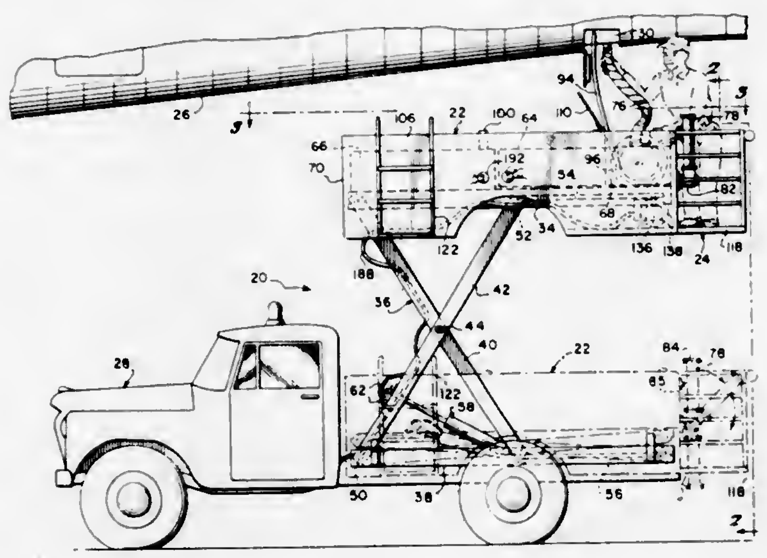
A vehicle washing apparatus utilizing high pressure liquid spray nozzles. The apparatus includes a pair of side banks, each incorporating a series of rotatable spray nozzles adapted to spray high pressure cleaning liquid against the sides of the vehicle, and a movable carriage carrying a set of spray nozzles on both its front and rear surfaces is adapted to ride over the top of the vehicle as it moves through the apparatus to clean the front, top and rear surfaces of the vehicle.



The carriage is mounted to rotate about a horizontal transverse axis, and during the washing cycle, the carriage rotates 180° from its original position so that the set of nozzles, which was originally facing to the rear will be facing to the front at the completion of the washing cycle and the second set of nozzles will be facing to the rear in position to wash the next succeeding vehicle advancing through the apparatus.

3,570,503
HIGH-LIFT UNIT FOR RAPID SERVICING OF AIRCRAFT-INSTALLED LAVATORIES

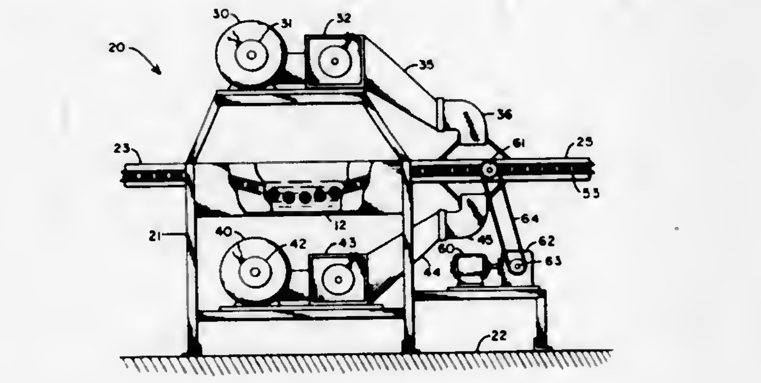
Alfred E. DeBoliac, P.O. Box 947, Buena Vista Station, Miami, Fla.
Filed Nov. 15, 1968, Ser. No. 776,081
Int. Cl. B08b *3/08, 9/08*
U.S. Cl. 134—58 **12 Claims**



Self-contained mobile lavatory servicing and sanitation unit which expedites the cleaning of aircraft lavatory waste receptacles through a system of operably connected tanks and apparatus providing means for removal and carrying away of wastes from the aircraft and cooperating means for water-flushing of the receptacles and for transferring the wastes and the flushed material into the mobile unit, and cooperating means for chemically sanitizing and deodorizing the receptacles together with means for emptying of the removed wastes from the mobile unit and means for flushing, sanitizing and deodorizing the waste removal portion of the unit after emptying, the unit being vehicle supported and adapted to have major portions elevator positionable to closely adjacent the cleanout plumbing connections of the aircraft and provided with work stations having means for supporting an operator in an elevated position on the apparatus for operating the controls for the unit and the aircraft plumbing connections so that rapid, economic servicing of sanitary facilities on the aircraft can be accomplished in a unitary operation while the aircraft is positioned on the runway.

3,570,504
WASHING AND DRYING APPARATUS

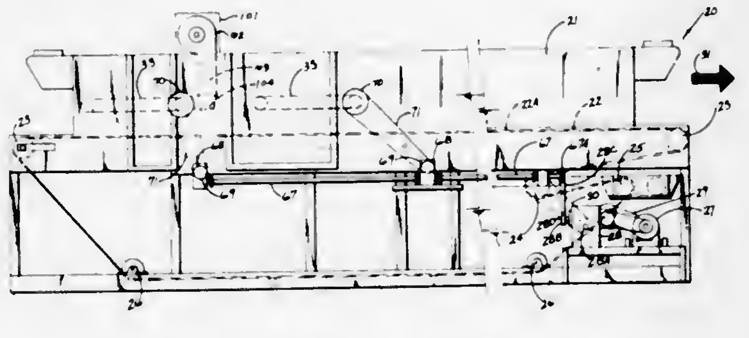
John J. Frantzen, St. Paul, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.
Filed Oct. 1, 1968, Ser. No. 764,196
Int. Cl. B08b *3/10*
U.S. Cl. 134—64 **2 Claims**



A washing and drying apparatus having a plurality of elongated rollers which are power driven so as to produce a propelling surface for transporting material through a cleaning solution and a drying station.

3,570,505
APPARATUS FOR CLEANING ARTICLES OF MANUFACTURE

Max Randall, 525 Longview Road, South Orange, N.J.
Filed June 6, 1969, Ser. No. 830,953
Int. Cl. B08b *3/00*
U.S. Cl. 134—72 **21 Claims**

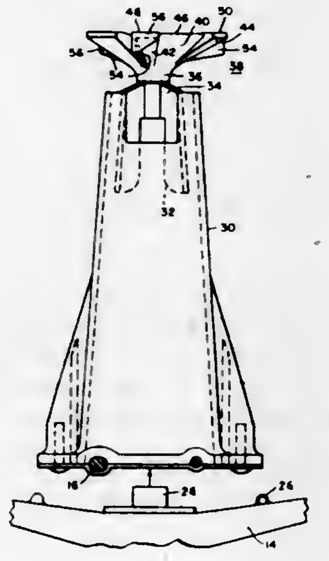


This disclosure is directed to an apparatus for cleaning articles of manufacture, e.g., cans which are carried or resting freely in quantity on a conveyor belt moving at a high rate of production through a zone of high-pressure sprays up to 60 p.s.i. To maintain the articles in position on the conveyor a traveling holddown means is moved in synchronization with the conveyor to contain the discrete articles between the moving conveyor and traveling holddown means. The arrangement is such that the holddown elements or means are rendered individually self-adjusting to the size of the particular articles being transported on the conveyor and/or rendered adjustable as a unit.

3,570,506
WATER DISPERSING APPARATUS DISHWASHER

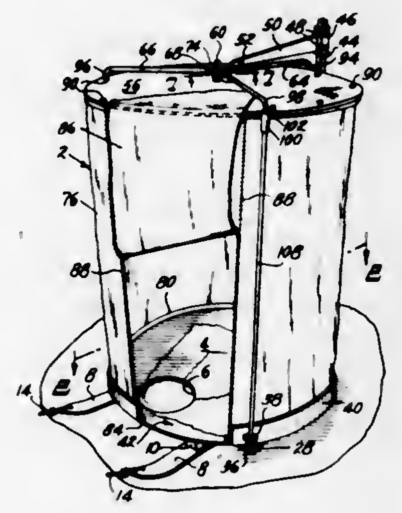
Joseph H. Reifenberg, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 17, 1969, Ser. No. 807,616
Int. Cl. B08b *3/04, 13/00*
U.S. Cl. 134—183 **4 Claims**

Improved water dispersing apparatus for dispersing water about the area of the upper rack of a dishwasher, the apparatus including a rotatable member which is of inverted, generally conical shape, different segments of the lower surface of the member having different slopes to deflect the upwardly directed stream of water at different angles depending upon which of the surfaces the stream impinges upon, the member also including segments open from the periphery to the hub to permit part of the water to pass directly upwardly therethrough.



3,570,507
ICE FISHING TENT

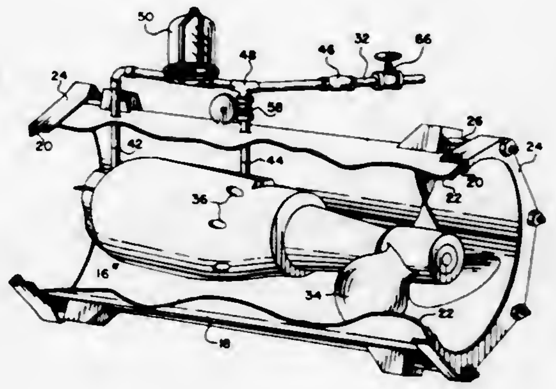
Morris Kashuba, 1563 Main St., Peckville, Pa.
Filed July 7, 1969, Ser. No. 839,277
Int. Cl. A45f *1/02*
U.S. Cl. 135—1 **6 Claims**



An ice-fishing tent including a circular base plate with skis attached thereto, and having a vertical post secured to one edge thereof that is surmounted by a radial support arm. A plurality of radially extending ribs is connected to the support arm and carries a circular top member, a fabric shell being connected between the base and said top member. Spring biased, removable brace tubes extend vertically between the outer ends of the ribs and brackets on the base to complete the assembly.

3,570,508
FERTILIZER INJECTORS

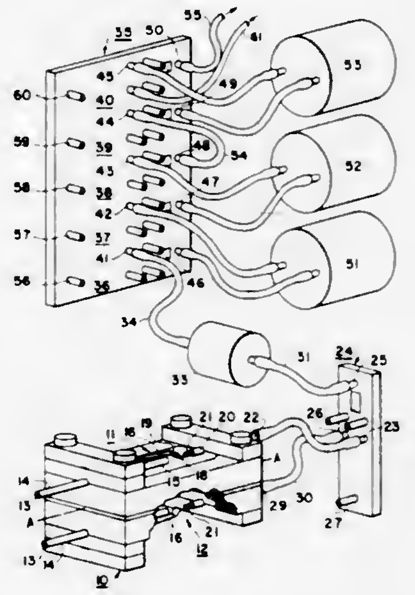
John A. Boggs, and Billy R. Boggs, Kress, Tex., assignors to Boggs Farmers Supply, Inc., Kress, Tex.
Filed Jan. 3, 1966, Ser. No. 518,100
Int. Cl. B05b *7/26*
U.S. Cl. 137—2 **14 Claims**



Fertilizer is fed to irrigation water at a preset time rate by a pump powered by the flow of irrigation water.

3,570,509
METHOD AND APPARATUS FOR PRODUCING A FIXED FREQUENCY FLUID SIGNAL

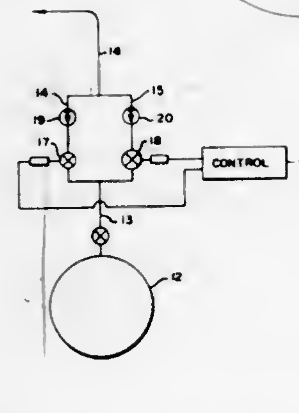
Hans-Dieter Kinner, Attleboro; Richard W. Hatch, Foxboro, and Paul M. Blaiklock, Newton Centre, Mass., assignors to The Foxboro Company, Foxboro, Mass.
Filed Apr. 11, 1968, Ser. No. 720,708
Int. Cl. F15c *3/08, 3/14*
U.S. Cl. 137—13 **6 Claims**



A pair of elements each incorporate vibrating reed means for producing an oscillatory output at a predetermined frequency; the oscillatory output from the two elements are effectively beat together by a fluidic amplifier to thereby produce a resultant signal having an envelope whose frequency is the difference between the respective frequencies produced by the two oscillatory elements; a signal corresponding to this envelope may be obtained from the fluidic amplifier output by suitable filtering to thereby produce a square wave having a stable interval; this square wave output may be employed for timing and clock functions in fluidic systems.

3,570,510
SELF-CLEANING VALVE AND METHOD THEREFOR

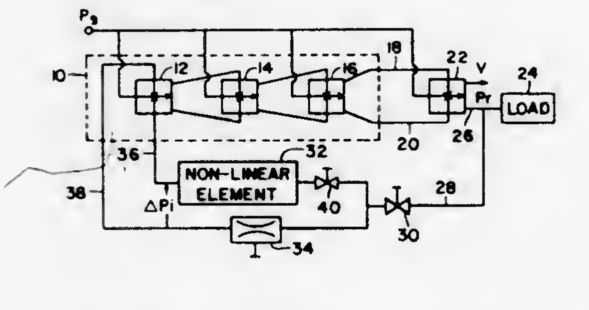
Teruo Tsutsumi, Yokohama-shi, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed May 3, 1968, Ser. No. 726,424
Claims priority, application Japan, June 30, 1967, 42/42104
Int. Cl. F16l *45/00*
U.S. Cl. 137—15 3 Claims



A method of cleaning a valve seat and a valve device suitable for application of said method, wherein clean fluid such as gas, air, water and the like, is supplied to the valve seat of the valve device from a circular space having an annular slit so as to keep the valve seat clean.

3,570,511
NON-MOVING PART PRESSURE REGULATOR

Thomas W. Bermel, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Apr. 23, 1968, Ser. No. 723,398
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 11 Claims

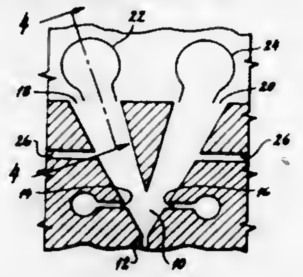


A nonmoving part pressure regulator including a proportional amplifier device having a power stream inlet passage which is adapted to be connected to an unregulated pressure source and one output passage which is adapted to supply a regulated pressure to a load. Linear and nonlinear feedback paths connect the one output passage to two opposed control orifices of the proportional amplifier device.

3,570,512
SUPERSONIC FLUIDIC SWITCH

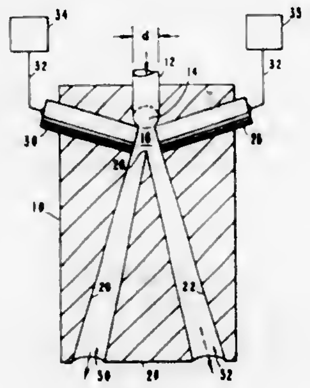
Raymond V. Thompson, Simsbury, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.
Filed Dec. 24, 1968, Ser. No. 786,684
Claims priority, application Great Britain, Dec. 28, 1967, 58834/67
Int. Cl. F15c *1/04*
U.S. Cl. 137—81.5 7 Claims

Fluid relays which operate with supersonic flow and remain stable irrespective of load impedance are disclosed. Isolation of the operating region of the relays from the receivers is accomplished by bleeding off the boundary layer about the outlet passages to cause total discontinuity in the subsonic portion of the fluid stream. The disclosed relays are also characterized by absence of an abrupt change in section where the fluid enters the operating region.



3,570,513
ELECTROHYDRODYNAMIC CONTROL VALVE

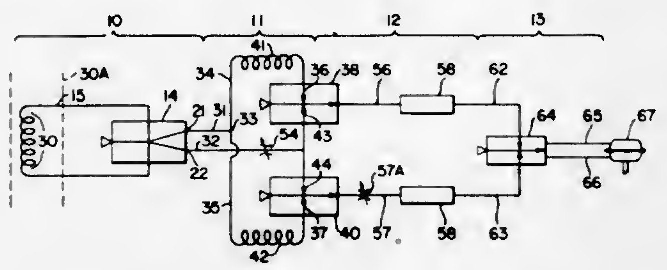
T. O. Paine, Deputy Administrator the National Aeronautics, and Space Administration with respect to an invention of; Richard J. Salvinski, Hacienda Heights, and Owen O. Fiet, Redondo Beach, Calif.
Filed Aug. 20, 1968, Ser. No. 754,020
Int. Cl. F15c *1/04*
U.S. Cl. 137—81.5 9 Claims



An electrohydrodynamic control valve is disclosed. The valve includes a first inlet for forming a jet of noncharged fluid and a plurality of fluid receiving apertures downstream from the inlet jet. The jet is selectively deflected toward one of the apertures by impressing an electric field of predetermined intensity along the length of the jet. The valve may further include at least one pair of oppositely diverging channels disposed between the jet and the apertures. These channels are adapted to lock the flow of the jet along the wall thereof by means of the Coanda effect.

3,570,514
FLUIDIC CHARACTERISTIC SENSOR

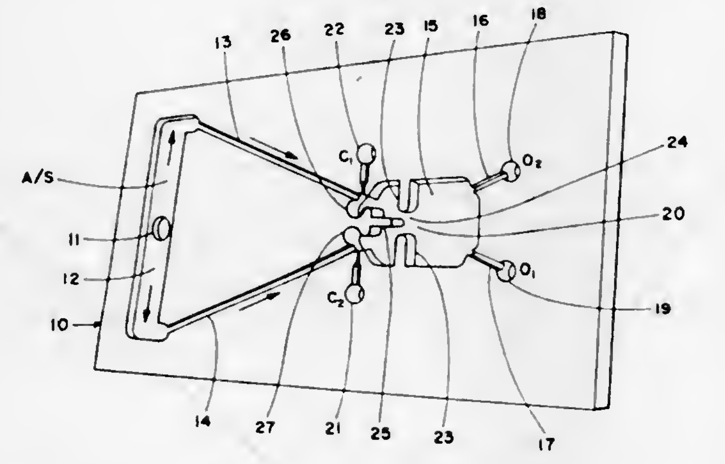
Trevor G. Sutton, Tempe, and Donald W. Chapin, Scottsdale, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Sept. 17, 1968, Ser. No. 760,154
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 8 Claims



The subject system is provided to sense changes in a selected characteristic such as temperature, pressure, humidity, etc., in a localized region. The system utilizes fluidic principles which are characterized by the absence of moving parts. The illustrated system includes means for generating pulsating signals at a frequency bearing some relation to the characteristic being sensed. These pulsating signals are supplied through resonant transmission lines, including delay means, to amplifiers of the beam diode type, the transmission lines and diodes being designed to shift the frequency phase and amplitude to produce signals with a varying amplitude, proportional to the frequency of the original signals. The amplitude modulated signals are then supplied to filter elements where the mean DC level of the signals is extracted and fed to an amplifier for summing and amplification to the desired pressure output.

3,570,515
LAMINAR STREAM CROSS-FLOW FLUID DIFFUSION LOGIC GATE

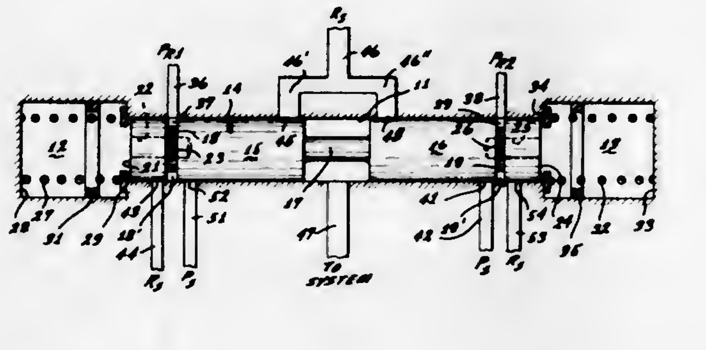
Hans-Dieter Kinner, Attleboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed June 19, 1969, Ser. No. 834,784
Int. Cl. F15c *1/18, 1/12*
U.S. Cl. 137—81.5 4 Claims



A fluid logic gate wherein two laminar streams are intersected in a diffusion area, with a control jet applicable to each of the laminar streams upstream of the intersection, with an output from the diffusion area in alignment with each of the streams, on the logic basis of zero output when the control jets are either both on or both off.

3,570,516
LATCHING COMPARATOR

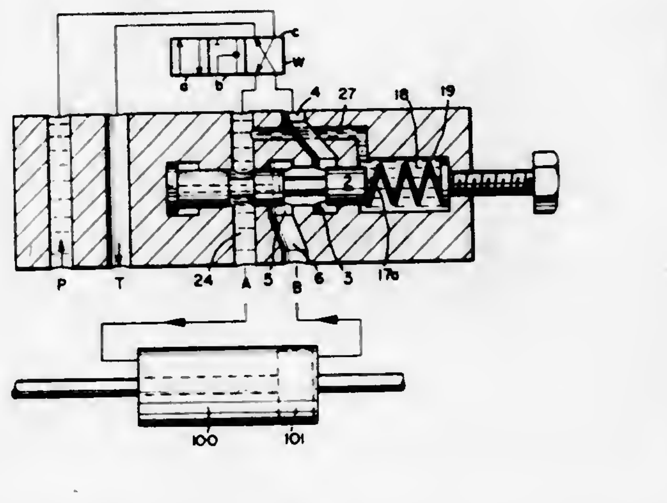
Richard K. Mason, Granada Hills, Calif., assignor to Bell Aerospace Corporation
Filed Mar. 7, 1969, Ser. No. 805,268
Int. Cl. F16k *31/12*
U.S. Cl. 137—87 6 Claims



Disclosed is a differential pressure responsive device for comparing pressures applied thereto and upon a predetermined differential between the pressures causing movement of the device through a predetermined distance, force is applied to latch the comparator in its limit position in the direction of movement. The force applied may, for example, be a source of hydraeric pressure. The term "hydraeric" as used throughout this specification and the appended claims is defined as being generic to hydraulic and pneumatic and as synonymous in the broad sense with fluid under pressure.

3,570,517
APPARATUS FOR REGULATING THE FLOW OF LIQUIDS

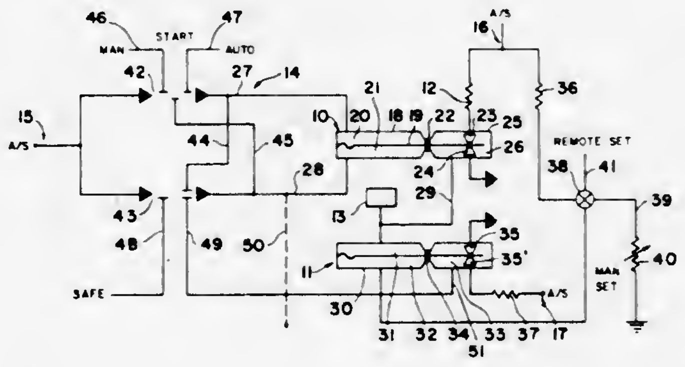
Hubert Odenthal, Wombach, Germany, assignor to G. L. Rexroth GmbH, Lohr Main, Germany
Filed July 11, 1969, Ser. No. 841,011
Claims priority, application Germany, July 16, 1968, P 17 75 203.3
Int. Cl. F15b *11/08*
U.S. Cl. 137—87 10 Claims



Apparatus which controls the flow of pressurized liquid between a pump and a reservoir on the one hand and the chambers of a double-acting cylinder on the other hand comprises a pressure reducing valve whose housing accommodates a reciprocable spool which can throttle the flow of liquid in the second of two channels provided in the housing and connected with opposite chambers of the cylinder. The first channel is in permanent communication with an internal chamber of the housing which accommodates one end surface of the spool and a spring which biases the spool to a position in which the spool offers less resistance to the flow of liquid in the second channel. A four-way valve regulates the flow of liquid between the channels of the housing and the pressure source and reservoir. When the pressure of liquid in the first channel rises, such pressure is communicated to the chamber and causes the liquid acting against the end surface of the spool to assist the action of the spring.

3,570,518
FLUIDIC TIMER

Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed June 19, 1969, Ser. No. 834,855
Int. Cl. F15c *3/04*
U.S. Cl. 137—81.5 1 Claim

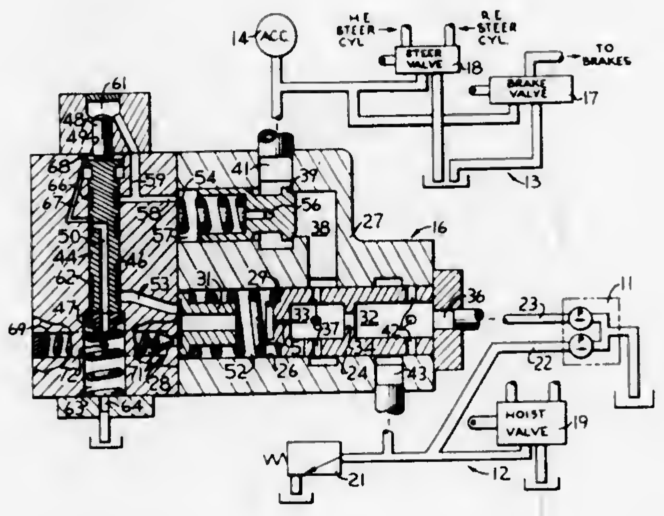


A fluid system for establishing time periods based on fluid pressure comparisons, in which a fluid resistance-capacity system is used as a time function, controlled by a fluidic flip-flop system as applied through a pressure differential control unit to a pressure differential comparison unit.

3,570,519
COMBINATION ACCUMULATOR CHARGING, FLOW CONTROL AND RELIEF VALVE ASSEMBLY

Donald L. Bianchetta, Coal City, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 6, 1968, Ser. No. 773,739
Int. Cl. G05d *11/03;* **F17d** *3/00;* **F01b** *25/02*
U.S. Cl. 137—101 **4 Claims**

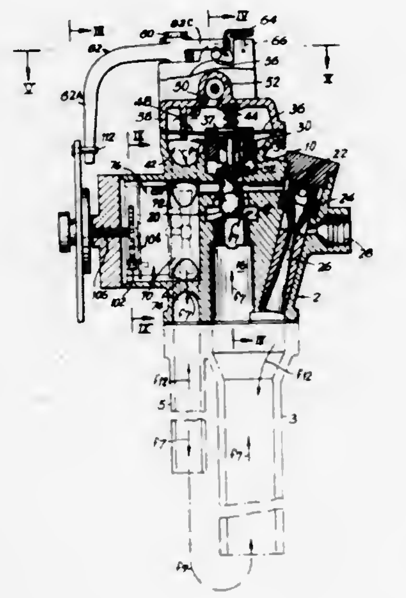


A control valve in a hydraulic system including an accumulator circuit and an open center circuit having a flow control valve member capable of delivering a generally constant volume of fluid to the accumulator while delivering any excess flow to the open center circuit. The same valve member is responsive to a pilot valve when the accumulator is charged to its maximum pressure for blocking the accumulator circuit and delivering full flow to the open center circuit.

3,570,520
VOLUMETRIC VALVE

Fiorello Sodi, Via Palazzo del Diavoli 22, Firenze, Italy

Filed Sept. 24, 1969, Ser. No. 860,671
Claims priority, application Italy, Jan. 15, 1969, 4420/69
Int. Cl. B01d *35/00;* **F16r** *31/36*
U.S. Cl. 137—110 **14 Claims**

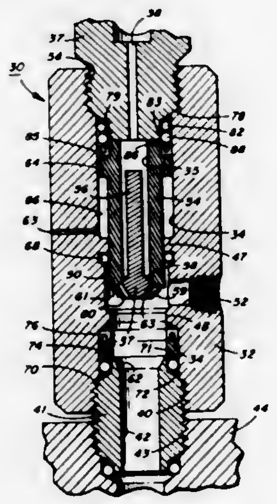


A volumetric valve contains an impeller for undergoing rotation in opposite direction depending on the direction of passage of water through a resin in a vessel. The valve switches the direction of water flow after the impeller measures a given magnitude of water passage during treatment and regeneration respectively.

3,570,521
DUAL PRESSURE RANGE VALVE

Duane L. Kirschenman, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 4, 1969, Ser. No. 796,344
Int. Cl. G05d *16/04*
U.S. Cl. 137—113 **1 Claim**

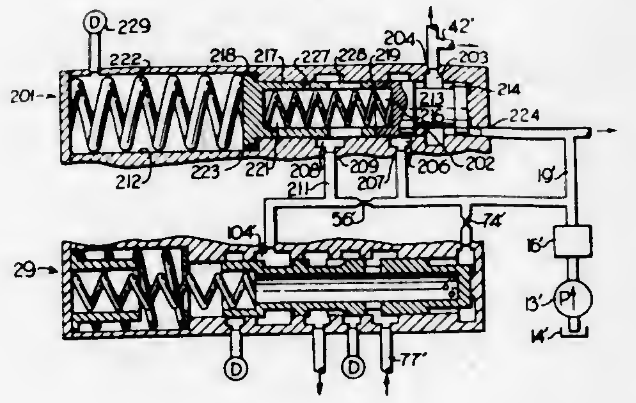


Dual pressure range valve for alternately providing high pressure and low pressure fluid over a single line, the valve including a body having a high pressure fluid inlet port and a low pressure fluid inlet port, both the inlet ports being alternately communicable with a fluid outlet port. Communication of the fluid outlet port with the high pressure or low pressure fluid inlet port is established by the positioning of reciprocable means mounted within the valve body.

3,570,522
HYDRAULIC PRESSURE MODULATING TRANSMISSION CONTROL SYSTEM

Joachim Horsch, Wood Dale, and David S. Ohaver, Farmington, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Original application May 10, 1967, Ser. No. 637,459, now Patent No. 3,468,194. Divided and this application Feb. 10, 1969, Ser. No. 833,212
Int. Cl. G05d *11/00*
U.S. Cl. 137—117 **3 Claims**



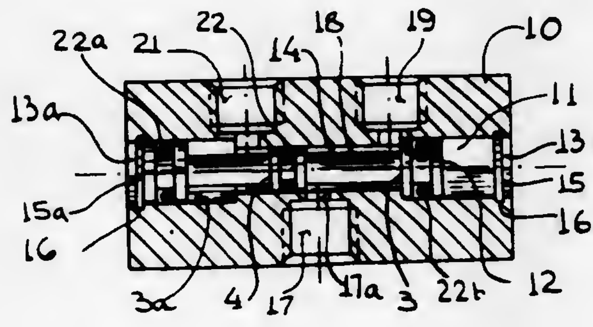
A hydraulic transmission control system, having speed selector valves for providing hydraulic fluid to selectively actuate speed and directional gear clutches and a pressure modulating valve for modulating pressure rise of hydraulic fluid, to control fluid pressure and fluid flow. A differential valve associated therein and having differential fluid pressure regulator means to provide fluid to the directional selector valve at a differentially constant lower pressure compared with main rail fluid pressure, the differential valve also having: a safety reset valve and safety react delay orifice for preventing actuation of a directional gear clutch after a startup with the controls inadvertently out of neutral gear; quick dumping check valve means for insuring proper operation of the pressure modulation valve; modulating valve means for eliminating or reducing hydraulic fluid pressure peaks; and throttle means for reducing refilling time for the directional gear clutches.

The above combination provides a preferred environment for a modulating valve in a transmission control system, the modulating valve including a load piston and spool reciprocably arranged in a bore with spring means interacting between the spool and load piston, a pressure modulating chamber being formed in the bore on one side of the load piston, the load piston and bore cooperating to form a relief passage in combination with the modulating chamber upon modulation of fluid in the chamber to a selected pressure.

3,570,523
SELF-REGULATING RECIPROCATOR DEVICE

Richard S. Pauliukonis, 6660 Greenbriar Drive, Cleveland, Ohio

Filed July 16, 1969, Ser. No. 842,191
Int. Cl. F15b *21/12;* **F16k** *31/36*
U.S. Cl. 137—119 **2 Claims**



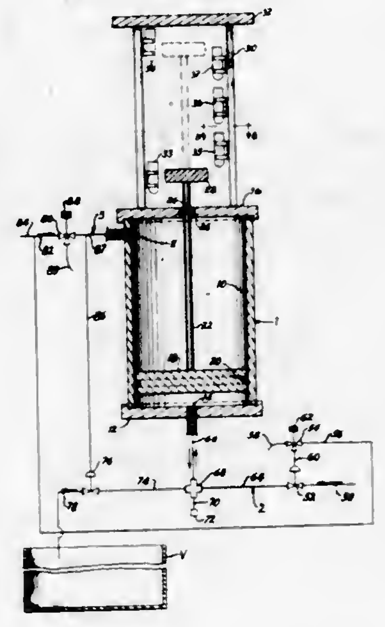
A device for transmitting pressurized fluid from a supply to receiver means such as a tank or a cylinder or the like, comprises a spool carrying at each end symmetrically opposing pistons of diameter larger than the diameter of the third piston located in the middle of said spool, the spool being moved in either direction by the working fluid pressure acting upon said spool to alternatingly feed either one or another port in the housing or to feed and to exhaust the transmitted fluid by additional ports provided, and in a self-regulated reciprocating action, such as found in the positive displacement pumps or in the fluid power controls such as four-way valves however without external operators such as motor-driving pump or solenoid-operating valve, and serves a multipurpose duty in a variety of applications of this device. Appropriate seals permanently positioned to remain engaged with pistons in all operating conditions are employed.

3,570,524
PISTON DOSER WITH LIQUID FLUSHING MEANS

Frank J. Dellasala, 1459 59th St., Brooklyn, N.Y.

Filed Dec. 22, 1967, Ser. No. 692,874
Int. Cl. F16k *51/00*
U.S. Cl. 137—240 **16 Claims**

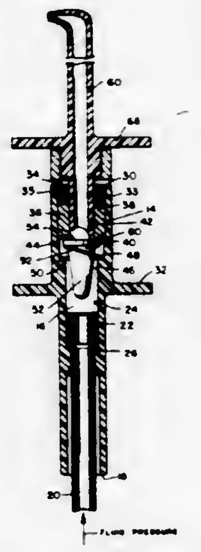
Apparatus for introducing accurately measured doses of liquid that may, if desired, be varied in size into a product in process of being manufactured by use of a measuring chamber that is filled with the liquid to a level corresponding to the predetermined dose and delivering the dose by superatmospheric pressure displacement. The apparatus includes a measuring cylinder, a fluidtight piston movable therein to selected heights to measure out a dose of selected variable size and means to force the liquid into a discharge line leading to the product being made by applying force to the piston in the direction of the opening into the discharge line. The apparatus is particularly useful in dosing a slurry in which the solid particles are kept suspended by agitation before and during the dosing operations. Means for a water flush after each dosing may also be used. The same device can be used for dosing two or more products or batches of the same product by the use of branch delivery lines connected with the delivery line from the chamber. The operation can be automated, manual or a combination of both.



3,570,525
STEM-ACTUATED TILTABLE VALVE

Adolph W. Borsum, and William K. Borsum, 521 Pacific Ave., Solana Beach, Calif.

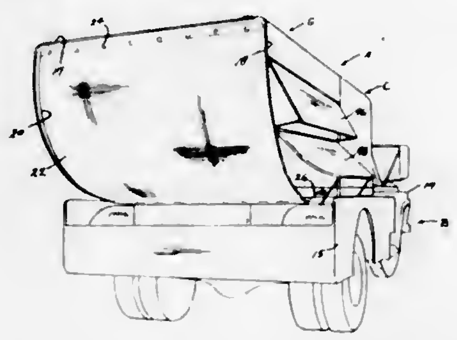
Continuation-in-part of application Ser. No. 627,595, Mar. 29, 1967, now abandoned. This application Apr. 21, 1969, Ser. No. 825,100
Int. Cl. F16k *43/00;* **A61h** *13/00;* **F16k** *31/56*
U.S. Cl. 137—320 **8 Claims**



A bidirectional valve controls delivery of the normal fluid flow through a tubular passage and prevents backflow into the fluid source. For this purpose, axially spaced first and second valve seats are provided in the bore of the tube and a valve body, disposed between the seats, utilizes the supply pressure to normally urge its face portion into a closing position on the first seat. A manually operable, plunger-type stem actuator is used to tilt the valve body to open the first seat and permit delivery of the fluid, this actuator being slidably received in the tube to form a continuation of the tube bore. Preferably the actuator is a separate member facilitating its removal for replacement or sterilization purposes. The second valve seat normally is open during delivery but immediately closed by backflow pressure such as may be produced by sudden pressure failures in the upstream delivery system. In one embodiment the valve body as a single valve face reciprocately movable between the seats in response to the fluid pressure. Another embodiment employs a pair of valve faces both of which are resiliently held against both seats to block delivery flow. When the stem actuator tiltably opens the first seat, the delivery pressure tiltably opens the second. Back pressure causes the second seat to immediately close, the force of the closing action being supplemented by the resiliency of the arrangement.

3,570,526
SHROUD FOR SEWER CLEANING TRUCK

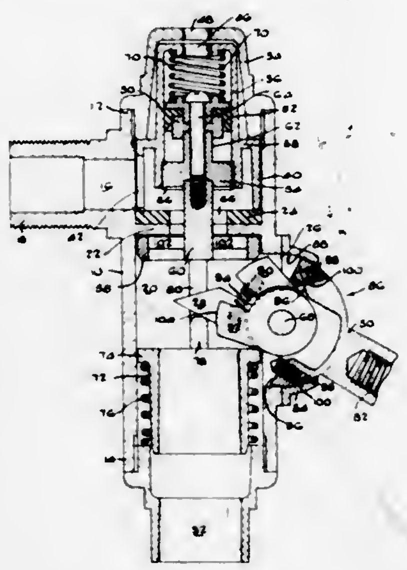
Benjamin P. Fisco, Jr., East Cleveland, Ohio, assignor to AAA Pipe Cleaning Corporation, Cleveland, Ohio
Filed Aug. 14, 1968, Ser. No. 752,662
Int. Cl. F16k *49/00*
U.S. Cl. 137—340 **11 Claims**



In a mobile unit which includes a water reservoir; water-handling components including a hose reel and hose normally coiled thereon, pump means suitably connected between the reservoir and the hose to pump water from the reservoir through the hose, valve means to control the flow of water; an internal combustion engine utilized to drive the pump means and a source of heat; the improvement for use with severe winter freezing conditions comprising a shroud assembly which in combination with a wall of the reservoir encloses the water-handling components and source of heat on all four sides and the top, the source of heat being arranged to circulate a flow of warm air within the space enclosed by the shroud in a continuous flow path against the wall of the reservoir and across and around the water-handling components to maintain all of such components and the water in the reservoir above the freezing temperature of water.

3,570,527
FLOAT CONTROLLED VALVE

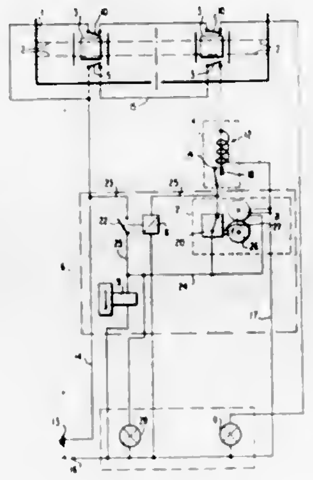
Salmon Gerhardus Antonie Fritz, Ficksburg, South Africa, assignor to Lokval (Proprietary) Limited, Pretoria, Transvaal, South Africa
Filed Dec. 10, 1968, Ser. No. 782,692
Int. Cl. F16k *31/26*
U.S. Cl. 137—421 **9 Claims**



A float controlled valve having a displaceable valve element with a piston operative in a cylinder and both presenting differential areas for reaction thereon of the pressure of the fluid at the inlet, biassed means on the actuating lever to lock the valve against closing biassing means in the open position and providing rapid closing of the valve when retracted an auxiliary biassed means being also provided which, on release by means associated in the actuating lever, provides for rapid closing of the valve.

3,570,528
INSTALLATION FOR CHECKING THE OIL LEVEL IN OIL-CONSUMING DEVICES, ESPECIALLY IN INTERNAL COMBUSTION ENGINES

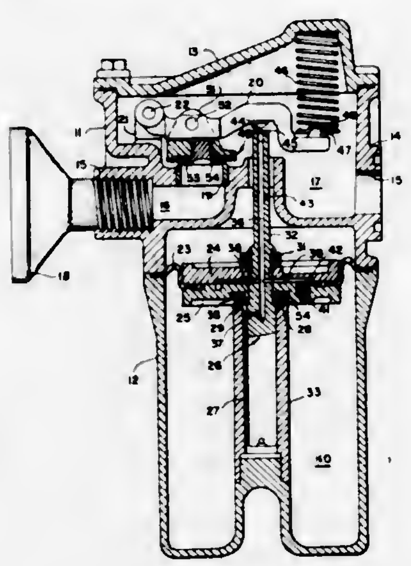
Willi Kramer, Waiblingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed May 9, 1969, Ser. No. 823,334
Claims priority, application Germany, May 9, 1969, P 17 51 312.2
Int. Cl. F16k *33/00;* **F02m** *5/00*
U.S. Cl. 137—423 **20 Claims**



An installation for checking the oil level in oil-consuming engines, especially in internal combustion engines, in which two float members, arranged as far from one another as possible, are provided in the oil sump which set into operation a refill mechanism when both float members have simultaneously assumed a position corresponding to the lowest permissive oil level over a predetermined period of time.

3,570,529
EMERGENCY VENT VALVE

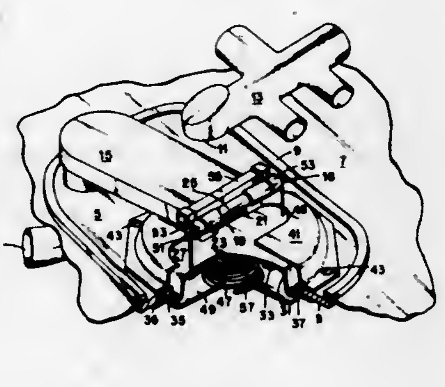
Lynn I. Pickert, Watertown, N.Y., assignor to General Signal Corporation
Filed Oct. 13, 1969, Ser. No. 865,670
Int. Cl. F16k *31/38*
U.S. Cl. 137—494 **4 Claims**



A vent valve to provide a local vent from the brake pipe of an automatic air brake system in response to an emergency rate of reduction of brake pipe pressure. The valve is of the poppet type and the valve head is carried by a pivoted actuating lever. The valve head is pivotally connected to the lever and has a pivot axis parallel with the pivot axis of the actuating lever and which is offset from the centerline of the valve seat toward the lever pivot. This location of the valve head pivot affords quick valve opening and good mechanical advantage. The vent valve is spring-biased closed and is opened by a motor which is rendered effective only by a rapid reduction of brake pipe pressure such as is characteristic of an emergency brake application.

3,570,530
PRESSURE REGULATOR FOR A CIRCULATING FLUID SYSTEM

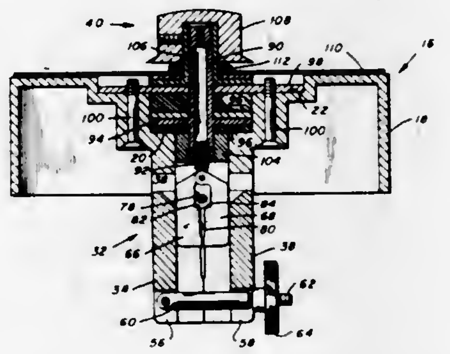
Frank Fuis, Jr, Norris, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 12, 1969, Ser. No. 875,885
Int. Cl. F16k *17/02*
U.S. Cl. 137—494 **9 Claims**



A regulator valve has been provided which automatically controls pressure within a circulating fluid system by regulating the exhaust flow from the system. In the illustrated embodiments the regulator utilizes a diaphragm driven flexible gate arrangement which opens and closes an exhaust port by virtue of an essentially friction-free rolling action to maintain a delicate balance between supply and exhaust air, thereby regulating the pressure inside the system according to a predetermined bias setting.

3,570,531
TUBE PINCHER FOR INTRAVENOUS ADMINISTRATION

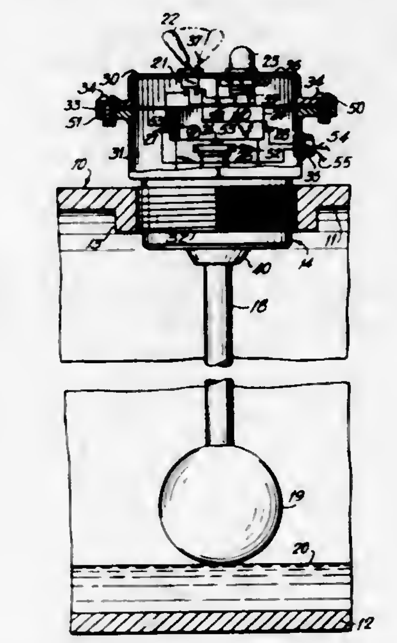
John B. McGay, 1551 S. Yorktown Place, Tulsa, Okla.
Filed Aug. 22, 1969, Ser. No. 852,243
Int. Cl. F16k *37/00;* **F16l** *55/14*
U.S. Cl. 137—556 **7 Claims**



A pincher for flexible tubing in an intravenous administration set has a pinching element slidably disposed between two tubing holders receiving and grasping the flexible tubing. Transverse movement of the pinching element over the flexible tubing pinches the tubing to effectuate therein a circular orifice of desired size as a function of flow therethrough. The apparatus also includes calibrated scales for setting the tube pincher at the prescribed drip rate.

3,570,532
AUTOMATIC LIQUID LEVEL DETECTOR AND INDICATOR

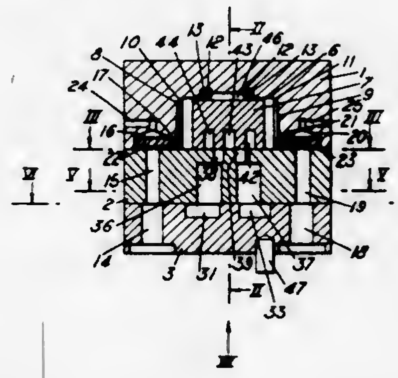
Nick Lendino, 125 Rhode Island Ave., Massapeque, N.Y.
Continuation-in-part of application Ser. No. 791,385, Jan. 15, 1969, which is a continuation-in-part of application Ser. No. 743,714, July 10, 1968, now abandoned. This application Oct. 10, 1969, Ser. No. 865,424
Int. Cl. F16k *37/00*
U.S. Cl. 137—558 **16 Claims**



A level detector and indicator for mounting on a fuel oil supply tank, consisting of a housing having a shank which threadably engages into an already existing opening at the top of the tank and contains a float mounted on a sliding shaft which projects into the interior of the tank. The end of the sliding shaft within the housing is in contact with the plunger of a microswitch which is connected to the control system of an oil burner. When the oil in the tank drops below a predetermined level, the switch is opened to disconnect the oil burner from the system, and a warning light mounted on top of the housing turns on as an indication of the fuel oil level. The control system can then be manually reset by a switch mounted on top of the apparatus, so as to restart the oil burner. When a fuel delivery is made, the control system can be reactivated either manually or automatically.

3,570,533
PNEUMATIC SLIDE VALVES

Thomas William Hamilton, 27 Clevehurst Close, Stoke Pages, Buckinghamshire, England
Filed Jan. 21, 1969, Ser. No. 792,697
Claims priority, application Great Britain, Mar. 11, 1968, 11741/68
Int. Cl. F16k *37/00, 11/06*
U.S. Cl. 137—559 **8 Claims**

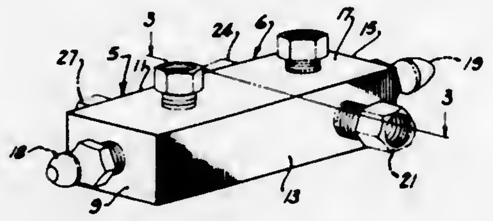


A double-pilot pneumatic slide valve of the kind in which a slider is movable to-and-fro within a surrounding housing by air under pressure through one pilot port to move the slider in one direction and through a second pilot port to move the slider in an opposite direction, movement of the slider causing alterations between the connections between main airports in the housing is provided with a slider which is part-cylindrical and has a cross-sectional shape which is a segment of a circle. The slider is movable axially on its flat face, which slides on a flat base surface of the housing, by the pilot air pressure acting directly on the end faces of the slider and two spaced-apart seals are formed between the part-cylindrical face of the slider and an adjacent face on the surrounding part of the housing by two part-circular sealing rings which are carried in grooves in the face of the housing and bear against the part-cylindrical face of the slider. An air inlet passage communicates with the clearance space enclosed between the slider and the housing in between the two part-circular seals so that when air under pressure is supplied to the valve this acts on the part-cylindrical surface of the slider in between the seals and urges the slider into contact with the flat base surface.

3,570,534

CONNECTION BLOCK FOR THE HYDRAULIC LINES OF A DUAL BRAKING SYSTEM ON AUTOMOTIVE VEHICLES

Herman Beavers, 5585 Garden St., Maple Heights, Ohio
Filed Oct. 30, 1968, Ser. No. 771,869
Int. Cl. F16k *11/00*
U.S. Cl. 137—594 **4 Claims**

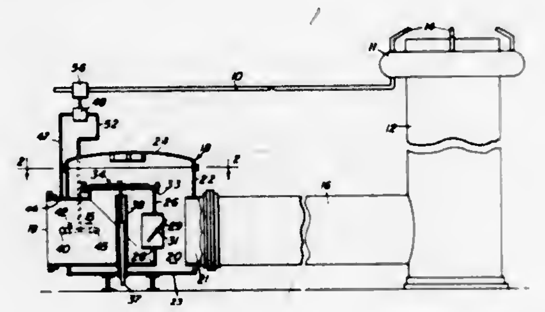


This invention consists of a rectangular metal block having two openings in one side, an opening in each end, and one opening in the other side. It also has two openings in the top of the aforesaid block. The aforesaid openings in the rear of the block are known to be L-shaped and in the form of tubular legs when viewed from the top and the opening in the front of the block is also shown to be in the form of tubular legs that are T-shaped when viewed from the top. The rear top opening enters into the L-shaped opening while the front top opening enters the T-shaped opening.

3,570,535

APPARATUS FOR DEVELOPING DIFFERENTIAL PRESSURES IN A CONDUIT LINE

John Smith Zink; Robert D. Reed, and Harold F. Koons, Tulsa, Okla., assignors to John Zink Company, Tulsa, Okla.
Filed Aug. 18, 1969, Ser. No. 850,753
Int. Cl. F23l *13/00*
U.S. Cl. 137—599.1 **3 Claims**

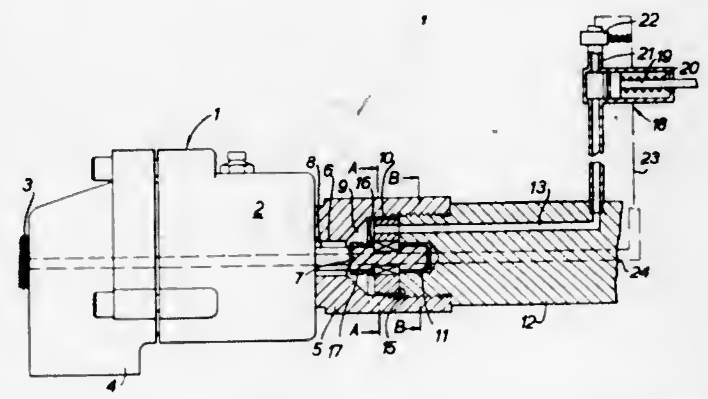


A venturi in a conduit line serves to create pressure differences which indicate the rate of flow of a gaseous medium. The pressure difference is employed to control the volume of steam that is added to the combustion zone for the gaseous medium. The apparatus includes means for relieving pressure upstream of the venturi.

3,570,536

ROTARY UNION DISTRIBUTOR

Gordon Richard Walker, and William Murray, Leamington, Spa, England, assignors to Filton Limited, Leamington Spa, Warwickshire, England
Filed May 15, 1967, Ser. No. 638,334
Claims priority, application Great Britain, May 18, 1966, 22149/66
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.11 **5 Claims**

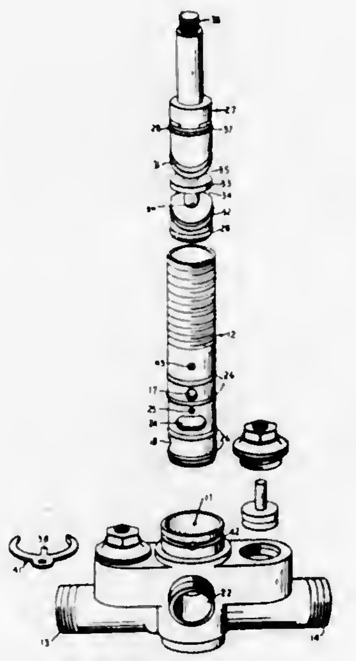


A system for permitting fluid to be sequentially distributed to different operative zones under the control of a distributor comprising a ported disc valve member and at least one cooperating coaxial ported member, the said members being relatively rotatable and arranged so that the fluid will flow in the direction of the axis of the disc valve member in passing from one said member to the other, and means for maintaining the cooperating faces of said members in sealing relationship.

3,570,537

MIXING TAP

William M. Kelly, 61 Vista Street, Sans Souci, New South Wales, Australia
Filed Feb. 26, 1969, Ser. No. 802,413
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.15 **6 Claims**

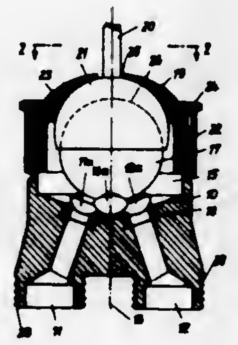


A mixing valve for mixing hot and cold water from separate supplies in which the flow of water to the valve outlet is controlled by two diagonally arranged O-rings which are mounted on a rotatable control spindle and sweep past separate hot and cold water inlet ports, the O-rings being separated by a portion of the spindle which is in sealing engagement with the wall of a bore in which the spindle is arranged whereby the effect of any difference in pressure in the hot and cold systems is minimized.

3,570,538

MIXING TAP FOR WATER

Paul Saffin Von Corpon, 4 rue de l'Athenee, Geneva, Switzerland
Filed Apr. 23, 1969, Ser. No. 818,618
Claims priority, application Switzerland, Apr. 30, 1968, 6435/68
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.4 **3 Claims**

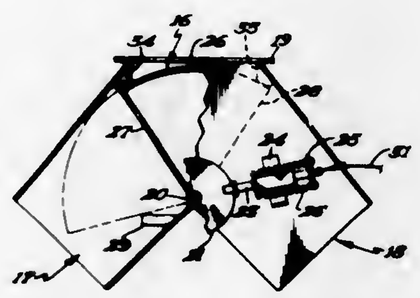


The socket of a ball-and-socket joint is rigidly connected within the tap body to the operating handle, and the ball of the joint nests in a recess in the socket and incorporates four spherical-headed valves arranged symmetrically about the center of the ball, which ball is turned about a center different from its own center.

3,570,539

VALVE APPARATUS

Cecil F. Herring, 136 Riversedge Way, Minneapolis, Minn.
Filed Apr. 21, 1969, Ser. No. 818,035
Int. Cl. F16k *11/08*
U.S. Cl. 137—625.44 **2 Claims**



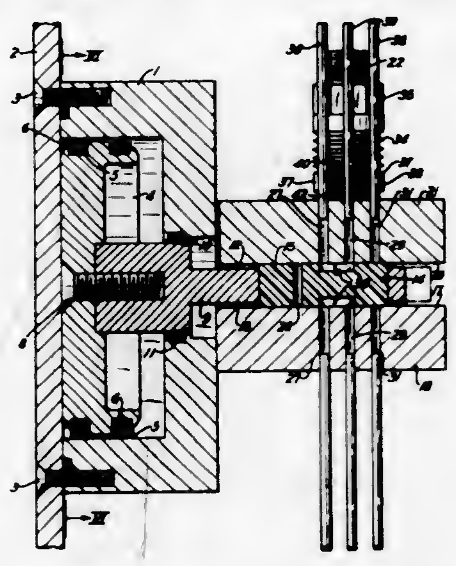
A controllable channel having an entrance and bifurcating into a pair of exits. A movable gate within the channel has three positions in which it can block the entrance, or block either one of the exits. The gate is mounted on a rotatable shaft which is aligned with the line of bifurcation within the channel. The top of the gate is convexly curved, and the shaft is rotated to place the gate in the selected position. When the gate is positioned to block either one of the exits, a sidewall of the gate will act as a portion of the channel wall for the exit that is not blocked.

3,570,540

PISTON OPERATED SLIDE VALVE

Alexander Crawford McInnes; Export; Chester F. Klages, Jr., Pittsburgh, and Robert S. Kush, Wilkins Township, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Dec. 11, 1969, Ser. No. 884,082
Int. Cl. F16k *11/06, 25/00*
U.S. Cl. 137—625.48 **6 Claims**

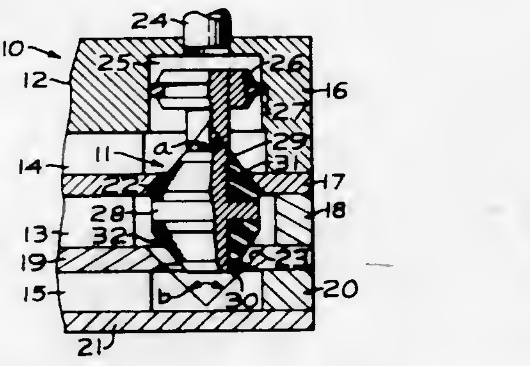
A piston has a stem projecting outwardly from a cylinder. The outer end of the stem is provided with a longitudinal slot extending through it, in which a valve slide fits and projects from the opposite sides of the stem. The exposed sides of the slide are flat and parallel. Secured to the cylinder is a stationary block that has a flat surface engaging one side of the slide. A floating block also has a flat surface engaging the other side of the slide. Mounted in the stationary block is a pair of studs that straddle the stem beside the slide and also extend through openings in the floating block. The blocks are provided with passages that register with a passage through the slide when the latter is in one of its positions. A pressure bar is slidably mounted on the studs and has a projection between them engaging the floating block in the central longitudinal plane of the slide. Springs are mounted on the studs and press the bar projection against the floating block.



3,570,541

THREE-WAY DIRECTIONAL CONTROL VALVE

Maurice F. Franz, East Peoria, and Philip S. Webber, Morton, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Nov. 29, 1968, Ser. No. 779,903
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.66 **15 Claims**



A three-way directional control valve comprises a poppet member reciprocally mounted therein to selectively communicate the working port of a fluid actuated device with either a pressurized fluid source or exhaust. The poppet member comprises at least one annular, elastomeric member secured thereon to form spaced seating surfaces adapted to engage respective seats to effect such selective communication.

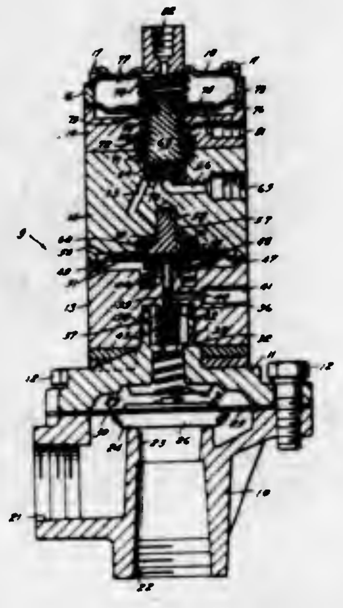
A three-way directional control valve functions to either pressurize or exhaust the working port of a fluid actuated device. The valve's durability, leakage rate and ability to quickly respond upon actuation comprise primary design problems. In addition, the valve must normally be designed to adapt it for integration into rather complex fluid circuit combinations.

3,570,542

PILOT OPERATED VALVE HAVING AUXILIARY VALVE CONTROL

Noel Otto, and Herbert H. Kaemmer, Whippany, N.J., assignors to Automatic Switch Co.
Filed Sept. 24, 1969, Ser. No. 860,695
Int. Cl. F16k *31/385*
U.S. Cl. 137—628 **9 Claims**

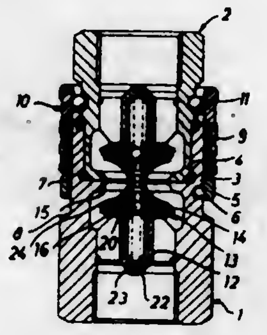
The valve has a main valve member whose position (open or closed) is controlled by a pilot valve adapted to vent the high pressure side of the main valve member. The pilot valve is operated by an actuating means responsive to fluid pressure at an actuating pressure port. The actuating means communicates with the actuating pressure port via an auxiliary or conditioning valve. The conditioning valve is opened by fluid pressure applied to a "set" port, and remains open until fluid pressure is applied to a "trip" port, which closes it. Fluid pressure at the actuating pressure port operates the pilot valve and hence permits opening of the main valve only when the conditioning valve is open. A series of these valves automatically operate sequentially if the outlet port of each communicates with its own trip port and the set port of the next succeeding valve.



3,570,543
COUPLINGS FOR PRESSURE MEDIUM CONDUITS
Bror Thure Fridolf Ekman, Slalomvogen 12, 54100 Skovde, Sweden

Filed Nov. 14, 1968, Ser. No. 775,771
Int. Cl. F16k *11/00*

U.S. Cl. 137—630 **3 Claims**



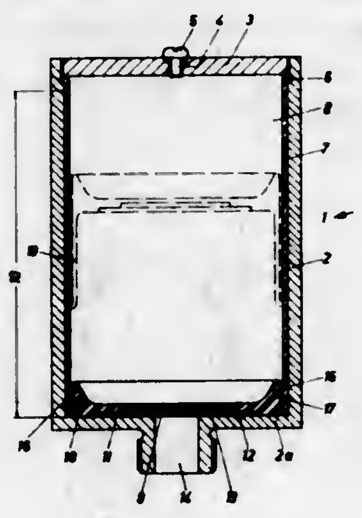
The coupling has a pair of tubular-coupling members connectable to conduits for pressure mediums with each coupling member having a valve body therein which, when the coupling members are disconnected, is in a position to close its couplings member and which, upon connection of the coupling members, is moved to open its coupling member and to open a valve provided in each valve body to release any pressure medium remaining in its conduit so that the coupling members may be easily connected.

3,570,544
HYDROPNEUMATIC PRESSURE RESERVOIR
Johannes Orthell, Anrath, Germany, assignor to Langen & Co., Dusseldorf, Germany

Filed Dec. 24, 1968, Ser. No. 786,715
Claims priority, application Germany, Jan. 9, 1968, P 16 75 344.9
Int. Cl. F16l *55/04*

U.S. Cl. 138—30 **2 Claims**

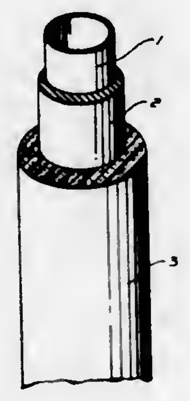
A hydropneumatic pressure reservoir of substantially cylindrical configuration in which a partition subdivides the interior of the reservoir into a gas chamber and a liquid chamber and the reservoir being provided at the ends thereof with connections for the introduction of gas and liquid respectively. The partition is secured on or in the vicinity of the end which faces the gas chamber.



3,570,545
INSULATED TUBE AND METHOD OF MAKING THE SAME
Helmut Benteler, Bielefeld, Germany, assignor to Benteler-Werke AG, Schloss Neuhas, Krs., Paderborn, Germany

Filed Sept. 27, 1968, Ser. No. 763,311
Claims priority, application Germany, Sept. 29, 1967, P 16 25 936.2
Int. Cl. F16l *9/14*

U.S. Cl. 138—143 **11 Claims**



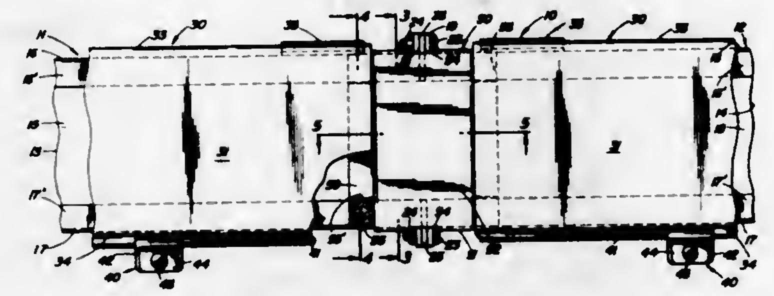
A tube and the method of making the same. A steel tube is internally clad with corrosion-resistant material and externally jacketed with foamed plastic material having a volumetric weight which at most approaches 0.7 p/cm.³. The resulting product is corrosion-resistant as well as thermally insulated and sound insulated.

3,570,546
LAY-IN CONDUIT DUCT
James H. Jackson, Powderly, Tex., assignor to The Superior Switchboard Devices Company, Canton, Ohio

Filed Feb. 24, 1969, Ser. No. 801,582
Int. Cl. H02g *3/06*

U.S. Cl. 138—155 **5 Claims**

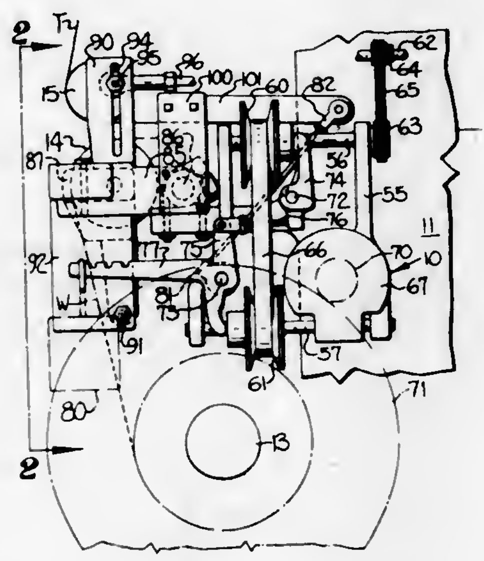
A fluidtight, lay-in duct for a conduit, having adjoining trough sections with flanges which are joined with an interposed gasket and having upstanding sidewalls terminating in sealing surfaces which are sealingly closed over a portion of their longitudinal extent by spaced trough covers having mating sealing members. The portion between the spaced trough covers is sealed by a removable insert spanning the joint between the trough sections and having a plate portion traversing the upstanding sidewalls, projecting flanges on the plate underlapping the trough covers, and sealing members between the removable insert and the sealing surfaces and trough covers.



3,570,547
GROUND WARP SHIFTING MEANS FOR TERRY LOOMS
Douglas P. Burgess, Woodleaf, and Gilmer A. Williams, Kannapolis, N.C., assignors to Cannon Mills Company, Kannapolis, N.C.

Filed June 19, 1969, Ser. No. 834,716
Int. Cl. D03d *39/22*

U.S. Cl. 139—25 **4 Claims**



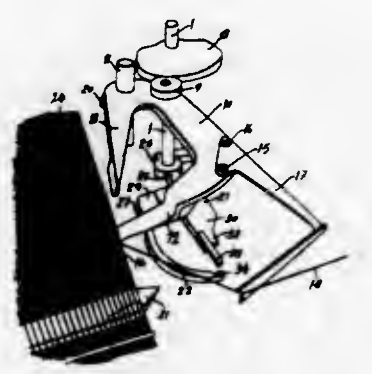
A terry loom, of the type in which the fell of the cloth being woven is shifted forwardly and rearwardly during terry weaving relative to the beat-up point of the reed, is provided with means for shifting a ground warp tension-sensing whip roll forwardly and rearwardly in unison with like motion of the cloth without adversely affecting the normal function of the whip roll in controlling a letoff mechanism for the ground warps, thus obviating the need for an additional or separate roll or bar for shifting the ground warps incident to terry weaving.

3,570,548
DEVICE FOR PRESENTING AND CUTTING THE SELECTED WEFT THREADS IN STATIONARY WEFT LOOMS
Ramon Balaguer Golobart, Calle Valls y Taberner, 11, Barcelona, Spain

Filed Aug. 29, 1968, Ser. No. 756,146
Claims priority, application Spain, Sept. 2, 1967, 345,157
Int. Cl. D03d *47/36*

U.S. Cl. 139—122 **6 Claims**

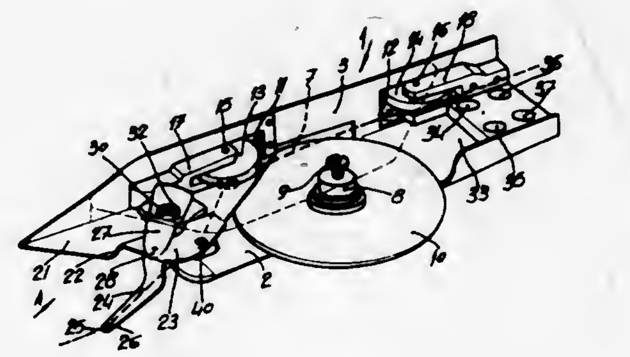
Apparatus for presenting weft yarns to the inserting element of a loom comprises a first assembly which reciprocates about a vertical axis and a second assembly which rotates unidirectionally about another vertical axis, each of the assemblies having one of two coacting cutting elements which cut the yarns after presentation to the inserting element, while the first assembly also includes an arm which presents the yarns to the inserter and also positions them to be cut by the two cutting elements.



3,570,549
DEVICE FOR INSERTING, POSITIONING AND BEATING UP THE WEFT THREAD IN A LOOM
Ramon Balaguer Golobart, Calle Valls y Taberner, 11, Barcelona, Spain

Filed Apr. 1, 1969, Ser. No. 811,971
Claims priority, application Spain, Apr. 25, 1968, 353,511
Int. Cl. D03d *47/04*

U.S. Cl. 139—123 **5 Claims**



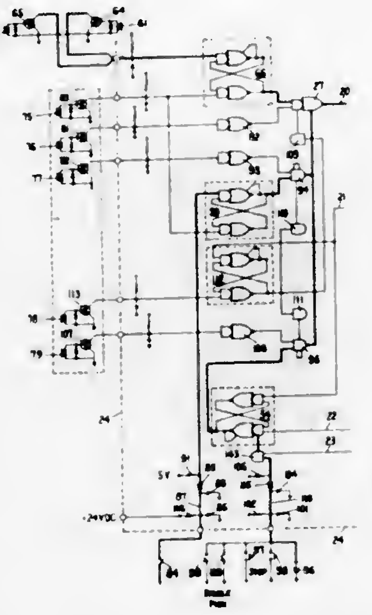
An inserter means for a loom carries the weft thread through the shed and beats up the last previously inserted thread by means of a rotating disc which presses against the thread, while the inserter means is held against lateral displacement by rollers which bear against a stationary reed.

3,570,550
CONTROL SYSTEM FOR LOOMS
Walter James Budzyna, East Douglas, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Oct. 17, 1968, Ser. No. 768,428
Int. Cl. D03d *51/00*

U.S. Cl. 139—336 **4 Claims**

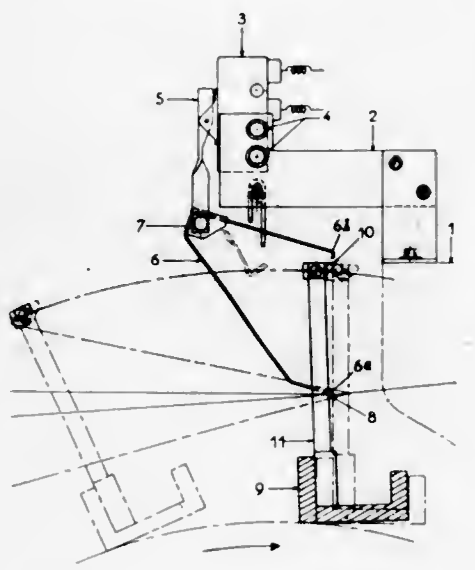
Solid-state logic circuitry of the computer type for accepting start or stop signals from numerous sources in a fly-shuttle loom and for translating those signals after suitable time-delay into command signals for an electrical clutch-brake



loom motor. Improved shuttle sensing means is provided for signalling the shuttle boxing condition during each picking cycle.

3,570,551
WEFT STOP-MOTION FOR SHUTTLELESS LOOMS

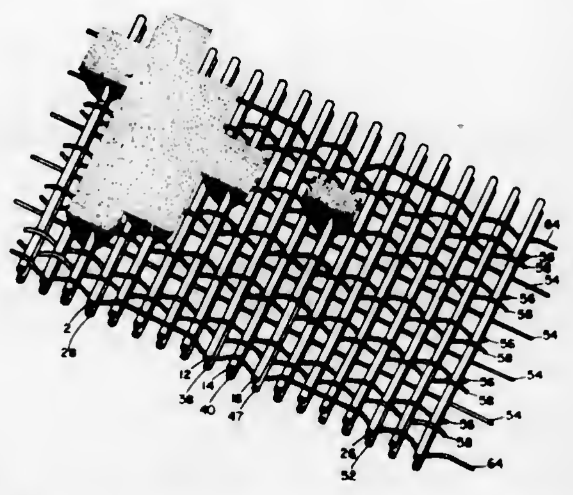
Albert Deborde, Bourgoin-Jallieu, France, assignor to Ateliers Diederichs Societe Anonyne, Bourgoin-Jallieu (Isere), France
Filed Mar. 6, 1969, Ser. No. 804,955
Claims priority, application France, Mar. 18, 1968, 49773
Int. Cl. D03d *51/34*
U.S. Cl. 139—370 **5 Claims**



A weft stop-motion device is provided for a shuttleless loom with a continuous weft feed not requiring any positioning member for positioning of the weft. The control of the weft is effected from the opposite side of the feed without necessitating any cyclically operating electrical device. The weft stop-motion device is positioned at a fixed point on the loom frame and comprises a freely pivotable unrestrained needle which is bent at the middle to form two arms. The pivot of the needle is fixed to a lever arranged to actuate a microswitch. The end of one arm of the needle constitutes a feeler to contact the weft thread. The end of the other arm has a hook arranged to be engaged by a beak attached to a support on the sley, at the end of the stro f the sley. If the feeler is not held in raised position due to the absence of weft thread, the hook is drawn by the beak, which tilts the lever, actuates the microswitch and so stops the loom.

3,570,552
CUT-PILE FLOOR COVERING

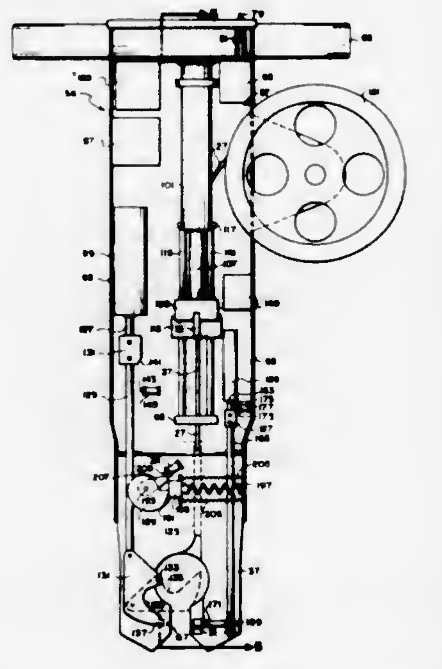
Raymond J. Carrigan, Thompsonville, Conn., assignor to Bigelow-Sanford, Inc., Thompsonville, Conn.
Filed Nov. 22, 1968, Ser. No. 778,189
Int. Cl. D03d *27/06*
U.S. Cl. 139—403 **8 Claims**



A woven cut-pile fabric floor covering suitable for use with metal floating floor panels having a plurality of weftwise-spaced lifting cords woven into the carpet backing and extending warpwise, each cord floating over a plurality of groups of wefts, each group including at least three successive face wefts, the lifting cords lying substantially flat against the wefts over which they are floated or woven and disposed below the top of and concealed by the pile, the floats of the lifting cords being accessible from the pile side of the fabric for lifting the fabric.

3,570,553
TYING MECHANISM

Benjamin M. Bartilson; Gerald A. Francis, and Michael U. Widman, Columbus, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Aug. 30, 1968, Ser. No. 756,557
Int. Cl. B21f *15/04*
U.S. Cl. 140—93 **8 Claims**



An apparatus for tightly joining a cluster of wires, cables or combinations thereof. The wires and/or cables may be limited to access from only one side. The cluster of wires or cables are joined together by wrapping a relatively stiff wire around the cluster. The wrapping means includes a rotatable disc having a central opening continuous with a radial opening extending through the periphery of the disc. A pulley is positioned near the periphery of the disc. The opening of the

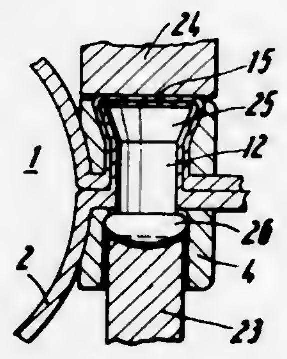
disc is placed over the cluster of wires or cables and the cluster is positioned essentially in the central opening of the disc. One end of a length of tying wire is fed past the cluster and about perpendicular to the long axis of the wires or cables in the cluster. The end of the tying wire that has past the cluster is restrained as the disc rotates. The pulley engages the tying wire and forces it around the cluster pulling the unrestrained and unengaged portion of the tying wire over the periphery of the rotating disc where belt friction is applied to the tying wire thereby increasing the wrapping tightness. Other features of the various embodiments of the invention include: a gathering arm to bring the cluster of wires or cables closer together; a wire feed mechanism for automatically supplying the tying wire; a shearing mechanism for cutting the tying wire to length; a clamping mechanism for restraining one end of the tying wire; and, counter rotating heads to wrap the tie wire in place.

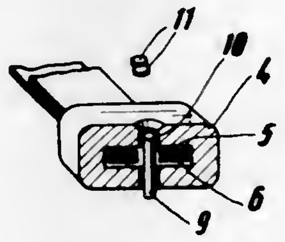
ERRATUM

For Class 140—147 see:
Patent No. 3,570,559

3,570,554
METHOD OF TIEING A BUNDLE OF CABLES

Heinrich Kabel, Quickborn, Holstein, Germany, assignor to Paul Hellerman G.m.b.H., Hamburg, Germany
Original application Apr. 9, 1965, Ser. No. 446,885. Divided and this application Sept. 12, 1967, Ser. No. 667,286
Int. Cl. B21f *3/00*
U.S. Cl. 140—93.2 **3 Claims**

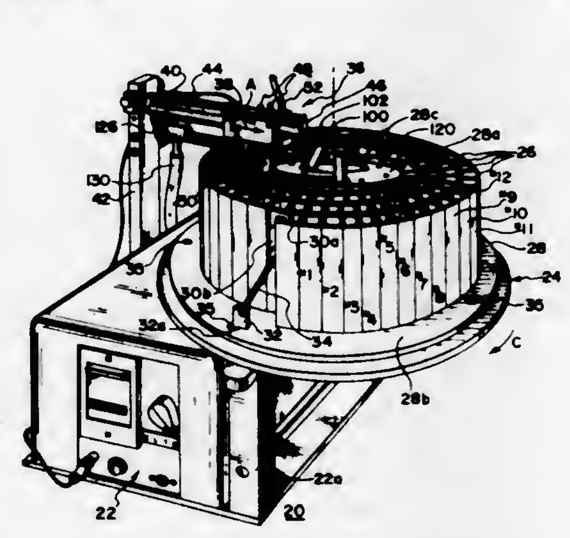




A bundle of cables or the like is tied with the aid of a strap fastened to a lock by means of a pin, the end of which may be upset. Apparatus for carrying out the method includes holding means for the lock, operating means for the pin, and tensioning and cutting means for the strap.

3,570,555
FRACTION COLLECTOR

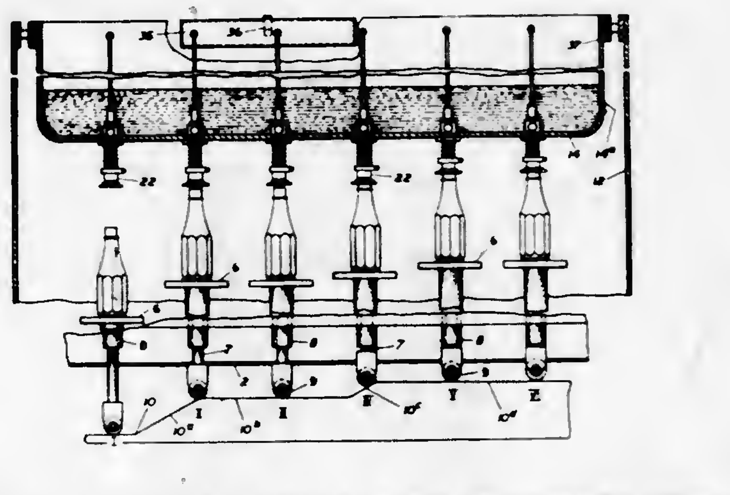
Warren E. Gilson, 4801 Sheboygan Ave., Madison, Wis.
Filed Nov. 12, 1968, Ser. No. 774,967
Int. Cl. B65b *3/04*; **G01n** *33/00*
U.S. Cl. 141—1 **26 Claims**



A fraction collector includes a spiral array of containers mounted for free rotation and a filling assembly mounted for free movement along a path intersecting the convolutions of said spiral array. A container engaging member is mounted on said filling assembly, and drive means move said member into engagement with successive containers in the spiral array to rotate said array while moving said filling assembly along said intersecting path.

3,570,556
METHOD OF AND APPARATUS FOR FILLING BOTTLES

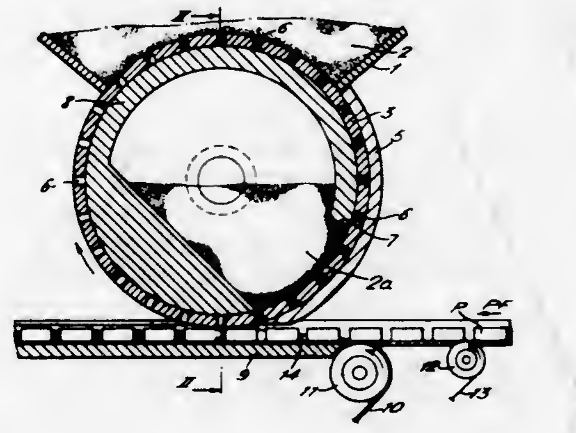
James B. Anderson, Cleveland, Ohio, assignor to H. J. Heinz Company, Pittsburgh, Pa.
Filed Sept. 12, 1968, Ser. No. 759,274
Int. Cl. B67c *3/14*
U.S. Cl. 141—11 **11 Claims**



There is disclosed a method of and apparatus for filling bottles with a liquid, particularly a cold and/or viscous liquid such as ketchup into bottles at high speed and without breaking. The bottle is first filled with steam, also preferably in a surrounding atmosphere of steam, and then pressed against a valved filling head to open the valve. The cold liquid immediately condenses the steam in the bottle, creating a partial vacuum that pulls the liquid into the bottle at high velocity. If there is a surrounding atmosphere of steam, heat stresses in the glass will be largely eliminated.

3,570,557
APPARATUS FOR PRODUCING COMPOSITE FILTER PLUGS FOR CIGARETTES

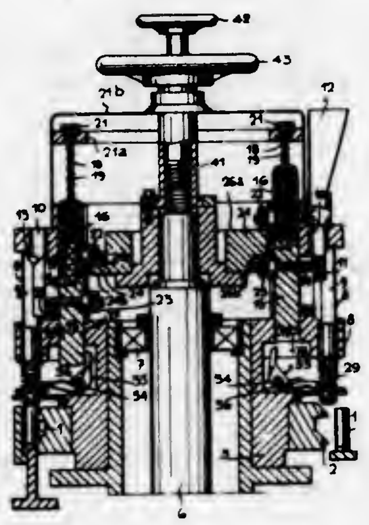
Desmond Walter Molins, London, England, assignor to Molins Machine Company Limited, London, England
Filed Sept. 10, 1968, Ser. No. 758,809
Claims priority, application Great Britain, Sept. 15, 1967, 42269/67
Int. Cl. B65b *1/04*, *3/04*; **B67c** *3/02*
U.S. Cl. 141—99 **10 Claims**



A device for feeding measured quantities of powdered material comprises a feed wheel having peripheral pockets open at both ends which receive and discharge material through their outer ends, and in which the quantities to be discharged can be augmented from within, either from an auxiliary supply within the wheel or from within the inner ends of pockets long enough to accommodate more than the required quantity; in either case a stationary metering plate prevents excessive discharge.

3,570,558
CONTINUOUSLY ROTATING FILLING MACHINE HAVING A VOLUMETRIC METERING DEVICE FOR PULVERULENT OR GRANULAR MATERIAL

Maurice D. L. Lachaussee, 360 rue del'Yser, Ans-LeZ-Liege, Belgium
Filed June 3, 1968, Ser. No. 733,861
Claims priority, application Belgium, June 14, 1967, 41,387
Int. Cl. B65b *57/06*
U.S. Cl. 141—140 **11 Claims**

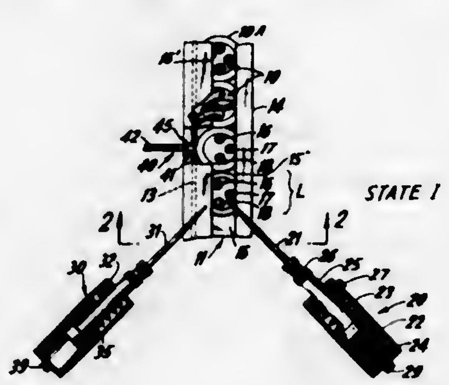


In a continuously rotating filling machine there is provided a volumetric metering device for supplying a charge of granular or pulverulent material to cases, comprising a drum rotating about a fixed vertical shaft and having at its periphery cavities for lodging the cases to be filled, which receive in turn a charge of pulverulent material through distributing means composed of a distribution plate rotating about said fixed shaft with said drum and having vertical peripheral channels arranged opposite said cases for transferring into said cases said charge of material from a fixed supply vat of arcuate shape, during a part of the rotation of said distributing plate, each channel having an upper metering cavity containing a sliding metering piston which is integral with a horizontal arm of a vertical piece having rollers rolling on a fixed cam causing said vertical piece to move alternately up and down so that said metering piston enters said fixed vat and for extracting therefrom a charge of material which at the end of the downward stroke of said metering piston falls into said channels located above said cases.

3,570,559
METHOD AND APPARATUS FOR THE SPREADING OF COMPONENT LEADS

Burtis E. Palmer, Allentown, Pa., assignor to Western Electric Company, Incorporated, New YORK, N.Y.
Filed Nov. 27, 1968, Ser. No. 779,370
Int. Cl. B21f *1/02*
U.S. Cl. 140—147 **11 Claims**

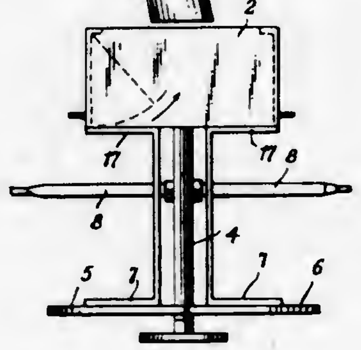
A lead spreading technique for electrical components such as transistors having three nominally parallel leads, utilizes a plurality of reciprocable pencillike spreading fingers shaped to fit between and spread adjacent leads. The electrical components are preoriented single file in the conventional manner and are each sequentially located in the operative position by one of the pencil fingers itself. This "locating" finger is mounted upon a three-position cylinder, one position of which injects the finger in an intercepting relationship with one of the component leads as the component file advances. Upon the locating of a component at the operative position, the spreading fingers are reciprocated as closely as possible to the base of the component to separate the leads.



Upon full retraction of the locating finger a rubber membrane is employed as an escapement to hold the remaining transistors.

3,570,560
REFUSE COLLECTION APPARATUS

Kurt Henry Smedlund, Piefeltagatan 33, Halmstad, Sweden
Filed Feb. 28, 1969, Ser. No. 803,325
Claims priority, application Sweden, Apr. 2, 1968, 4360/68
Int. Cl. B65b *1/06, 3/06*
U.S. Cl. 141—236 **7 Claims**

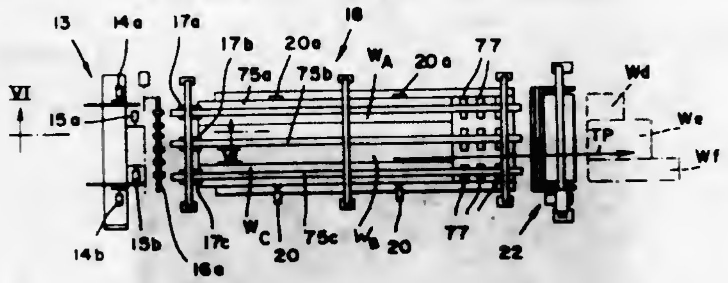


An apparatus for collecting refuse from a discharge chute, consisting of a container positioned below the chute, the container having a plurality of bottom discharge openings, pivoted plates located below the container support collection bags between them and the container and register a bag below each of the bottom openings in the container. The plates, when pivotally swung from a horizontal position, act to tilt the carriers and permit the removal of the bags therefrom, several of the carriers being swung to removal position at a time. The container has side openings closed by inwardly pivotal flaps.

3,570,561
INSTALLATION FOR SUBDIVIDING A FLAT WORKPIECE

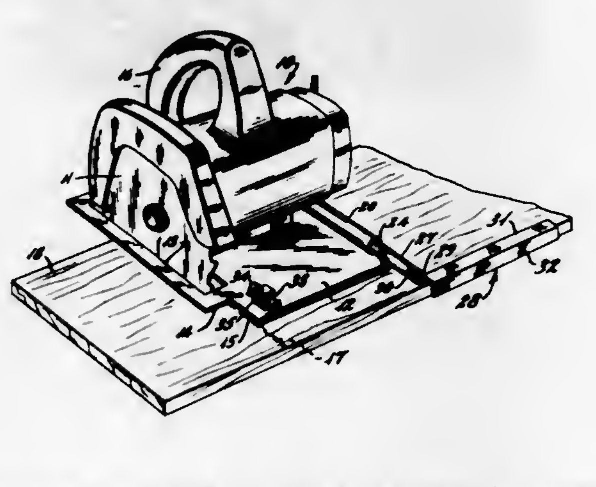
Wilhelm Frodermann, Schweicheln-Bermbeck; Heinrich Hagmeister, and Karl-Heinz Wittig, Herford, Germany, assignors to F. Meyer & Schwabedissen, Herford, Westphalia, Germany
Filed Oct. 14, 1968, Ser. No. 767,165
Claims priority, application Germany, July 3, 1968, P 17 03 723.9
Int. Cl. B27b *15/06, 25/02;* **B26d** *5/22*
U.S. Cl. 143—1 **3 Claims**

An installation for subdividing a flat elongated workpiece, such as a stack of wood panels, has a first worktable where the stack is formed and straightened out, a second worktable to which the stack is conveyed so that its longitudinal and transverse edges can be trimmed off and the stack sized by saws mounted adjustably on a displaceable traverse and where a piece or pieces can be cut off the leading end of the workpiece and removed laterally. From thence the workpiece is fed through a station where its longitudinal edges are again trimmed and it is transversely subdivided into a plurality of parts. The parts are fed into separate transport mechanisms which can line them up differently so that a single cut of a transverse saw can sever them producing sections of different lengths.



3,570,562
ATTACHMENT FOR A PORTABLE SAW

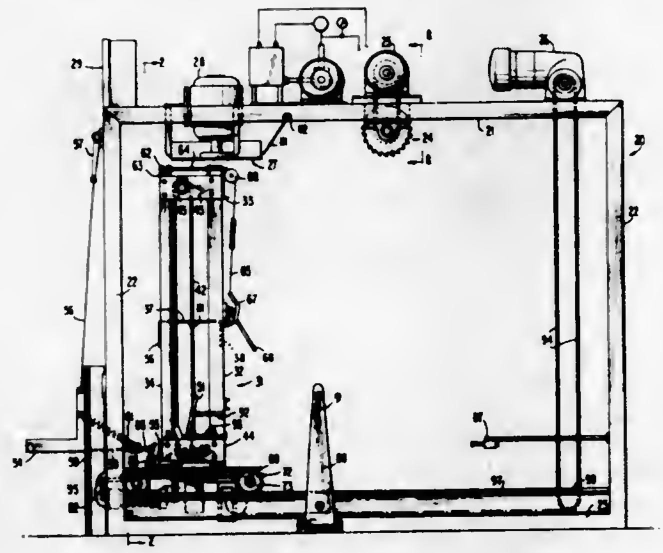
Charles W. Tracy, Tallahassee, Fla., assignor to International Enterprises, Inc., Tallahassee, Fla.
Filed June 25, 1969, Ser. No. 836,363
Int. Cl. B27b *27/06*
U.S. Cl. 143—6 **6 Claims**



Apparatus mountable on the bed plate of a portable saw and utilized to guide the saw along a predetermined line of cut.

3,570,563
ICE CUBING MACHINE

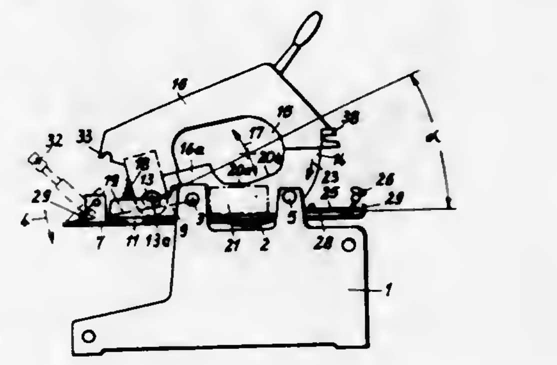
Thomas Frank Hall, 504 Downing St., New Smyrna Beach, Fla.
Filed Jan. 6, 1969, Ser. No. 789,189
Int. Cl. B27b *5/02*
U.S. Cl. 143—38 **7 Claims**



An ice cubing machine designed to produce ice cubes from large blocks of ice stacked within a carriage which is made to move in a reciprocating motion beneath a rotating gang of saws. Upon initial movement of the carriage, the blocks are moved upwardly a distance equal to the size of the cubes desired. The ice is then scored in one direction as the carriage first moves under the saws, and in another direction perpendicular to the first as the carriage is rotated and returns for movement again under the saws. A horizontally rotating cutting blade severs the cubes which have been scored at the end of the carriage return movement. Before the carriage again begins movement beneath the gang saws, the stacked blocks are made to move upwards to repeat the cubing cycle.

3,570,564
CONVERTIBLE CIRCULAR BENCH SAW AND MITERING SAW

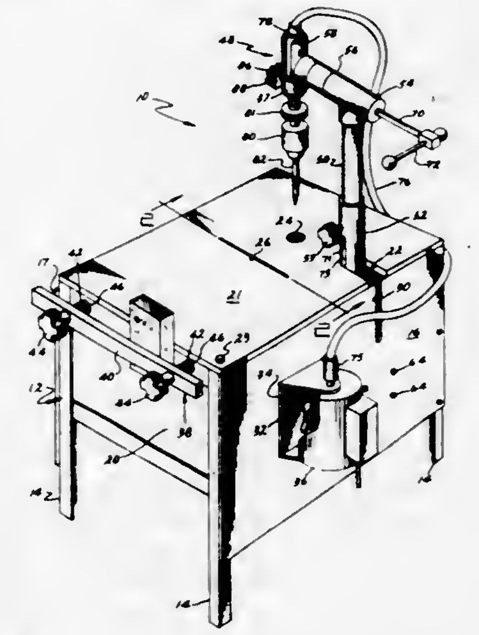
Otto Bergler, Lowersheim, Germany, assignor to Eugen Lutz K. G. Maschinenfabrik, Lomersheim, Germany
Filed Aug. 28, 1968, Ser. No. 755,856
Claims priority, application Germany, May 10, 1968, Jan. 3, 1968, L58272;L47372/38
Int. Cl. B27b *5/00*
U.S. Cl. 143—1 **17 Claims**



A convertible saw with a circular saw blade which is of a very simple design so as to permit the plate-shaped worktable with the elements thereon including the motor and saw blade to be reversed 180° from an upper position in which miter cuts may be made to a lower position in which long straight cuts may be made. In the upper mitering position the motor and saw blade may be pivoted downwardly toward the worktable to cut through a workpiece, while in the lower position the motor and saw blade are locked to the worktable so that the saw blade projects for a considerable distance through the slot in the worktable.

3,570,565
MULTI-PURPOSE TOOL

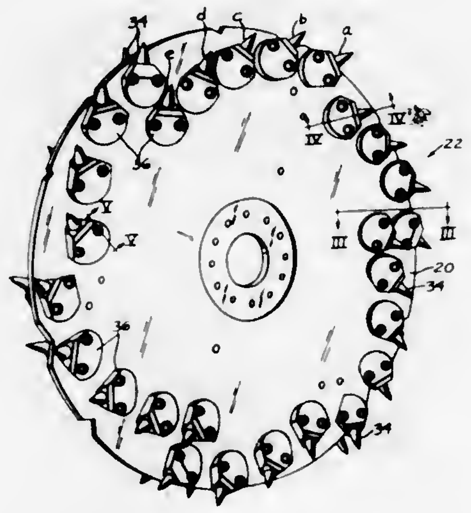
Stanley R. Morgan, 18 School St., Warehouse Point, Conn.
Filed Oct. 2, 1968, Ser. No. 764,535
Int. Cl. B27c *9/02*
U.S. Cl. 144—1 **2 Claims**



A multipurpose tool which may be employed for above table operations, such as drilling, buffing, and grinding, or below table operations, such as sawing and shaping, wherein rotary tool mounting means is vertically adjustable so that it may be positioned above or below a worktable.

3,570,566
ROTARY CUTTING DEVICE

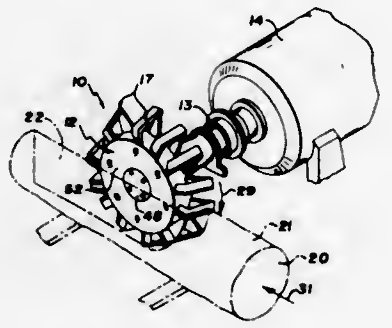
James F. McCreery, Latrobe, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Filed Jan. 16, 1969, Ser. No. 791,606
Int. Cl. B27c *1/00, 9/00*
U.S. Cl. 144—2 **9 Claims**



The invention relates to a cutting device which has a cutting disc rotatably mounted on the outer end of a swingable arm and with the disc having a plurality of support blocks for cutter members mounted thereon in distributed relation about the periphery. Each support block has a bore which rotatably receives the shank of a picklike cutting member which is retained in assembled relation with the respective block while being free to rotate relative to the block.

3,570,567
WOOD CHIP CUTTING APPARATUS

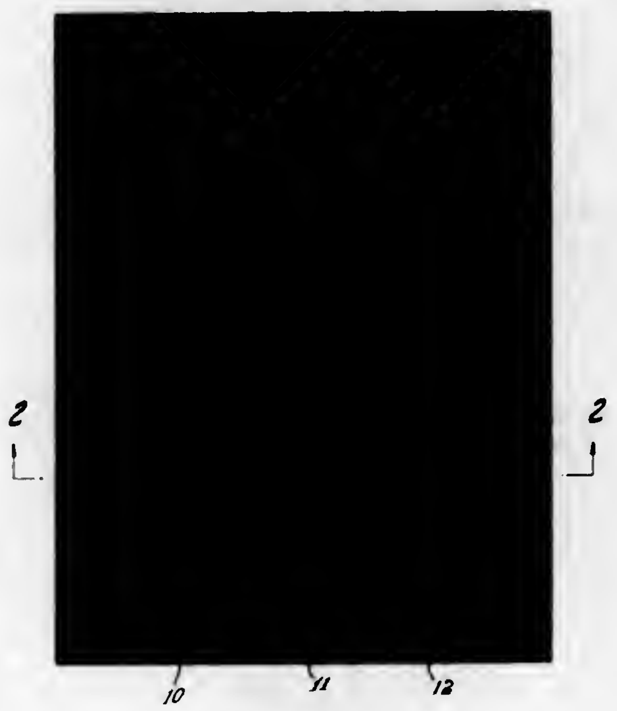
Brian D. Hickman, Crofton, British Columbia, Canada, assignor to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada
Filed Mar. 13, 1969, Ser. No. 806,935
Int. Cl. B27g *13/04*
U.S. Cl. 144—220 **23 Claims**



Apparatus for cutting away portions of wood logs, timbers, and the like as pulp chips by means of a rotor head having a plurality of holders radiating therefrom, each carrying a bent knife to cut the wood across the grain and leave a flat surface on the wood extending substantially parallel to the direction of movement thereof. Each blade is supported outwardly thereof relative to the axis of rotation of the head, and is firmly held in precise position.

3,570,568
METHOD AND APPARATUS FOR FORMING A TEXTURED SURFACE ON WOOD

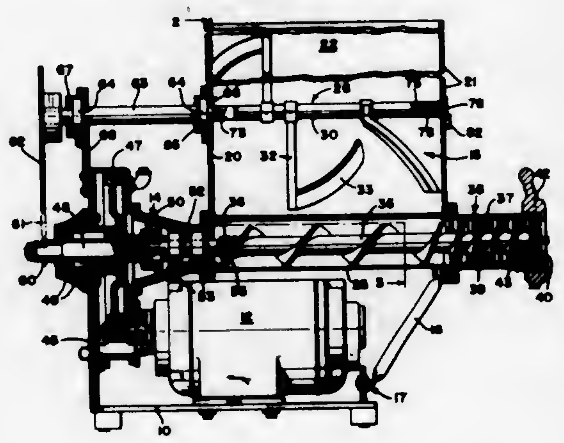
Joseph P. Kneisel, 3920 El Lado Drive, La Crescenta, Calif.
Filed Jan. 22, 1968, Ser. No. 699,697
Int. Cl. B27k *5/00*
U.S. Cl. 144—309 **5 Claims**



A method and apparatus for forming a textured surface on wood panels. A fuzzy or velvetlike texture is formed by sanding a surface of a wood panel across the grain thereof. This serves to break and lift the surface fibers. The textured surface may be formed by feeding a panel in the direction of the grain thereof past a plurality of belt sanders, the belts of which move substantially traverse to the grain direction.

3,570,569
FOOD MIXING MACHINE

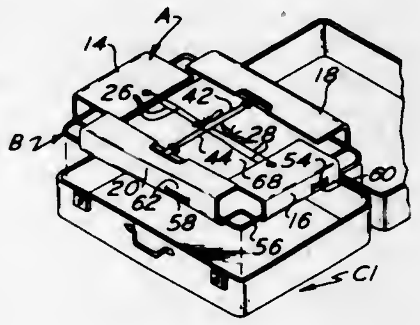
Richard S. Hartley, and Harold D. Hannah, Troy, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio
Filed May 5, 1969, Ser. No. 821,632
Int. Cl. B02c *18/22;* **B01f** *15/02*
U.S. Cl. 146—186 **5 Claims**



A food mixing machine incorporates a hopper with a rotatable mixing member extending lengthwise thereto and a trough along the bottom of the hopper through which a discharge screw extends. The end of the screw continues into a barrel of a food grinding or chopping machine. A motor is connected to rotate both the mixing member and the screw, with the drive to the screw being through a one-way clutch. Rotation of the motor in one direction causes the screw to discharge material from the hopper while the mixing member is rotated, and rotation of the motor in the other direction causes the mixing member to mix materials in the hopper without transmitting power to the screw. The mixing member is mounted for simple uncoupling and removal from the hopper in order to clean the same.

3,570,570
GARMENT PACK FOR LUGGAGE

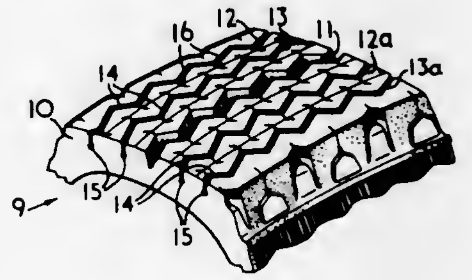
Alfred R. Winner, 1616 Woodmere Way, Havertown, Pa.
Filed May 21, 1969, Ser. No. 826,571
Int. Cl. A45c *5/12*
U.S. Cl. 150—52 **9 Claims**



A carrying pack for unitizing garments in luggage comprising a wrapper portion and an adjustable frame for adapting the pack for various suitcase sizes. The wrapper includes a central rectangular panel with four flaps which tie about the garments and a handle portion for lifting the pack.

3,570,571
TIRES

John Michael Riches, Castle Bromwich, near Birmingham, England, assignor to The Dunlop Company Limited, London County, England
Filed Aug. 7, 1967, Ser. No. 658,849
Claims priority, application Great Britain, Aug. 6, 1966, 35300/66
Int. Cl. B60c *11/06*
U.S. Cl. 152—209 **11 Claims**

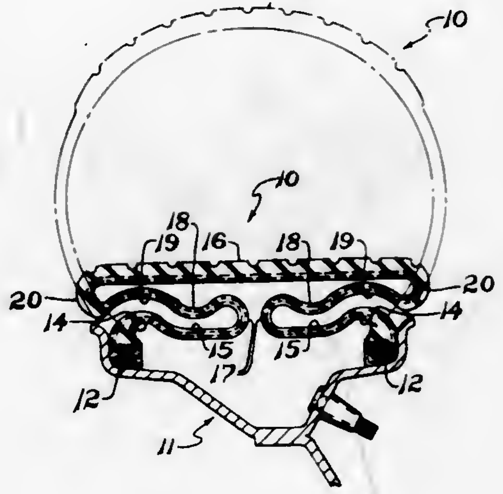


A pneumatic tire tread having both circumferentially and transversely extending slots formed in one or more circumferentially extending ribs. The slots are substantially smaller than the groove or grooves between ribs and are between 0.75 mm. and 2.0 mm. wide at the ground-contacting surface when the tire is inflated. The transversely extending slots may be provided with drainage channels which are wider than the slots, of which the following is a specification.

3,570,572
COLLAPSIBLE TIRE

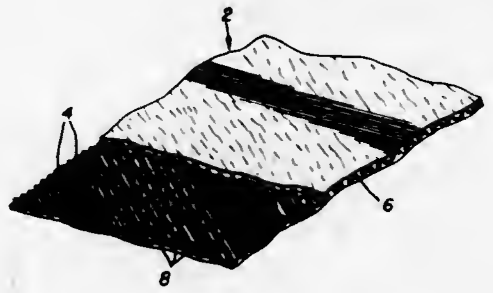
Armando Cardenas, Cuyahoga Falls, and Ronald L. Simpson, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.
Filed Dec. 23, 1968, Ser. No. 786,117
Int. Cl. B60c *13/00, 19/00, 5/00*
U.S. Cl. 152—352 **8 Claims**

A pneumatic tire which in the inflated condition has a conventional toroidal shape but while in deflated condition assumes a shape wherein the respective sidewall portions are axially folded inwardly to decrease the overall dimensions of the collapsed tire. The axial folds define a double curvilinear fold to permit maximum collapse without interfering with adjacent fold sections.



3,570,573
FILAMENT REINFORCED STRUCTURAL PLY FOR A PNEUMATIC TIRE

Leon F. Marker, Cuyahoga Falls, and Daniel A. Meyer, Akron, Ohio, assignors to The General Tire & Rubber Company
Filed Feb. 26, 1968, Ser. No. 708,006
Int. Cl. B60c *9/00*
U.S. Cl. 152—359 **10 Claims**

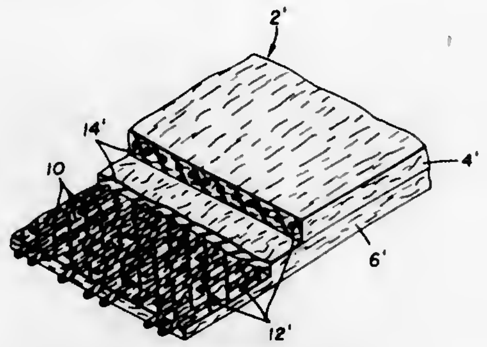


A high modulus structural ply for a pneumatic tire which is composed of mutually parallel, continuous cords embedded in an elastomeric compound which contains uniformly dispersed, short fibers oriented in a particular direction. Such a ply construction may be utilized as carcass plies and/or breakers in "bias-ply" tires or, as carcass plies and/or belts in "radial-ply" tires.

3,570,574
EXPANSIBLE BELT FOR USE IN BELTED PNEUMATIC TIRES

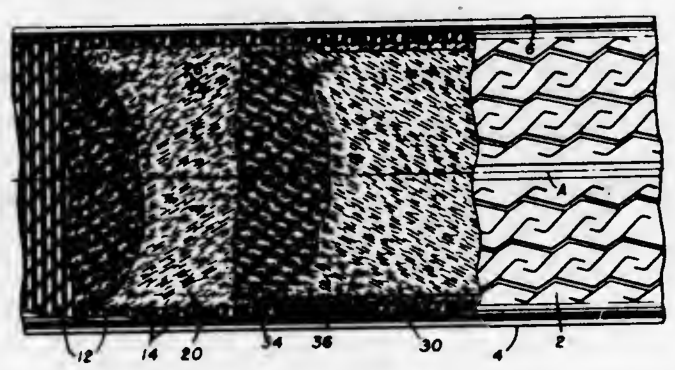
Leon F. Marker, Cuyahoga Falls; Daniel A. Meyer; Henry Piotrowski, Akron, Ohio; Marvin A. Deisz, deceased, late of Akron and Joseph P. Sansonetti, Executor, Akron, Ohio, assignors to The General Tire & Rubber Company
Filed July 26, 1968, Ser. No. 749,913
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 **2 Claims**

Disclosed is a rubberized cord belt construction, for use in either a radial or bias ply tire, where mutually parallel alignments of discontinuous cord lengths replace the conventional parallel continuous cords and the elastomer of the belt contains uniformly dispersed, oriented, filaments. The cord alignments are disposed at a small angle relative to the crown of the tire. Because of the discontinuity of the cords, the belt may be expanded. Thus, tires employing these low-angle belts may be manufactured by presently existing tire-shaping equipment.



3,570,575
RADIAL PLY PNEUMATIC TIRE WITH HIGH ANGLE BREAKER ASSEMBLY

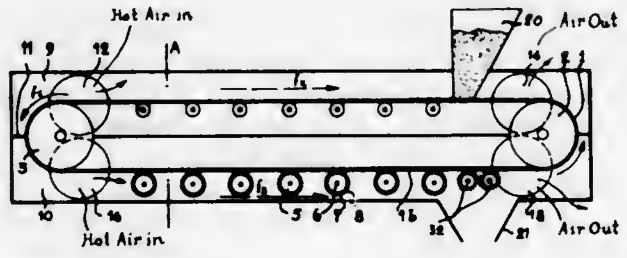
Leon F. Marker, Cuyahoga Falls, Ohio, and Daniel A. Meyer, Akron, Ohio, assignors to The General Tire & Rubber Company
Filed July 24, 1968, Ser. No. 747,143
Int. Cl. B60c *9/14*
U.S. Cl. 152—361 **4 Claims**



Disclosed is a radial ply tire with a circumferentially located cincture assembly composed of endless plies in which the cords of the plies are disposed at atypical, large angles relative to the crown of the tire. The cords are held within an elastomeric matrix filled with small, oriented fibers. The plies have the same stabilizing effect as do conventional "low angle" breakers; but, because of their relatively large cord angles, are more extensible. As a result, radial ply tires featuring these high angle breakers may be manufactured by conventional "hard drum" or "flat band" processes.

3,570,576
CONTINUOUS DEHYDRATION APPARATUS

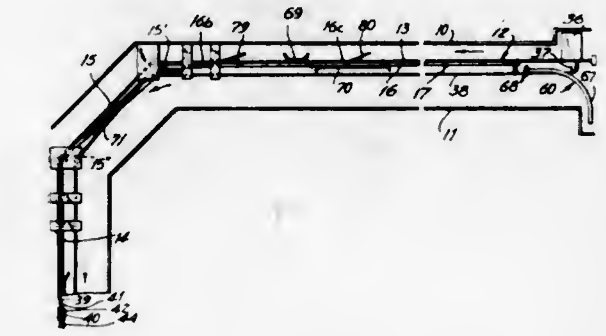
Henri Griffon, 2, Place Mazas, Paris 12 eme, France
Filed Aug. 21, 1969, Ser. No. 852,014
Claims priority, application France, Aug. 22, 1968, 163832
Int. Cl. B01d *1/14*
U.S. Cl. 159—8 **10 Claims**



Apparatus for dehydrating foodstuffs of a creamy or pasty consistency having elongate upper and lower compartments through which an endless conveyor belt passes, the foodstuff being dried with air which flows countercurrently with the conveyor belt in the upper compartment, where a layer of the foodstuff to be dehydrated is deposited on the outer surface of the conveyor belt, and which flows concurrently with the conveyor belt in the lower compartment, where the dehydrated foodstuff is removed from the conveyor belt, the conveyor belt being supported in the upper compartment by rollers positioned below the conveyor belt which contact its inner surface and in the lower compartment by rotatable discs positioned below the conveyor belt which contact the outer surface thereof bearing the layer of foodstuff thereon.

3,570,577
POWERIZED ANGLED PARTITION

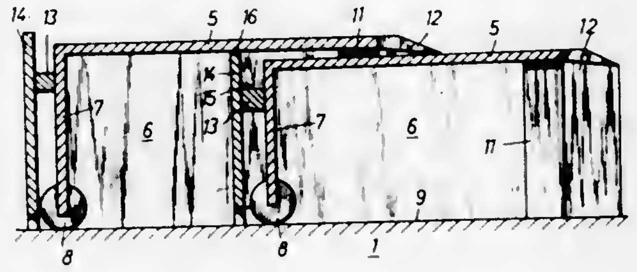
Daniel M. Bedrin, Brooklyn; Sylvester G. Avallone, Seaford, and Justin Haluska, Jr, Forest Hills, N.Y., assignors to Torjesen, Inc., Brooklyn, N.Y.
Filed Apr. 4, 1969, Ser. No. 813,602
Int. Cl. E05f *15/14*
U.S. Cl. 160—1[illegible] **8 Claims**



A powerized partition which may be shifted from a collapsed storage position to an extended, wall-defining position. The wall structure provided by the extended panel is nonlinear, being in the form of an L or similar configuration. The panel assembly is provided with powerized drive means for extending and collapsing the same.

3,570,578
DEVICE FOR COVERING THE SLIDEWAYS OF MACHINE TOOLS

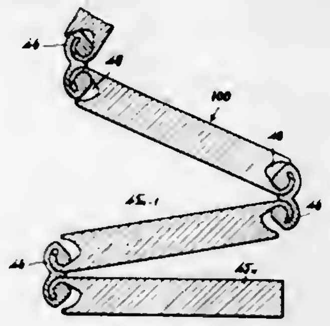
Kurt Loos, Dreis-Tiefenbach, Germany, assignor to Kabelschlepp GmbH, Schulstrasse, Siegen, Westphalia, Germany
Filed Dec. 18, 1968, Ser. No. 784,791
Claims priority, application Germany, Dec. 21, 1967, P 16 02 868.5
Int. Cl. E05d *15/06*
U.S. Cl. 160—202 **10 Claims**



A covering device for the slideway of a machine tool, which comprises a plurality of boxes successively decreasing in size so as to be adapted to telescope in each other, each of said boxes having a top wall and two sidewalls extending in the longitudinal direction of and being connected to said top wall, each of said boxes also having a rear wall connected to the pertaining sidewalls, the top walls of each two adjacent and successive boxes when in at least partially telescoped condition defining passage means with each other, and collecting channel means communicating with said passage means and arranged on the outside of the respective smaller box of each two adjacent successive boxes.

3,570,579
SLIDING COVER AND HOUSING DEVICE THEREOF

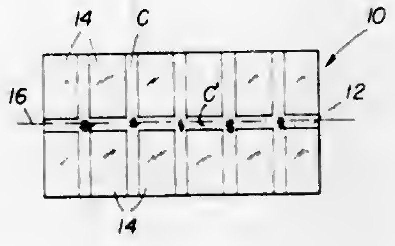
Shunichi Matsushima, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi
Filed Mar. 12, 1969, Ser. No. 806,576
Claims priority, application Japan, Mar. 18, 1968, Mar. 19, 1968, Mar. 19, 1968, 43/21005; 43/21169; 43/21170
Int. Cl. E06b *9/14;* **E05d** *15/26*
U.S. Cl. 160—235 **2 Claims**



A sliding cover and housing device thereof which comprises a sliding cover consisting of a plurality of cover pieces being linked with hinges and a pair of guides being provided along the upper inside walls of a cabinet, whereby the cover assembly can be housed in the rear and upper space of the cabinet in folded state.

3,570,580
FABRIC-PLEATING GUIDE

Philip D. Warner, 15 Bristol Lane, Kings Park, N.Y.
Continuation-in-part of application Ser. No. 760,824, Sept. 19, 1968. This application May 21, 1969, Ser. No. 826,469
Int. Cl. A47h *13/14*
U.S. Cl. 160—348 **4 Claims**

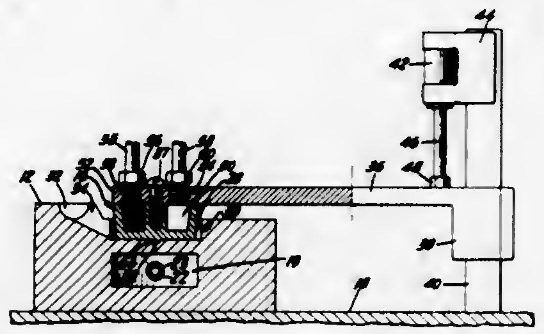


A device to facilitate the pleating of fabric which, in a flat unfolded condition, is positionable about the fabric and folded in unison therewith into an accordion-type configuration and, as a consequence, produces pleats in the fabric.

3,570,581
APPARATUS FOR CASTING RINGS

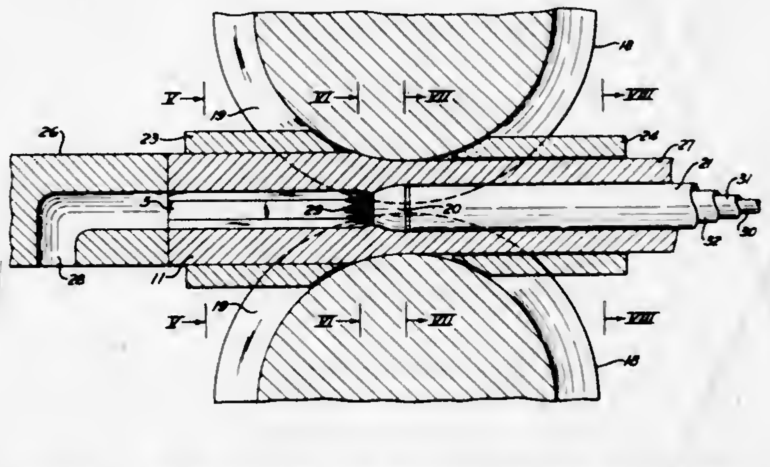
Richard J. Gennone, Wyomissing, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Apr. 19, 1968, Ser. No. 722,801
Int. Cl. B22d *15/02*
U.S. Cl. 164—47 **1 Claim**

The disclosure concerns the casting of pieces, such as rings or the like, having bores extending therethrough from metals subject to substantial shrinkage during conversion from a molten to a solid state. The apparatus employed includes a main mold member having a cavity defined by a peripheral wall and a core member adapted to be moved between a position within the cavity and an elevated position remote therefrom. The core when in the cavity is spaced from the peripheral wall to define an annular molding cavity therewith. The core is cooled as by the circulation of a fluid medium such as cold water therethrough. In the casting of pieces with the mold member and core molten metal is poured into the molding cavity between the core and mold member, the core being in its lowered or active position at this time. The core is retained in such active position only until the metal surrounding the core has solidified sufficiently to be self-sustaining and the core is then immediately elevated to its remote position whereby solidification of the main body of metal and the resultant shrinkage thereof takes place in the absence of the core.



3,570,582
PROCESS FOR MANUFACTURING CYLINDRICAL TUBULAR METAL BODIES

Albert H. Calmes, Lausanne, Switzerland, assignor to Jean-Paul Calmes, LeMont-sur-Lausanne, Switzerland
Filed Nov. 5, 1968, Ser. No. 773,397
Claims priority, application Luxembourg, Nov. 8, 1967, 54,813
Int. Cl. B21b *17/02*
U.S. Cl. 164—76 **5 Claims**

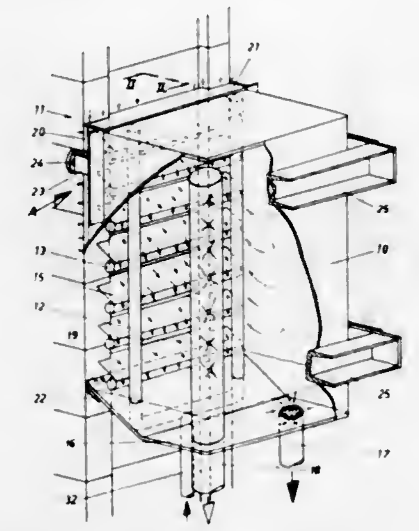


Metal is cast to form a bloom that is polygonal in cross section with an axial passage extending through it. Pressure is applied to one end of the hot bloom to move it forward, during which pressure is applied radially to its corners at its front end to reduce those corners and sink the bloom progressively from end to end. As fast as sinking occurs, the reduced inside of the advancing bloom is expanded to a circle having a diameter greater than the diameter of the passage before sinking. Simultaneously with said internal expanding the advancing bloom is compressed radially inward into circular cross section to form a cylindrical tubular body having an inside diameter greater than the diameter of the passage before sinking.

3,570,583
METHOD FOR COOLING THE MOLD BLOCKS OF A CASTING MACHINE WITH CATERPILLAR MOLD

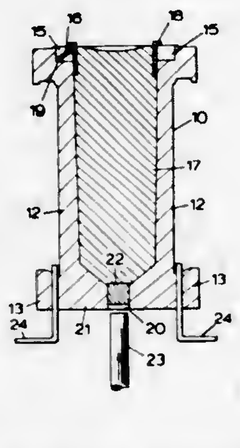
Wilhelm Friedrich Lauener, Langenhard, Switzerland, assignor to Prolizenz AG, Bahnhofstrasse, Chur, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,492
Claims priority, application Switzerland, Sept. 7, 1967, 12506/67
Int. Cl. B22d *11/06, 11/06*
U.S. Cl. 164—87 **8 Claims**

A method for cooling casting caterpillar mold blocks provides for a coolant spray case that has a rarefied atmosphere to prevent the escape of coolant. The apparatus to carry out the method has a casing, spray nozzles and connecting pipes and is connected to a source of rarefied pressure.



3,570,584
METHOD FOR STRIPPING INGOT MOLDS

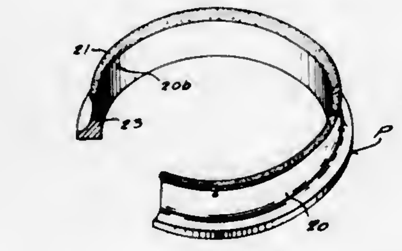
James R. Powers, St. Catharines, Ontario, Canada, assignor to Rio Algom Mines Limited, Toronto,Ontario, Canada
Filed Oct. 21, 1968, Ser. No. 769,137
Int. Cl. B22d *29/04*
U.S. Cl. 164—131 **4 Claims**



A method and apparatus for stripping a big-end-up ingot mold in which a mold is used having a hole through the bottom thereof which is filled with a plug and having at least one recess in the top thereof which is covered with a hot top. A wedge member is inserted in the recess which acts to jam the teemed ingot in a raised position when the ingot is rammed upwardly out of the mold.

3,570,585
PATTERN FOR MAKING MOLD WITH A BACK DRAFT

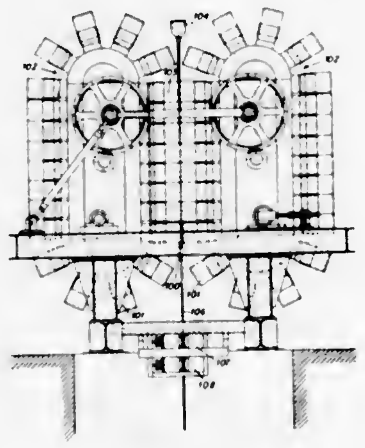
George V. Harris, Racine, Wis., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 25, 1969, Ser. No. 819,170
Int. Cl. B22c *7/00*
U.S. Cl. 164—245 **9 Claims**



A composite metal and flexible material pattern for making a sand mold, and in which the flexible material is used in the back draft area to thereby permit the use of a single pattern which can be removed without damage to the sand mold. The single pattern is made so that when the flexible material portion of the pattern is worn or damaged, it can be readily removed from the rest of the pattern, namely the rigid metal portion, and replaced with a new flexible material portion.

3,570,586
MACHINE WITH CATERPILLAR MOLD FOR CASTING STRIPS FROM NONFERROUS METALS, ESPECIALLY ALUMINUM AND ALUMINUM ALLOYS

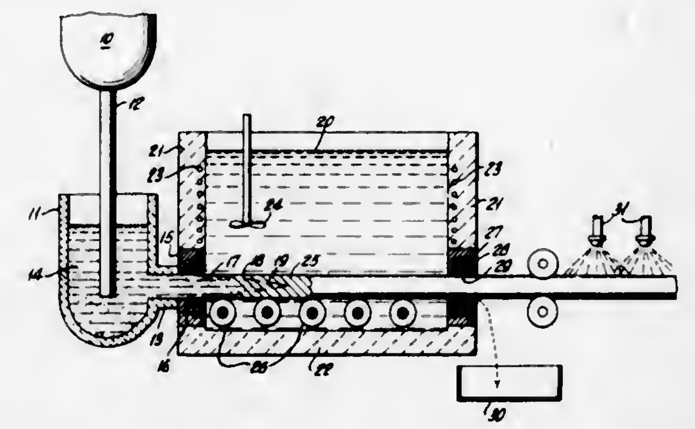
Wilhelm Friedrich Lauener, Langenhard, Switzerland, assignor to Prolizenz AG, Bahnhofstrasse, Chur, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,367
Claims priority, application Switzerland, Sept. 7, 1967, 12505/67
Int. Cl. B22d *11/06*
U.S. Cl. 164—279 **10 Claims**



A caterpillar mold machine for casting strips of metal has mold blocks, guide and drive means for the mold blocks, and supporting and fastening means between the mold blocks and the guide and drive means connecting the mold blocks to the guide and drive means and having a low total heat conductivity.

3,570,587
APPARATUS FOR CONTINUOUSLY CASTING AND COOLING WHILE ADVANCING THROUGH A BODY OF LIQUID COOLANT

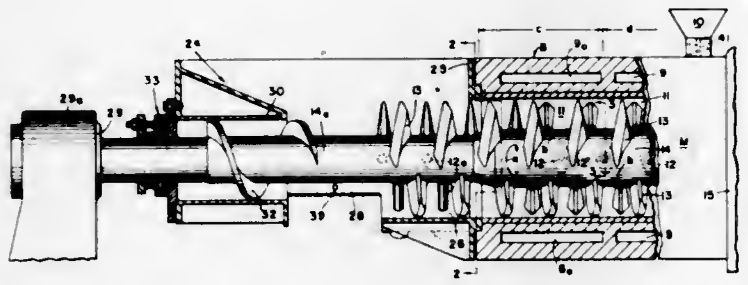
Howard A. Fromson, Rouges Ridge Road, Weston, Conn.
Original application Nov. 22, 1966, Ser. No. 596,292, now Patent No. 3,468,361. Divided and this application June 3, 1969, Ser. No. 829,921
Int. Cl. B22d *11/12*
U.S. Cl. 164—283 **3 Claims**



An apparatus for continuously casting metal in which a molten metal is cast continuously by introducing molten metal under pressure through a mold to form a partially solidified casting with a solid shell. The casting so formed is advanced substantially horizontally directly into contact with a bath of liquid coolant and at a depth at which the pressure acting on the periphery of the solid casting shell sufficiently counteracts the pressure of the molten core in this casting to prevent rupture. The casting is maintained substantially at this depth until the casting is sufficiently solidified in the coolant to prevent outbreak of the molten core, and the casting so sufficiently solidified is discharged continuously from the coolant bath.

3,570,588
METHODS AND APPARATUS FOR COOLING MIXES SUCH AS CARBONACEOUS PARTICLE-PITCH MASSES BEING BLENDED

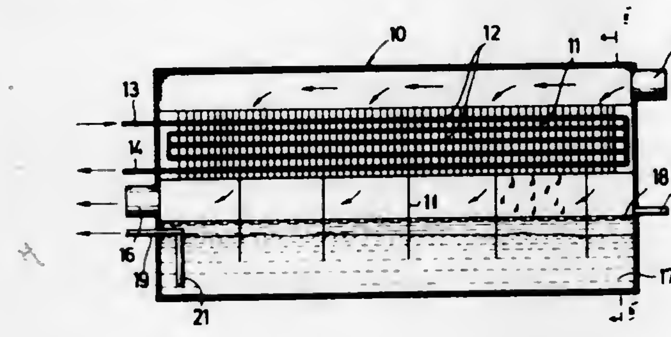
Dennis A. Wheeler, Saginaw, Mich., assignor to Baker Perkins, Inc., Saginaw, Mich.
Filed Dec. 12, 1968, Ser. No. 783,296
Int. Cl. F28f *5/06*
U.S. Cl. 165—1 **14 Claims**



Methods and apparatus for intimately blending a mass such as a carbonaceous particle-pitch mass prior to compacting the mass and forming it into products wherein: the mass is forwarded while it is being intimately blended at an elevated temperature in a continuous mixer, a coolant is then supplied to cool the mix, and the mix is then further blended and mixed prior to discharge. In the form of the invention illustrated a vaporizable liquid coolant is added to the mass being blended and the mass is thereafter forwarded and mixed to blend the coolant with the mass, the mass then being introduced to a region of lower pressure wherein the liquid coolant vaporizes and further reduces the temperature of the mass uniformly, and while the mass is still being mixed.

3,570,589
METHOD AND APPARATUS FOR RECOVERING SOLVENT VAPORS

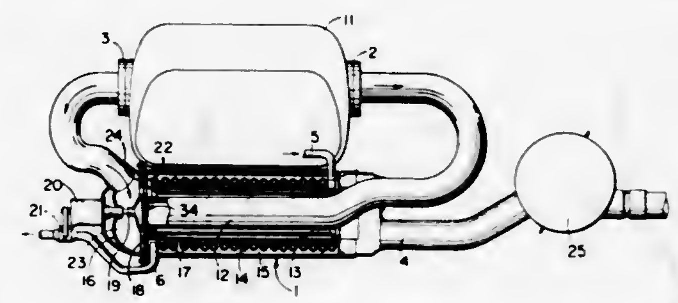
Erwin Biesinger, Rottenburg, Germany
Filed May 22, 1969, Ser. No. 826,856
Claims priority, application Germany, June 1, 1968, P 17 60 546.8
Int. Cl. F28d *15/00*
U.S. Cl. 165—1 **10 Claims**



A method and an apparatus for the recovery of solvent vapors. An air stream enriched with vapors of a volatile solvent is advanced in a predetermined path. Cooling means is interposed in the path and effects condensation of the solvent vapors in the stream. The resulting droplets of condensate descend into an upwardly open receptacle where they are accumulated to constitute a body of recovered solvent. A body of liquid of lesser specific weight and volatility than the solvent floats on the surface of the body of recovered solvent and seals the latter against contact with the ambient atmosphere to thereby prevent renewed vaporization of the recovered solvent pending reuse of the same.

3,570,590
HEAT EXCHANGER CONSTRUCTION

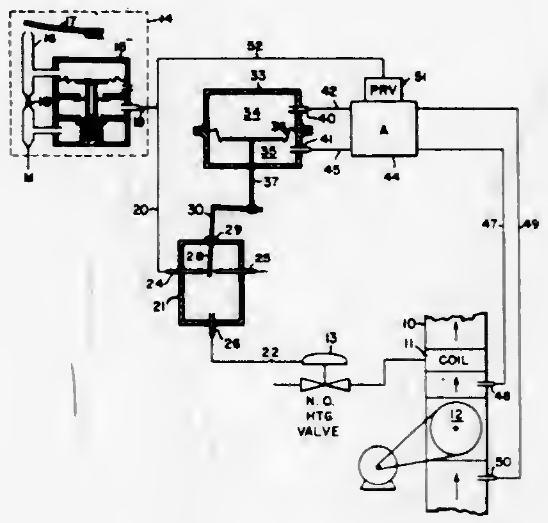
Siegfried Kofink, Zell/Neckar, Germany, assignor to J. Eberspacher, Esslingen/Neckar, Germany
Filed July 3, 1969, Ser. No. 838,910
Claims priority, application Austria, July 29, 1968, A7388/68
Int. Cl. B60h *1/00*
U.S. Cl. 165—39 **14 Claims**



A heat exchanger for a heating system preferably for the space heating of motor vehicles comprises a central inlet pipe for exhaust gases from the automotive engine which is surrounded by an inner annular chamber connected to a discharge line and by a surrounding outer annular chamber in which is located a heating coil for a secondary heating medium. The heat exchanger includes a control mechanism in the form of rotatable disc elements which may be aligned or offset for the purpose of permitting selective flow from the central exhaust pipe or conduit selectively to the inner annular chamber or to the outer annular chamber in accordance with the desire to heat the secondary medium to a greater or lesser degree. The secondary heating medium is then conducted through a separate closed circuit to a heat exchanger such as an automobile heater where a fan is employed to blow air over the heater for the purpose of warming the compartment space.

3,570,591
PNEUMATIC CONTROL SYSTEM

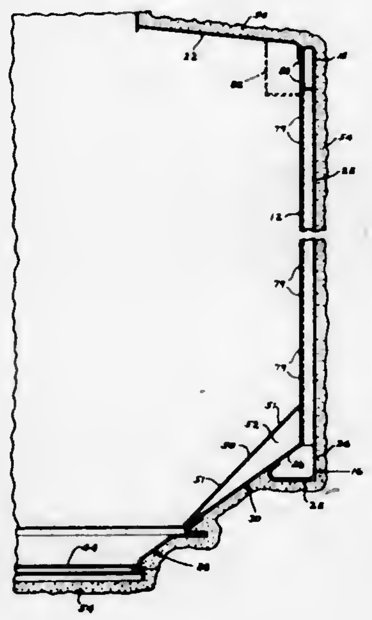
Donald L. Swords, Mt. Prospect, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Sept. 11, 1969, Ser. No. 857,140
Int. Cl. F15c *1/14;* **G05d** *23/08*
U.S. Cl. 165—39 **5 Claims**



A pneumatic control system including an air motion responsive device including a fluidic amplifier for improving the response of said device wherein the amplifier is powered by the branch line pressure of a condition responsive device of said system supplied through a pressure reducing valve.

3,570,592
AERATING SYSTEM FOR A COVERED HOPPER RAILWAY CAR

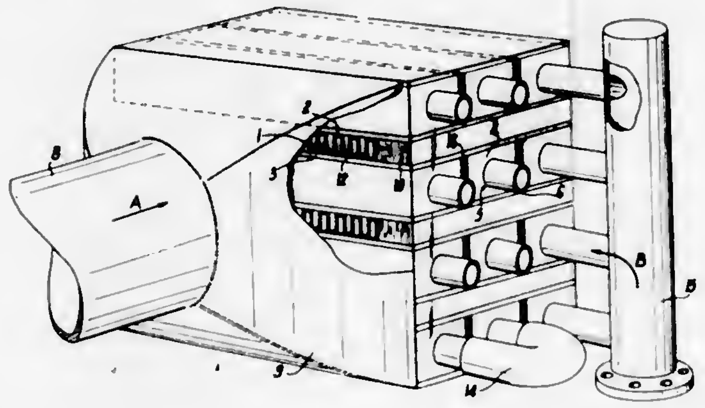
Dallas W. Rollins, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Feb. 18, 1969, Ser. No. 800,215
Int. Cl. F26b *3/00*
U.S. Cl. 165—42 **8 Claims**



A system for aerating and controlling the temperature of ladings, such as perishable commodities, in a covered hopper railway car, includes a blower communicating with the interior of the car through the side sills and side stakes, formed as conduits, and through perforations in the side stakes and in slope plates of the hoppers. To complete the air circuit, there are also provided ducts at the top of the car. The flow of air may be reversed and the air may be heated or cooled.

3,570,593
HEAT-EXCHANGER

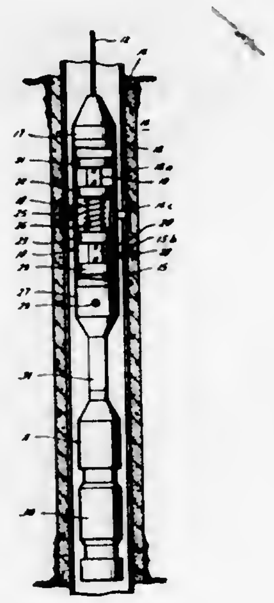
Raymond Isaaz, Naymont-Uzemain, and Georges Vailhen, Epinal, France, assignors to Societe Trane, Epinal, France
Filed Jan. 16, 1969, Ser. No. 791,691
Claims priority, application France, Feb. 5, 1968, 138,754
Int. Cl. F28g *3/00*
U.S. Cl. 165—166 **2 Claims**



A heat exchanger comprising a plurality of parallel passages for a first fluid, each of said passages containing a packing, and, in alternation with said passages, groups of parallel shapes. Each of said shapes is provided with a longitudinal channel for the circulation of a second fluid and has two opposed faces respectively adjacent to two successive passages disposed on each side of the corresponding group of shapes, the shapes of a same group limiting between them spaces for the collection and the detection of possible leakage.

3,570,594
SUBSURFACE CONTROL APPARATUS FOR USE IN OIL AND GAS WELLS

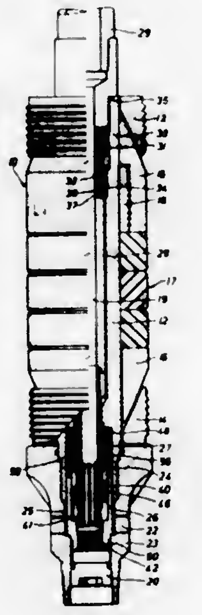
Howell M. Hamilton, c/o Bell Engineering P.O. Box 3347, Odessa, Tex.
Filed Mar. 13, 1969, Ser. No. 806,891
Int. Cl. E21b *23/00, 47/12*
U.S. Cl. 166—64 **11 Claims**



A magnetic pipe joint detector and digital logic circuits electrically coupled thereto are located in a fluidtight housing which is lowered through a string of pipe in an oil or gas well by means of a wire line. Coupled to the housing for lowering therewith is a downhole device which requires operation after it is lowered into the well. After the device reaches approximately the desired depth in the well, the housing is raised past a predetermined number of pipe joints. The logic circuits detect this occurrence and activate a timer which, after a predetermined time interval, initiates the operation of the downhole device.

3,570,595
HYDRAULICALLY OPERABLE VALVES

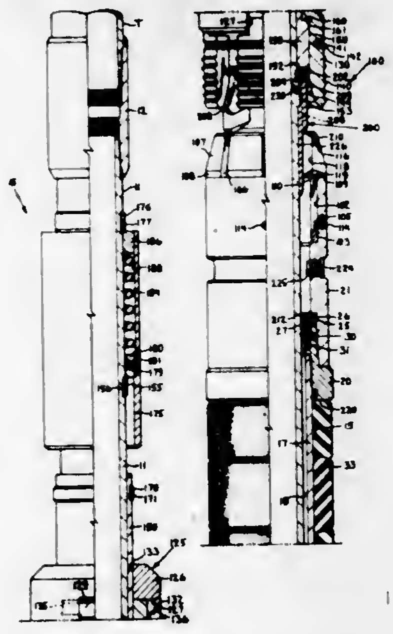
William O. Berryman, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Nov. 22, 1968, Ser. No. 778,157
Int. Cl. E21b *23/00, 33/12*
U.S. Cl. 166—128 **17 Claims**



A well packer apparatus including a body having a flow passage and check valve means movable upwardly and downwardly in said flow passage between positions opening and closing said flow passage to fluid flow, a hydraulically operable piston member engageable with said body member in response to fluid pressure tending to close said check valve means and with said check valve means in response to fluid pressure tending to open said check valve means and functioning to prevent opening movement of said check valve means, and means for selectively isolating said piston member from said last-mentioned fluid pressure to enable opening movement of said check valve means.

3,570,596
WELL PACKER AND HOLD DOWN MEANS

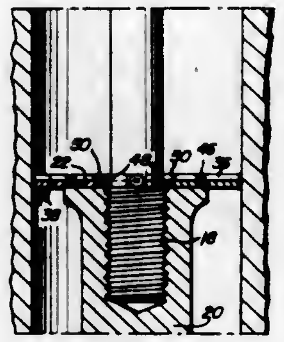
Carter R. Young, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.
Filed Apr. 17, 1969, Ser. No. 816,939
Int. Cl. E21b *33/129*
U.S. Cl. 166—129 **19 Claims**



A resettable well packer having a body with expansible sealing means thereon; gripping means expansible for holding the sealing means against downward movement, a mandrel movable in said body; a setting member on the mandrel engageable with the body to expand the sealing means against said gripping means; and holddown lock means on said mandrel and body coacting with said gripping means to lock said body and sealing means against longitudinal movement in the well bore, and releasable and resettable to permit the packer to be anchored, released, and reset in different locations during a single trip. Said holddown means comprises expander means on said body normally resiliently held in expanding position, a locking sleeve movable with the mandrel to be engageable with said expander means to prevent movement thereof from said normal expanding position, and removable from such position to permit contraction of said expander means, and gripping means including a plurality of gripping slips on the mandrel movable into engagement with said expander means for expansion of said slips to gripping position, said locking sleeve preventing contraction of said expander means during expansion of said slips. Biasing means on the mandrel is movable to engage said gripping means for urging said gripping slips toward said expander means during movement of setting member to expand the sealing means, whereby the gripping slips are resiliently biased toward gripping position during expansion of the sealing means, and are positioned to grip and lock the packer against upward movement when the sealing means has been fully expanded, without damaging wear of the teeth of the gripping slips during such movement. A bypass flow passage between the body and mandrel is closable by sealable valve means on the setting member and body when the packer is set. Latch means on the mandrel and body holds said holddown means and sealing means in locking sealing position, and releasable means between said mandrel and latch means permits said mandrel to be moved to release said holddown locking means, seal means and gripping means for removal of the packer from the well bore if the latch means cannot be released.

3,570,597
PARAFFIN DRIVE SCRAPER

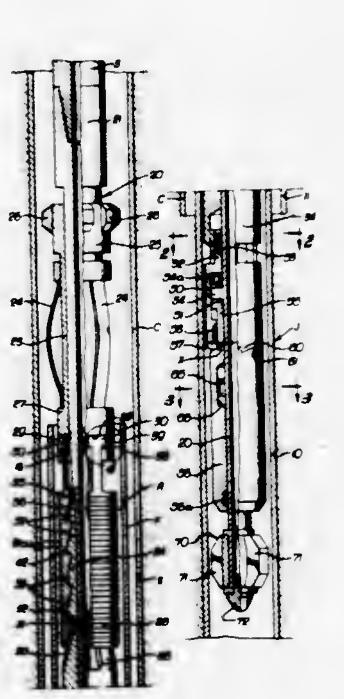
Levi J. Lack, 1841 16th St., Abilene, Tex.
Filed Mar. 10, 1969, Ser. No. 805,691
Int. Cl. E21b *37/02*
U.S. Cl. 166—174 **5 Claims**



An elongated rod for lengthwise disposition and reciprocation in a well casing. The rod includes longitudinally spaced radially projecting abutments and an annular scraping member is loosely disposed on the rod for reciprocation thereon between the abutments. The annular scraping member includes a pair of half-annular sections pivotally joined together about aligned axes extending along a diameter of the scraping member and the half-sections are swingable between coplanar positions disposed generally in a plane normal to the centerline of the rod and folded positions with the free marginal portions of the half-sections swung toward each other.

3,570,598
CONSTANT STRAIN JAR

Glenn D. Johnson, 9730 Belder Drive, Downey, Calif.
Filed May 5, 1969, Ser. No. 821,581
Int. Cl. F21b *23/00*
U.S. Cl. 166—178 **8 Claims**

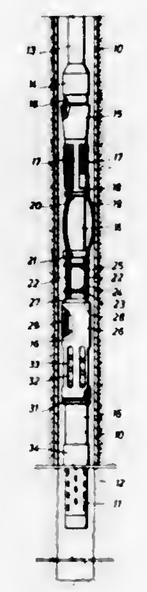


A jar for removing a fish from a well, in which a piston is moved in a chamber and then released to allow the hydrostatic pressure of fluid in the well to move the piston against an anvil.

Such a jar in which the piston is repeatedly shifted in response to rotation of the running in string of pipe.

3,570,599
LINER HANGER

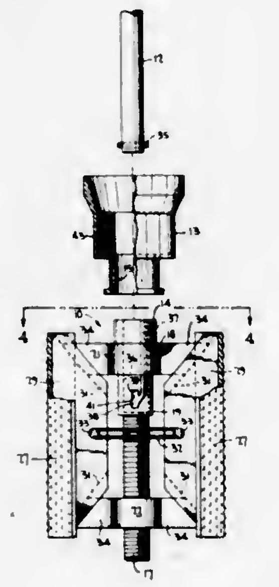
Truman Foy Wilson; Fletcher Andrew Anderson, and Ben Rodney Groce, Odessa, Tex., assignors to Brown Well Service & Supply Company, Odessa, Tex.
Filed June 11, 1969, Ser. No. 832,046
Int. Cl. E21b *23/00, 43/10*
U.S. Cl. 166—208 **20 Claims**



A liner hanger for down-hole suspension of a liner pipe from a well casing. Toothed slips are used to engage the casing wall when allowed to slide up over a conical slip expander. Bow springs attached to the slips frictionally engage the casing wall, and cause the slips to move up onto the slip expander when a latch mechanism is released. An hydraulically operated latch release device is disclosed, employing a sleeve biased away from the latches but forced toward the latches by hydraulic pressure. Control is provided by increasing the pressure in the tubing string compared to the annulus between the casing and the tubing. The latching arrangement may be both hydraulically and manually operated, according to one embodiment.

3,570,600
SUBMERSIBLE PUMP ADAPTER

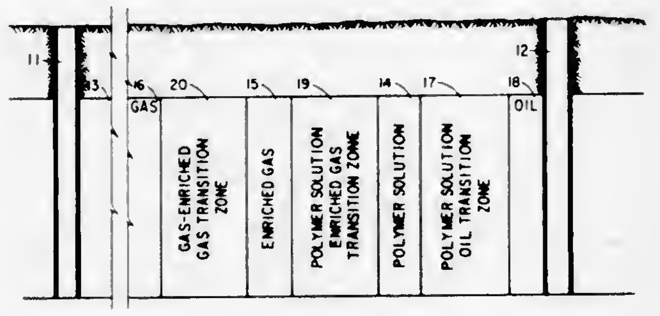
Harry Wall, Henderson, Nebr.
Filed July 24, 1969, Ser. No. 844,512
Int. Cl. E21b *23/00*
U.S. Cl. 166—217 **9 Claims**



A submersible pump adaptor is provided for supporting the weight and torque of the pump at any prescribed depth along the length of a well casing. The adaptor comprises a threaded actuator shaft having a pair of well casing engaging shoes or holding elements mounted thereon by means of a pair of collars movable along the shaft so as to direct the shoes toward and away from the wall of the well casing. Each collar is provided with extensions having sloping surfaces in mating engagement with like surfaces on each of the shoes so that, as the collars are moved toward each other, the shoes are made to expand. The adaptor shaft is interconnected with the pump shaft in a manner whereby the holding engagement of the shoes is increased by the torque of the pump shaft.

3,570,601
RECOVERY OF OIL WITH VISCOUS PROPANE

Dwight L. Dauben; John C. Reed; Jack L. Shelton, and Lyman Yarborough, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.
Filed Nov. 28, 1969, Ser. No. 880,627
Int. Cl. E21b *43/22*
U.S. Cl. 166—273 **7 Claims**


11
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17
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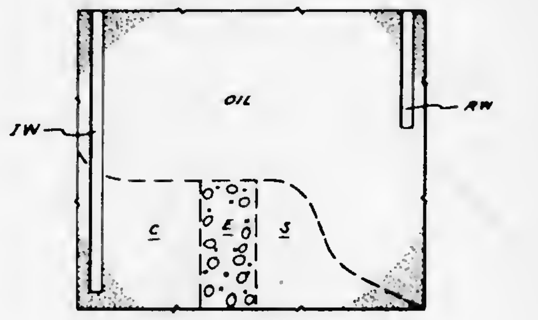
GAS
OIL
GAS-ENRICHED GAS TRANSITION ZONE
ENRICHED GAS
POLYMER SOLUTION ENRICHED GAS TRANSITION ZONE
POLYMER SOLUTION
POLYMER SOLUTION OIL TRANSITION ZONE

In a method for recovering petroleum from earth formations, the petroleum is driven through the formation by two banks of material followed by gas. The first bank is a solution of a solid polymer in a mixture of propane and a higher molecular-weight hydrocarbon. The second bank is an enriched gas miscible with the liquid components of the polymer solution.

3,570,602
SURFACTANT SOLUTION SECONDARY HYDROCARBON RECOVERY

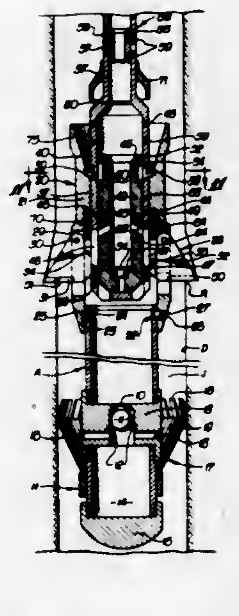
William G. Halbert, Jr., Butte, Mont., assignor to Tenneco Oil Company, Houston, Tex.
Filed Jan. 15, 1970, Ser. No. 003,098
Int. Cl. E21b *43/20, 43/22*
U.S. Cl. 166—273 **9 Claims**



A method for secondary recovery of hydrocarbons from a formation penetrated by at least two well bores by utilizing a surfactant displacement flood followed by a caustic water flood. The surfactant of the first flood facilitates penetration of the formation, and the caustic water flood strips any adsorbed surfactant from the formation and inhibits dilution of the surfactant phase by the formation of an emulsion at the surfactant solution-caustic solution interface.

3,570,603
METHOD AND APPARATUS FOR CEMENTING CASING SECTIONS IN WELL BORES

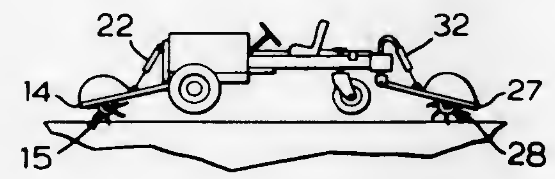
Archer W. Kammerer, Jr., Fullerton, and Gary R. Johnson, Anaheim, Calif., assignors to Rotary Oil Tool Company, Buena Park, Calif.
Filed Oct. 7, 1968, Ser. No. 765,474
Int. Cl. E21b *33/14, 23/00*
U.S. Cl. 166—290 **35 Claims**



Casing sections are cemented in a well bore between producing zones in an upward sequence starting from the bottom. Each casing section is lowered on a running string and running tool to its setting point, the casing section then being rotated to expand cutter supporting members carried by the casing outwardly to cut a formation shoulder for supporting the cutter members and casing. The running tool is released from the casing and lowered therewithin to the casing float shoe, cement being pumped through the running string, tool and shoe to cement the casing in place, the running string and tool being removed from the hole.

3,570,604
SOIL PENETRATING IMPLEMENTS

Patrick Leo Allard, 3439 Wolfdale Ave, Mississauga, Ontario, and Harry Allard, R.R. 4, Stouffville, Ontario, Canada
Filed Nov. 14, 1968, Ser. No. 775,808
Int. Cl. A01b *45/02*
U.S. Cl. 172—22 **6 Claims**

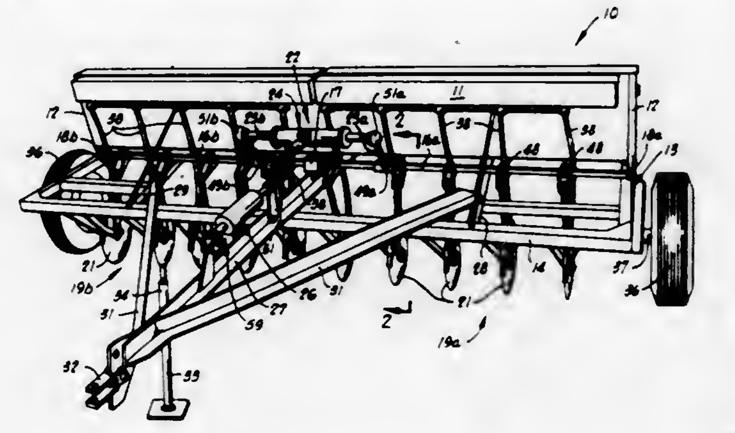


A soil penetrating implement on which spiking wheels are journaled on frames which are hingedly mounted to the front and rear of a vehicle and means are provided for swinging the frames downwardly to raise the vehicle frame upwardly and lift the vehicle wheels from the surface on which they are supported, thus causing the spikes to penetrate the said surface.

3,570,605
COMPENSATING LINKAGE

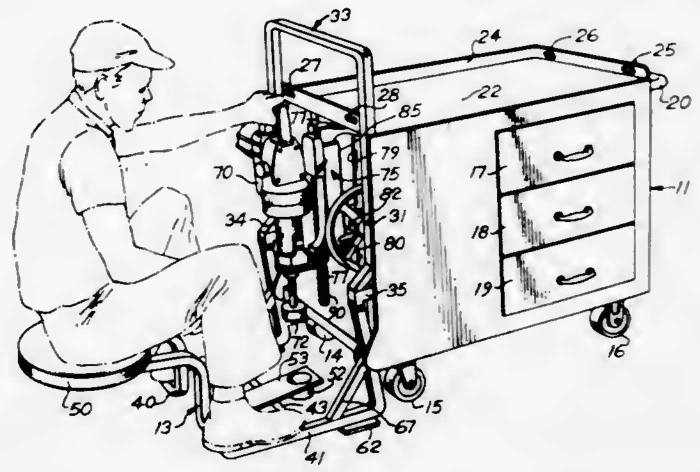
Eldon L. Rikli, R.R., Drummond, Okla.
Filed Apr. 14, 1969, Ser. No. 815,989
Int. Cl. A01b *21/08, 65/06*
U.S. Cl. 172—580 **4 Claims**

The present invention envisions apparatus for rotating a pair of aligned shafts in equal arcs while allowing relative rotary motion of the shafts. In one embodiment, apparatus embodying the invention may comprise elongated linking means which has positioned on each end thereof a universal joint. An arm may be rigidly secured to each of the aligned rotary shafts and each of the arms thus secured may be operatively connected to one of the universal joints located at the end of the elongated linking means. A power assembly may be provided for moving the linking means in an arc about the parallel shafts thereby rotating the shafts. The power assembly is characterized by means for connecting a portion thereof with a central portion of the linking means in such a manner as to allow pivotal motion of the linking means relative to the power assembly. In addition, a portion of the power assembly is designed to allow limited universal motion of the elongated linking means about an axis normal to the longitudinal axis of the linking means.



3,570,606
PORTABLE TOOL MOUNT

Kenneth E. Guritz, 570 Emerald Harbor Drive, Sarasota, Fla.
Filed May 7, 1969, Ser. No. 822,435
Int. Cl. E21c *11/02*
U.S. Cl. 173—23 **5 Claims**

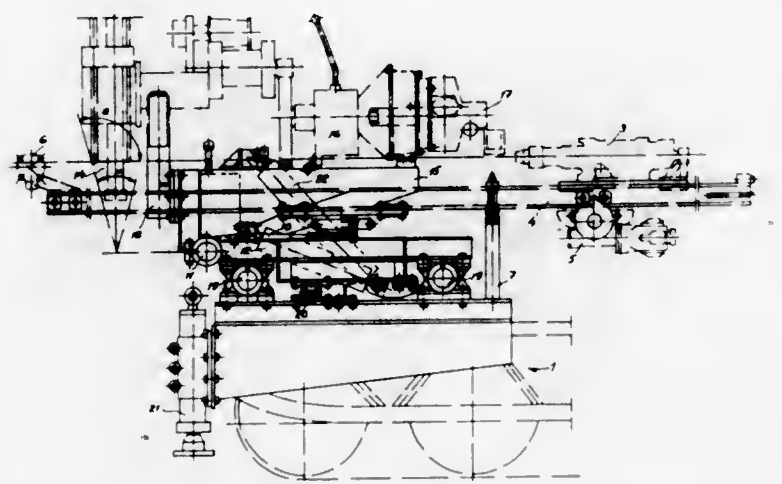


A wheeled cart which has provisions for mounting a surface working tool such as a drill for cutting holes in a floor of concrete or like material. A seat for a human operator is carried on a frame which is hinged to the cart and shaped to raise at least one wheel of the cart from the floor and to engage a frictional foot with the floor. The weights of the human operator and the cart are combined through mechanical advantage to effect a secure frictional relationship between the floor and the foot.

3,570,607
MOBILE DRILL-BORER

Kaarlo Heikki Juhani Wennervirta, and Heikki Veikko Aulanko, Outokumpu, Finland, assignors to Outokumpu Oy, Helsinki, Finland
Filed Mar. 14, 1969, Ser. No. 807,218
Int. Cl. E21c *11/02*
U.S. Cl. 173—43 **1 Claim**

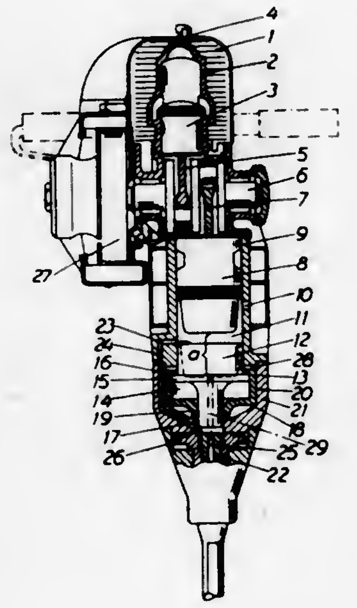
A mobile drill-borer for combined boring, drilling and sampling by which the boring can be changed to drilling and vice versa in a single operation. The borer and the drill are prior known and fitted on a chassis slidable to and fro transversally between two end positions on a mobile carriage. Both the borer and the drill can be turned in the vertical plane by hydraulic cylinders. For transportation the borer is turned to a horizontal position. At least the borer and the drill have a common power source, for instance a compressor provided with a separate engine or connected to the engine of the carriage.



3,570,608
HAMMER MECHANISM FOR PERCUSSION TOOLS

Eero Antero Erma, Klinten, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Apr. 30, 1969, Ser. No. 821,554
Claims priority, application Sweden, May 8, 1968, 6221/68
Int. Cl. B25d *9/10, 11/06*
U.S. Cl. 173—116 **6 Claims**

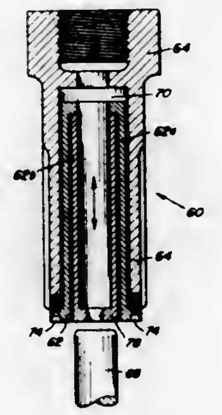


This invention relates to a hammer mechanism for percussion tools provided with a hammer piston for delivering blows to a percussion implement, and further provided with a hammer element arranged movable relatively to said hammer piston, said hammer piston being stopped during the upward movement thereof by said hammer element for delivering the kinetic energy of said hammer piston to said hammer element.

3,570,609
ACOUSTIC IMPACT DEVICE

Boyd A. Wise, Webster, N.Y., assignor to General Dynamics Corporation

Filed Nov. 14, 1968, Ser. No. 775,762
Int. Cl. B25d *17/06*
U.S. Cl. 173—126 **9 Claims**

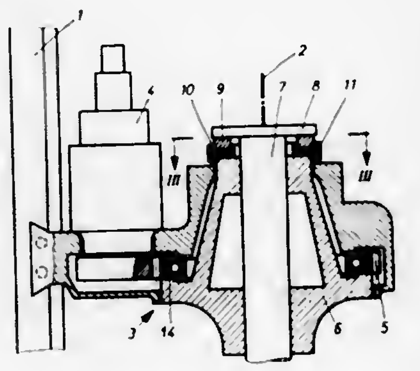


An impact device is described which is suitable for use in a precussive tool and which utilizes a hammer that impacts an anvil to efficiently transmit force pulses to a load such as the earth formation. The anvil system includes an impact hammer, an elastic spring member, drill steel and a bit. The required load force and load deflection are caused by a single force pulse of the proper force amplitude and time duration. The impact device elements and the load itself each have a mechanical impedance analogue which can be represented in a mechanical circuit. The *Q* of this circuit is selected to be between about 0.7 to 1.5 with the result that the transmitted force pulses are readily absorbed by the load with a minimum of reflection, while impact spring stress levels and velocities are both held to reasonable values. A folded spring configuration is described which permits the application of the present invention to relatively small pneumatic air tool devices.

3,570,610
DRILLING TABLES FOR SOIL DRILLING EQUIPMENT

Achim Kehrberger, Nellingen, Germany, assignor to Delmag-Maschinenfabrik Reinhold, Dornfeld, Esslingen, Germany

Filed Mar. 14, 1969, Ser. No. 807,284
Claims priority, application Germany, Mar. 22, 1968, D37836
Int. Cl. E21b *3/02*
U.S. Cl. 173—165 **4 Claims**

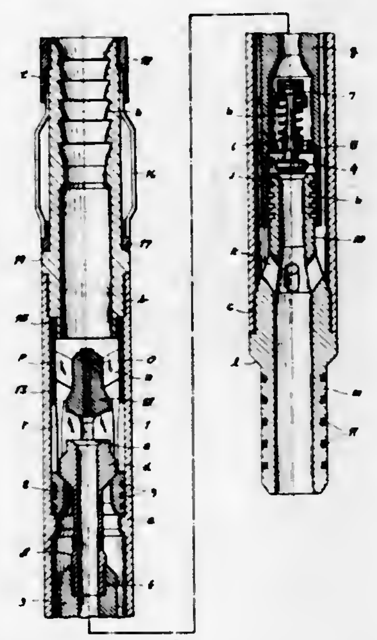


A drilling table for soil drilling equipment comprises a rotatable carrier device for a drill rod, and means for rotating the carrier device, damping means being provided at an upper surface of the carrier device and rotatable therewith for imparting rotary movement to the drill rod when carried by said damping means.

3,570,611
DEVICE FOR FREEING SEIZED DRILL STRINGS

Vladimir Riziuc, and Silvestru Huelscher, Pitesti, Romania, assignors to Trustul deForaj Pitesti, Pitesti, Romania

Filed Feb. 5, 1969, Ser. No. 796,829
Claims priority, application Romania, Feb. 9, 1968, 55,824
Int. Cl. E21b *1/00, 7/00*
U.S. Cl. 175—296 **1 Claim**



A device for freeing seized drill strings in which a longitudinally reciprocable valve controls up and down movement of a vibrating member imparting longitudinal shock to the drill string as controlled by the drilling fluid pressure. In addition, the longitudinally reciprocal member forms a valve in its casing to alternately block flow of drilling fluid and admit such flow to the lower part of the drill string whereby the pressure in the bore is alternately increased and decreased in the cadence of the longitudinal shock.

3,570,612
FLUID ACCELERATOR FOR USE WITH AN HYDRAULIC JAR IN A WELL

Damon T. Slator, Houston, Tex., assignor to Bowen Tools, Inc.

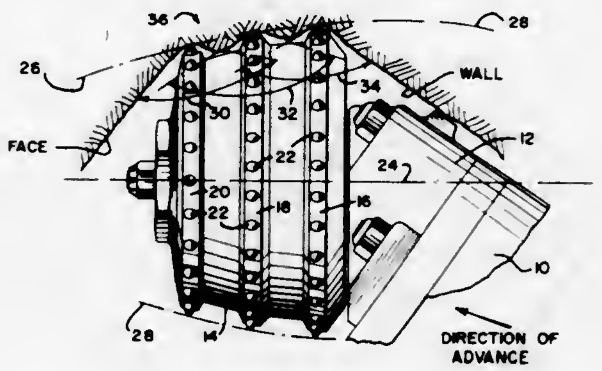
Filed Oct. 17, 1968, Ser. No. 768,363
Int. Cl. E21b *1/06*
U.S. Cl. 175—297 **6 Claims**

An accelerator for use with an hydraulic jar in a well for storing energy immediately above the jar and drill collars, including piston means for compressing a fluid on one side thereof to develop stored energy on the jarring stroke, and means for transferring fluid from the other side of the piston means to said one side thereof upon the return stroke of the jar.

3,570,613
GAGE CUTTER

William D. Coski, Mercer Island, Wash., assignor to Lawrence Manufacturing Company, Seattle, Wash.

Filed Mar. 27, 1969, Ser. No. 811,065
Int. Cl. E21b *9/12*
U.S. Cl. 175—374 **8 Claims**

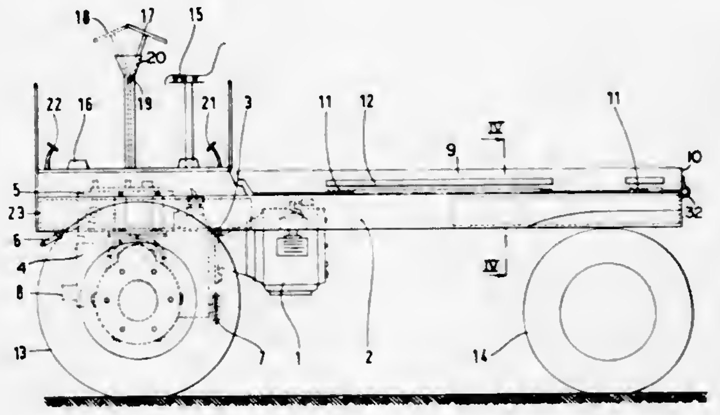


A gauge cutter for use with a tunneler or mine machine or the like having a plurality of rows of cutter elements about the periphery thereof, the rows being of such size and positioning as to define an oblate cylinder cutting envelope or plane to equalize the loading on the cutting elements.

3,570,614
SELF-PROPELLED VEHICLES WITH IMPLEMENT ATTACHMENT DEVICES

Isacco Del Bagno, Via Domenico del Bagnoli, Polla, Salerno, Italy

Filed June 21, 1968, Ser. No. 738,950
Claims priority, application Italy, July 3, 1967, 49110A/67
Int. Cl. B60k *17/28;* **B62d** *49/06*
U.S. Cl. 180—1 **7 Claims**



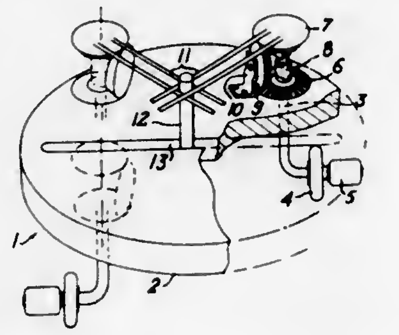
A self-propelled tool-carrying vehicle for agricultural and industrial purposes and having a frame formed of two longitudinal beams and a driving motor arranged between the longitudinal beams without projecting upwardly beyond the plane formed by the upper surface of the longitudinal beams. All other driving and transmission means except the control means are likewise located below said plane so that the longitudinal beams are free for attachment of working tools or a loading platform at both ends and sides. Additional longitudinal beams of smaller dimensions may be tiltably mounted on said longitudinal beams and provided on their underside with teeth to permit the attachment of the working tools. The main longitudinal beams may be provided with telescopic extensions to provide further possibilities for attachment of working tools.

3,570,615

SYSTEM FOR CONTROLLING THE APPLICATION OF MOTION OF VEHICLE WHEELS

Jean-Pierre Guilbaud, Jouars Ponchartrain, and Jean Vertut, Paris, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Apr. 2, 1969, Ser. No. 812,682
Claims priority, application France, Apr. 9, 1968, 147,475
Int. Cl. B601 *15/00*
U.S. Cl. 180—1 **3 Claims**



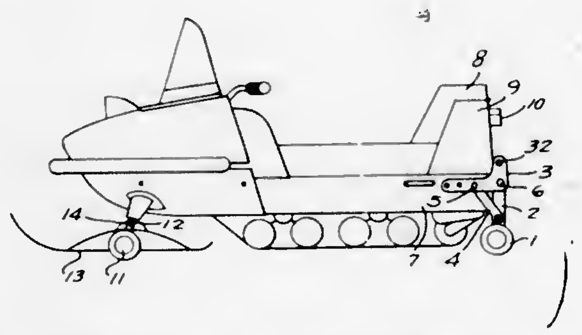
A system for controlling the application of motion to vehicle wheels disposed at the vertices of a polygon which is located in one plane and which can be inscribed within a so-called base circle, each wheel being associated with means for individual driving about its rotational axis. Any two adjacent wheels are driven with a speed ratio corresponding to the ratio of the lengths of straight line segments cut on the chord of the base circle which joins the pivotal axis of the two wheels by the line bisecting the angle defined by the two directions which connect the center of rotation to the two axes in said plane.

3,570,616

REAR WHEEL DEVICE FOR SNOWMOBILES

Yoshiaki Tominaga, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Japan

Filed Apr. 1, 1969, Ser. No. 812,278
Claims priority, application Japan, Apr. 4, 1968, 43/26,923
Int. Cl. B62d *55/02*
U.S. Cl. 180—5 **16 Claims**



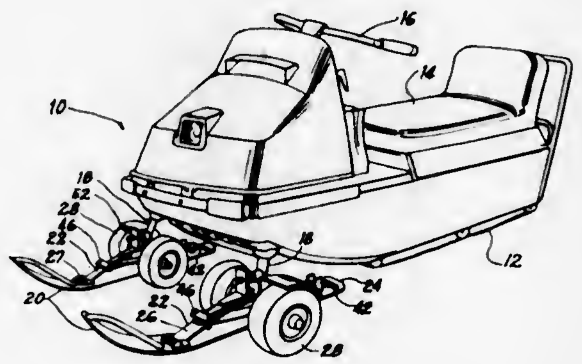
A rear wheel device, for a snowmobile having a power-driven endless track, a steerable ski and an optionally attachable front wheel device, characterized by a pair of brackets secured to the rear of the sides of the snowmobile, a pair of wheel-carrying upright members pivotally mounted on said brackets, and a pair of brace bars, each pivotally secured to said upright members and removably attachable to different parts of said brackets. Said pair of wheels on the uprights, when in ground-engaging position, enabling the rear of the snowmobile and the endless track to be elevated above ground and, therefore, warmed up in advance of operation. The rear wheels, in combination with the front wheel device, enabling the snowmobile to be readily transported on snowless terrain. The uprights carrying the rear wheels may be positioned in horizontal or vertical orientations for towing persons or articles and protecting the rear of the snowmobile while running over snow-covered ground.

3,570,617

SNOWMOBILE WITH GROUND-ENGAGING WHEELS

Leroy George O'Day, Wheeling, Ill., assignor to Ski-Wheels, Inc., Barrington, Ill.

Filed Aug. 1, 1969, Ser. No. 846,763
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **7 Claims**



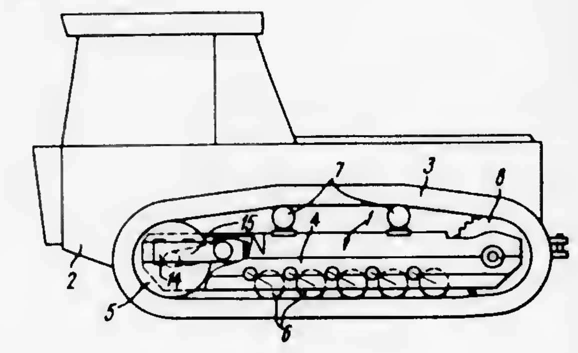
A snowmobile having at least one ski attached at the front with a leaf spring interposed between the ski and the snowmobile body. A mounting structure for ground-engaging wheels is associated with the ski. The mounting structure comprises a second leaf spring secured at opposite ends to the first-mentioned leaf spring. The wheels associated with the second leaf spring extends downwardly below the bottom surface of the associated ski so that the wheels will provide support in the absence of snow cover sufficient to transfer support to the ski.

3,570,618

RUNNING GEAR FOR ENDLESS TRACK TRACTORS

Jury Petrovich Samatov, Prospert Lenina, 22, kv.30; Ellen Robertovna Melman, Nakhimova, 129 kv.14; Vladimir Vasilievich Emelianenko, Turistov, 106, kv.39, and Boris Mikhailovich Pozin, Diskovy per., 36, kv.13, Chelyabinsky, U.S.S.R.

Filed Sept. 18, 1968, Ser. No. 760,421
Int. Cl. B62d *55/16*
U.S. Cl. 180—9.5 **5 Claims**



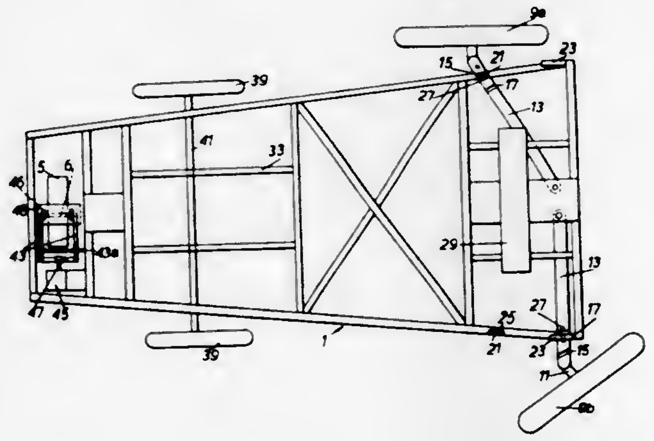
An endless track tractor has a running gear which comprises a tractor frame with side equalizers hinge-connected to one another and to the frame, the equalizers carrying resilient track support rollers. Also mounted on the equalizers are guiding idler wheels and these idler wheels are resiliently supported through the intermediary of an arm connected to a torsion bar pipe which is mounted in a support slidable along the beams of the side equalizers.

3,570,619

WHEEL ASSEMBLIES FOR JIB CRANES OR EXCAVATORS

Ronald Taylor, Eskdale Mills, Langholm, Dumfriesshire, England

Filed Aug. 26, 1968, Ser. No. 755,107
Claims priority, application Great Britain, Aug. 26, 1967, 39,341/67
Int. Cl. B62d *61/10*
U.S. Cl. 180—22 **5 Claims**



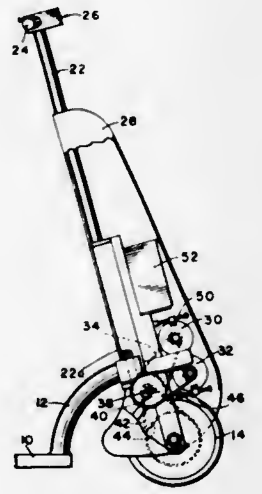
A chassis and wheel assembly for use with a crane, the assembly having at least a front wheel and a pair of rear wheels. In one position of the wheels, the crane is set for longitudinal travel, and in a second position the crane can slew. The spacing between the rear wheels which, on the rod, is limited by law, can be increased on site to increase side to side stability of the crane, while maximum fore and aft stability is obtained due to the position of the axis of the rear wheels when the spacing is so increased.

3,570,620

ELECTRICALLY POWERED VEHICLE

Gene L. Fisher, Freeland, and Allan R. Thieme, Bridgeport, Mich., assignors to said Fisher assignor to said Thiene

Filed Jan. 15, 1969, Ser. No. 791,462
Int. Cl. B601 *11/18*
U.S. Cl. 180—26 **26 Claims**



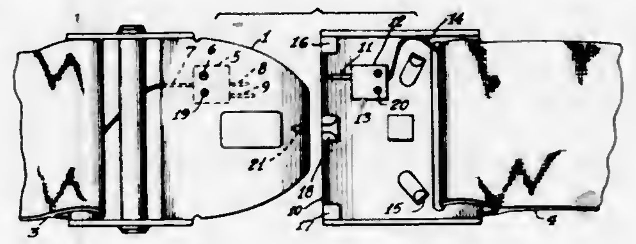
An electrically powered land vehicle and method of controlling same through the use of two electric motors which may be operated in series or parallel with provisions for one motor to be operated independently through a new and improved switch means.

3,570,621

SAFETY BELT BUCKLE WITH ELECTRICAL CONNECTOR

Robert O. Hampton, 117 E. St, SE Apt 201, Washington, D.C.

Filed Mar. 14, 1969, Ser. No. 807,454
Int. Cl. B60k *27/08*
U.S. Cl. 180—82 **2 Claims**



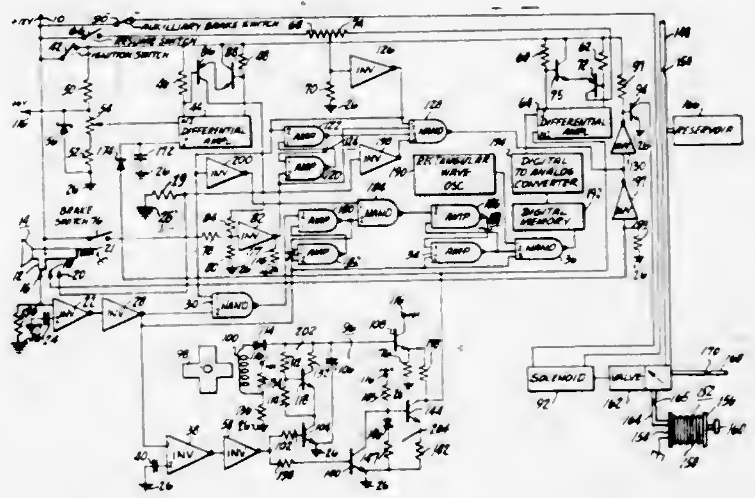
An automobile safety belt having male and female coupling members for connecting the belt together and electrical connection means carried by the coupling members and adapted to be connected together when the coupling members are connected. The electrical connection means are electrically connected to the automobile starter motor so that the safety belt must be closed before the starter motor can be operated.

3,570,622

SPEED CONTROL FOR MOTOR VEHICLES

Daniel A. Wisner, North Adams, Mich., assignor to RCA Corporation

Filed Dec. 27, 1968, Ser. No. 787,348
Int. Cl. B60k *31/00*
U.S. Cl. 180—105 **4 Claims**



A speed control apparatus for an automotive vehicle is disclosed. While the speed control includes mechanical actuated means to operate the throttle, electronic elements are provided to sense the speed of the vehicle and to store the voltage corresponding to the speed by means of a counting device. Means are also provided to cause the mechanically actuated means to adjust the position of the throttle to keep the speed of the vehicle at the desired value, and to deactivate the speed control apparatus upon depressing the brake pedal, and to reactivate the speed control apparatus when desired, and also to increase or decrease the desired speed.

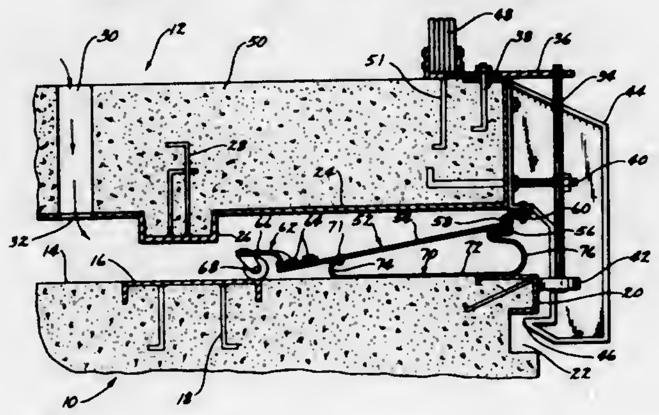
3,570,623

PERIMETER SEAL FOR AIR CELLS

Walter D. Behlen, Columbus, Nebr., assignor to Behlen Manufacturing Company

Filed Jan. 13, 1969, Ser. No. 790,704
Int. Cl. B60v *1/16*
U.S. Cl. 180—127 **7 Claims**

A perimeter seal for load-lifting air cells including a top sheet having an outer end operatively connected to the load being raised by the air cell. A seal member is secured to and positioned below the top sheet and engages the supporting surface to limit the amount of air passing outwardly of the air cell. One or more wheel assemblies are operatively connected to the inner ends of the seal member and top sheet to maintain the inner end of the seal member at a predetermined height with respect to the supporting surface as the air cell is employed to raise the load from its supporting surface.



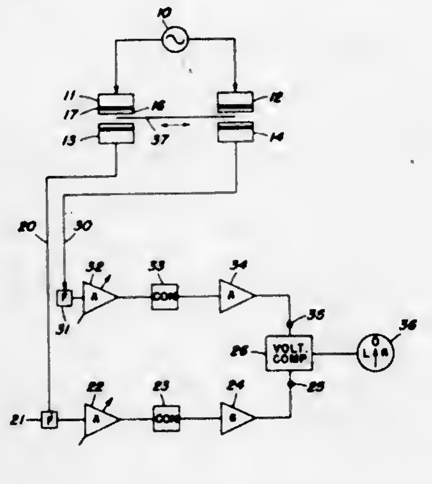
3,570,624
WEB TRACKING AND CONTROL

Ward F. O'Connor, Denville, N.J., assignor to The Lummus Company, New York, N.Y.

Filed June 27, 1966, Ser. No. 560,713

Int. Cl. B65h *25/02*

U.S. Cl. 181—0.5 **8 Claims**



The invention relates to a method of and apparatus for automatically measuring the sideway displacement of a continuous web. In accordance with the invention, one or more sound wave paths which are variably attenuated by sideway displacement of one or more edges of a continuous and moving web are used to automatically measure the amount and direction of such sideway displacement of the web. In one of the embodiments, two sound wave paths are each translated into separate electrical voltages having a magnitude corresponding to the magnitude of the sound wave and a polarity identifying the particular sound path. The difference in the magnitudes of the voltages and the polarity thereof are measured to indicate the amount and direction respectively, of the sideway displacement of the web.

3,570,625
STETHOSCOPE WITH HIGH INTENSITY AUDIO OUTPUT

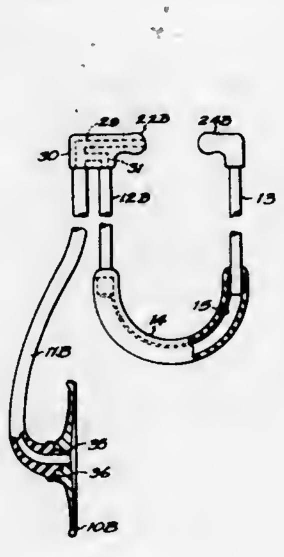
Derek R. Allen, Montrose, Calif., assignor to Allen Medical Instruments Division of Bio-Dynamics, Inc., Montrose, Calif.

Filed Sept. 8, 1969, Ser. No. 856,015

Int. Cl. A61b *7/02*

U.S. Cl. 181—24 **10 Claims**

A stethoscope providing sound transmission air columns of unequal lengths such that sounds are delivered to respective ear tips with their resonance curves so related that sound of improved audibility is constantly being heard by one ear or the other.



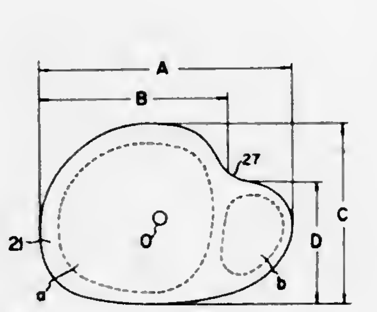
3,570,626
LOUDSPEAKER WITH ASYMMETRICALLY SHAPED DIAPHRAGM

Yasunori Mochida; Ikuji Kurokawa, and Kazukiyo Ishimura, Hamamatsu-shi, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-Cho, Hamamatsu-shi, Shizuoka-Ken, Japan

Continuation of application Ser. No. 584,825, Oct. 6, 1966, now abandoned. This application Nov. 18, 1969, Ser. No. 871,684

Int. Cl. G10k *13/00;* **H04r** *7/00*

U.S. Cl. 181—32 **4 Claims**



A vibrating diaphragm having a planar shape which is an asymmetric geometric figure, the concept being improved by modifying the contour configuration of the vibrating diaphragm, for example by forming the contour of said diaphragm so that the opposite sides are not parallel or said contour has an irregular curvature.

3,570,627
POWER LADDER WITH A TOWER AND A CARRIAGE MOVABLE THEREON

Yigal Michelson, P.O. Box 71, Pardess-Hanna, Israel

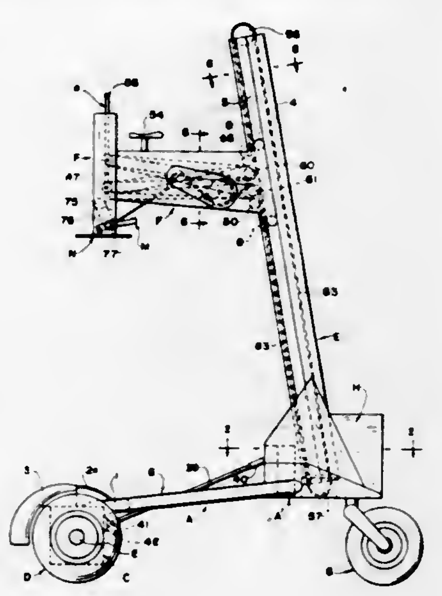
Filed Jan. 10, 1969, Ser. No. 790,245

Int. Cl. E04g *1/18*

U.S. Cl. 182—148 **6 Claims**

A power ladder movable over the ground and supporting a tower on which a carriage is movably mounted. The carriage

supports an operator and it has control units that can be manipulated by the operator for raising and lowering it and for holding it at any desired elevation along the length of the tower.



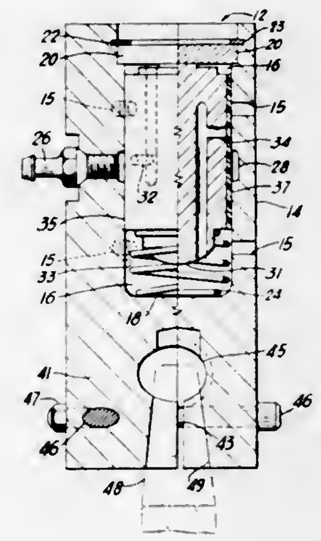
3,570,628
APPARATUS FOR LUBRICATING PNEUMATIC RAPPERS

Charles H. Rodgers, Sykesville, Md., assignor to Koppers Company, Inc.

Filed Apr. 30, 1969, Ser. No. 820,591

Int. Cl. F16n *15/02*

U.S. Cl. 184—24 **7 Claims**



A pneumatically operated rapper including a piston reciprocable within a cylinder adapted to strike an anvil within said cylinder thereby imparting vibrations to a structure connected to said rapper, wherein the improvement comprises providing said piston and said cylinder of dissimilar materials of which one material possesses dry lubricating properties and one of said dissimilar materials is covered with a thin film of low friction material which is erodable by abrasion between said piston and said cylinder to form microscopic particles for coaction with said dry-lubricating material, thereby conditioning the coacting surfaces of the piston and cylinder for reduced friction and continuous dry-lubrication thereof.

3,570,629
INSTALLATION FOR THE AUTOMATIC REFILLING OF LUBRICATING OIL

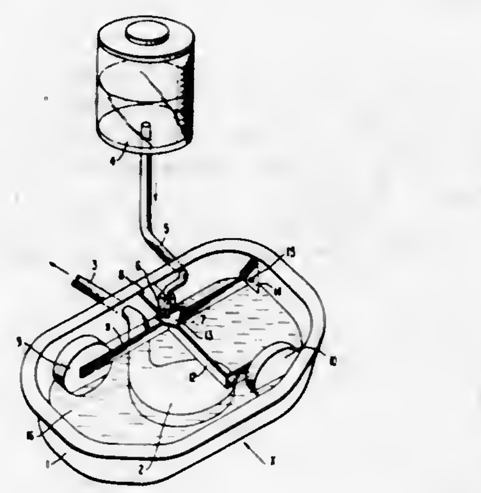
Wolfram Dahm, Raidwangen Kreis Nurtingen; Erhard Melcher, Grobaspach Wurttemberg; Klaus Nied, Schmiden Wurttemberg; Alfons Hackenberg, Ruit, Filder, and Ladislaus Weber, Schorndorf, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 11, 1968, Ser. No. 766,746

Claims priority, application Germany, Oct. 12, 1967, P 15 76 367.4

Int. Cl. F01m *11/12*

U.S. Cl. 184—103 **17 Claims**



An installation for the automatic refilling of lubricating oil from a supply vessel into the oil pan of internal combustion engines in which two floats are secured at a pivotal lever linkage which actuates a needle valve controlling the supply of the oil from the vessel into the pan.

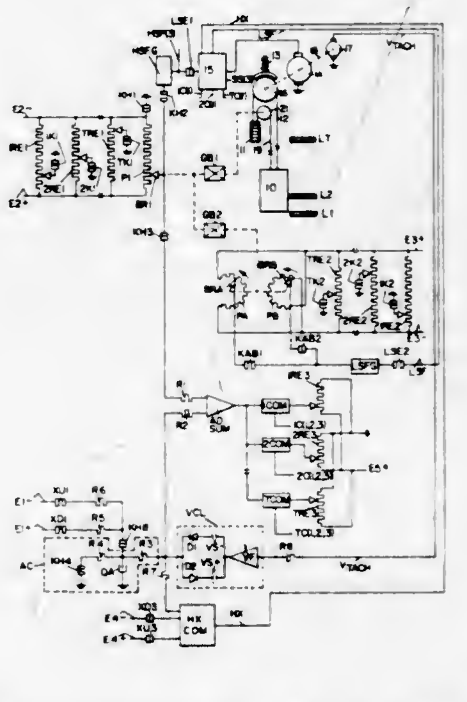
3,570,630
LANDING SELECTOR APPARATUS

Herbert Frederick Voigt, Flushing; Otto Albert Krauer, Tuckahoe, and Harvey Ronald Schor, Rockaway Park, N.Y., assignors to Otis Elevator Company, New York, N.Y.

Filed Feb. 3, 1969, Ser. No. 795,841

Int. Cl. B66b *1/52*

U.S. Cl. 187—29 **14 Claims**



Landing selector apparatus for use in an elevator control system. An output voltage whose magnitude signifies the location of the car in the hoistway is added to a voltage whose magnitude is a function of the distance required to stop the car from the speed at which it is traveling. The magnitude of the sum of these two voltages is compared with the magnitudes of discrete voltages proportional to the locations of the landings to scan the landings to determine that at which the next stop will be made. Upon the receipt of a signal that a stop is required at a landing being scanned that landing is selected and a signal suitable to control the deceleration of the car as a function of its distance from the selected landing is produced in response to the difference between a signal signifying the location of the selected landing and a signal signifying the location of the car. When the car approaches within a predetermined distance of the selected landing equipment which functions in the same way but which measures the distance between the car and the selected landing more accurately than the foregoing is used to control the final approach of the car to a stop.

3,570,631
DISC BRAKE AND ADJUSTING MEANS THEREFOR

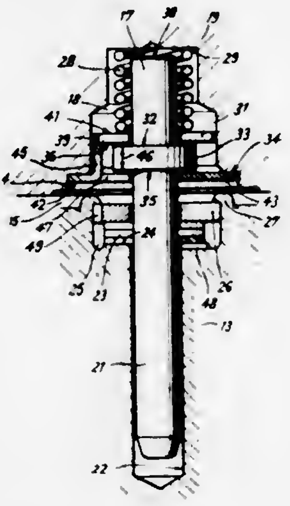
Erich Schaftner, Stuttgart-Zuffenhausen, Germany, assignor to Ernst Heinkel Aktiengesellschaft, Stuttgart-Zuffenhausen, Germany

Filed Apr. 15, 1969, Ser. No. 816,259

Claims priority, application Austria, Apr. 16, 1968, A3690/68

Int. Cl. F16d *65/52*

U.S. Cl. 188—71.8 **10 Claims**



A disc brake includes a rotor which is mounted for rotation about an axis in such a manner that under normal operating conditions the rotor has freedom to perform first wobbling movements within a first range of inclination to the axis, and to perform second wobbling movements within a larger second range of inclination to the axis under special second operating conditions. At least one friction pad is mounted proximal to the rotor for movement towards and away therefrom. The friction pad can engage the rotor for braking rotation of the same, and is movable by the rotor to a first spaced position when the rotor performs its first wobbling movements, and to a second farther spaced position when the rotor performs its second wobbling movements. Biassing means permanently biases the friction pad from its second spaced position to its normal first spaced position. Actuating means serves to move the friction pad into engagement with the rotor to normal operative position.

3,570,632
BRAKE STRUCTURE

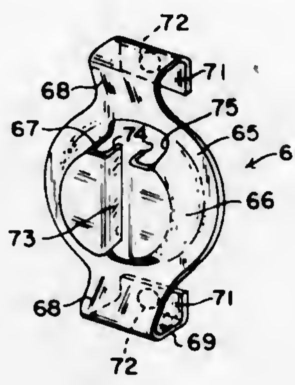
William J. Williams, Ashtabula, Ohio, assignor to Rockwell-Standard Company, Pittsburgh, Pa.

Filed Nov. 12, 1968, Ser. No. 774,874

Int. Cl. F16d *65/46*

U.S. Cl. 188—79.5 **7 Claims**

In a brake assembly a special locking retainer is disposed between an end of a brakeshoe web and the abutting outer end of a threaded stud rotatably carried by an actuator and comprising part of the brakeshoe adjustment mechanism. The stud is rotatably mounted on the actuator assembly and has a toothed peripheral portion at its outer end. The retainer is a one piece stamping of resilient sheet metal having a slotted end boss for seating on the stud and nonrotatably receiving the brakeshoe end and opposed radial arms reversely bent to form substantially U-shaped resilient clips extending around said toothed peripheral portion of the stud with each clip having an internal detent adapted to be interlocked with the toothed stud periphery. The retainer holds the stud against rotation during automatic brake adjustment, but permits stud rotation for manual brake adjustment.



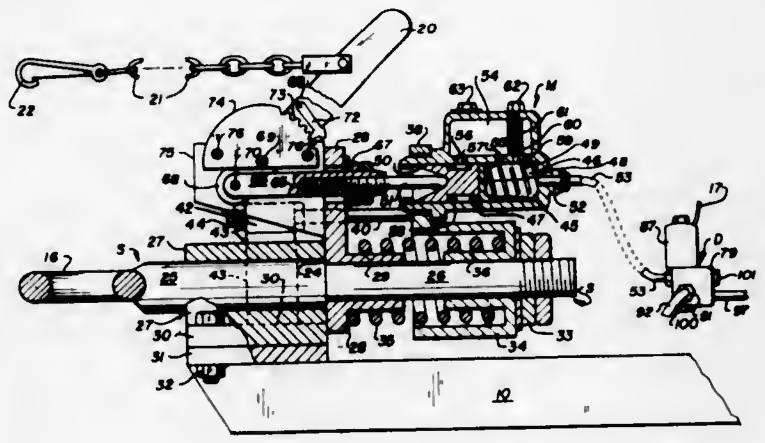
3,570,633
HYDRAULIC BRAKE ACTUATOR FOR TRAILERS

Edward V. Garnett, Lakewood, Colo., assignor to Servis Truck Body, Division of Republic Corporation, Paramount, Calif.

Filed Nov. 8, 1968, Ser. No. 774,330

Int. Cl. B60t *7/20*

U.S. Cl. 188—112 **7 Claims**



The hydraulic brake actuator for trailers is mounted on the trailer frame and is associated with the towing hitch, through a shaft having a rearwardly facing shoulder which moves a front plate rearwardly to move a plunger against the piston of the master brake cylinder, or pulls forwardly a rear plate, on which the master cylinder is mounted, with a coil spring acting between the front and rear plates. Thus, hydraulic fluid pressure for the trailer brakes will be produced when the towing vehicle is moving either forwardly or backing up and the vehicle brakes are applied. A solenoid control valve in the hydraulic fluid circuit normally prevents application of the trailer brakes, unless the towing vehicle brakes are applied, through connection of the solenoid with the stop light circuit of the towing vehicle. A lever connected by a safety chain to the towing vehicle will move the plunger into the master cylinder, to apply the trailer brakes in the event of the failure of the hitch, through a pressure responsive valve in parallel with the solenoid valve but opening only when a higher pressure than normal of the hydraulic fluid is produced. A relief valve between the master cylinder and a fluid reservoir prevents breakage of the hydraulic lines on the trailer or parts associated therewith.

3,570,634
HYDRAULIC BRAKE ASSEMBLY FOR AUTOMOBILES

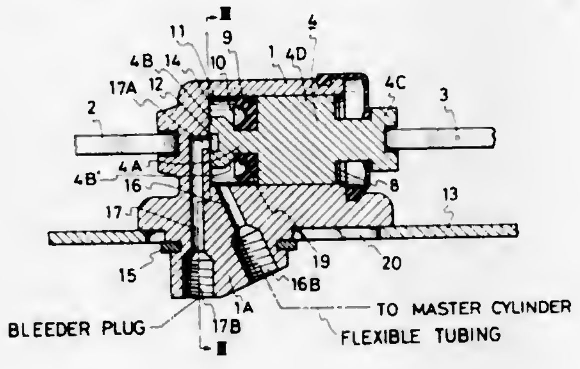
Takekazu Yamamoto, Kariya City, Aichi, Japan, assignor to Aisin Seiki Company Limited, Kariya City Aichi Pref, Japan

Filed June 18, 1969, Ser. No. 834,386

Claims priority, application Japan, June 25, 1968, 43/54304

Int. Cl. B60t *11/30*

U.S. Cl. 188—152 **4 Claims**



Hydraulic brake assembly for automobiles, wherein two channels for fluid supply and air expelling are arranged in a lug of the cylinder. The fluid entering through the liquid supply channel expels any air from the cylinder bore through the air-expelling passage.

3,570,635
OIL-TYPE VIBRATION DAMPER

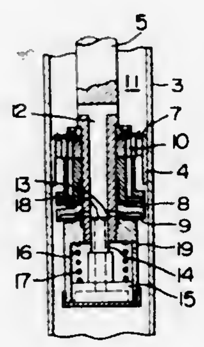
Tatsuya Takagi, No. 6-10, Araebisu-machi, Nishinomiya-shi, Hyogo-ken, Japan

Filed June 19, 1968, Ser. No. 738,281

Claims priority, application Japan, Dec. 11, 1967, Jan. 10, 1968, Mar. 27, 1968, 42-79345;43-1228;43-19435

Int. Cl. F16f *9/348*

U.S. Cl. 188—88 **5 Claims**



An oil-type vibration damper includes a piston and a cylinder, and one or two sets of pressure control valves. One set of pressure control valves effects damping of vehicle vibrations above the supporting springs, and the other set of pressure control valves effects damping of vehicle vibrations below the supporting springs or one pressure control valve effects damping of said both vehicle vibrations. A switch valve mechanism detects changes in the frequency of the vibrations to automatically act on one or the two sets of pressure control valves in accordance with the frequency of the vibrations.

3,570,636
PNEUMATIC SHIFT CONTROL FOR A MECHANICAL TRANSMISSION

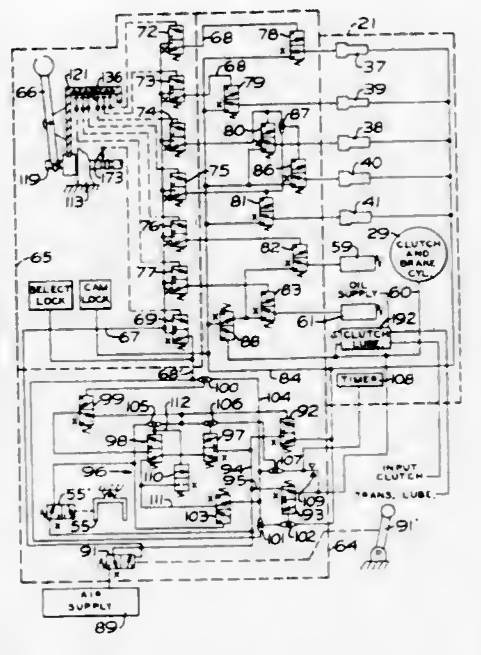
Maurice F. Franz, East Peoria; Le Roy Lichtenstein; Philip S. Webber, Morton; Alexander C. Mc Intosh, Peoria, Ill., and Elmer A. Richards, Kalamazoo, Mich., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 24, 1969, Ser. No. 801,405

Int. Cl. F16d *67/00;* **F16h** *3/12*

U.S. Cl. 192—3.5 **15 Claims**

A transmission having both input and output clutches, together with a brake for stopping the change speed gearing to facilitate speed ratio changes is shifted by means of pneumatic actuators under the automatic control of a fluid circuit which is responsive to manual movement of a remotely situated control lever. The control lever is moved along an arc to select a speed range and carries an array of cams along a series of cam operated valves to condition the circuit to operate the appropriate actuators within the transmission in the proper sequence. Sideward movement of the control lever then pneumatically energizes the system to effect the selected shift.



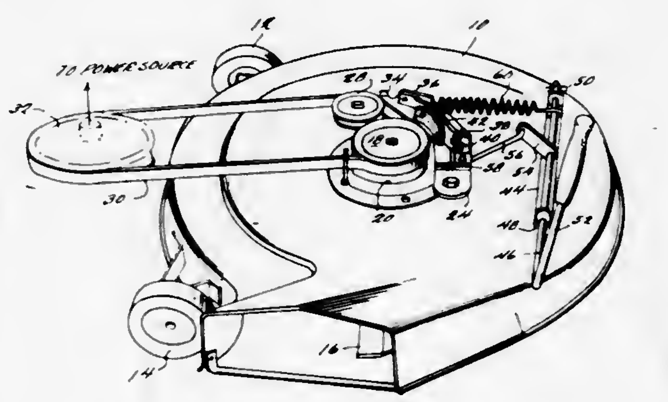
3,570,637
BLADE DRIVE AND BRAKING ARRANGEMENT FOR A ROTARY LAWN MOWER

Donald L. Pitman; Gilbert B. Hahn, and Martin J. Gencsi, Nashville, Tenn., assignors to The Murray Ohio Manufacturing Company, Nashville, Tenn.

Filed Dec. 4, 1968, Ser. No. 781,218

Int. Cl. F16h *57/10*

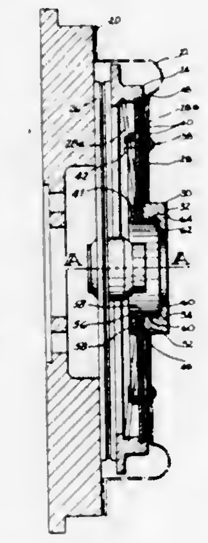
U.S. Cl. 192—11 **3 Claims**



A system for driving and braking a blade in a rotary lawn mower. An arm is pivotally connected to a blade housing. The free end of the arm carries an idler pulley which, on rotation of the arm in one direction, is moved to tension a belt which also passes about a drive pulley and a pulley connected to the blade. The belt tensioning causes the blade to be driven. On rotation of the arm in the opposite direction, the belt tension is released and a brakeshoe carried on the arm engages the blade pulley to terminate blade rotation. Direction of rotation of the arm is controlled by a mechanical linkage from an operator's lever.

3,570,638
DIAPHRAGM SPRING CLUTCH ASSEMBLY

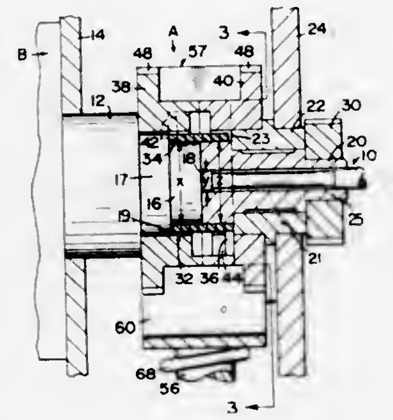
Peter F. Baker, Benarth, Conway, Wales, assignor to Quinton Hazell (Holdings) Limited, North Wales, Great Britain
Filed Apr. 30, 1969, Ser. No. 820,496
Claims priority, application Great Britain, May 3, 1968, 20999/68
Int. Cl. F16d *13/50*
U.S. Cl. 192—70.27 **12 Claims**



A friction clutch diaphragm spring having radially inwardly extending fingers at least one of which is deformed at its inner end so that the inner ends of the fingers can bear simultaneously on opposite sides of a groove in a thrust means to prevent vibration between the diaphragm spring and the thrust means and thus prevent rattling occurring at least when the clutch is in the engaged position.

3,570,639
SOLENOID-OPERATED SPRING CLUTCH

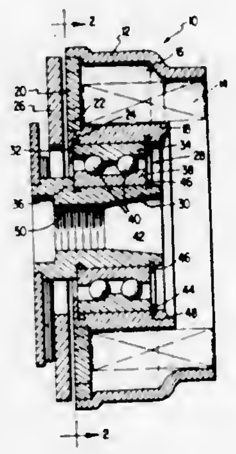
Gary D. Fredell, East Moline, and Frederick E. Erickson, Port Byron, Ill., assignors to Gulf & Western Industries, New York, N.Y.
Filed Apr. 10, 1969, Ser. No. 814,952
Int. Cl. F16d *11/06;* **B16d** *13/08*
U.S. Cl. 192—81 **6 Claims**



A clutch mechanism including a drive shaft with first and second segments integral with each other, the first segment having a diameter greater than the diameter of the second segment. Coaxially supported on the second segment is a driven drum having another diameter substantially equal to the diameter of the first segment and adjacent thereto with a bearing coaxially disposed about a longitudinal portion of the driven drum. There is further provided a coiled spring having opposing free ends coaxially wrapped about adjacent portions of the first segment and the drum, the spring having an internal diameter sufficiently small relative to the diameters of the first segment and the drum that the spring is normally in resilient gripping relationship with the first segment and the drum, whereby the drive shaft transmits rotational forces to the drum. The free ends of the spring are concurrently engaged and rotated in opposite directions by clutch release means, whereby the internal diameter of the spring is sufficiently increased to release its gripping relationship with the first segment and the drum to prevent the transmission of rotational forces from the drive shaft to the drum.

3,570,640
CLUTCH BEARING ASSEMBLY

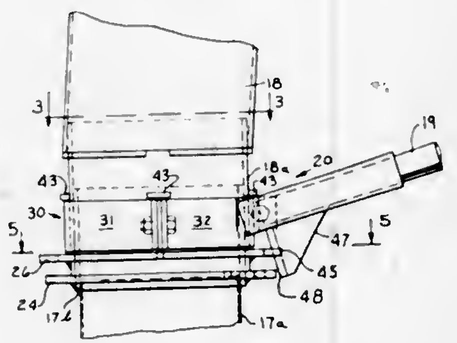
Roger G. Martz, Lebanon, Ind., assignor to Stewart-Warner Corporation, Chicago, Ill.
Filed Sept. 18, 1968, Ser. No. 760,607
Int. Cl. F16d *27/07;* **F16c** *33/64*
U.S. Cl. 192—84 **4 Claims**



An electromagnetic clutch employing a unitary inner ball bearing race member and shaft coupler and a concentric, unitary, outer ball bearing race member and driving friction plate support and electron beam welded to the friction plate which eliminates the need for separate snaprings, bearing sleeve and armature hub while reducing overall size without compromising load capacity.

3,570,641
LOCKING AND POSITIONING MECHANISM FOR SELECTIVELY SETTING A DISCHARGE SPOUT OF A HARVESTER

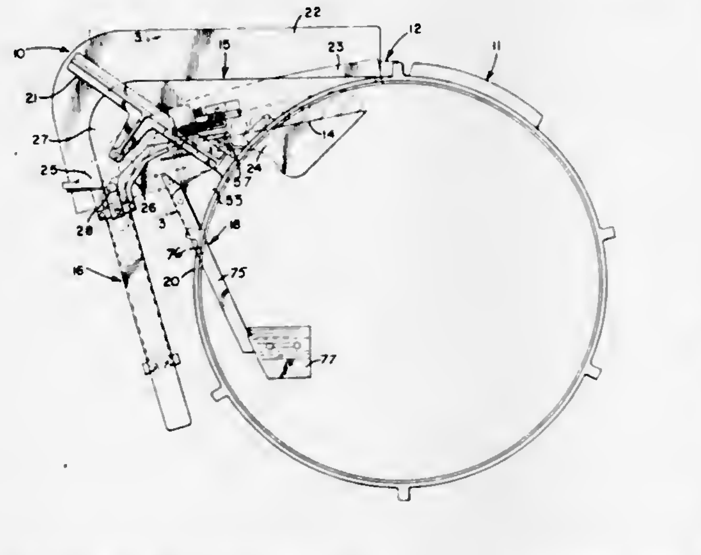
Alain P. Lefeuvre, Lez Dijon, France, and Loren G. Sadler, Stevens, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 27, 1969, Ser. No. 855,076
Int. Cl. B65g *53/40*
U.S. Cl. 193—4 **7 Claims**



A locking and positioning mechanism has a lower radially extending annular flange on the lower vertical stationary discharge conduit of a forage harvester and an upper radially extending angular flange on a discharge spout telescopically and rotatably mounted on the lower discharge conduit and extending outwardly further than the lower flange. A strap rotatably fits around the spout immediately above the upper flange and pivotally supports a generally radially extending yoke with a long handle for freely moving the strap around the spout. The handle is attached to the yoke to pivot vertically and has a downwardly extending latch. The latch fits in circumferentially spaced notches in the upper flange to rotate the spout and on further lowering of the handle the latch fits into one of a larger number of circumferentially spaced notches in the second flange over an arc corresponding to the space between the upper notches to lock the spout in a selected fixed position for directing chopped crops from the forage harvester in the selected direction.

3,570,642
CAP CONVEYING CHUTE WITH SORTING MEANS

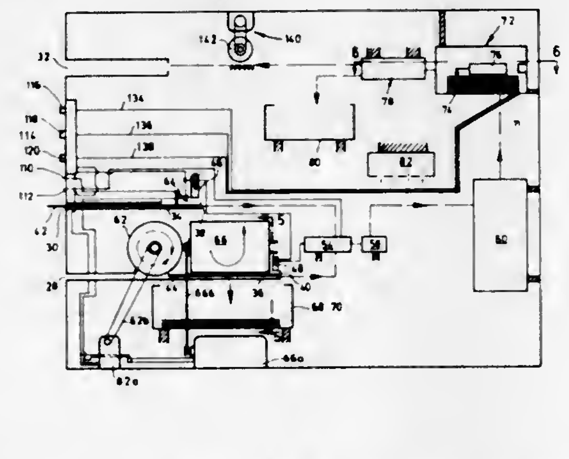
James L. Shenoha, Oak Lawn, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Dec. 4, 1968, Ser. No. 781,146
Int. Cl. B65g *11/20*
U.S. Cl. 193—43 **11 Claims**



A chute for feeding closure caps for jars, or similar containers, to cap applying apparatus, or the like, which has an inverted L-shaped upper end disposed in downwardly inclined relation for receiving caps in a line from the upper side of a supply hopper and for advancing the caps by gravity and the pressure of oncoming caps along a generally horizontal top portion and then down a vertical portion leading to the cap applying apparatus, the top portion of the chute having an opening in the lowermost side through which caps may be discharged into a chute leading back to the hopper and a cap selector mechanism at the opening which is operative to automatically hold for advance past the discharge opening the caps which are positioned with the open side thereof uppermost while freeing caps which are positioned with the open side down so that they may be forced through the discharge opening and returned to the supply hopper, the upside down caps continuing into the vertical portion of the chute which is constructed to turn each successive cap to a right side up position for application to the top of a container in a processing line.

3,570,643
RECORD CARRIER CONTROLLED MONEY DISPENSING APPARATUS

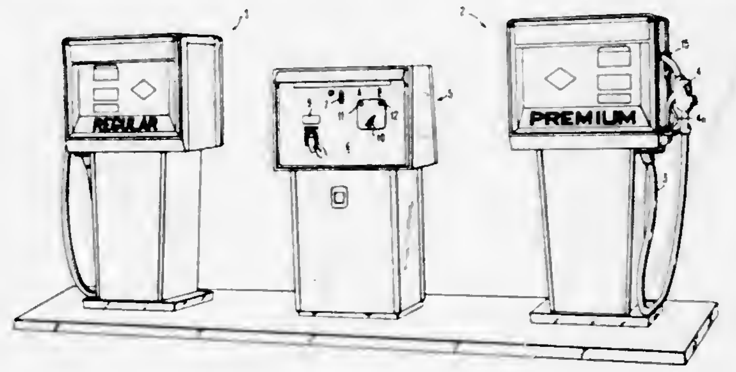
Heinz F. Maierhofer, Unterkochen/Wurttemberg, Germany, assignor to Ostertag-Werke AG, Aalen Wurttemberg, Germany
Filed Nov. 20, 1968, Ser. No. 777,328
Int. Cl. G07f *1/06*
U.S. Cl. 194—4 **23 Claims**



A money-dispensing apparatus dispenses an amount of money in accordance with recordings on an inserted withdrawal record carrier only if an identifying record carrier assigned to a specific account is simultaneously inserted. The record carriers are sensed, and the sensed information compared with information contained in a center storage in order to prevent fraudulent or erroneous withdrawal of money.

3,570,644
MONEY-OPERATED LIQUID DISPENSING APPARATUS

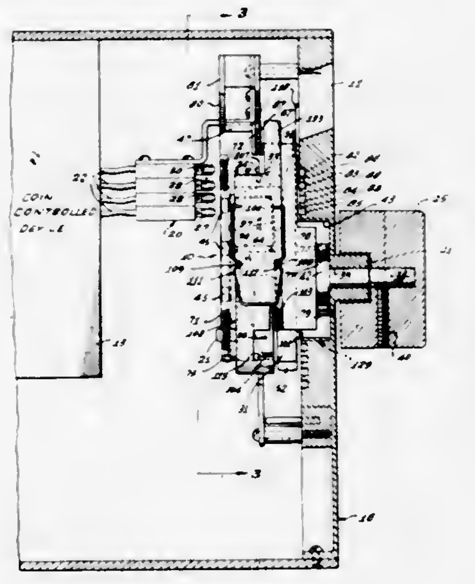
William M. Booth, Grand Haven, Mich., assignor to John Wood Company, East Orange, N.J.
Filed July 24, 1969, Ser. No. 844,447
Int. Cl. G07f *13/00*
U.S. Cl. 194—5 **6 Claims**



Money operated dispensing equipment for dispensing fluids, e.g., gasoline, etc., from self-serving fluid dispensers located, for example, at an automobile service station of the well-known type. A console controls plural dispensers simultaneously, and a control unit in each dispenser stores and removes credit independently of the console.

3,570,645
COIN CHECKING MECHANISM

Manuel J. Fernandez, 7009 Maynard Ave., Canoga Park, Calif.
Filed Nov. 21, 1968, Ser. No. 777,829
Int. Cl. G07f *5/00*
U.S. Cl. 194—72 **16 Claims**

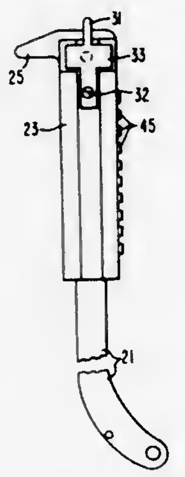


A coin-checking mechanism incorporated in a coin-controlled vending machine and having a rotary carrier with a gauging slide thereon for receiving coins and moving the same along a cam which displaces the coin and the slide radially according to the coin diameter; an actuating lever displaced with the slide and carrying a tab along spaced gauging tracks into which the tab is movable when aligned therewith; a magnet carried on a rocker for movement toward a slug on the slide; and a feeler on a second rocker moved toward the coin on the slide; each rocker having a blocking element which prevents movement of the actuating tab into an aligned track when a washer or a magnetic slug is sensed.

Also included in an inertia-operated element for interlocking with the housing in response to excessively rapid motion of the carrier.

3,570,646
CONVERTIBLE TYPE CARRIER

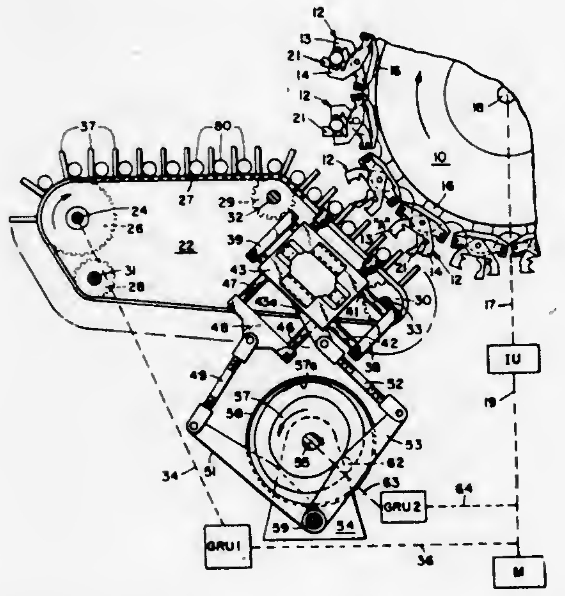
Kenneth George Gray McGregor, Bonhill, Alexandria, Scotland, assignor to Burroughs Corporation, Detroit, Mich.
Filed Mar. 5, 1968, Ser. No. 710,500
Claims priority, application Great Britain, June 27, 1967, 29649/67
Int. Cl. B41j *1/02*
U.S. Cl. 197—36 **2 Claims**



Various well-known printing calculators are provided with type carriers having a plurality of rigidly attached type characters of predetermined value or significance, such type carriers being differentially positionable to bring selected type into printing position, and either movingly or arrestingly activatable to effectuate printing on a paper tape or record medium. A type carrier suitable for use in such printing calculators is provided with a shank portion and an attachable and detachable head portion having a particular combination of type characters integral therewith. By this means type characters corresponding to changed requirements may be installed conveniently in the various printing orders without removing the carriers from the printing means.

3,570,647
LOADING APPARATUS

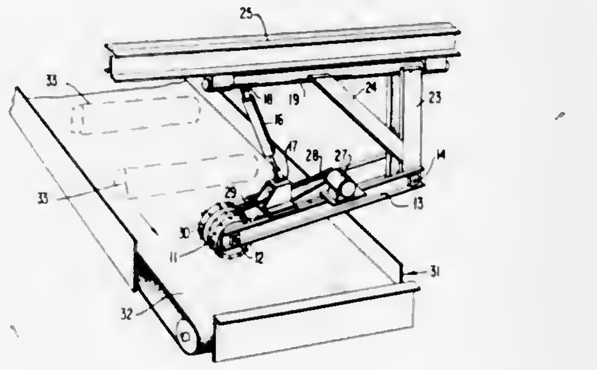
Robert L. Meikle, and George E. Watkins, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed June 13, 1969, Ser. No. 833,114
Int. Cl. B65g *47/52*
U.S. Cl. 198—24 **4 Claims**



Apparatus for loading two at a time workpieces or articles such as tubes or rods of substantially identical diameters and lengths into chucks carried on a pair of spaced apart and vertical turrets which intermittently move or index the workpieces or articles through a vertically circular path of travel including a series of stations at which work such as end-forming is performed on the workpieces. Apparatus provides for said loading of the workpieces or articles at a substantially higher speed than heretofore attainable by loading apparatus used for similar purposes.

3,570,648
BLOCK FEEDING APPARATUS

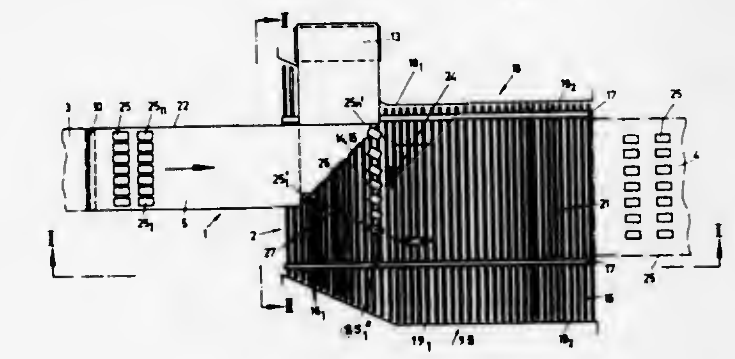
Tillman B. Gillespie, Jr., Bradley, Tenn. (1105 Wagner Circle, Cleverland, Tenn. 37040), and Dale H. Dove, York, S.C. (2103 Marett Blvd., Rockhill, S.C. 29730)
Filed Sept. 27, 1968, Ser. No. 763,281
Int. Cl. B65g *47/34*
U.S. Cl. 198—25 **24 Claims**



A feeding apparatus for propelling blocks, such as logs, from a moving conveyor or a stationary rack loaded with such logs. A single spike roll or a pair of spike rolls are moved against a log momentarily to flick the log in the direction of roll rotation. The momentary frictional engagement of the spiked roll against the top of the log is greater than the sliding friction of the log against the conveyor or the logs therebelow, so as to separate the log from its support.

3,570,649
CONVEYOR ARRANGEMENT FOR CHANGING THE SPACING BETWEEN THE OBJECTS OF A ROW

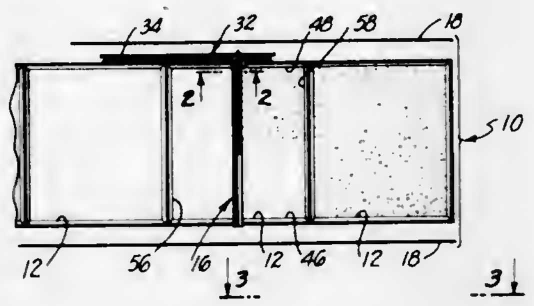
Rene Fluck, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Sept. 15, 1969, Ser. No. 857,736
Claims priority, application Switzerland, Oct. 14, 1968, 15353/68
Int. Cl. B65g *47/26*
U.S. Cl. 198—34 **12 Claims**



Two endless conveyors have a common path over part of their length, one conveyor transferring one by one onto the other conveyor the objects of a row at right angles to the direction of conveyance, and one of the two conveyors being composed of transverse bars or rods made to move along their length to increase or to decrease the spacing between the objects of a row.

3,570,650
METHOD OF CHARGING LEACHING VATS

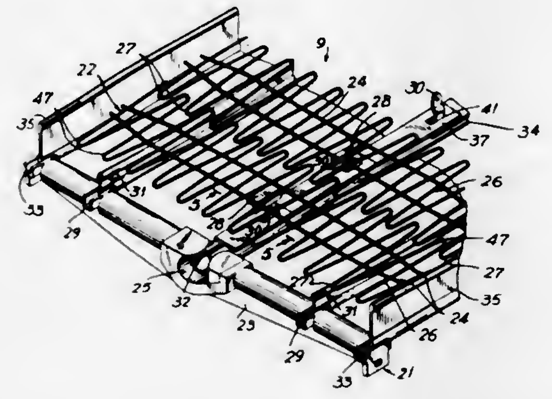
Walter M. Parsons, San Marino, Calif., assignor to American Hoist & Derrick Company, St. Paul, Minn.
Filed Nov. 21, 1968, Ser. No. 777,673
Int. Cl. B65g *37/00*
U.S. Cl. 198—101 **2 Claims**



A method and apparatus for charging a leaching vat. Shallow transverse strips of the charging material are deposited on the bottom of the vat in side-by-side relation across one-half of the vat and from one end of the vat to the other, this process then being repeated for the other half of the vat. The foregoing procedure results in the deposition of a shallow layer of the charging material on the bottom of the vat, and is repeated to form second and subsequent layers, until the vat is filled to the desired level. The end result is a charge which is substantially uniform throughout the vat, with substantially no impervious concentrations of fines.

3,570,651
CONVEYOR SYSTEM

William E. Lanham, 3456 Woods Drive; Gene C. Miller, 3540 Woods Drive, and William E. Lanham, Jr., 3044 Katherine Valley Road, Decatur, Ga.
Original application Nov. 10, 1966, Ser. No. 593,504, now Patent No. 3,440,973, which is a continuation of application Ser. No. 448,732, Apr. 16, 1965, now Patent No. 3,285,394. Divided and this application Mar. 21, 1969, Ser. No. 809,153
Int. Cl. B65g *17/12, 17/34*
U.S. Cl. 198—136 **5 Claims**

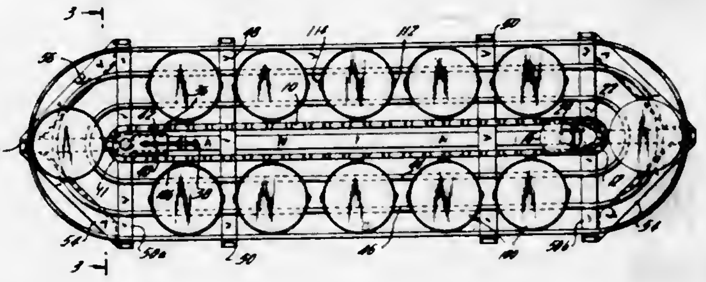


A conveyor system including a monorail drive having vertically extending brackets which support a continuous product support surface. The product support surface includes separately supported grid surface which interleave with the next adjacent grid thereby to facilitate turning around a radius while maintaining a continuous product support surface.

3,570,652
CONVEYOR

Howard Price, Kings Point, and Bela Szilagyi, Flushing, N.Y., assignors to International Patents & Development Corp.
Filed Oct. 10, 1968, Ser. No. 766,558
Int. Cl. B65g *15/00*
U.S. Cl. 198—181 **11 Claims**

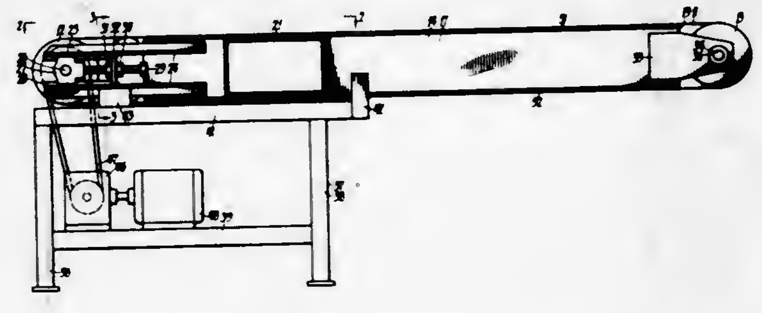
A conveyor arrangement for conveying containers intermittently so that the containers may be filled and emptied in sequence. A chain and sprocket drive operates in the plane of conveyance and furnishes the driving force for conveying the containers. The containers are attached to the sprocket chain, through clip members, and slide along tubular rails situated in a plane parallel to the chain and sprocket drive.



Upright post members distributed along the conveying path support a guidance rail which guides the containers along the desired path. A limit switch actuated by the moving cans interrupts periodically the drive of the sprocket and chain, and permits the containers to be filled and emptied.

3,570,653
FIBRE COLLECTION APPARATUS

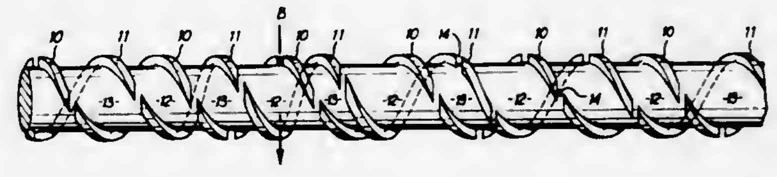
Frank Sansom Cullen, Victoria, Australia, assignor to Insulwool Products Pty. Ltd., Melbourne, Victoria, Australia
Filed Nov. 20, 1968, Ser. No. 777,445
Claims priority, application Australia, Nov. 20, 1967, 30,061/67
Int. Cl. B65g *15/12*
U.S. Cl. 198—190 **4 Claims**



A fibre collection apparatus comprises wire, cable or the like supported in an endless configuration having a plurality of straight runs disposed side-by-side to serve as fibre collectors, drive means to drive the wire cable or the like through the endless configuration so that said runs travel in one general direction, and means to apply suction through the gaps between said runs.

3,570,654
CONVEYING SCREW FOR EXTRUSION MACHINES AND THE LIKE

Alan Harvey Hill, Darlington, England, assignor to General Engineering Company (Radcliffe) Limited
Filed Mar. 18, 1969, Ser. No. 808,214
Claims priority, application Great Britain, Mar. 21, 1968, 13,657
Int. Cl. B65g *33/08*
U.S. Cl. 198—213 **6 Claims**

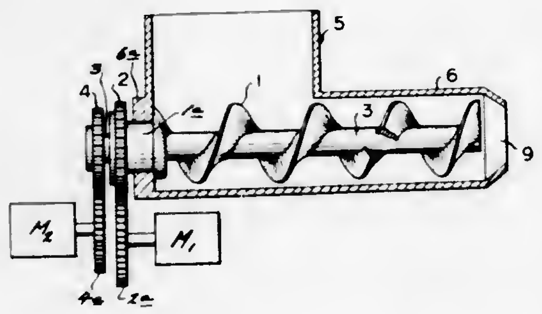


Screw conveyors for extrusion machines, and more particularly a conveying screw of the kind adapted to be rotated in a barrel of circular cross section and comprising a central core having at least two spiral flights thereon to form a multistart thread over at least part of its length, adjacent flights defining channels therebetween down which the material to be extruded is progressed.

3,570,655
MATERIAL CONVEYING APPARATUS

Torahiko Hayashi, 2-3, Nozawa-machi, Utsunomiya-shi, Japan

Filed Dec. 12, 1968, Ser. No. 783,298
Claims priority, application Japan, Dec. 13, 1967, 42-79468
Int. Cl. B65g *33/34*
U.S. Cl. 198—214 **10 Claims**

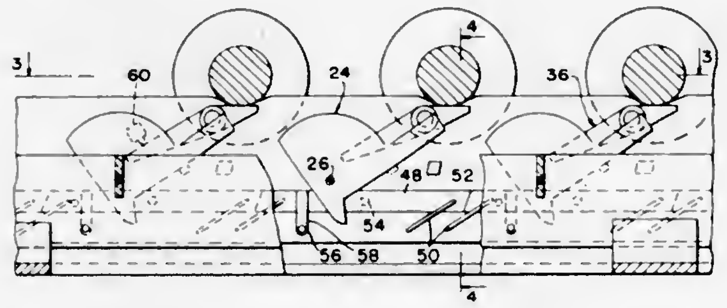


In a material conveying apparatus including inner and outer coaxial members, such as the shank of a conveyor screw and a tubular housing therefor, having confronting surfaces of revolution defining a space therebetween through which material is to be conveyed, and a helical rib extending along one of the coaxial members, for example, the shank to propel material axially in said space in response to rotation of the rib relative to the housing, at least a part of the shank is independently rotatable with respect to the turns of the rib extending along such part to permit control of the frictional resistance to turning of the material with the rotated helical rib.

3,570,656
ACCUMULATING FEED SYSTEM

Peter J. Manetta, Warren, Mich., assignor to Simplex Corporation, Detroit, Mich. Continuation of Ser. No. 578,094, Sept. 8, 1966, abandoned.

Filed Jan. 2, 1970, Ser. No. 000,480
Int. Cl. B65g *25/08*
U.S. Cl. 198—221 **33 Claims**



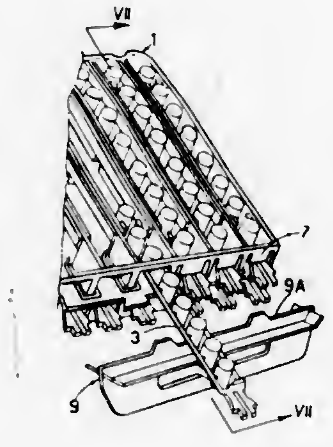
A system for advancing a series of articles through a series of stations including means for insuring advance of every article in the system to the rear of the foremost vacant station therein.

3,570,657
BOX CONSTRUCTION FOR CAP AMMUNITION STRIPS FOR TOY FIREARMS

Giampiero Ferri, Via Stoppani 38, Florence, Italy

Filed July 17, 1969, Ser. No. 842,558
Claims priority, application Italy, Aug. 13, 1968, 4168B/68
Int. Cl. F42b *39/00*
U.S. Cl. 206—3 **6 Claims**

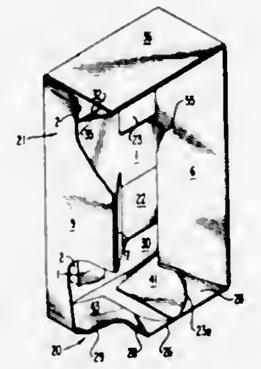
A storage device for strips of caps used in toy guns. A substantially open ended box is divided into a plurality of separate chambers. Each chamber stores a strip of caps which extends beyond the box. The cap strips are provided with projecting tabs positioned so as to be located just within the box when the strip is stored. The open ends of the chamber are partially closed by tongues which cooperate with the tabs of the strips to retain the strips in the box. By exerting a pulling force on the extending portion of a cap strip, the corresponding box tongue is broken off to permit the strip to be fully withdrawn from its chamber.



3,570,658
SHADOW BOX DISPLAY CARTON

Robert H. Swanberg, Westwood, N.J., assignor to Union Camp Corporation, New York, N.Y.

Filed Aug. 8, 1969, Ser. No. 848,526
Int. Cl. B65d *5/50*
U.S. Cl. 206—45.14 **6 Claims**

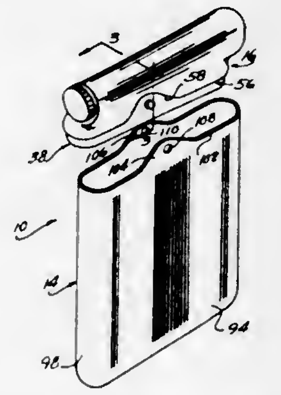


A display carton is formed by front and rear panels joined by side panels to provide a hollow body. A platform having precut openings therein is secured within the body. End flap means extend from opposite ends of the platform body along score lines which transversely intersect the platform openings. Each flap means has score lines spaced from and parallel to its first score line to define a frame portion which includes part of the corresponding platform opening, an end closure portion, and a tuck-in flap portion. The side panels have the usual dust flaps. When the carton is erected and the tuck-in flaps are inserted interiorly of the carton, the frame portion of each of the end flap means assumes an angular position relative to its adjacent platform portion and the end closure portion, and thereby serves as a frame member. The front panel is provided with hinged frame flaps which have angled free edges. When these flaps are infolded toward the platform, the angled edges cooperate with the frame portions to form a mitered frame. This frame construction gives a shadow box appearance to the assembled carton, and the assembly is securely maintained by the integral construction of the platform and the end flap means. The packaged article is inserted in the openings formed in the frame portions. Portions of the body of the article cooperate with the openings in the platform to be held thereby to maintain the article in its set position.

3,570,659
COMBINED TOBACCO PIPE CHARGER AND TOBACCO POUCH

Robert C. Richey, 5126 Taywell Drive, Springfield, Ohio

Filed Mar. 25, 1969, Ser. No. 810,129
Int. Cl. B65d *43/10, 83/06;* **B67d** *5/42;* **G01b** *11/00*
U.S. Cl. 206—41.1 **3 Claims**

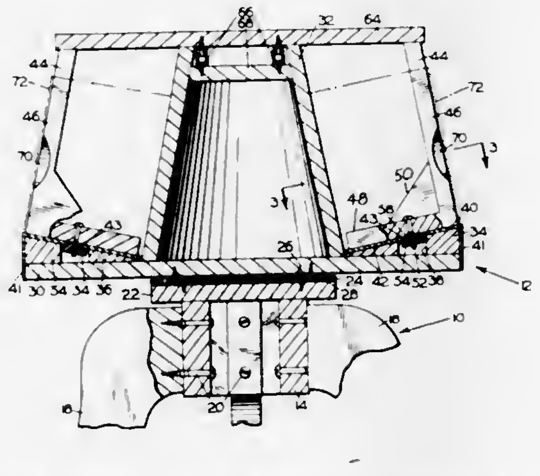


Loading means for a smoker's pipe including a tobacco pouch and quick releasable securing means for connecting said pouch on said loading means.

3,570,660
ROTATABLE ARTICLE HOLDER

Alvin C. Ingebo, Tigard, Oreg.

Filed May 14, 1969, Ser. No. 824,426
Int. Cl. A47b *65/00*
U.S. Cl. 211—43 **4 Claims**



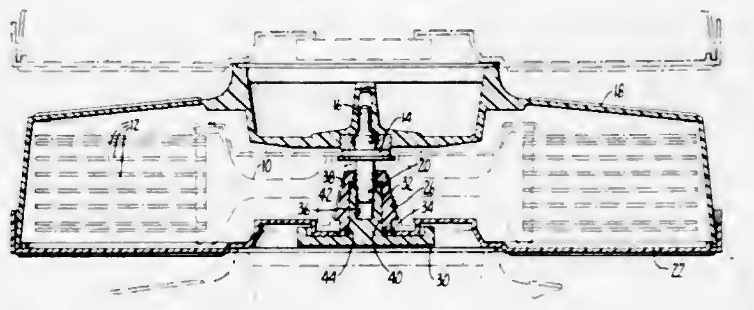
The article holder of the invention includes a pedestal on which a rack is rotatably mounted. The rack has a base portion and an upper wall between which is mounted a plurality of right-angle dividers for forming radial spaces in the rack to receive articles. The dividers have a novel mounting arrangement in the rack whereby they are adapted to be adjusted selectively around the rack to receive articles of varying thicknesses. The dividers are mounted on an inclined portion of the base of the rack so as to be tilted inwardly to form a tapered construction facilitating easy viewing of the articles as well as easy insertion and removal of such articles, between the dividers.

3,570,661
ATTACHMENT KNOB ASSEMBLY FOR A DISC PACK BOTTOM COVER

Cyril Kersh, Campbell, Calif., assignor to Memorex Corporation, Santa Clara, Calif.

Filed Jan. 17, 1969, Ser. No. 792,121
Int. Cl. G11b *1/02, 25/04;* **B65d** *21/02*
U.S. Cl. 206—62P **1 Claim**

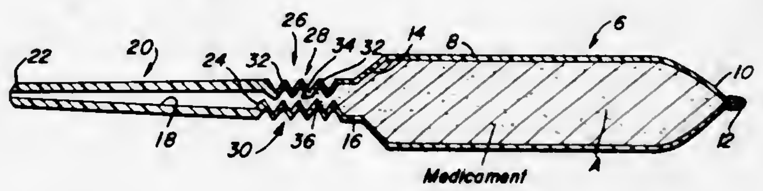
An improved cover set for magnetic memory disc packs in which the attachment mechanism for the bottom cover includes a manipulating handle below the bottom cover having a stem smaller than the handle extending through an aperture in the cover with the stem having on its upper end a threaded portion for threaded attachment to the disc memory, a sleeve mounted above the bottom cover telescopically encircling the stem for preventing withdrawal of the stem through the cover, and a releasable attachment connecting the sleeve and the stem where they telescopically fit together.



3,570,662
DISPOSABLE SQUEEZE TUBE WITH FOLDABLE NOZZLE

Jack Polyak, 503 N. Center St., Apt. 4, Joliet, Ill.

Filed Feb. 7, 1969, Ser. No. 797,540
Int. Cl. A61m *31/00*
U.S. Cl. 206—63.2 **7 Claims**

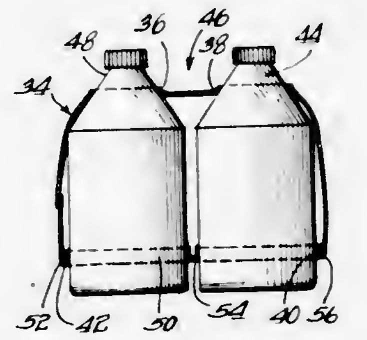


A dispenser and complemental applicator comprising a disposable squeezable tube providing a container for a medicament. The applicator comprises a suitably rigid nozzle whose rearward intake end is communicatively joined to the medicament ejecting neck of the container by bendably flexible connecting means. This connecting means is also resilient and foldable and permits the nozzle to be positioned alongside one lengthwise side surface of the container whereby the side-by-side container and nozzle can be compactly and conveniently stored in a sterile marginally openable plastic envelope.

3,570,663
CONTAINER CARRIER PACKAGE

Ernest R. Cunningham, Libertyville, and William D. Stockdale, Arlington Heights, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

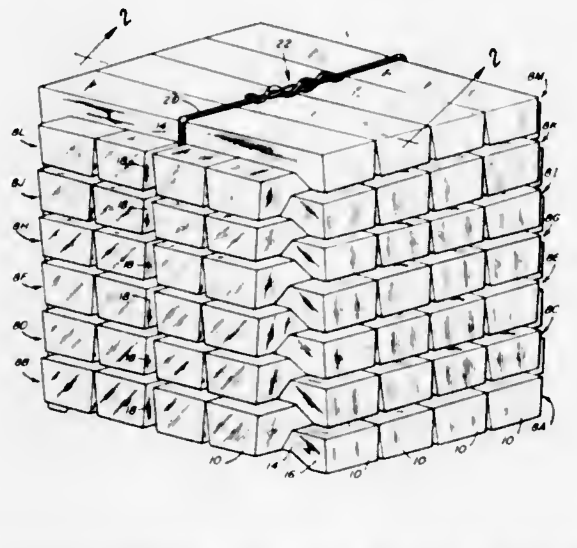
Filed Aug. 16, 1968, Ser. No. 753,121
Int. Cl. B65d *71/00*
U.S. Cl. 206—65 **2 Claims**



A container carrier package. The carrier comprises an open-ended tubular or endless length of flexible material oriented so as to provide an upper and lower layer interconnected by a pair of opposing sidewalls. A plurality of aligned apertures is provided in each of the layers for receiving respective ends of containers therein, thereby to secure and cushion said containers within said carrier.

3,570,664
INGOT BUNDLE

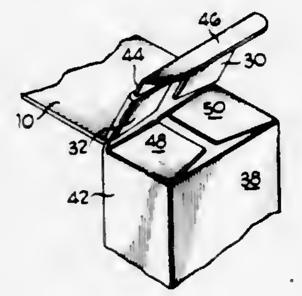
Joe H. Pitts, Snyder, Tex., assignor to American Magnesium Company, Tulsa, Okla.
Filed July 18, 1969, Ser. No. 843,112
Int. Cl. B65d *71/00*
U.S. Cl. 206—65 **1 Claim**



This invention relates to an ingot bundle. More particularly, the invention relates to an ingot bundle comprising a plural uneven number of layers of ingots, each layer including an even plural number of parallel juxtaposed ingots, each ingot being elongated and having a downward extending foot portion therebetween, the distance between the foot portions being such as to extend downwardly beyond the sides of the next adjacent lower layer of ingots whereby all of the layers except the top layer are held in interlocking relationship and including a wire encompassing the bundle holding all of the layers thereof together, the downward extending foot portions on the ingots making up the bottom layer providing fork lift blade receiving space.

3,570,665
CONTAINER DISPLAY HANGER

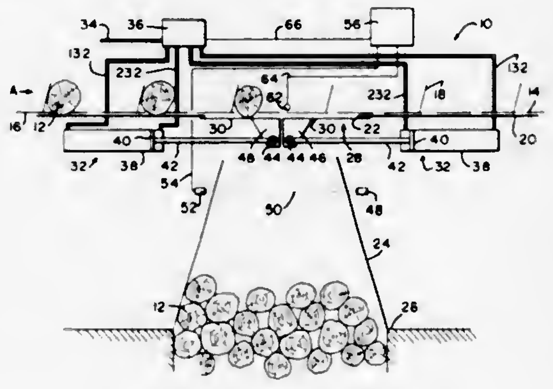
Walter Allen Houston, Park Ridge; Eric Albert Timm, Chicago; James Allan Hotchkiss, Antioch, and Vincent Joseph White, Sr., Northbrook, Ill., assignors to Encap Products Company, Park Ridge, Ill.
Filed Feb. 12, 1969, Ser. No. 798,666
Int. Cl. B65d *33/14*
U.S. Cl. 206—78 **3 Claims**



A display hanger particularly adapted for use with a rectangularly-shaped container. The hanger includes a flat substantially rectangular support member defining a circular opening proximate the upwardly disposed end thereof. The circumferential edge of the opening is connected to the side edge of the support member by means of an elongated slit. The lower end of the support member defines a rectangular flap by means of a continuous fold line. A pair of opposed locking tabs are formed integral with the flap and extend beyond the side edges of the support member.

3,570,666
MATERIAL HANDLING APPARATUS

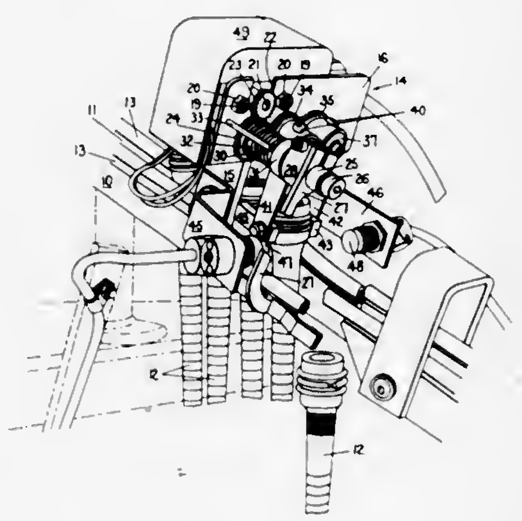
Henri A. Delcellier, Hudson, Quebec, Canada, assignor to Canadian Ingersoll-Rand Company Limited, Montreal, Quebec, Canada
Filed Oct. 7, 1968, Ser. No. 765,372
Int. Cl. B01d *23/24*
U.S. Cl. 209—74 **10 Claims**



An apparatus including a conveyor, a receiver below the conveyor, and a gate comprising at least one gate section normally preventing discharge from the conveyor to the receiver and driven longitudinally along the conveyor to permit such discharge.

3,570,667
BOBBIN SELECTOR DEVICE

Charles P. Powell, Westboro, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Aug. 25, 1969, Ser. No. 852,563
Int. Cl. B07c *3/10*
U.S. Cl. 209—74 **7 Claims**

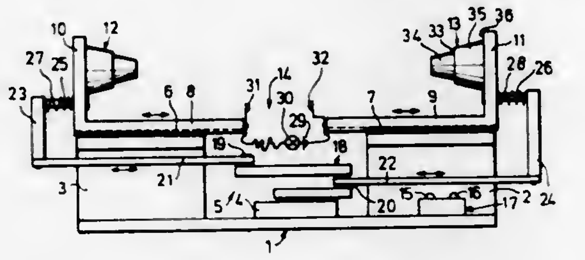


A bobbin selector device for the supporting and conveying track elements of a bobbin loading apparatus having a mechanism for detecting a bobbin not fully stripped of its yarn and for removing that bobbin from the track elements.

3,570,668
APPARATUS FOR TESTING AND CLASSIFYING BOBBINS

Hansjorg Walk, Ebersbach an der Fils, Germany, assignor to Zinser-Textilmaschinen Gesellschaft Mit Beschrankter Haftung, Ebersbach an der Fils, Germany
Filed Nov. 19, 1968, Ser. No. 777,094
Claims priority, application Germany, Nov. 21, 1967, P 16 23 344.6
Int. Cl. B07c *5/06*
U.S. Cl. 209—80 **5 Claims**

A bobbin testing or classifying apparatus wherein the bobbins are fed to a testing station at which two conical scanning members penetrate into the ends of a bobbin to determine the condition of its ends. The scanning members cause a signal generating device to produce audible, visible or otherwise detectable signals which can be observed by the person in charge and/or utilized to effect automatic segregation of satisfactory bobbins from defective bobbins and proper orientation of satisfactory bobbins for delivery to the bobbin changing mechanism of a textile machine.



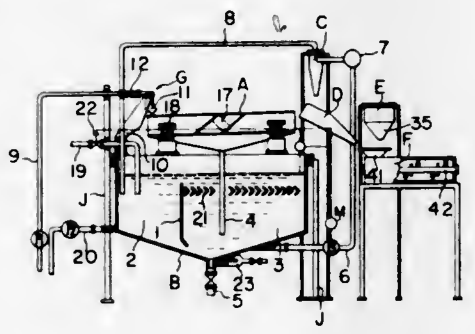
3,570,669
FILTER AID CONDITIONERS

Bernard J. Davis, Biloxi, Miss., assignor to Reichhold Chemicals, Inc.
Filed Jan. 7, 1969, Ser. No. 789,592
Int. Cl. B01d *37/02*
U.S. Cl. 210—75 **9 Claims**

This application discloses a composition comprising a mixture of an oxazoline with a filter aid and to its use in filtering apparatus. This composition facilitates the removal of suspended solids from polymers and its solutions in nonpolar solvents. The preferred oxazolines are 4,4-dihydroxymethyl or 4-monohydroxymethyl-2-alkyloxazoline, wherein the alkyl group can range from C_6 to C_{22} in length, but is preferably in the range of C_{12} to C_{16}.

3,570,670
APPARATUS FOR TREATING MUDDY WATER

Masaaki Endo, Saitama-ken; Takato Kawasaki, Kanagawa-ken; Mituo Miura, Tokyo; Yoko Ikuta, Kanagawa-ken; Mosashi Suzuki, Chiba-ken; Tateo Kawamura, Tokyo; Minoru Okazaki; Hajime Seo; Toshio Okazaki; Katsumi Tagomori; Shiro Takahashi, and Noboru Yamada, Kanagawa-ken, Japan, assignors to Kurita Water Industries Ltd. and Takenaka Komuten Co., Ltd.
Filed June 18, 1969, Ser. No. 834,312
Claims priority, application Japan, June 24, 1968, Feb. 24, 1969, 43/43382;44/13162
Int. Cl. B01d *21/26, 50/00*
U.S. Cl. 210—112 **6 Claims**

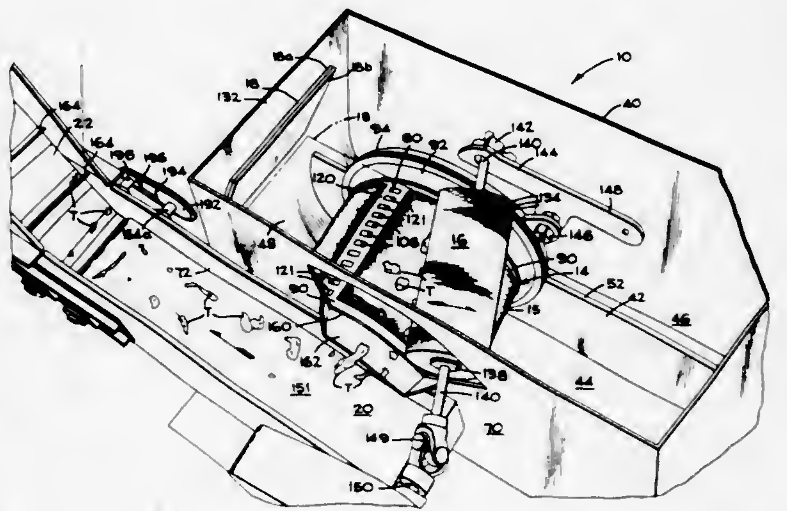


An apparatus for treating muddy water comprising a vibrating screen, a separating tank, a hydraulic cyclone, a chute for discharging solid components, a cement hopper and a mixer, all of which are incorporated to form a compact unitary system.

3,570,671
SELECTIVE COMMINUTION

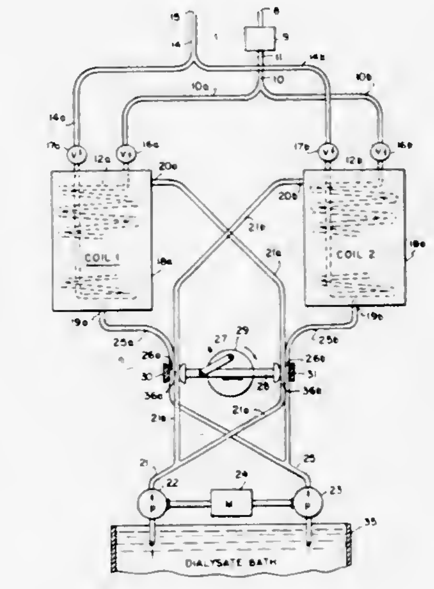
Richard N. Crandall, 17792 Lewis Lane, Huntington Beach, Calif., and Carl H. Nordell, Crystal Bay, Nev.
Filed Sept. 6, 1968, Ser. No. 757,877
Int. Cl. B01d *35/28*
U.S. Cl. 210—174 **14 Claims**

A drum screen is inserted into a raw sewage line. Rake fingers help elevate solid materials picked up by the screen from the influent and are cam retracted to leave them on the periphery of the screen. A hinged presser plate holds soft, organic material against the screen to be comminuted and carried away with the effluent and into the disposal system. A scavenger roller made up of flexible discs rotates against the screen for cleaning off pieces of paper, etc., that remain on the surface of the screen, for disposal as trash.



3,570,672
ARTIFICIAL KIDNEY

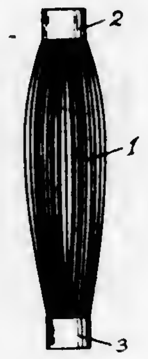
Bert Bach, 270 West End Ave., New York, N.Y.
Filed Aug. 28, 1969, Ser. No. 853,684
Int. Cl. B01d *31/00, 13/00*
U.S. Cl. 210—110 **7 Claims**



An artificial kidney is adapted to circulate a patient's blood, outside of his body, through a membrane container. Inside of a fluidtight container, the exterior wall of the membrane is washed with a circulating washing liquid. A timing device and a pressure mechanism alternately raise and lower the pressure of the washing liquid within the fluidtight container. A plurality of one-way valves, in series with the membrane container, cooperate with the pressure changes on the membrane and effect a pumping action on the blood.

3,570,673
SEPARATION COLUMN FOR LIQUID CHROMATOGRAPHY

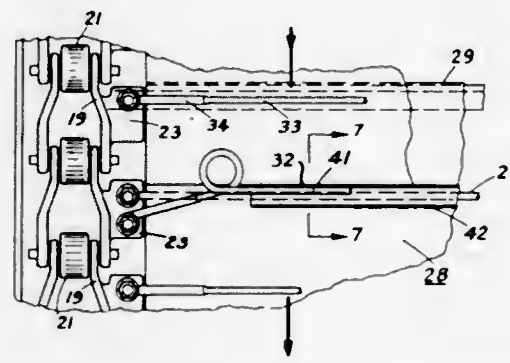
Hubert Dutz, Mainz-Gonsenheim; Hans-Otto Mulfinger, Mainz-Mombach, and Johann Friedrich Pfrommer, Kelkheim, Germany, assignors to Jenaer Glaswerk Schott & Gen, Mainz, Germany
Filed Sept. 4, 1969, Ser. No. 855,192
Claims priority, application Germany, Sept. 7, 1968, P 17 98 208.0
Int. Cl. B01d *15/08*
U.S. Cl. 210—198 **4 Claims**



A separation column for liquid chromatography is constructed by taking a bundle of parallel inorganic chemical fibers produced from glass which serves as a liquid stationary phase and surrounding it by a sleeve of chemically resistant material which is shrunk on said bundles of fibers. After a heat treatment a phase separation takes place and then the soluble phase is eliminated by a leaching and washing procedure so that a porous glass remains.

3,570,674
LIQUID FILTER APPARATUS

Francis E. Dahlem, Louisville, Ky., assignor to American Air Filter Company, Inc., Jefferson County, Ky.
Filed Oct. 14, 1969, Ser. No. 866,229
Int. Cl. B01d *33/04*
U.S. Cl. 210—400 **4 Claims**

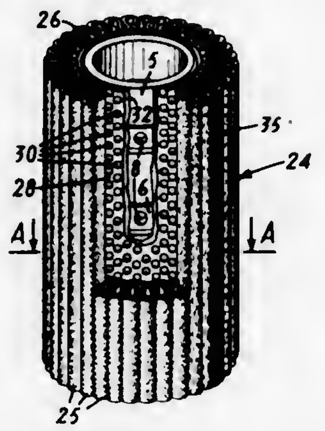


A liquid filter assembly disposable in a liquid tank comprising an endless filter screen mounted by support members on a conveyor belt means, the endless filter screen being provided with an overlap expansion arrangement to permit expansion of the filter screen with expansion of the conveyor belt means, the expansion arrangement having tensioning and restraining means mounted to the conveyor belt means and cooperating therewith to restrain the free portion of the filter screen means from falling off its support members.

3,570,675
BACK PRESSURE RESISTANT FILTER ELEMENT

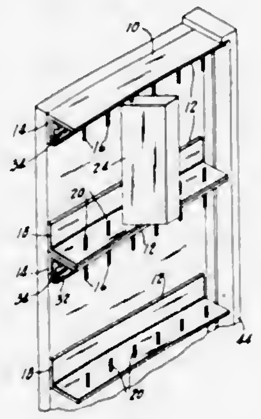
David B. Pall, Roslyn Estates, and Tadas K. Jasaitis, Great Neck, N.Y., assignors to Pall Corporation, Glen Cove, N.Y.
Continuation-in-part of application Ser. No. 544,788, June 2, 1966, now abandoned. This application Jan. 5, 1967, Ser. No. 607,478
Int. Cl. B01d *27/06*
U.S. Cl. 210—457 **18 Claims**

A corrugated cylindrical filter element is disposed about a central core. A perforated plastic bonding sheet is disposed between the core and the filter. The bonding sheet is bonded in situ to the inner tips of the corrugations only.



3,570,676
THEFTPROOF MERCHANDISE DISPLAY

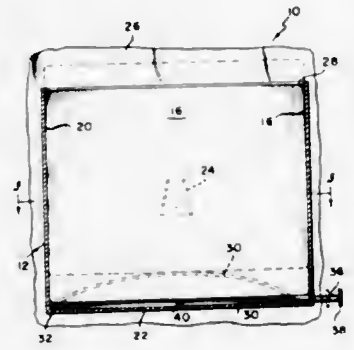
Louis John Crosslen, Grafton, Wis., assignor to Frank Mayer & Associates, Inc., Grafton, Wis.
Filed June 2, 1969, Ser. No. 829,202
Int. Cl. E05b *73/00*
U.S. Cl. 211—4 **8 Claims**



A display device having at least one pair of support members provided with cooperable merchandise receiving and display spindle elements and means movable relative to said support members and the spindle elements thereof and adapted to lock merchandise received thereby to prevent unauthorized removal thereof from the spindles while being readily releasable for removal of the displayed merchandise by authorized personnel.

3,570,677
BOOK HOLDER

Warren T. George, 1611 Clark Ave., Billings, Mont.
Filed Jan. 7, 1969, Ser. No. 789,477
Int. Cl. A47b *65/00;* **A47f** *5/08*
U.S. Cl. 211—42 **4 Claims**



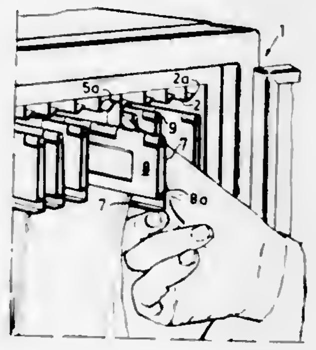
A book holder comprising a boxlike receptacle having means for mounting the receptacle on a planar surface such as a wall or the like. An opening is provided at one end of the receptacle for receiving a book. An ejector bar is positioned in the other end of the receptacle opposite the opening engaging the inserted book. An operating handle is attached to one end of the ejector bar and extends through a sidewall of the receptacle for bowing the ejector bar in the direction of said opening thereby partially ejecting the book. A book may be completely concealed within the receptacle yet it can be easily removed by operation of the ejector bar.

ERRATUM

For Class 211—43 see:
Patent No. 3,570,660

3,570,678
MEANS FOR SUSPENDING, FOR STORAGE PURPOSES, LARGE SHEETLIKE ARTICLES SUCH AS DRAWINGS AND THE LIKE IN CLOSE, ADJACENT RELATIONSHIP

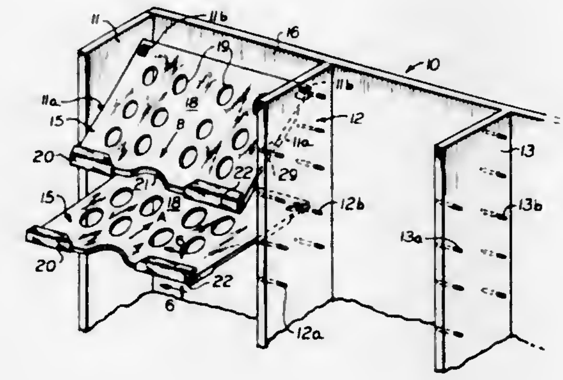
Kurt Bonnie Karl Axel Lundberg, Malarvagen 1, 140 10 Segeltorp, Sweden
Filed Jan. 13, 1969, Ser. No. 790,748
Claims priority, application Sweden, Jan. 15, 1968, 488/68
Int. Cl. A47f *7/16*
U.S. Cl. 211—46 **6 Claims**



A means for suspending, for storage purposes, large sheetlike articles such as drawings, maps or the like in adjacent relationship includes a number of parallel suspension rails having angular guide portions. Each such rail cooperates with two suspension means at least one being movable between a retracted position and a raised position, the suspension means being guided by a stirrup member on one of two clamp bars which together form a holder for the article. The holder can readily be brought to its correct storage position by the use of one hand only, the thumb of the said hand manipulating the suspension means to its raised position when displacing the holder on the corresponding rail.

3,570,679
DISPLAY SYSTEMS OR DEVICES FOR SUBSTANTIALLY FLAT ARTICLES

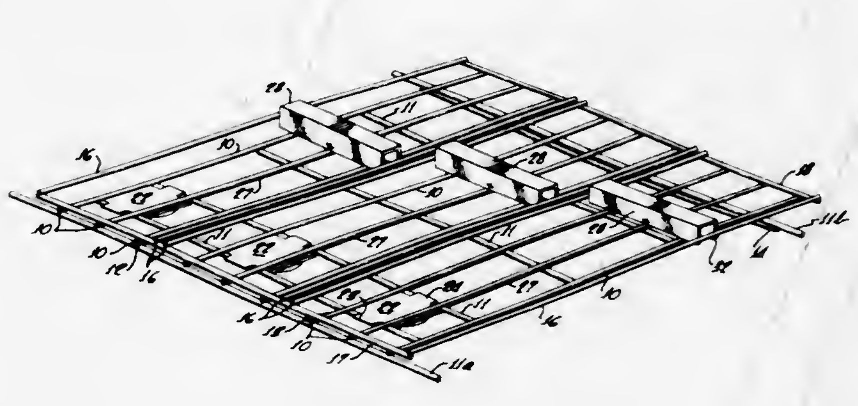
Sydney Edson, New York, N.Y., assignor to Howard Displays, Inc., New York, N.Y.
Filed Sept. 17, 1968, Ser. No. 760,336
Int. Cl. A47f *7/16, 5/10*
U.S. Cl. 211—47 **10 Claims**



The invention contemplates a novel display device or rack with supports and tray construction, which is adapted to be engaged by pegs, studs, rods and like support means forming parts of the rack. Such tray has a top face for retaining a swatch or sample of flat material, article and the like and has further an underface or bottom on which locking means in the form of fingers for retaining and pivotally coupling the tray in the rack are accommodated. The tray is first "-pushed" into the rack for location and then "pulled" into locking or snap position, in which each finger attached to the rear or end wall of the tray comes to embrace a correspondingly shaped rearward support for firm location thereon and for pivotal movement thereabout. The forward support may determine the tray inclination or angle assumed between rearward supports and forward supports in the rack.

3,570,680
FRAMELESS SHELF AND FEEDING APPARATUS FOR BEVERAGE REFRIGERATORS

John Klassen, Midway City, and Ora Lee Miner, Santa Ana, Calif., assignors to said Ora L. Miner, assignor to said John Klassen, Midway City, Calif.
Filed Mar. 17, 1969, Ser. No. 807,674
Int. Cl. A47f *7/00*
U.S. Cl. 211—49 **13 Claims**

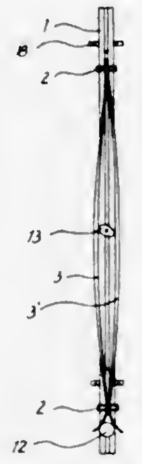


A shelf or rack for mounting horizontally in a refrigerator in order to store and feed beer, soft drinks, wine, milk and other beverages and foods in containers, and which is formed by the combination of a lattice and a grating. The shelf or rack is characterized by the absence of a perimeter frame, and by the presence of rods which are connected in truss relationship, the result being that the frame is strong and lightweight and may be readily cut down in size in order to fit the requirements of various refrigerator installations. Spring-reel devices are provided and connected to cords in order to effect forward feeding of the containers, such spring reels being mounted on the shelf in the absence of any welded connections. Actuating means provided at the ends of the cords are adapted to effect automatic lubrication of the slide portions of the shelves, and also to wipe such slide portions in order to remove moisture therefrom.

3,570,681
RACK FOR THE STORAGE OF SKIS IN PAIRS

Alfred Nikolaus Kinshofer, Albert-Schweitzer-Strasse 4, 816 Miesbach, Germany
Filed Feb. 10, 1969, Ser. No. 797,768
Claims priority, application Germany, Feb. 9, 1968, P 16 78 268.6
Int. Cl. A47f *7/00*
U.S. Cl. 211—60 **10 Claims**

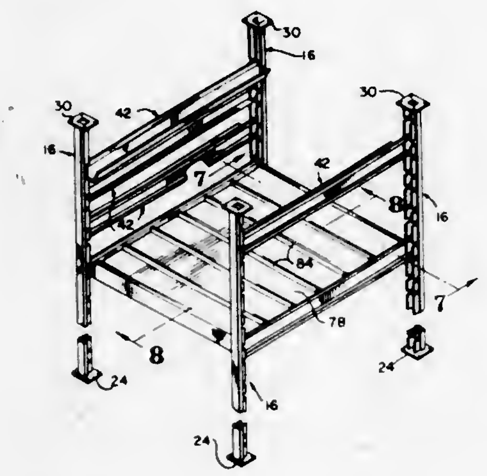
Apparatus for the storage of skis in pairs, comprising a support rail and clamping assemblies mounted on the support rail to enable distortion-free clamping of the skis at their points of contact near their tips and ends when placed together in a sole-to-sole relationship. Each of the clamping assemblies comprises a movable slide having clamping arms connected thereto in a substantially perpendicular direction from the support rail with the clamping arms supporting rocking arms having wheels at each end. The wheels are pressed onto the surface of the skis when the skis are clamped in the desired position.



3,570,682

RACK AND SHELVING SYSTEM

Michael M. Elliott, Indianapolis, Ind., assignor to Elliott-Williams Company, Inc., Indianapolis, Ind.
Filed July 7, 1969, Ser. No. 839,373
Int. Cl. A47f *3/14*
U.S. Cl. 211—126 **9 Claims**



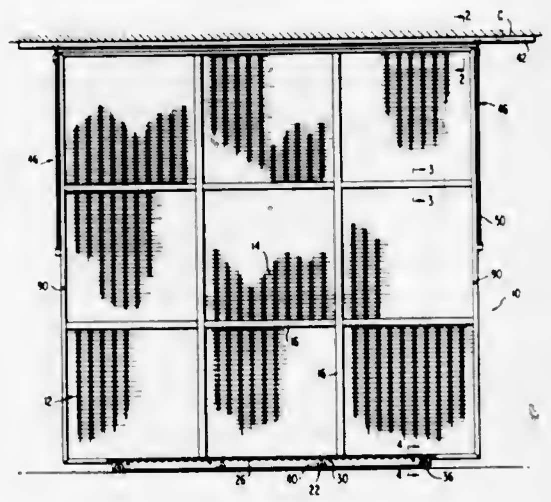
A rack system for receiving and supporting items such as trays, pans, shelves, and the like comprising at least two pairs of vertically extending standards and a plurality of guide members extending between and connected to each pair of standards. Each end of each guide member is formed to provide upper and lower hook portions which engage, respectively, vertically spaced apart notches in a flange of the standard to which the end is connected. Each standard is preferably provided with a base plate so that it can be rigidly fastened to a floor. The upper end of each standard is preferably connected to a ceiling by means of a connector plate. Each standard is preferably a channel member, both flanges of which are provided with notches arranged to engage the said hook portions of a guide member.

3,570,683

MOVABLE SCREEN ASSEMBLY

Robert C. Dickgiesser, Woodland Drive, Woodbridge, Conn., and Edward L. Schulz, 274 Ridgefield Road, Wilton, Conn.
Filed Jan. 28, 1969, Ser. No. 794,630
Int. Cl. A47f *5/00*
U.S. Cl. 211—162 **9 Claims**

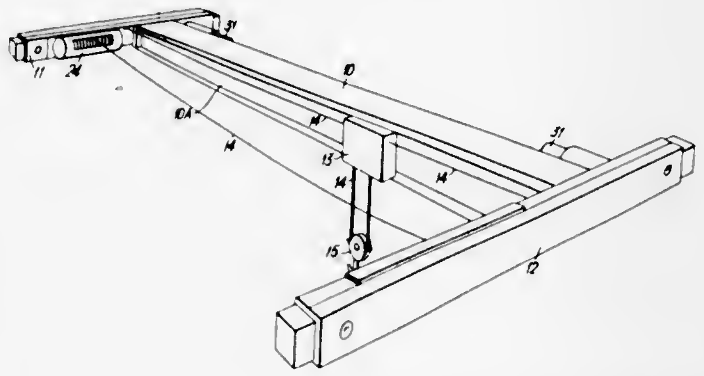
A movable support panel assembly for hanging and supporting articles is of modular construction provided by a number of modules within an outer rectangular frame. Each module has a panel for supporting the articles, and the outer frame has roller supports at the bottom for moving the assembly on the floor and guides at the side edges for extending into stationary overhead tracks. The guides may be retracted so that the assembly may be moved to positions which are not under the track. For such movements an outrigger transporter assembly is attached to each end of the screen.



3,570,684

OVERHEAD CRANES

William Graham Cowan, Glasgow, England, assignor to J. H. Carruthers & Company Limited, Glasgow, England
Filed July 29, 1968, Ser. No. 748,401
Claims priority, application Great Britain, Aug. 9, 1967, Dec. 22, 1967, 36,481/67;58,851/67
Int. Cl. B66c *17/00*
U.S. Cl. 212—20 **1 Claim**



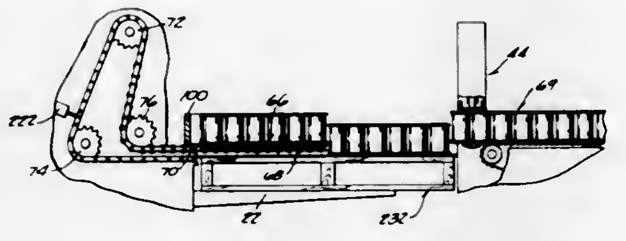
This invention relates to an overhead crane of the kind comprising a transverse overhead beam, a pair of carriages supporting the ends of the beam so as to form with the beam a longitudinally movable structure.

3,570,685

APPARATUS FOR LOADING CANS ON A PALLET

Kenneth G. Carlson, 11350 North Valley Drive 18 W., Mequon, Wis.
Filed Apr. 18, 1969, Ser. No. 817,529
Int. Cl. B65g *57/10*
U.S. Cl. 214—6 **12 Claims**

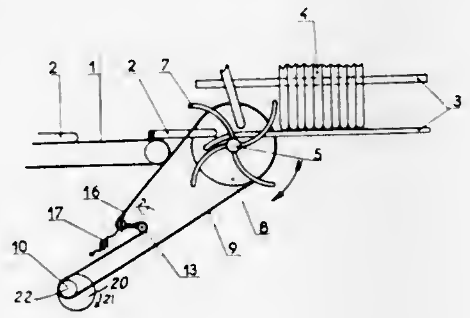
Disclosed herein is apparatus and a method for forming a rectangular pattern of quantities of cylindrical containers of various sizes and depositing the patterned containers on a pallet and includes a transport conveyor, a retractable apron at the forward end of the conveyor for receiving and depositing patterned containers onto a pallet carried by a fork lift, a horizontally reciprocal gate which is movable over the apron and over the forward end of the conveyor, and which carries a pattern forming element. The apparatus is also provided with a vertically reciprocal clamping bar and includes adjustable side rails along the edges of the conveyor which cooperate with the pattern forming element to form a predetermined pattern of containers on the conveyor. The horizontal gate is also used to sweep layers of cans from filled pallets onto the conveyor when the apparatus is used for depalletizing.



3,570,686

APPARATUS FOR ARRANGING PUBLICATIONS IN GROUPS

Robert Moll, 9 bis Vidollet, Geneva, Switzerland
Filed Mar. 17, 1969, Ser. No. 807,504
Claims priority, application Switzerland, Mar. 21, 1968, 4414/68
Int. Cl. B65g *57/08*
U.S. Cl. 214—7 **2 Claims**

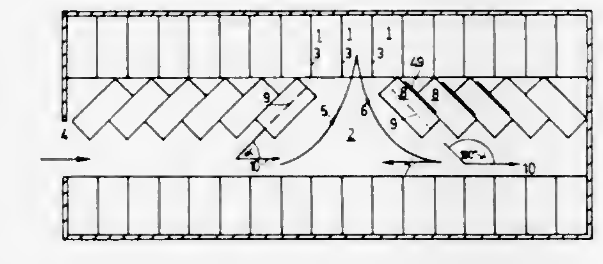


Publications are spaced on a continuous horizontal belt conveyor and are lifted from the belt conveyor and turned at right angles into a chute where the publications are grouped. A rotary element having radially and angularly spaced fingers moves the publications from the horizontal conveyor to the chute. The speed of rotation of the rotary element is regularly increased and decreased to allow more time for the publications to enter the spaces between the fingers without increasing the total time of the operational cycle.

3,570,687

VEHICLE GARAGE WITH SHIFTABLE AND PIVOTAL PLATFORMS

Sergej D. Toedtli, 42 Attenhoferstrasse, 8032 Zurich, Switzerland
Filed Apr. 22, 1968, Ser. No. 722,877
Claims priority, application Switzerland, May 17, 1967, Aug. 18, 1967, 6958/67;11649/67
Int. Cl. E04h *6/06*
U.S. Cl. 214—16.1 **11 Claims**

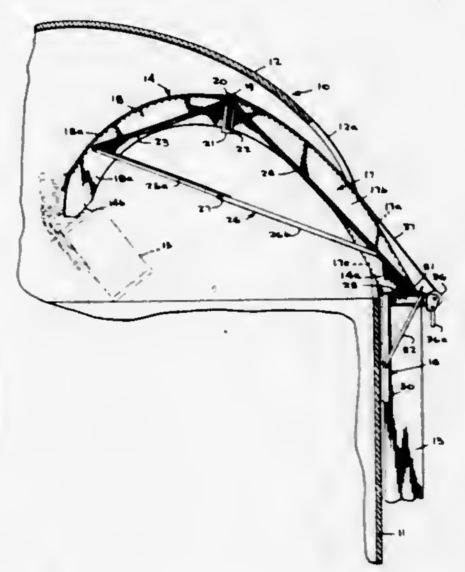


The individual parking platforms of a row thereof, located between a vehicle thoroughfare and a row of parking spaces, can be shifted and pivoted automatically to free ingress to, and egress from, any parking space, or to enable the driver to drive easily onto, or off of, a platform.

3,570,688

GOOSENECK STRUCTURE FOR SILO DISTRIBUTORS

William L. Ryder, and Benjamin H. Roach, Chambersburg, Pa., assignors to said Benjamin A. Roach assignor to Ryder Supply Company, Chambersburg, Pa.
Filed May 23, 1969, Ser. No. 827,399
Int. Cl. B65g *65/32, 51/18*
U.S. Cl. 214—17 **16 Claims**

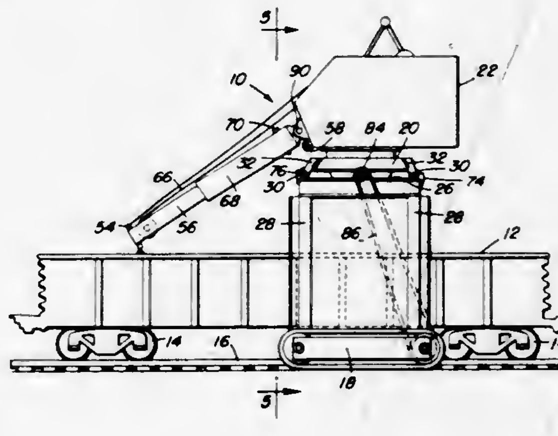


A gooseneck fill duct assembly wherein a gooseneck fill duct of hinged sections is removably supported by a framework structure adjacent the upper margin of a silo wall, including a decouplable hinge connection. The duct sections are hinged adjacent the bottom of the duct so that the discharge end portion of the duct can swing downwardly from normal position adjacent the center axis of the silo to a retracted position.

3,570,689

STRADDLE-LEGGED GONDOLA CAR UNLOADER

Jay S. Eaton, P.O. Box 15195, West Palm Beach, Fla.
Filed Mar. 6, 1969, Ser. No. 804,803
Int. Cl. B65g *67/24*
U.S. Cl. 214—44 **16 Claims**

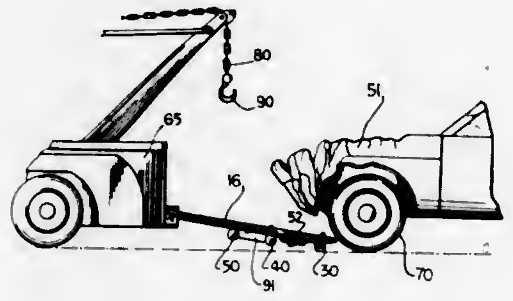


This invention is a straddle-legged gondola car unloader that is a temporarily converted shovel or ladder-type ditcher, or a railway wheeled ditcher, wherein the upper portion is detached from its crawler or wheelbase and then the wheels or crawlers are spread apart to a distance greater than the width of a gondola car, and then stanchions and a platform are provided on the base at a height greater than that of the gondola car, also a ramp is temporarily connected to the elevated platform enabling the upper portion to climb up on the platform and be again operatively connected to the crawlers or rail wheels. When rail wheels are on the base, a track is provided on each side of the gondola car location. This structure enables a gondola car unloader to be temporarily set up at any desired location for as short or long as desired, then it may be easily removed, and reconverted to its original purpose.

3,570,690

LIFTING AND TOWING APPARATUS

Edward F. Wegener, and Thure H. Wegener, River Road, Cranbury South, N.J.
Continuation-in-part of application Ser. No. 609,939, Jan. 17, 1967, now abandoned. This application Mar. 12, 1969, Ser. No. 826,736
Int. Cl. B60p *3/12*
U.S. Cl. 214—86 **16 Claims**

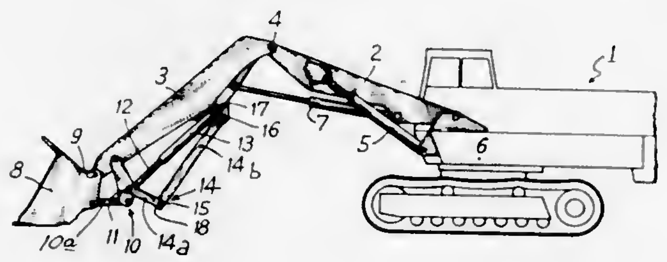


The tow bar of the invention comprises a rigid combination of bars adapted to be placed in front of a wreck whose wheels are pulled onto the bars by a cable attached to the wreck and guided along the bars. The tow bar and the wheels of the wreck are then raised, and the wreck can then be towed on its other two wheels which remain on the ground.

3,570,691

PROTECTION DEVICE FOR A CONTROL RAM

Gabriel L. Guinot, Le Plessis Belleville, France, assignor to Societe Anonyme Poclain, Belleville, France
Filed Jan. 21, 1969, Ser. No. 792,253
Claims priority, application France, Jan. 26, 1968, 137,578
Int. Cl. E02f *3/74*
U.S. Cl. 214—138 **4 Claims**



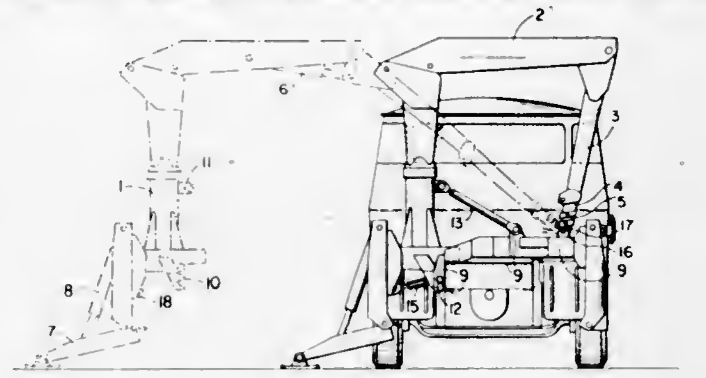
The invention consist in providing on the jib of a mechanical earthworking vehicle pivoted bar means for protecting the ram for operating the jib, or a ram operating an implement such as a bucket or scoop mounted on the jib, the pivoted bar means being so arranged that said ram is located between said bar means and the jib.

3,570,692

METHOD FOR CONNECTING AND DISCONNECTING A CRANE WITH A TRUCK

Jan Oddvard Andersen, Buoy, Stavanger; Inge Bru, Stavanger, and Olav Sirevaag, Eikenbert, Stavanger, Norway, assignors to A/S Seseam, Jattavagen, Stavanger, Norway
Filed Apr. 4, 1969, Ser. No. 827,439
Int. Cl. B66c *23/06*
U.S. Cl. 214—152 **3 Claims**

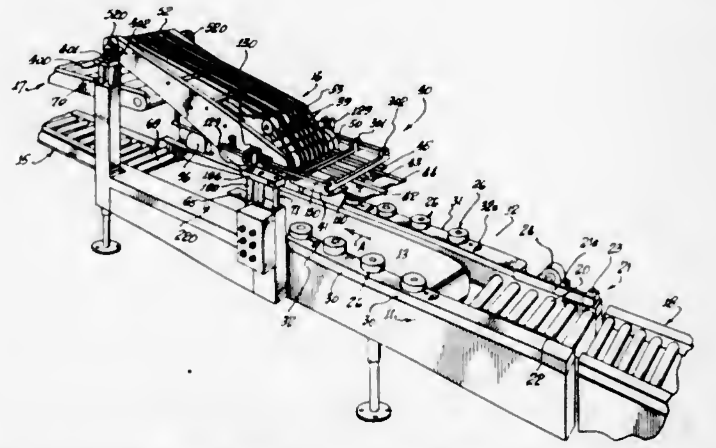
A method for coupling and uncoupling a hydraulically operated lifting crane to and from a truck by connecting the crane boom to a fixed point and moving the crane horizontally and/or vertically in a direction toward or away from the truck, thereby causing cooperating coupling means carried on the crane and the truck, respectively, to engage or disengage.



3,570,693

CASE UNLOADING MACHINE

John J. Peyton, Santa Barbara, Calif., assignor to Industrial Automation Corporation, Santa Barbara, Calif.
Filed Apr. 18, 1969, Ser. No. 817,465
Int. Cl. B65b *21/18*
U.S. Cl. 214—309 **14 Claims**

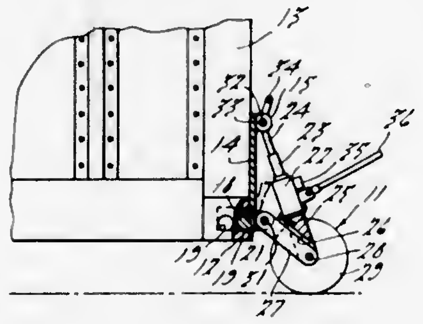


An automatic bottle from case unloading machine employing a plow-like member which directs the bottles within a case passing under the plow to be directed into predetermined paths coincident with the pluralities of belt pairs which serve to grip and remove the bottles from the cases. The cases are driven on a conveyor belt beneath a head which includes the plow and belt pairs. A synchronized head lifting construction permits rapid clearing in the event of a jam and also enables quick belt change when a belt breaks.

3,570,694

SEPARABLE WHEEL UNITS FOR VEHICLIZING CONTAINER

Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich.
Filed Nov. 26, 1968, Ser. No. 779,085
Int. Cl. B60p *1/64*
U.S. Cl. 214—390 **5 Claims**

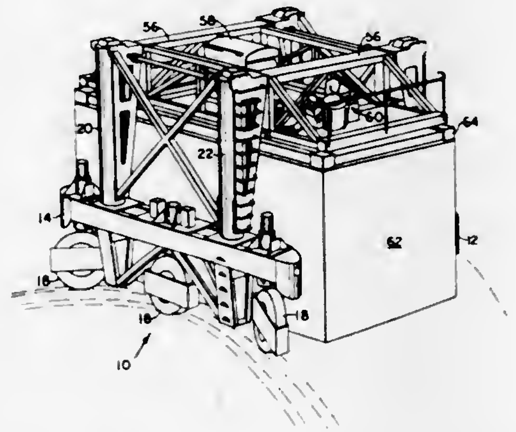


The wheel units are releasably attached to the bottom corner sockets of a shipping container which raises the container on the wheels of the units when a hydraulic ram on the unit is extended.

3,570,695

VEHICLE FOR CARRYING AND STACKING CONTAINERS

William H. Schwartz, 260 Summit Drive, Corte Madera, Calif.; John B. Shaw, 1812 E. Marlette, Phoenix, Ariz., and Graham Slater, 500 Pine St, Sausalito, Calif.
Filed Jan. 21, 1969, Ser. No. 792,523
Int. Cl. B66c *5/02*
U.S. Cl. 214—394 **7 Claims**

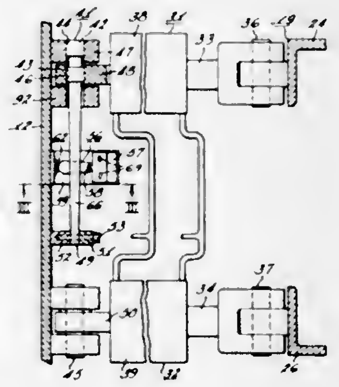


A vehicle having a main frame of inverted substantially U-shaped configuration adapted to straddle a container, legs which are extendable and retractable, and a lifting frame which moves generally along with the extension and retraction of the legs. The container may be locked to the lifting frame when the legs are retracted, and may be lifted to a height at least as great as the height of another container on the ground when the legs are extended, so that one container may be stacked on another.

3,570,696

OVERLOAD DEVICE FOR LIFT TRUCK

Samuel T. Comfort, Homewood, and Thomas J. Finlayson, Forest Park, Ill., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Aug. 11, 1969, Ser. No. 848,825
Int. Cl. B66f *9/20*
U.S. Cl. 214—673 **10 Claims**

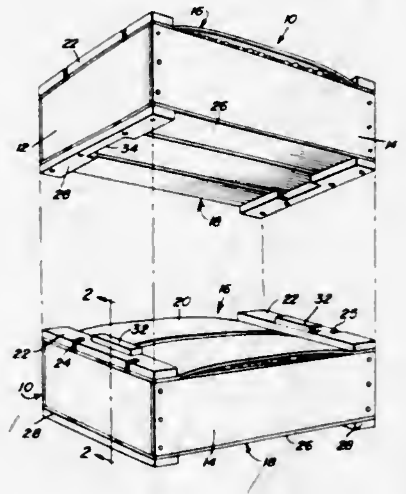


A tilt ram connecting pin is elongated in one axial direction so that a small deflection of the pin at its connection with the tilt ram will produce a much larger deflection of the pin at a point on the elongated part remote from such connection. A motion multiplying lever contacts the pin at such point and operates a switch which operates a warning signal device such as a warning light and/or prevents operation of the lift truck while unsafe or prevents movement of the load or mast in a manner that would make operation of the truck less safe.

3,570,697

INTERLOCKING LUG CONSTRUCTION

Everett E. Langston, 2932 Elmwood Ave., Bakersfield, Calif.
Filed May 15, 1969, Ser. No. 824,924
Int. Cl. B65d *21/00*
U.S. Cl. 217—42 **2 Claims**

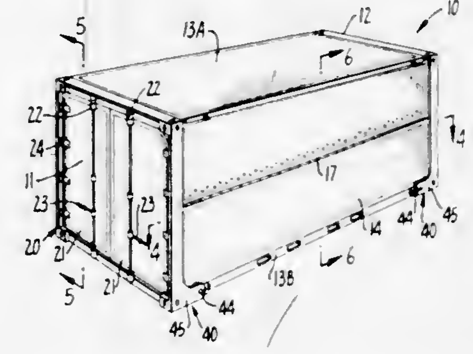


A packing crate or lug of the type particularly adapted for the boxing of grapes and similar foodstuffs. The lug differs from a substantially conventional lug in that it specifically includes elongated upwardly projecting locking members affixed to the top cleats and receivable within corresponding recesses defined in the bottom cleats of superimposed lugs. The members and recesses are so orientated as to preclude a shifting of the lugs both longitudinally and transversely of each other.

3,570,698

PORTABLE AND COLLAPSIBLE SHIPPING CONTAINER

Robert S. Dougherty, P.O. Box 68, Ross, Calif.
Filed Dec. 9, 1968, Ser. No. 782,060
Int. Cl. B65d *7/24;* **B65j** *1/02*
U.S. Cl. 220—1.5 **3 Claims**



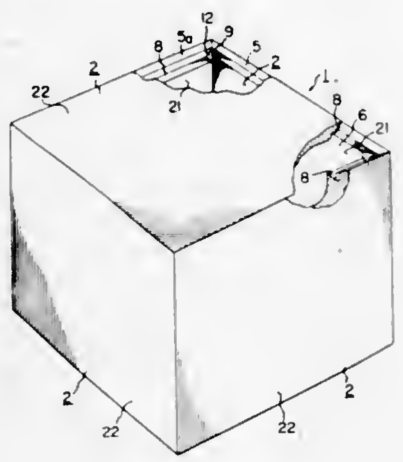
A collapsible rectangular shipping container having two opposed horizontally-hinged sidewalls which can be collapsed or folded inwardly and downwardly to allow the top and bottom walls to sandwich together and having folding ends which fold over to cover the collapsed structure.

3,570,699

KNOCKDOWN CONTAINER

Heikichi Kobayashi, Shimizu-shi, Japan, assignor to Sanei Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 18, 1969, Ser. No. 850,904
Claims priority, application Japan, Aug. 28, 1968, 43/73563
Int. Cl. B65d *11/18, 11/16*
U.S. Cl. 220—4 **6 Claims**

A knockdown container of cubic shape is assembled from six interchangeable square panels each having two opposite side edges of a first kind and two opposite edges of a second kind each of which can be fitted against an edge of the first kind to form a rebated mitred joint. Corner projections are provided at the four corners of each panel and function to fill



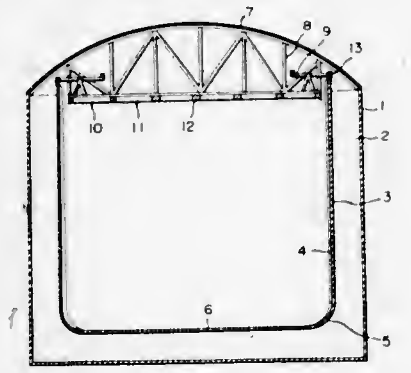
completely a void space which would otherwise be formed at the eight corners of the assembled container.

ERRATUM

For Class 220—5 see:
Patent No. 3,571,533

3,570,700
LOW TEMPERATURE LIQUEFIED GAS STORAGE TANK

Katsuro Yamamoto, Tokyo; Kuniyoshi Obata, Kawasaki, and Shinji Nakagawa, Kasukabe, Japan, assignors to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan
Filed Nov. 20, 1968, Ser. No. 777,338
Int. Cl. B65d *7/22*
U.S. Cl. 220—10 **5 Claims**

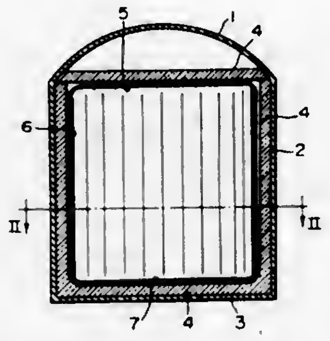


A low-temperature liquefied gas storage tank comprising an outer tank made of rigid metals and an inner tank having a thin film construction. The inner tank is provided at its upstanding peripheral inside surface with vertically extending corrugations and includes means for suspending its upper peripheral edge so as to permit contraction and expansion of the inner tank when it is subjected to a liquid load or exposed to a low temperature. The inner tank prevents undesirable cracking and damage thereof and can store the low-temperature liquefied gas in a safe manner.

3,570,701
TANK FOR USE IN STORING LOW TEMPERATURE LIQUEFIED GAS

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan
Filed Dec. 3, 1968, Ser. No. 780,717
Int. Cl. B65d *7/22*
U.S. Cl. 220—10 **3 Claims**

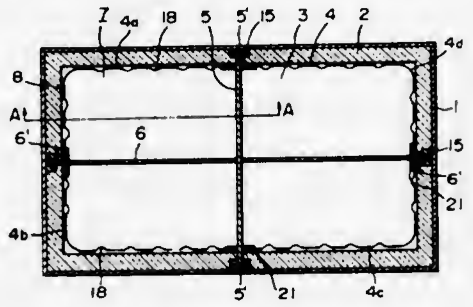
A tank for use in storing low temperature liquefied gas having a rigid outer vessel lined with a heat insulating layer and an inner vessel of a thin film construction with gently undulated camber. The peripheral dimensions of the material of the inner vessel are made relatively larger than those of the inner peripheral dimensions of the insulating layer of the



outer vessel. The camber serves to relieve the hoop stress acting upon the inner vessel when it is subjected to the load resulting from the low temperature liquefied gas.

3,570,702
TANKS FOR USE IN STORING LOW TEMPERATURE LIQUEFIED GAS

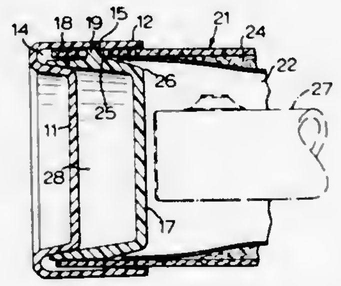
Katsuro Yamaoto, Tokyo, Japan, assignor to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan
Filed Dec. 3, 1968, Ser. No. 780,649
Claims priority, application Japan, Dec. 26, 1967, 42/82933
Int. Cl. B65d *25/00*
U.S. Cl. 220—16 **1 Claim**



Tank for use in storing low temperature liquefied gas comprising a rigid outer vessel, a thin film inner vessel with rigid partition walls, and a heat insulating layer inserted between these two vessels. Each of the partition walls extends through the inner vessel and is slidably supported by the outer vessel to permit expansion and contraction of the partition walls. The thin film inner vessel walls are secured to the partition walls at points near where the partition walls pass into the heat insulating layer to form a closed vessel having a large capacity.

3,570,703
GUN CASE PROTECTIVE CLOSURE DEVICE

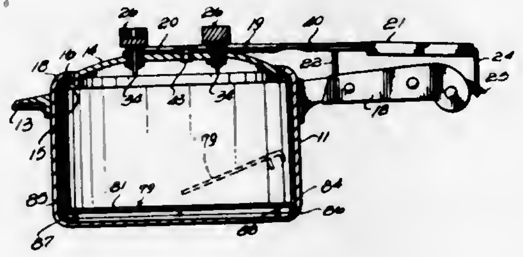
James Alexander MacRae, Toronto, Ontario, Canada, assignor to Edwards-Day Limited, Toronto, Ontario, Canada
Filed Sept. 17, 1969, Ser. No. 858,616
Int. Cl. B65d *51/18, 43/0*
U.S. Cl. 220—29 **8 Claims**



A protective closure device for fitting to the end of a gun case, to protect the muzzle and forward sight of the gun from dirt and impacts, is disclosed. The device comprises a resilient plastic cap having an internal ledge, within which is received the end of the sight guard sleeve of the gun case and a resilient plug. The plug has projections which pass through holes in the sleeve and are retained behind the ledge in the cap by interference fit and engagement with the ledge. The plug presents a closed end face to the gun muzzle, and with the cap, defines an air enclosure so that impacts of the muzzle of the plug end face are absorbed without shock by the resilient cushioning effect of the interfitted plug and cap.

3,570,704
PRESSURE COOKERS

Benjamin Juan Roson, Au. R. Saenz Pena 730, Buenos Aires, Argentina
Filed July 7, 1966, Ser. No. 563,529
Int. Cl. B65d *51/16*
U.S. Cl. 220—44 **5 Claims**

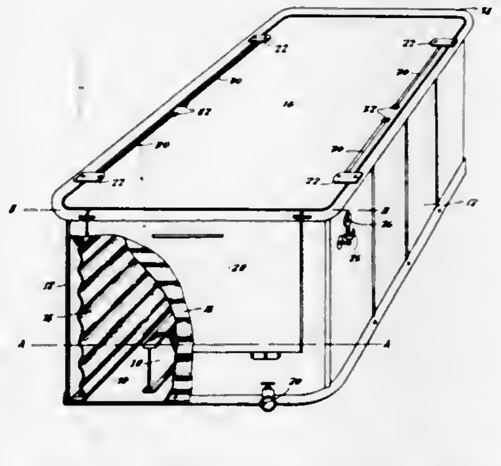


Pressure cooker with a simple and easily operable valve system which includes a stopper with an external counterweight that can be optionally lifted with a manually rotatable cam system. A two-part food carrying grid may be inserted which has means for supporting the same a certain distance from the inner bottom of the cooker.

A deformable, annular gasket is used between the lid and the inwardly turned rim of the cooker vessel, the gasket having a projection, which is in intimate sealing contact with portions of the lid and the rim, except for an outer side surface which has freedom of expansion when the gasket is deformed in its sealing position. The projection may be given different transitional engaging areas.

3,570,705
CARGO CONTAINERS

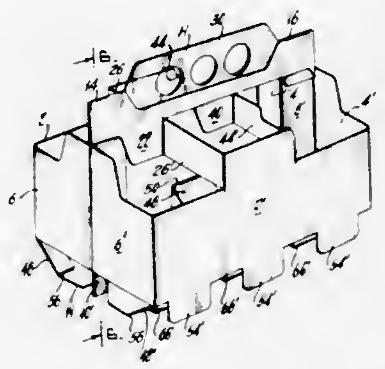
Mohamed R. Yazdani (Known as Ruholah Yazdani) Kassravi, Mount Carmel Rubber Factory Ltd. P. O. Box 1701, Dar Es Salaam, Tanzania
Filed May 14, 1968, Ser. No. 728,987
Claims priority, application Great Britain, May 17, 1967, 23,000/67
Int. Cl. B65d *25/18;* **B65p** *3/22*
U.S. Cl. 220—63 **2 Claims**



A cargo container comprises a base, a platform capable of bearing a load, guide means permitting of movement of the platform relative to the base between a lower, collapsed position and an upper, erected position, and a tank having flexible, liquid, impermeable sidewalls between the underside of the platform and the base.

3,570,706
ONE WAY BASKET

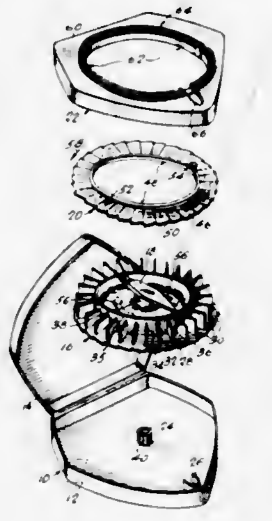
Glenn Ray Harrelson, Monroe, La., assignor to Olinkraft, Inc.
Filed May 26, 1969, Ser. No. 827,773
Int. Cl. B65d *75/00, 5/48*
U.S. Cl. 220—114 **3 Claims**



A throwaway strap-style bottle carrier formed from a unitary blank of minimal area, the carrier having a bottom wall with marginal sloping panel portions, and the sloping panel portions being provided with bottle-receiving cutouts having overlying tabs to protect that portion of the bottles which is received in the cutouts.

3,570,707
TABLET DISPENSER

Henry Finkel, Westmount, Quebec, Canada, assignor to Desbergers Limited, Montreal, Quebec, Canada
Filed Oct. 8, 1969, Ser. No. 864,681
Int. Cl. B65h *3/28*
U.S. Cl. 221—5 **11 Claims**

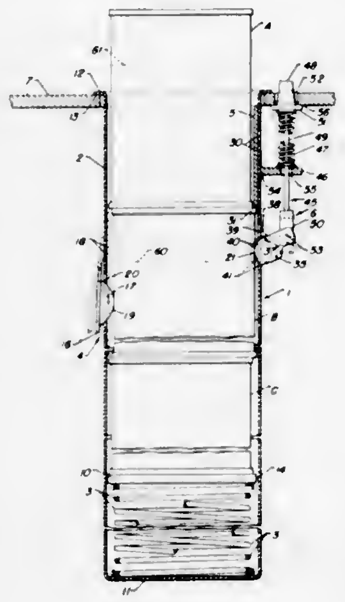


This tablet dispenser includes four elements: a case, a tablet-receiving disc with a time indicator thereon, a calendar element disposed over the disc, and a clamp element for holding the disc and the calendar element in the case. The disc and the calendar element are each provided with a ratcheted shoulder, cooperating with pawls on the clamp element, which will allow the rotation of these two elements only in a direction opposite to one another.

3,570,708
CAN DISPENSER WITH POSITIONING AND RELEASE MEANS

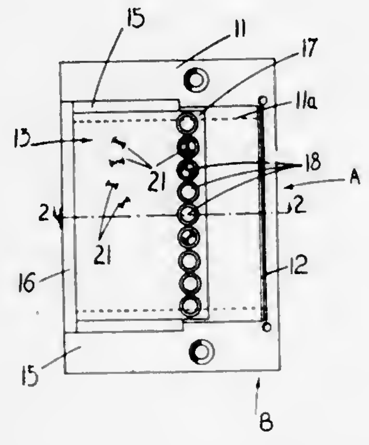
William E. Manz, Miami, and Clifford A. Maycott, Jacksonville, Fla., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed June 9, 1969, Ser. No. 831,428
Int. Cl. B65h *1/08*
U.S. Cl. 221—227 **9 Claims**

A tubular form of can dispenser having a dispensing spring that urges the cans through the open upper end of the tube, but the cans are initially prevented from passing therethrough by the coaction of a stopping means, which is a lateral surface located near the open end of the tube, and an offsetting spring. To dispense cans, a displacement means, located under the lateral surface, and basically consisting of a movable piece, is activated to move a can under and away from the lateral surface, thereby allowing it to pass through the open end of the tube.



3,570,709
DISPENSING APPARATUS

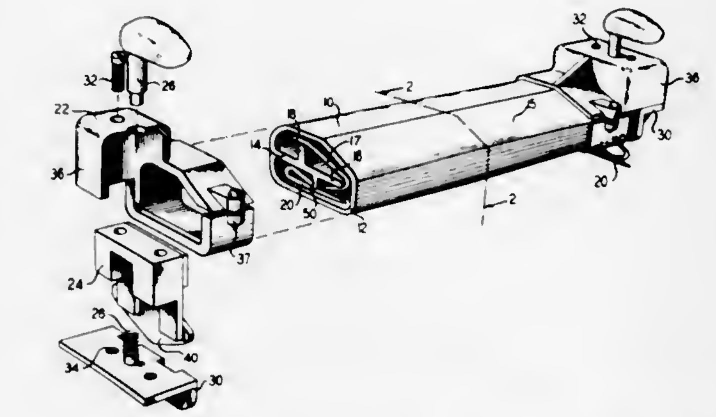
Horace Robins, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed June 24, 1969, Ser. No. 835,978
Claims priority, application Great Britain, July 15, 1968, 33621/68
Int. Cl. B23q *7/12*
U.S. Cl. 221—156 **3 Claims**



Apparatus for dispensing a predetermined number of elongated generally planar components simultaneously in a desired orientation from a hopper containing a plurality of the components orientated randomly, the apparatus including a flat base, and a hopper for receiving a plurality of randomly orientated components. The hopper is positioned above the base and includes a number of holes equal to the number of components to be dispensed in one operation. Components are dispensed through the holes onto the base, and a wiper movable longitudinally on the base towards and away from a receiving channel parallel with the wiper. Components delivered through the holes are supported by the base so as to lie in a common plane, and are engaged by the wiper during movement of the wiper towards the receiving channel so that the movement of the wiper causes the components to become aligned with one another along the edge of the wiper. The wiper delivers the components over the edge of the preceding channel so as to stand edge on, parallel with one another along the channel.

3,570,710
DRAPERY PINHOOK PACKAGING AND DISPENSING DEVICE

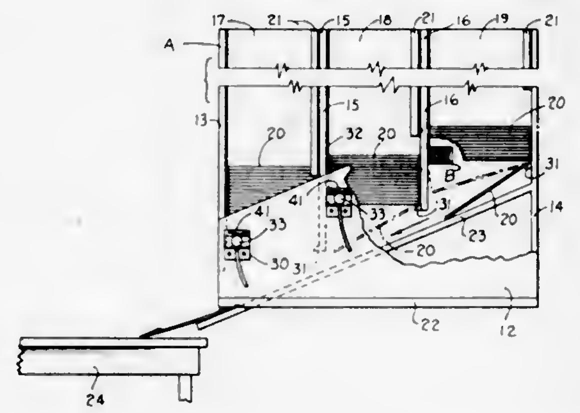
Hugo Bauer, Union County, N.J. (124 Summit Court, Westfield, NJ 07090)
Filed Dec. 8, 1969, Ser. No. 883,091
Int. Cl. B65h *3/00*
U.S. Cl. 221—255 **7 Claims**



Drapery pinhook packaging and dispensing device comprising an extruded plastic tube having an integral supporting member therein both shaped in cross section to smoothly receive a row of pinhooks therein and facilitate dispensing and/or removal thereof and adapted for right-hand and left-hand operation.

3,570,711
CARTON DISPENSING APPARATUS

Willaim O. Young, Jr., and Walter J. Quattlebaum, Spartanburg, S.C., assignors to Said Quattlebaum assignor to Young Engineering Inc., Spartanburg, S.C.
Filed Feb. 17, 1969, Ser. No. 799,587
Int. Cl. B65g *59/00;* **G07f** *11/16*
U.S. Cl. 221—295 **6 Claims**

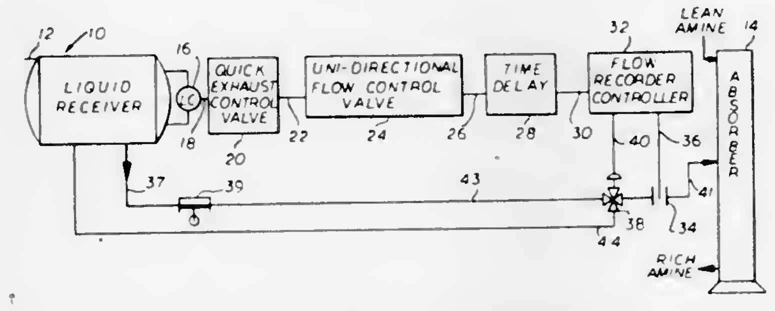


An apparatus for selectively dispensing cartons or boxes of various sizes to a working station from a plurality of stacks of boxes.

3,570,712
OPTIMUM DISCHARGE CONTROL

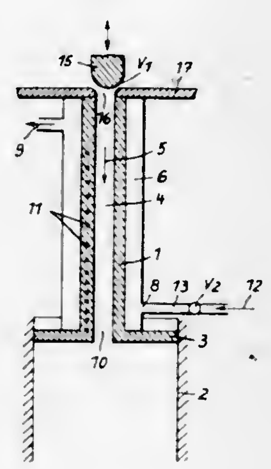
Marvin A. Remke, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Dec. 24, 1968, Ser. No. 786,702
Int. Cl. B67d *5/34*
U.S. Cl. 222—1 **12 Claims**

A liquid receiver is adapted to rapidly receive, intermittently, large volumes of liquid. Liquid in the receiver is forwarded to a zone of use or processing zone. After the receiver is full, controls regulate the flow therefrom whereby it gradually increases to a maximum rate and subsequently gradually decreases after a predetermined portion of the receiver contents has been emptied. The flow control devices provide for gradual changes in rates of flow into a zone of use and for extended periods of slow at a uniform optimum rate despite the nonuniform manner of liquid accumulation in the receiver.



3,570,713
POURING OF MELTS

Kristof Tromel, Buederich near Duesseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Duesseldorf, Germany
Continuation-in-part of application Ser. No. 532,638, Mar. 8, 1966, now abandoned. This application Apr. 14, 1969, Ser. No. 815,954
Int. Cl. B67d *5/62*
U.S. Cl. 222—1 **10 Claims**

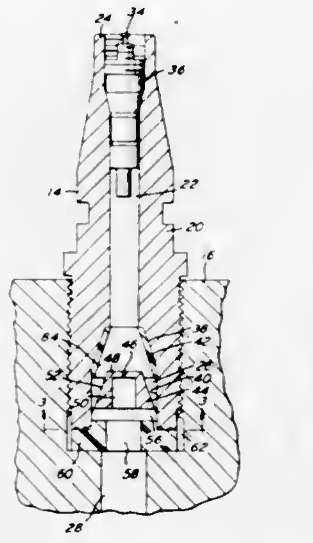


In pouring superheated metal melts from a pouring vessel into an ingot mould or a chill mould, the molten metal is passed through a teeming tube of relatively small cross-sectional area into the mould, and during this passage the whole of the superheat and part of the heat of fusion is withdrawn from the melt, and measurements of the temperature of the melt are made at certain points in the teeming tube and employed for controlling the flow of the molten metal.

3,570,714
FAST CHARGING MEDICAL OXYGEN DISPENSER

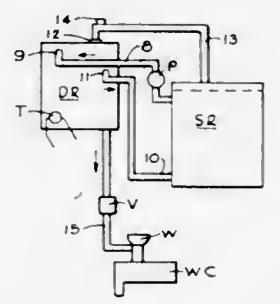
Harry D. Ferguson, 855 Cross Road, P. O. Box 142, Lederach, Pa.
Filed Apr. 29, 1969, Ser. No. 820,167
Int. Cl. B67b *7/24*
U.S. Cl. 222—3 **5 Claims**

A fast charging medical oxygen dispenser including a specially designed valve which has a fixed valve seat and a freely movable valve body. In dispensing position the valve body nests closely within the valve seat with the valve body having an extremely small dispensing opening which allows the gas to pass from a storage space and then through the valve for dispensing purposes. In fast charging condition the valve body is urged somewhat away from the valve seat with the valve body having an enlarged slot which is closed off during the dispensing action, but which is opened when the valve body is urged away from the valve seat so that gas can quickly pass through the enlarged slot and into the storage area.



3,570,715
DISPENSING SYSTEM

Anders Evers, 6300 S.W. Richey Lane, Portland, Oreg.
Filed Nov. 7, 1968, Ser. No. 774,001
Int. Cl. B67d *5/08*
U.S. Cl. 222—54 **2 Claims**

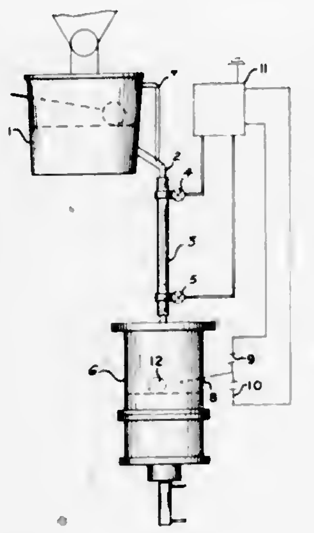


A predetermined quantity of hot liquid is supplied from a delivery reservoir to a whipper chamber to which a measured quantity of powder such as powdered chocolate is supplied by a motor driven auger. Whipping action is effected in the shipper chamber by means of a motor driven impeller and the mixed product is dispensed through a dispensing outlet into a receptacle therebelow. The receptacle is effective when placed below the dispensing outlet to initiate the operation by engagement with a pivotally mounted control bracket which when moved initiates a control action and the resultant aforementioned operation. Hot liquid in the delivery reservoir is supplied thereto by a motor driven pump controlled by the control system from a supply reservoir in which hot liquid is maintained at all times. Flow of hot liquid from the delivery reservoir into the whipper chamber is controlled by a solenoid control valve, the action of which is predetermined by a motor driven timing means.

3,570,716
FLUIDIZER AND DISPENSER

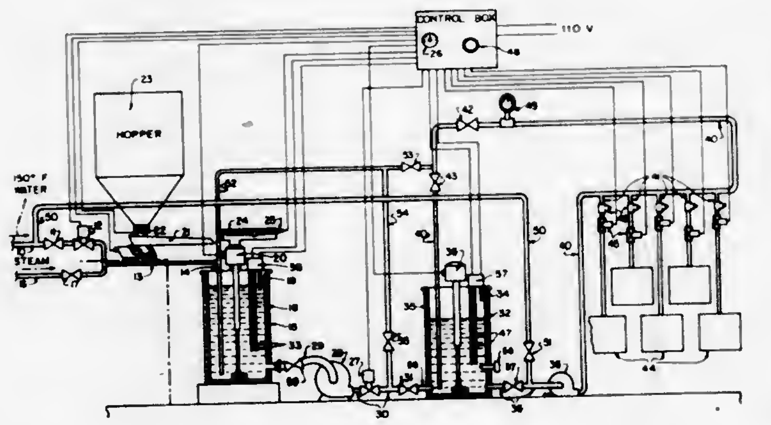
Boris J. Kirsanoff, Glenwood; Joseph J. Merle, and Robert A. Winkless, Oak Lawn, Ill., assignors to Continental Can Company, Inc., New York, NY
Filed Nov. 4, 1968, Ser. No. 772,988
Int. Cl. B65g *3/12*
U.S. Cl. 222—67 **5 Claims**

The fluidizer and dispenser has a storage container mounted above the fluidizing chamber and a valve system to meter small increments of pulverant material from the storage container to the fluidizing chamber. The fluidizing element comprises a cylinder having an air nozzle and fluidizing plate and a diffuser plate extending across its lower area to provide a fluidized bed of pulverant material in the region above the plate. Part of the fluidized bed of pulverant material is aspirated by means of the jet into a conduit through which it is conducted in air solution. Fluidized pulverant material is conducted to a nozzle and there sprayed onto a can or other surface.



3,570,717
SYSTEM FOR FLUENT MATERIAL DISPENSING WITH ELECTRICAL CONTROLS

Kenneth R. Olson, Chagrin Falls, Ohio, assignor to Stauffer Chemical Company, New York, N.Y.
Filed Jan. 8, 1969, Ser. No. 789,781
Int. Cl. B67d *5/06*
U.S. Cl. 222—76 **8 Claims**

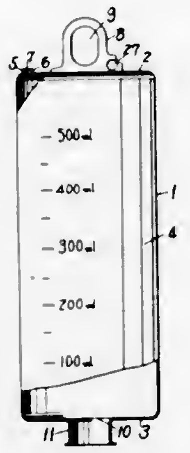


A system for automatically preparing an aqueous dispersion of difficulty-soluble, solid detergent material and delivering the dispersion to the wash wheels of automatic washing machines, comprising means for separately delivering controlled amounts of detergent and water to a mixing tank, means for transferring the detergent-water mix to a storage vessel having stirring and circulating means, and means for dispensing quantities of the mix as needed to the various washwheels.

3,570,718
CONTAINERS FOR DISPENSING PHYSIOLOGICAL SOLUTIONS

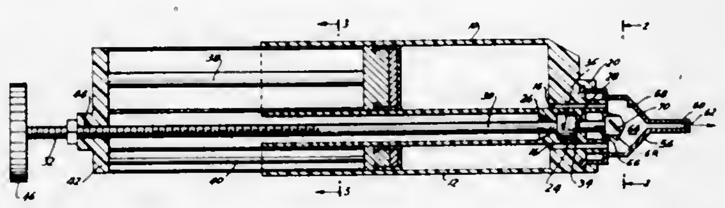
Masahito Otsuka, Tokyo-to, Japan, assignor to Otsuka Pharmaceutical Company Limited, Tokyo-to, Japan
Filed Dec. 6, 1968, Ser. No. 781,942
Claims priority, application Japan, Apr. 11, 1968, 43/24385
Int. Cl. B65d *23/10*
U.S. Cl. 222—88 **2 Claims**

A container for dispensing a physiological solution comprising a flexible ampoule member, a hanger provided on the top end wall of said ampoule member, a thin wall portion formed in said top end wall for permitting a syringe needle to pass through, said thin wall portion having a thickness of 0.2 to 0.4 mm., and a tubular projection provided in the bottom end portion of said ampoule member.



3,570,719
REAGENT MIXING AND DISPENSING APPARATUS

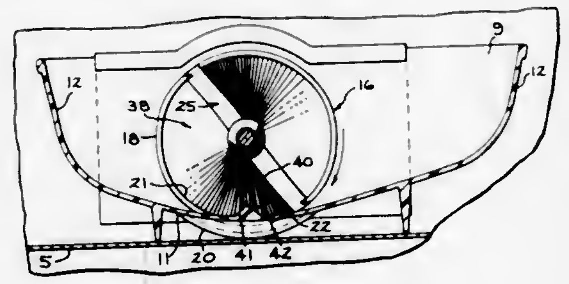
Louis Schiff, 135 St. Pauls Road North, Hempstead, N.Y.
Filed July 2, 1968, Ser. No. 752,727
Int. Cl. B67d *5/52*
U.S. Cl. 222—137 **7 Claims**



Apparatus, which can be adapted for manual operation, for accurately and thoroughly mixing together a plurality of individually stable reagents, such as the constituents of a quick setting epoxy resin, to enable the reagents to react and form a product, such as the resin, which must be dispensed rapidly before hardening, and thereafter to accurately dispense a desired quantity of the product.

3,570,720
COMBINATION STORAGE RECEPTACLE AND DISPENSER

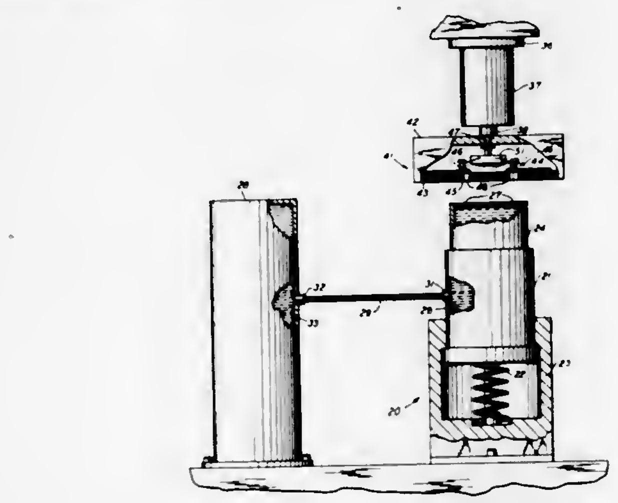
Robert W. Curry, III, Louisville, Ky., assignor to General Electric Company
Filed Aug. 6, 1969, Ser. No. 847,848
Int. Cl. G01f *11/20*
U.S. Cl. 222—240 **6 Claims**



An ice piece dispenser comprising a relatively wide and shallow receptacle having a generally concave bottom wall and a dispensing outlet in the front thereof contains an auger-type dispensing means horizontally supported in the receptacle in spaced relationship with the sidewalls of the receptacle. The dispensing means includes a feed section for dispensing ice pieces through the outlet and a conveying section spaced from the feed section for conveying ice pieces to the feed section at a rate in excess of that at which ice pieces are dispensed by the feed section so that the excess ice pieces move tangentially into adjacent portions of the receptacle and are recirculated to thereby agitate the contents of receptacle and break up any ice clumps or clusters. A single longitudinally extending step or shoulder in the bottom wall of the receptacle below the conveying section and adjacent the inlet end of the feed section is provided to deflect ice pieces moving in a tangential direction into the feed section without materially interferring with the recirculation pattern of the stored ice pieces.

3,570,721
METHOD FOR EJECTING CONTROLLABLE AMOUNTS OF LIQUID FROM A CONTAINER

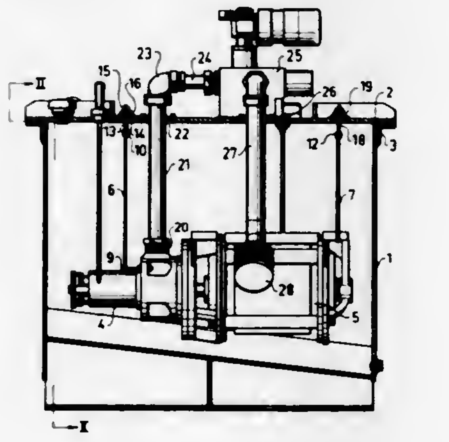
Robert H. Cushman, Princeton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed June 11, 1969, Ser. No. 832,384
Int. Cl. B65d *5/72*
U.S. Cl. 222—319 **4 Claims**



An instantaneous impact force is imparted to the outside of an otherwise closed, nondeformable chamber filled with a liquid and having an opening therein. The force generates a shock within the chamber which creates a two-cycle internal pressure that imparts motion to the liquid to cause a volume of the liquid proportional to the force to flow outwardly through the opening.

3,570,722
PUMP UNIT

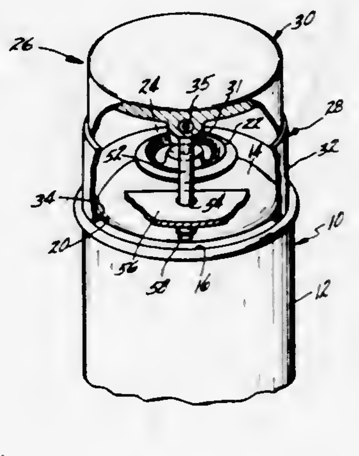
Torsten C. O. Montelius, Djursholm, Sweden, assignor to Aktiebolaget Imo-Industri, Stockholm, Sweden
Filed Apr. 23, 1969, Ser. No. 818,599
Claims priority, application Sweden, May 8, 1968, 6229/68
Int. Cl. G01f *11/00;* **B67d** *5/40*
U.S. Cl. 222—333 **4 Claims**



A pump unit for use in a tank adapted to be filled with hydraulic fluid is provided and members suspend the pump and motor assembly in the fluid tank normally below the fluid level. The suspending members connect to a cover on the tank by means of vibration dampening means.

3,570,723
ACTUATOR-CUP ASSEMBLY FOR AEROSOL CONTAINER

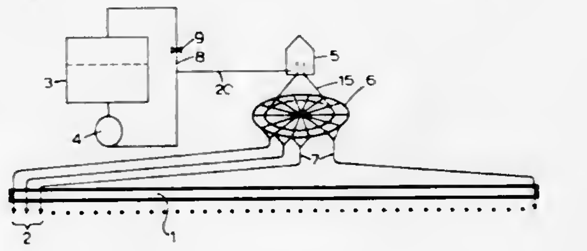
Paul M. Kotuby, Naugatuck, Conn., assignor to The Risdon Manufacturing Company, Naugatuck, Conn.
Filed Feb. 6, 1969, Ser. No. 797,147
Int. Cl. B65d *83/14*
U.S. Cl. 222—402.13 **9 Claims**



An actuator-cap assembly for a valved aerosol dispenser, comprising a cap mountable on the top of the dispenser and supporting a movable actuator button adapted to be manually depressed axially to control the discharge valve of the dispenser. Cooperable guiding members are provided on the actuator button and the cap to effect balanced axial reciprocation of said member relative to the dispenser, detent means also being provided by said guiding members to prevent accidental separation of the cap and actuation after initial assembly and before mounting on an aerosol container.

3,570,724
APPARATUS FOR DISCHARGING LIQUID FERTILIZER IN LARGE DROPS

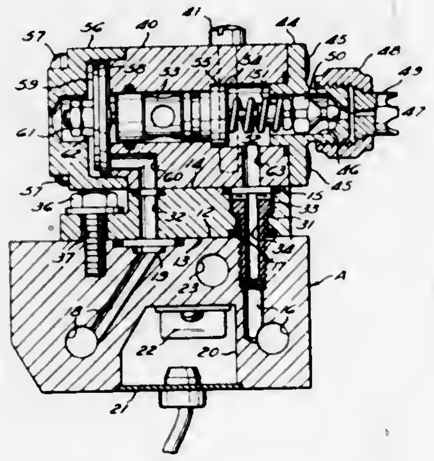
Freerk J. Fontein, Heerlen, and Martinus Ploeg, Brunssum, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
Filed July 8, 1968, Ser. No. 750,417
Claims priority, application Netherlands, July 7, 1967, June 17, 1968, 6,709,518;6,808,518
Int. Cl. B67d *3/00*
U.S. Cl. 222—478 **4 Claims**



Apparatus for discharging liquid fertilizer in the form of large drops, includes a catch vessel having in its sectoral channels bottom a plurality of drain openings through which liquid fertilizer delivered thereto from a liquid fertilizer distributor flows under gravity through drip tubes connected to the drain openings onto the ground. The distributor located centrally above the bottom of the catch vessel can be a vortex chamber or a combination of feed pipe and target plate.

3,570,725
APPLICATOR HAVING A FIXED MODULE WITH STATIC PARTS AND A REMOVABLE MODULE WITH MOVING PARTS

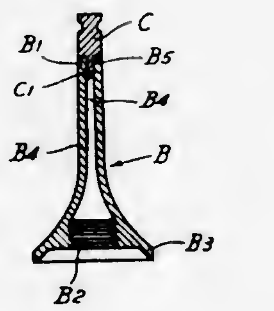
Robert G. Baker, Bay Village, and Samuel R. Rosen, Lorain, Ohio, assignors to Nordson Corporation, Amherst, Ohio
Filed Nov. 15, 1968, Ser. No. 776,177
Int. Cl. B67d *3/00*
U.S. Cl. 222—504 **10 Claims**



A fluid-operated modular apparatus for extruding and applying viscous liquids such as molten adhesives. The apparatus includes a gun in the form of a readily removable module that attaches to a fixed service block module which receives the supply lines for the viscous liquid and the operating air for example. The service block and gun have passages which register when the apparatus is assembled whereby the gun may be easily removed from the fixed service block and replaced without disconnecting any fluid lines or other service equipment.

3,570,726
DEFORMABLE TUBE WITH NOZZLE FOR EXTRUDING PASTELIKE PRODUCTS IN FLATTENED FORM

Vincenzo Pomodoro, Villaguardia, Italy, assignor to Neotis S.p.A., Villaguardia, Como, Italy
Filed May 9, 1968, Ser. No. 727,864
Claims priority, application Italy, May 16, 1967, 8752/67
Int. Cl. B65d *3/04*
U.S. Cl. 222—546 **3 Claims**

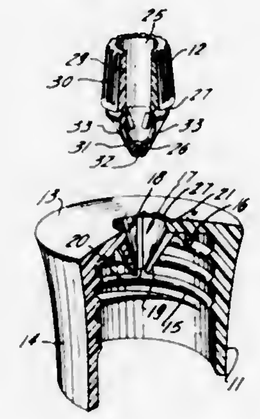


A deformable tube for extruding pastelike products in flattened form is provided with a nozzle comprising a laminating slit which can be sealed by a cap insertable under elastic constraint.

3,570,727
MOLD EJECTION ASSEMBLABLE TWO-PIECE CAP

Jack V. Croyle, Woonsocket, R.I., assignor to Dart Industries Inc., Los Angeles, Calif.
Original application Apr. 8, 1966, Ser. No. 541,202, now Patent No. 3,461,488, dated Aug. 19, 1969. Divided and this application Jan. 23, 1969, Ser. No. 833,827
Int. Cl. B65d *47/20*
U.S. Cl. 222—554 **3 Claims**

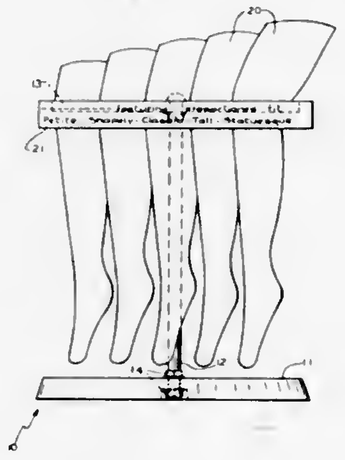
A two-piece container closure which can be opened to form a dispenser. The closure includes a fixed part and a movable part which operates with the fixed part to open and close the dispenser. The fixed part top wall is provided with an opening and a skirt member downwardly directed from the peripheral area of the opening. The skirt member includes a plurality of downwardly, inwardly directed, spaced, separate flexible flanges. The movable part includes a valve member which comprises an imperforate base and sidewalls downwardly positioned from the top wall which are inwardly directed and provided with at least one dispensing opening.



The movable part is positioned within the top wall opening for movement relative to the fixed part and so that the opening in the valve sidewalls will register with the spaces between the flanges in the dispensing position. The flanges are flexed downwardly by the valve member when the valve member is retained within the top wall opening. The downwardly flexed flanges are biased upwardly causing an intimate face contact between the valve member sidewalls and the flexible flanges.

3,570,728
HOSIERY DISPLAY STAND

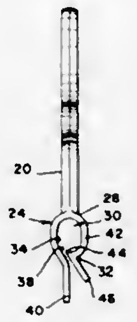
Frank P. DeWitt, Skaneateles, and David E. Gregory, Auburn, N.Y., assignors to Shoe Form Co. Inc., Auburn, N.Y.
Filed Dec. 15, 1969, Ser. No. 885,186
Int. Cl. D06c *5/00*
U.S. Cl. 223—75 **5 Claims**



A display stand for hosiery has a plurality of leg-simulating forms adapted for the display of hosiery thereon. A shelf member of clear plastic is supported horizontally above a flat base member by a tubular support member. Holes through the shelf member are adapted to have the clad forms inserted toe-down therethrough and are of such a dimension that the upper end of the forms cannot pass through the holes. Flat, relief, or full forms may be used, the holes in the shelf member conforming to the shape of the forms.

3,570,729
GARMENT HANGER

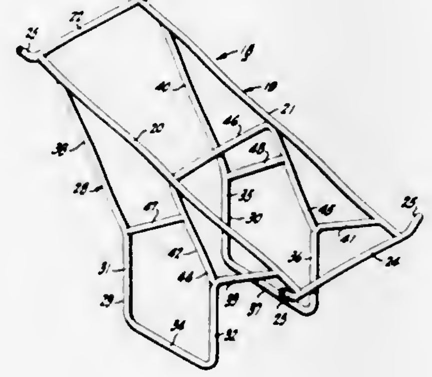
Benjamin Zuckerman, 50 W. 72nd St., New York, N.Y.
Filed Sept. 17, 1969, Ser. No. 858,825
Int. Cl. A47j *51/08*
U.S. Cl. 223—96 **3 Claims**



The garment hanger, used for supporting waisted garments comprises, a support member, having a hook extending upwardly therefrom, the hook being removably connectable to a display bar, the outer extremities of the support member having waistband support members which extend downwardly therefrom. The waistband support members are generally oval in shape, the long axis being transverse to the support member and being open at its lower end. At the open end of each waistband support member, an angular surface is provided which terminates in an extension member which is in alignment with the long axis thereof while a second extension member extends downwardly at an angle parallel to the angular surface forming a lip internally of the waistband support members whereby the waistband of a garment is insertable between the two extension members and retainable in the waistband support members.

3,570,730
CANOE TRANSPORTING RACK

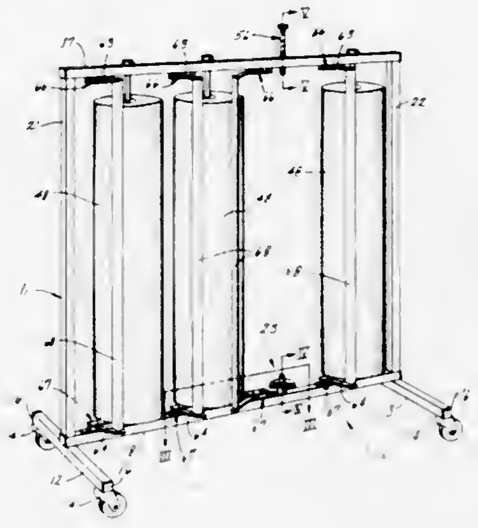
Charles M. Stevens, 44681 Camellia Drive, Fremont, Calif., and Loren N. Stevens, 21265 Garden Ave., Hayward, Calif.
Filed July 22, 1969, Ser. No. 845,125
Int. Cl. B68c *1/20*
U.S. Cl. 224—42.11 **7 Claims**



A supporting frame by means of which a canoe or like boat can be transported on the back of a pack animal. The frame includes a generally rectangular main frame having integral support brackets at each of its corner adapted to receive the gunwales of differently sized canoes. Leg structures depend from the main frame and the lower end portion of each structure is adapted to be received within a saddle bag or the like on the pack animal. Each of the leg structures is angularly related to the main frame so that the main frame is inclined with respect to the back of the pack animal when the lower portions of the leg structures are received within the saddle bags so that the forward end of the canoe can extend over the head of the pack animal.

3,570,731
WHEELED SUPPORT FOR UPRIGHT ROLLS

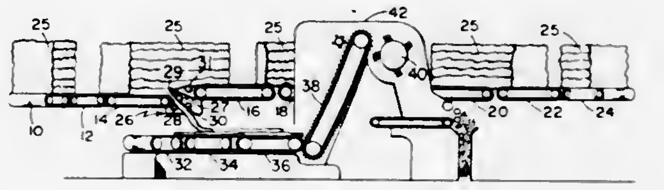
Edward Waltz, Grand Rapids, Mich., assignor to The E. O. Bulman Manufacturing Co., Inc., Grands Rapids, Mich.
Filed May 26, 1969, Ser. No. 827,564
Int. Cl. B26f *3/02*
U.S. Cl. 225—38 **8 Claims**



A wheeled, upright frame having top and bottom members. The bottom member has a plurality of spaced upwardly extending spindles, each spindle being adapted to support the lower axial end of an upright roll and being spaced from the nearest portion of the top member a distance greater than the length of the roll. A plurality of upper spindles are slideably disposed within openings in the top member and coaxial with the lower spindles. A plurality of cutting bars are pivotally supported upon and extend between the top and bottom members for engagement with said rolls.

3,570,732
TEXTILE BALE LAYER SEPARATOR

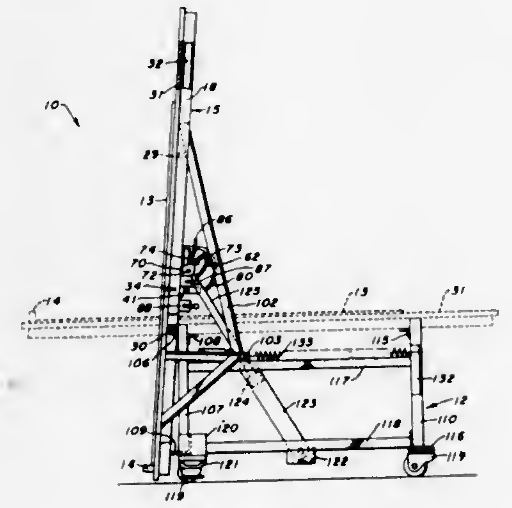
James K. Merck, Pendleton, S.C., assignor to Maremont Corporation, Chicago, Ill.
Continuation-in-part of application Ser. No. 620,098, Mar. 2, 1967, now abandoned. This application Dec. 13, 1968, Ser. No. 787,296
Int. Cl. B26f *3/02*; **B26d** *4/00*
U.S. Cl. 225—94 **15 Claims**



Apparatus for separating the layers of textile bales, of either rectangular or cylindrical shape, and for feeding the separated layers to an opener, blender, card or other machine for subsequent processing. The apparatus includes separating means, and support means for supporting a bale and the separating means in separating relationship with each other and for providing relative motion between them. The separating means includes a parting tension mechanism for tensioning the fibers at the parting line between the bale and the layer being separated from it and producing the parting line ahead of the separating means, and also includes a blade for the removal of any fibers not successfully acted upon by the parting tension. The apparatus may be constructed so that the bale is stationary and the separating means is moved, or vice versa. A conveyor mechanism is provided for conducting each parted layer intact from the bale and to another machine, for subsequent processing.

3,570,733
POWER-ACTUATED PLATE GLASS CUTTER'S TABLE

Byron W. Allen, 188 South "I" St., San Bernardino, Calif.
Filed Nov. 18, 1968, Ser. No. 776,526
Int. Cl. B26f *3/00*
U.S. Cl. 225—104 **3 Claims**

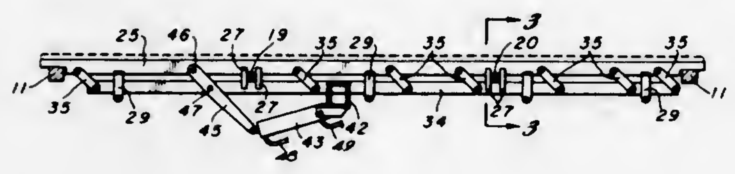


A 12 foot by 9 foot flat carpeted table pivotally mounted on a caster-supported chassis about a horizontal axis located at a height of about 3 feet from the ground and tiltable by compressed air from a position in which the table inclines slightly towards said chassis to a position in which the table is horizontally supported by said chassis. Pegs extending from the table near the lower edge thereof support a sheet of plate glass inclined against the table, said sheet rocking with the table into horizontal position for a glass cutting operation. A glass breaking bar extends lengthwise of the table, said bar lying in a slot formed in the table and being air powered to be rapidly ejected from below the glass supporting surface of the table to a position substantially above said surface when a glass sheet has been scored along a given line and then the sheet shifted so that the line of said score overlies said bar whereby the upward power shifting of said bar breaks said sheet along the line of said score.

The table is provided with a series of air jets delivering compressed air simultaneously between the table and a heavy sheet of plate glass resting thereon, with the table disposed horizontally, to greatly facilitate the manual shifting of said sheet from one position to another on said table as required in the performance of a cutting operation on said sheet.

3,570,734
POWER-ACTUATED PLATE GLASS CUTTER'S TABLE

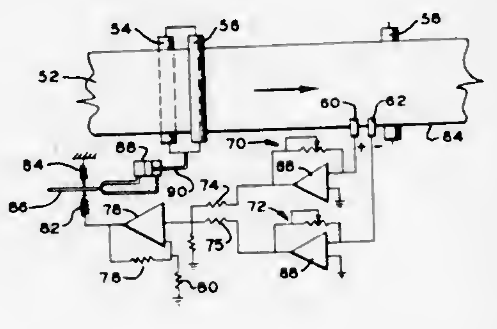
Byron W. Allen, 188 South "I" St., San Bernardino, Calif.
Filed Mar. 10, 1969, Ser. No. 805,467
Int. Cl. B26f *3/00*
U.S. Cl. 225—104 **4 Claims**



A flat table pivotally mounted to rotate about a horizontal axis from a position in which the table is slightly inclined from vertical to a horizontal position there being pegs extending from the table near the lower edge thereof to support a sheet of plate glass inclining against the table, said sheet rocking with the table to horizontal position for a glass cutting operation. A glass-breaking bar is confined in a slot provided in the table and is reciprocable upwardly broadside from said slot by a multiple toggle mechanism to break a sheet of glass lying on said table along a score line cut in said sheet and aligned with said bar.

3,570,735
METHOD AND APPARATUS OF GUIDING MOVING WEBS

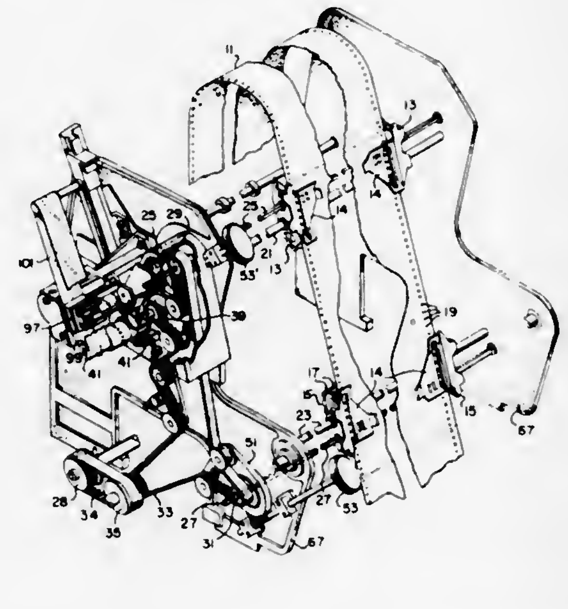
Robert S. Kurz, Des Plaines, Ill., assignor to GPE Controls, Inc, Morton Grove, Ill.
Filed Nov. 18, 1968, Ser. No. 776,486
Int. Cl. B65h *23/02*
U.S. Cl. 226—3 **15 Claims**



A method and apparatus for controlling the lateral position of a moving strip or web by sensing both the instantaneous lateral position of at least one edge of the web and the instantaneous angle between the actual path of travel of the web and the desired or ideal path. Appropriate signals commensurate with lateral position and angle are developed and combined to provide a control signal which sets the rate at which the web moves or "walks" laterally toward the desired position. The sensors may be positioned in proximity to the point at which control is desired without the usual sacrifice of stability associated with such positioning.

3,570,736
PAPER TENSION AND REGISTRATION APPARATUS

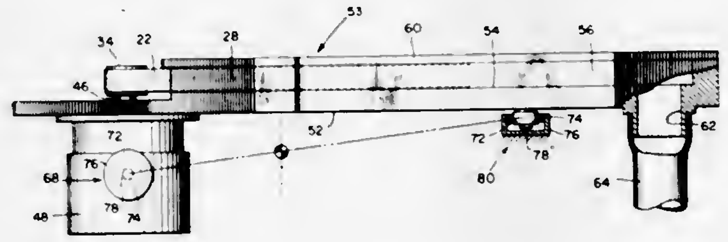
Raymond A. Skiba, Detroit, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Jan. 6, 1969, Ser. No. 789,341
Int. Cl. B65h *23/18*
U.S. Cl. 226—108 **3 Claims**



Apparatus for adjusting the phase relationship between a combination of shafts which are rotated by a common endless loop drive means. The combination of shafts may advance web material of indeterminate length, such as paper from a roll, and/or advance a web and an endless format tape controlling the advance of the web. Adjusting the phase relationship between the shafts results in a corresponding change in the tension of the web being advanced and/or in the registration between the web and the format tape, respectively. Specifically, a pulley arrangement varies the respective lengths of the parts of the drive means between the shafts, and one shaft experiences a different rotation or phase adjustment relative to the other.

3,570,737
MOUNTING ARRANGEMENT

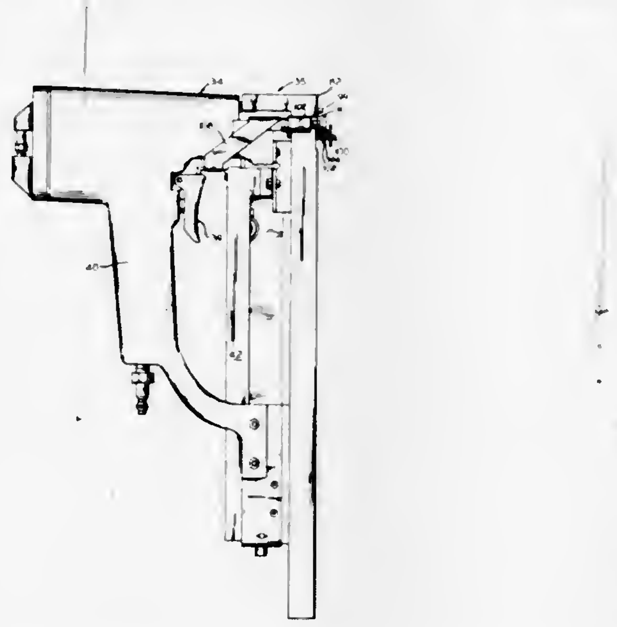
Herbert F. Sanford, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 4, 1968, Ser. No. 773,224
Int. Cl. B65h *17/20*
U.S. Cl. 226—188 **8 Claims**



A web drive mounting arrangement is shown for isolating the web drive from shock and vibration and the stress caused thereby having a plate mounted within a main frame. A driving motor is mounted on the drive plate for driving a capstan which drives a web across a web contacting surface thereof. First and second spherical self-aligning bearings extend from the driving motor and are rotationally mounted upon the main frame. A third bearing is mounted between the plate and the main frame. The plane formed by the three bearings passes through the center of gravity of the web driving arrangement, while the third bearing mounts at the center of percussion of the web driving arrangement. This mounting arrangement thereby prevents vibrational forces parallel to the web contacting surface from causing deflections of that surface and causes vibrational forces perpendicular to the web contacting surface to produce a rotational motion about the first and second bearings attached to the driving motor.

3,570,738
TOOL FOR APPLYING FASTENERS

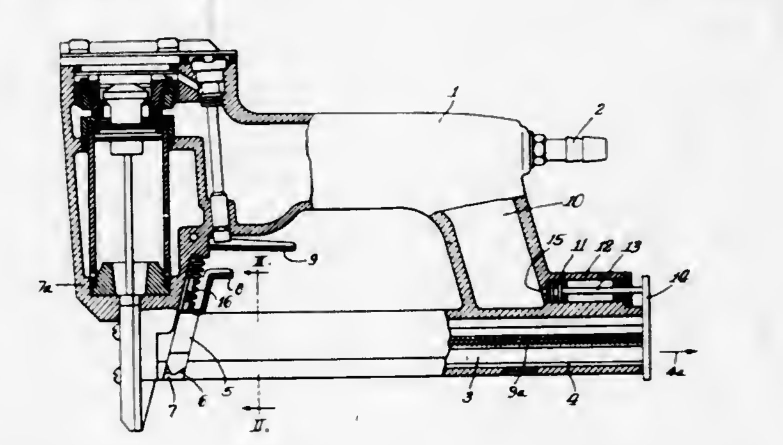
Richard W. Pabich, c/0 Acme-Lane Co., 4904 W. Fullerton, Chicago, Ill., and E. Louise Treiber, Glenview, Ill.
Continuation-in-part of application Ser. No. 689,939, Nov. 24, 1967, now Patent No. 3,429,013, dated Feb. 25, 1969, and a continuation-in-part of 777,652, Nov. 21, 1968, and a continuation-in-part of 800,362, Feb. 12, 1969. This application Apr. 24, 1969, Ser. No. 819,517
Int. Cl. B27f *7/06*
U.S. Cl. 227—8 **10 Claims**



Tool attachments associated with air tools that force nails or other fasteners into members. The tool attachments are adapted to store, feed and to pivotally mount uniquely formed wing headed fasteners with nails also stored by the tool for releasably holding a first member, such as a cabinet backing in a position relative to a second member such as a cabinet frame therebehind.

3,570,739
PNEUMATICALLY OPERATED FASTENER DEVICE

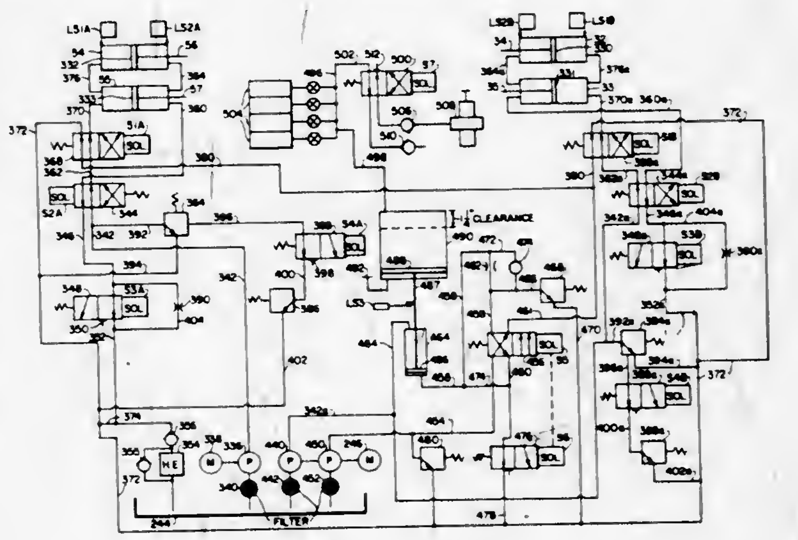
Dieter Volkmann, Leinstrasse 49, 3057 Neustadt am Rubenberge, and Juergen Korth, Birkenweg 7, 3001 Berenbostel, Germany
Filed July 8, 1968, Ser. No. 743,185
Claims priority, application Germany, July 7, 1968, P 16 03 838.3
Int. Cl. B25c *5/16*
U.S. Cl. 227—127 **6 Claims**



In the magazine of a pneumatically operated fastener driving device, to accelerate the loading of the magazine with fasteners the bolt for retaining the end plate of the magazine is located and constructed to be actuated by the operator's finger which actuates the trigger of the device. The end plate of the magazine may be moved by compressed air into position for loading fasteners.

3,570,740
APPARATUS FOR FRICTION WELDING

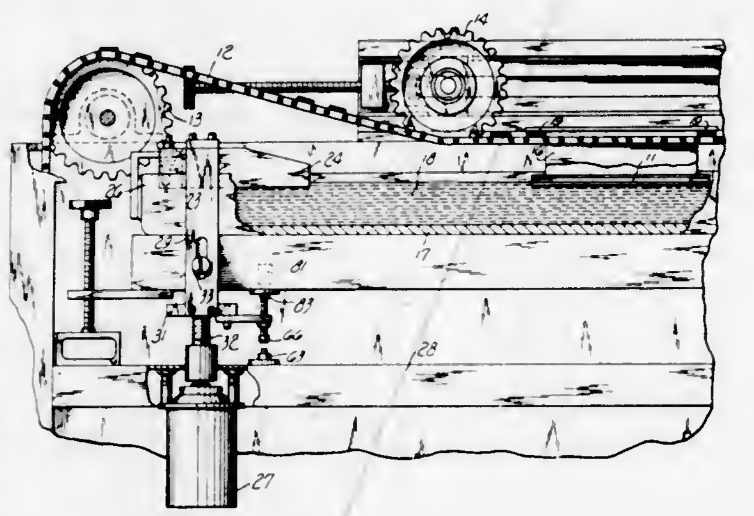
Alex F. Stamm, Rochester, Mich., assignor to Rockwell-Standard Company, Pittsburgh, Pa.
Filed Aug. 16, 1968, Ser. No. 753,214
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **3 Claims**



A friction welding apparatus and method wherein workpieces such as the center section and wheel bearing end spindles of a vehicle axle housing are frictionally welded together by rotating the end spindles and axially accelerating the rotating end spindles towards opposite ends of the center section, decelerating the advancing end spindles as they approach the center section so that they gently contact the center section, abruptly and materially increasing the axial thrust urging the rotating end spindles against the center section immediately upon contact, then gradually increasing the axial thrust applied to the rotating end spindles from the abruptly increased thrust level, stopping rotation of the end spindles, and abruptly increasing the axial thrust again to a much higher level and holding the axial engagement pressure at this last level until the welds, which are formed when the end spindles stop rotating, have cooled. A control and sequencing circuit provides for the automatic welding of the end spindles to the center section either simultaneously or sequentially.

3,570,741
LEVEL CONTROL SYSTEM FOR LIQUID SOLDER

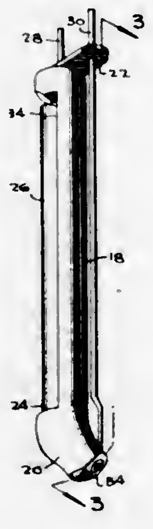
Vicent A. Corsaro, Haverhill, and Norman F. Smith, Methuen, Mass., assignors to Western Electric Company Incorporated, New York, N.Y.
Filed July 16, 1968, Ser. No. 745,254
Int. Cl. B23k *1/08*
U.S. Cl. 228—40 **12 Claims**



Two drag chains advance a succession of articles over a cast iron displacement block toward floating contact with molten solder in a solder tank. The block is partially submerged in the molten solder. The displacement block is heated by the molten solder and, as a result, preheats the advancing articles by radiation. Two probes are located at predetermined normal working level limits for the solder in the tank. A control circuit, including the probes and a motor, regulates the vertical position of the displacement block, normally maintaining the solder level within the predetermined limits. A third, overflow preventing probe causes the circuit to actuate the motor, lowering the solder level when the probe is contacted by solder.

3,570,742
CARTRIDGE-LOADING HEATED SOLDERING ELEMENT CONSTRUCTION

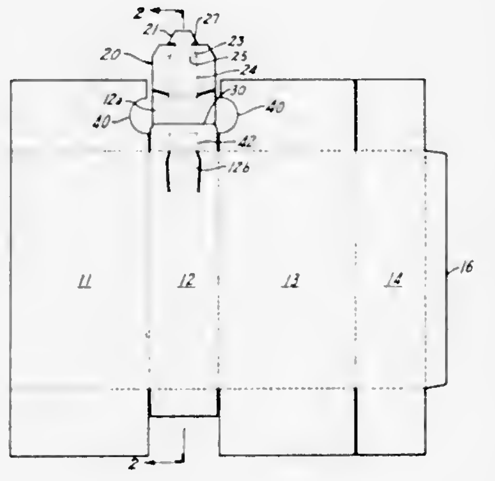
Walter E. Graham, 1140 Karen Raod, Montgomery, Ala.
Filed Feb. 3, 1969, Ser. No. 796,022
Int. Cl. B23k *3/04*
U.S. Cl. 228—53 **10 Claims**



An electrically heated soldering element with a removable cartridge of solder received within a cavity in the element with a spherical valve mounted in the tip of the element and communicating with a solder-dispensing tubular extension on the cartridge so that inward movement of the valve sphere will open the valve to allow dispensing of melted solder from the cartridge.

3,570,743
CARTON WITH INTEGRAL SPOUT ADJACENT THE EDGE

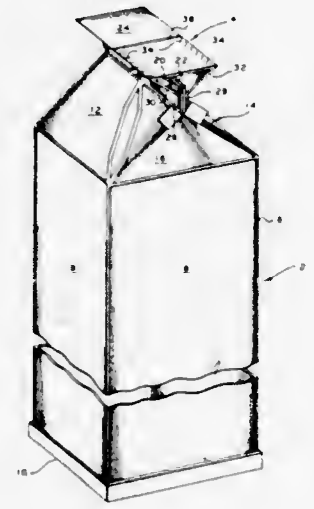
Harry G. Mohler, P. O. Box 526, Ann Arbor, Mich.
Filed Apr. 3, 1969, Ser. No. 813,032
Int. Cl. B65d *5/72;* **B67d** *3/00*
U.S. Cl. 229—17 **5 Claims**



This is an improved carton for packing loose materials such as sugar.

3,570,744
GABLE-TOP-CONTAINER HANDLE

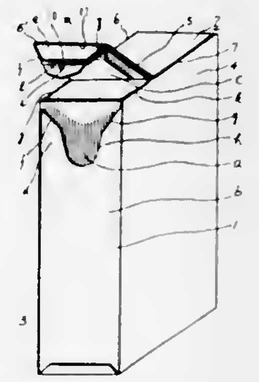
Ernest L. Smith, Kansas City, Mo., assignor to Phillips Petroleum Company
Filed July 30, 1969, Ser. No. 845,985
Int. Cl. B65d *2/28*
U.S. Cl. 229—17 **10 Claims**



Handles and paperboard blanks for forming handles for gable-top containers.

3,570,745
RECLOSEABLE LID FOR A CONTAINER FOR POWDERED CHEMICALS AND THE LIKE

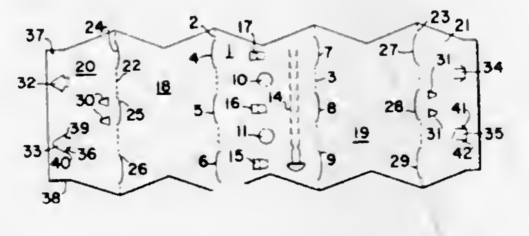
Yoshiharu Aoki, Fuse-shi, and Katsuyuki Shimada, Yodogawa-ku, Japan, assignors to Kinki Printing Company Limited, Osaka, Japan
Filed Jan. 21, 1969, Ser. No. 792,296
Int. Cl. B65d *5/72*
U.S. Cl. 229—17 **3 Claims**



One of the sidewalls of a rectangular container has a double layer of inner and outer walls. The upper portion of the outer wall is bent and extended beneath the inside of a top wall and pasted thereto. The upper side portions of the outer wall are provided with a notched line. Also the end portions of the top wall near said double layer are provided with notched lines. By severing and opening said notched line and lines, the lid of a container for powdered chemicals and the like can be opened. And even after its lid has been opened, it is maintainable in its closed condition by inserting the tongue into behind said double layer.

3,570,746
ARTICLE CARRIER AND METHOD OF INTERLOCKING A PAIR OF PANELS IN FACE CONTACTING RELATION

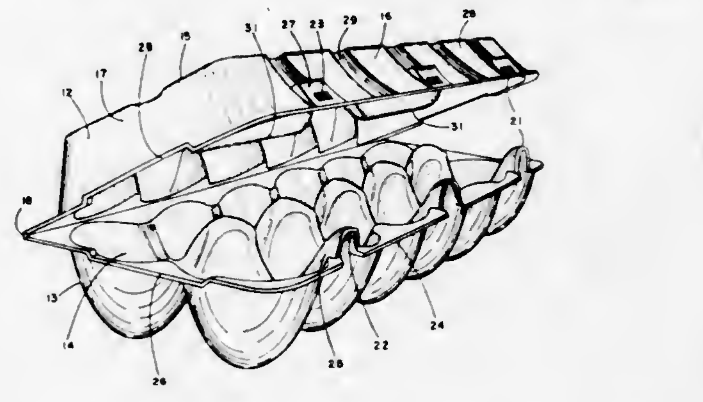
Prentice J. Wood, Jonesboro, Ga., assignor to The Mead Corporation
Filed Apr. 1, 1969, Ser. No. 811,859
Int. Cl. B65d *5/04, 75/00*
U.S. Cl. 229—40 **2 Claims**



An article carrier of the wraparound type having top, bottom and sidewalls foldably joined along their side edges to form a tubular structure wherein one wall is a composite panel incorporating a pair of face contacting lap panels is provided with locking means in the form of a locking tab formed in one of the lap panels which is inserted through an opening defined by a retaining tab formed in the other lap panel and disposed in coincidental relationship with respect to the locking tab. Formation of the lock is facilitated by angularly extending slits formed in the lap panel in which the opening is formed. One end of each slit is in communication with one side of the opening. During formation of the lock the laterally projecting shoulders of the arrowhead type locking tab are received by the slits so as to facilitate the formation of the lock. Upon completion of the lock the lateral projections of the locking tab are out of registry with the slits.

3,570,747
CARTON AND LATCH CONSTRUCTION

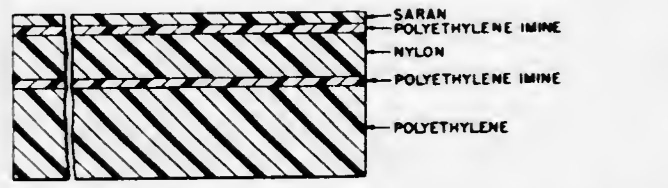
Roderick F. McKenna, Hyannisport; Robert McCormick, Barnstable; Howard A. Rohdin, Waquoit, Mass., and Don Tucker, Southport, Conn., assignors to Packaging Industries, Inc., Hyannis, Mass.
Filed Jan. 8, 1969, Ser. No. 789,856
Int. Cl. B65d *45/00*
U.S. Cl. 229—44 **6 Claims**



There is disclosed an egg carton or similar article made of foamed polystyrene or like material comprising a top portion and a bottom portion hinged along one side and releasably fastened along the other side and/or ends by one or more latching means. The bottom portion of the carton having the egg cells is molded such that a plurality of vertical protrusions are formed along its edge, each protrusion having an outwardly projecting hook at its upper end. These hooks lock into catches or detents molded into the wall of the top portion. The latching means do not extend beyond the edges of the carton and thus do not increase its width or length. Further means are provided to resist opening when the cartons are stacked.

3,570,748
COMPOSITE FILM AND METHOD

James Warren Coyle, Montville, N.J., and Louis John Marsella, Leominster, Mass., assignors to Standard Packaging Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 298,278, July 29, 1963, now abandoned. This application June 29, 1966, Ser. No. 565,667
Int. Cl. B29d *f/24;* **B32b** *27/08, 31/12*
U.S. Cl. 229—53 **42 Claims**

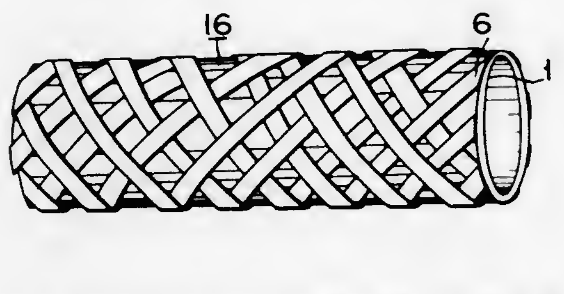


A laminated film is formed by extrusion coating a film-forming synthetic linear polyamide in a thin film onto a polyolefin film. The polyolefin surface is subjected to oxidative influence prior to coating, and adhesive primers may be used. One embodiment of the film includes a saran layer, preferably intermediate the synthetic linear polyamide and polyolefin.

3,570,749
HEAVY DUTY BAGS

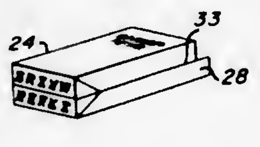
Wasuke Sato, Kawasaki-shi; Fumio Iriko, Tokyo; Sadao Yamamoto, Kawasaki-shi; Mitsumaro Fujisawa, and Shigeyuki Hatakeyama, Yokohama-shi, Japan, assignors to Showa Denko K. K., Tokyo, Japan
Filed Aug. 5, 1969, Ser. No. 847,647
Claims priority, application Japan, Aug. 9, 1968, Dec. 29, 1968, Dec. 20, 1968, April 11, 1969, April 11, 1969, April 11, 1969, 43/56113, 43/110790, 43/110791, 44/32513, 44/32514, 44/32515
Int. Cl. B65d *33/02*
U.S. Cl. 229—55 **19 Claims**

Heavy duty bags wherein stretched tapes made of synthetic resin such as high density polyethylene or polypropylene are spirally wound in opposite directions in a manner to intersect each other to form a plurality of superposed cylindrical bodies. The superposed portions of the intersecting stretched tapes forming said cylindrical bodies are bonded together to form a cylindrical network, one end of which is sealed to provide a bottom.



3,570,750
PLASTIC BAGS

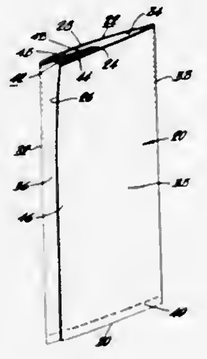
James R. Wood, Crescent Willowdale, Ontario, Canada, assignor to E. S. & A. Robinson (Canada) LTD., Toronto, Ontario, Calif. Canada
Filed Jan. 21, 1969, Ser. No. 792,555
Claims priority, application Canada, Oct. 11, 1968, 032,319
Int. Cl. B65d *31/00*
U.S. Cl. 229—58 **3 Claims**



A method for producing "square bottom" plastic bags having printing on one face and the entire bottom wherein one film forms the pointed face and bottom and a second film forms the opposed face, wherein the two films are fed into face to face relationship and longitudinally sealed and subsequently transversely sealed and cut with a gusset on one side of the longitudinal seal. Preferably two identical bags are produced simultaneously by locating the longitudinal seal in the center of the film and forming a gusset on each side of the longitudinal seal.

3,570,751
TEAR-OPEN PACKAGE

Robert J. Trewella, Reading, Pa., assignor to Wyomissing Corporation, Reading, Pa.
Filed July 3, 1969, Ser. No. 838,881
Int. Cl. B65d *17/20, 65/26*
U.S. Cl. 229—66 **14 Claims**

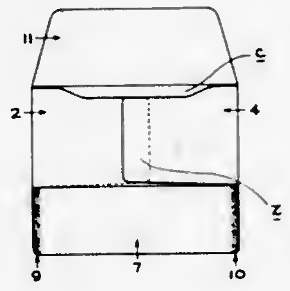


A package formed by a sheet of flexible packaging material having a tear-open seam extending across a face or along an edge thereof. The tear-open seam is characterized by a flap formed by an edge of the package sheet and a tearable insert strip which secures the flap to the adjacent sheet edges.

The method of making the package includes the steps of applying spaced transverse stripes of adhesive to a continuous flat web of packaging material, depositing articles to be packaged on the web between the applied adhesive stripes, folding the package web so that the edges thereof are disposed in overlying relation, introducing an adhesive coated insert web between the overlying web edges, sealing the transverse adhesive stripes, and cutting the web along the sealed adhesive stripes.

3,570,752
FOLDER

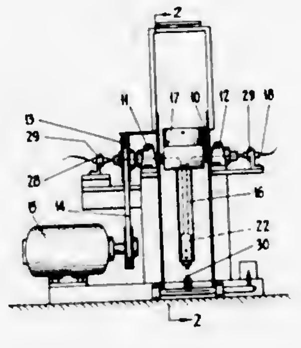
Robert E. Sczesniak, 4734 Wren, St. Louis, Mo.
Filed May 6, 1969, Ser. No. 822,192
Int. Cl. B65d *27/06, 27/08*
U.S. Cl. 229—75 **1 Claim**



A folder formed from a single blank of paper or other suitable cellulosic material having a main panel, side flaps for partial overlapping relationship within a plane substantially parallel to that of the main panel, a base flap foldable into partial overlying relationship to the said side flaps and having its normally free edge terminating spacedly from the transverse centerline of the main panel and a closure flap disengagingly receivable within a pocket developed by said base flap and said side flaps.

3,570,753
CENTRIFUGES

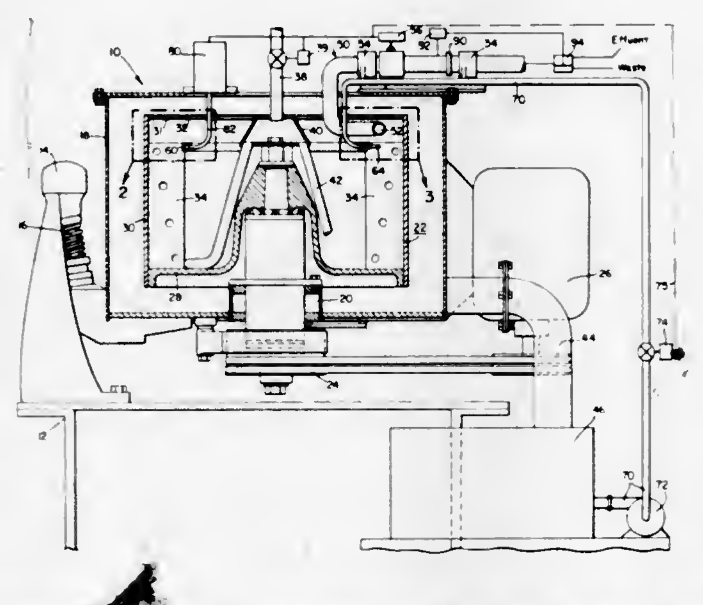
Colin Kerby, Pier St. Kilda, Victoria, Australia
Filed Dec. 12, 1968, Ser. No. 791,842
Claims priority, application Australia, Dec. 14, 1967, 31178/67
Int. Cl. B04b *9/00, 15/02*
U.S. Cl. 233—11 **10 Claims**



A continuous centrifuge having a balanced head mounted for axial rotation in bearings. A radially extending arm including a cell is mounted at its extremity to receive fluid from a source through a fluidtight bearing coaxial with one of the head bearings. Means are provided for the discharge of the fluid from the cell through a second fluidtight bearing coaxial with the other head bearing. Means automatically discharge accumulated solids from the cell during rotation of the head. The head may include a second arm including one or more further cells and means may be provided to circulate solid free fluid discharged from the first cell through said further cell or cells prior to discharge through the second fluidtight bearing.

3,570,754
CENTRIFUGE APPARATUS

William J. Kirkpatrick, Springfield, Del., assignor to Pennwalt Corporation, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 593,338, Nov. 10, 1966, now Patent No. 3,407,999, dated Oct. 29, 1968. This application July 18, 1968, Ser. No. 745,945
Int. Cl. B04b *11/00*
U.S. Cl. 233—20 **9 Claims**



Heavy [illegible] liquid, centrifugally separated from light phase liq[illegible]d accumulated on the peripheral wall of a centrifuge bowl, is removed by a skimmer actuated by a heavy phase level detector. The latter includes structure defining an inwardly facing annular pocket mounted for rotation with the bowl and provided with a passageway leading outwardly from the pocket to a position outward of an overflow lip for the light phase liquid, also means for supplying control liquid to the pocket and a sensor which responds to accumulations of heavy phase liquid obstructing the outer end of the passageway

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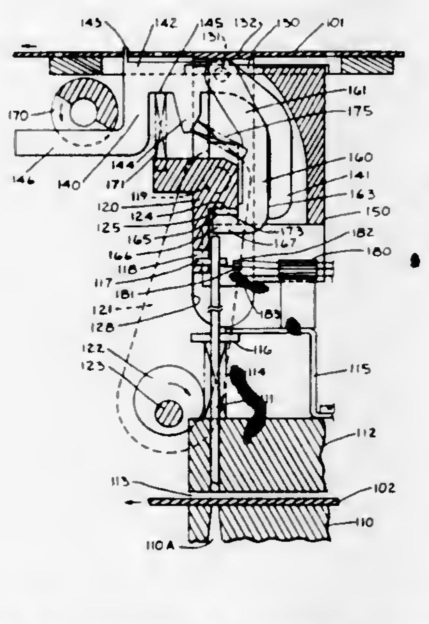
3,570,755
PUNCHED-HOLE RESPONSIVE DEVICE

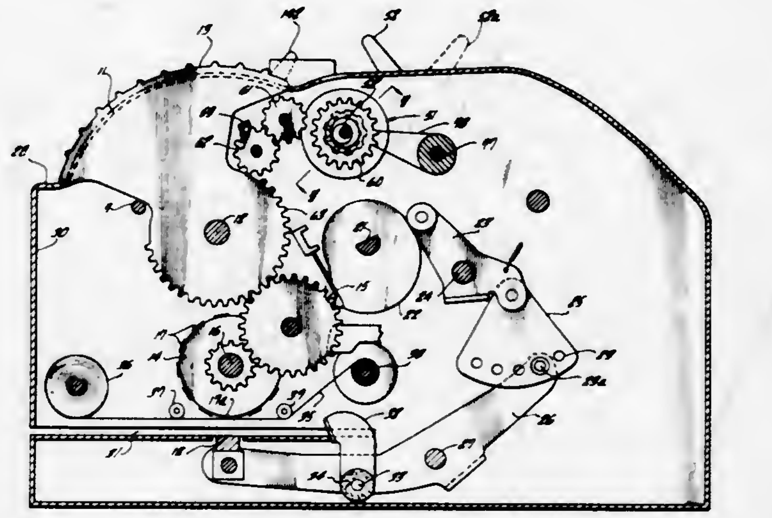
Frederick W. Pfleger, 1152 Barbara Drive, Cherry Hill, N.J.
Filed Apr. 15, 1969, Ser. No. 816,242
Int. Cl. G06k *1/14*
U.S. Cl. 234—86 **12 Claims**



A punched-hole responsive device including a shift mechanism movable toward and away from a source document and carrying a feeler mechanism for sensing the presence or absence of a punched hole, which feeler mechanism in turn operates an output mechanism responsive to punched holes sensed.

3,570,756
CHECKWRITER

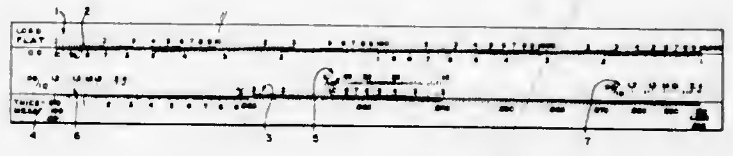
Michael W. Grey, Azusa, Calif., assignor to Addmaster Corporation, San Gabriel, Calif.
Filed May 17, 1968, Ser. No. 730,152
Int. Cl. G06c *29/00;* **G06k** *15/06*
U.S. Cl. 235—58 **12 Claims**



A checkwriter incorporating an accumulator and differentially settable sectors for entering amounts to be printed on checks and for subtracting such amounts from the accumulator as well as for adding into the accumulator amounts representing deposits in the user's bank account. The checkwriter is automatically locked up when an amount is overdrawn from the accumulator or when an amount greater than a predetermined amount is entered. The checkwriter also incorporates control means which are normally set to cause subtract operations but which may be selectively set to cause an add operation and which are automatically returned to subtract controlling condition following an add operation.

3,570,757
SLIDE RULE FOR BELLEVILLE SPRINGS

Joseph W. Wells, Bristol, Conn., assignor to Associated Spring Corporation, Bristol, Conn.
Filed July 22, 1968, Ser. No. 746,394
Int. Cl. G06g *1/02*
U.S. Cl. 235—70 **4 Claims**



This invention provides a mechanically simple slide rule which will solve the following equations.

$$P=\frac{Ef}{(1-\sigma^2)\ Ma^2}\left[(h-f)\ (h-f/2)\ t+t^3\right] \qquad (1)$$

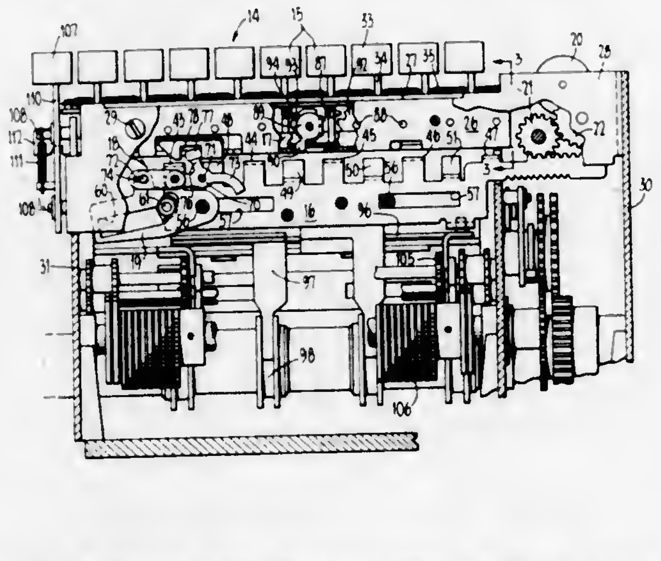
$$S_c=\frac{Ef}{(1-\sigma^2)\ Ma^2}\left[C_1\ (h-f/2)+C_2 t\right] \qquad (2)$$

$$S_{t_2}=\frac{Ef}{(1-\sigma_i^2)\ a^2}\left[T_1\ (h-f/2)+T_2 t\right] \qquad (3)$$

3,570,758
VALUE-ENTERING MECHANISM

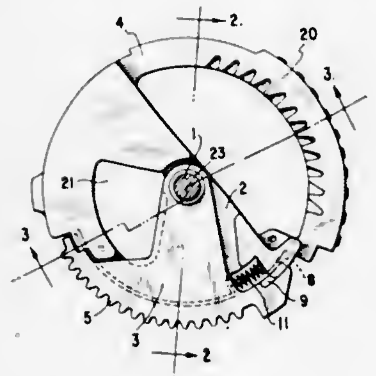
Cecil F. Clemons, San Leandro; George C. Wu, Newark, and Nathaniel F. Hawthorne, Alameda, Calif., assignors to The Singer Company
Filed May 23, 1969, Ser. No. 827,351
Int. Cl. G07g *1/00;* **G06c** *7/02*
U.S. Cl. 235—101 **10 Claims**

A plurality of series of ordinally arranged depressible value keys, each ordinal row of keys being effective to control a differential adjustment of a corresponding value selection slide in accordance with the selective depression of a value key. An interponent for each key is rocked by the selective depression of a key in a given row of keys to adjust a latch-releasing slide controlling the movement of a latch member from an active to an inactive position. When moved to its inactive position, the latch member enables the differential adjustment of a corresponding selection slide under the influence of a spring and in accordance with a value key depressed. Thereafter, the latch member retains a latch-releasing slide in its adjusted position, locking the depressed key in its depressed condition, and preventing depression of the other keys in the corresponding row of keys. The latch member and latch-releasing slide are returned to their initial positions upon power restoration of the adjusted selection slide.



3,570,759
SWITCHING MECHANISM

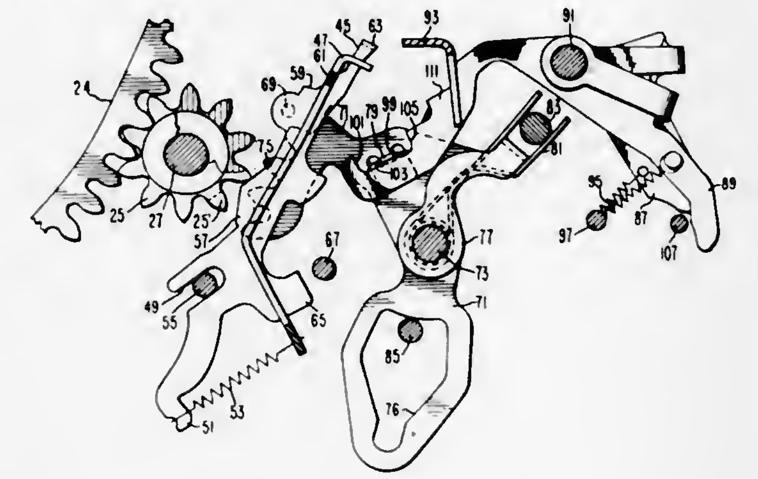
Alfred Hesse; Wolfgang Bindel, and Alfred Keiter, Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 23, 1969, Ser. No. 887,560
Claims priority, application Germany, Dec. 23, 1968, P 18 16 497.1
Int. Cl. G06c *7/10, 9/00, 15/26*
U.S. Cl. 235—133 **8 Claims**



A switching mechanism for a mechanical decade counter has a movable setting member with a projection and a movable transfer member with gear teeth. One of these members has a projection and the other a portion defining a recess. A spring is so arranged that it transmits force between the setting member and the transfer member. The projection and the recess combine to form a bearing which permits the setting member and the transfer member to be fitted together in such a manner that in the assembled state one covers at least a part of the other. One of the members, preferably the transfer member, is constructed from an elastic material. The switching mechanism may be either a rotary mechanism or a linear mechanism. In the former case, the recess is in the transfer member at its center of arc and fits over a centrally located boss on the setting member. Overlapping surfaces are provided on the periphery of each member. In the latter case, the transfer member is U-shaped with the projection on one of its legs. More than one bearing may be provided on each switching mechanism.

3,570,760
TWO-DIRECTION CARRY MECHANISM FOR AN AMOUNT ACCUMULATOR

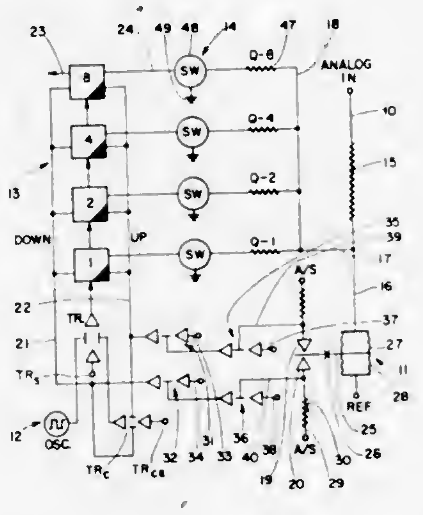
Donald R. Crain, and Edward R. Huber, Livonia, Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed Apr. 9, 1969, Ser. No. 815,523
Int. Cl. G06c *15/26*
U.S. Cl. 235—137 **17 Claims**



In a calculating machine, an amount accumulator having a single set of accumulator wheels is provided with reversible bias means responsive to the add or subtract nature of an accumulating operation. This reversible bias means is effective for producing tens transfers in either an add or subtract direction according to the direction of bias established prior to an initial carry stage thereof, such initial carry stage being followed by a completed carry in which adjacent higher order accumulator wheels are rotated by said bias means in a direction consistent with the predetermined direction of rotation of the accumulator wheels during add or subtract operations.

3,570,761
PNEUMATIC ANALOG TO DIGITAL CONVERTER

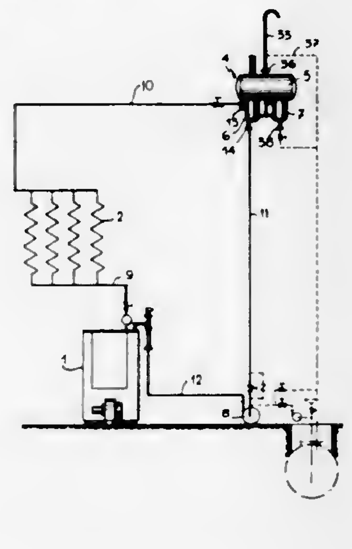
Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed June 19, 1969, Ser. No. 834,733
Int. Cl. G06d *3/00*
U.S. Cl. 235—201 **4 Claims**



A pneumatic analogue to digital transducer based on a matrix of fluidic resistance elements as bleeds to atmosphere from a supply manifold to these elements, with switches in these elements to individually selectively open or close such bleeds to atmosphere, an analogue input branched to the supply manifold on the one hand and to a digital system of operation of such switches on the other hand, this digital system comprising a series arrangement of a balanceable pressure differential device receiving the analogue input, an oscillator gate system used with the differential pressure device, and an up-down fluidic counter actuated by the oscillator gate system to selectively operate the resistance matrix switches in a digital representation of the analogue input.

3,570,762
HEAT TRANSFER FLUID PLANT

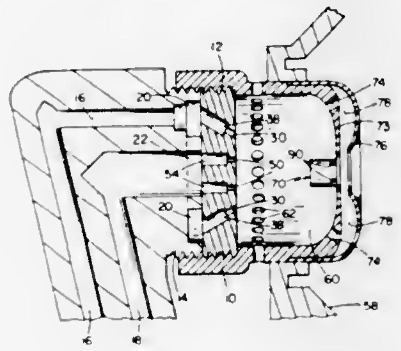
Leon J. Wanson, 118, Avenue Isidore Gheyskens, Auderghem, Belgium
Filed Apr. 18, 1969, Ser. No. 817,515
Int. Cl. F24d *3/10*
U.S. Cl. 237—66 **7 Claims**



In a heat transfer fluid plant, an expansion vessel is grouped with a deaerator and a damping receiver in a single structure to be located at the highest point of the plant.

3,570,763
STREAMING

Nathaniel Hughes, Beverly Hills, Calif., assignor to Energy Sciences, Inc., El Segundo, Calif.
Filed Nov. 22, 1968, Ser. No. 778,139
Int. Cl. A01n *17/02*
U.S. Cl. 239—8 **5 Claims**

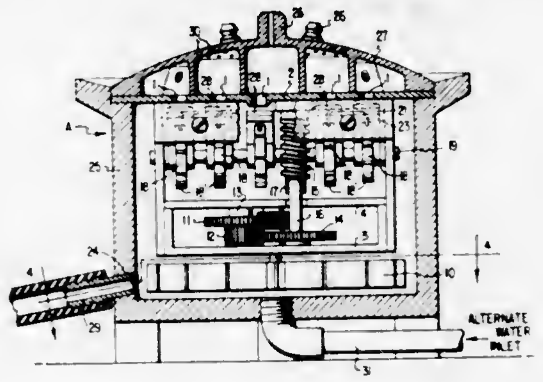


An even number of small holes of circular cross section are arranged adjacent the inlet to a supersonic nozzle sculpted in boundary layer, each small hole being in series with the nozzle and included in a pair of such holes spaced 180° apart at opposite sides of said inlet.

3,570,764
FOUNTAIN APPARATUS

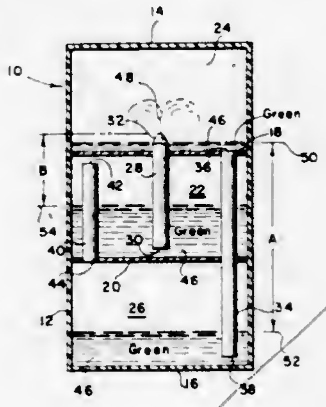
Mitsuo Inoue, Ibaragi, Osaka, Japan, assignor to C.D.M. Kabushiki Kaisha, Kishiwada City, Osaka Prefecture, Japan
Filed Apr. 11, 1969, Ser. No. 815,323
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **5 Claims**

Fountain apparatus wherein the water rotates a waterwheel for driving the same, with the waterwheel being operatively connected to closure members, each associated with a water nozzle, through a series of gears and cams so as to sequentially emit water through the series of nozzles responsive to rotation of the waterwheel.



3,570,765
FOUNTAIN

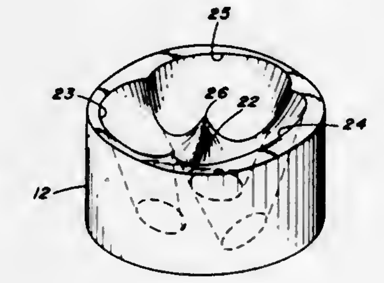
Hilaire G. de Gast, 1508 N. Quinn St., Arlington, Va.
Filed Feb. 20, 1969, Ser. No. 800,857
Int. Cl. B05b *17/08*
U.S. Cl. 239—21 **4 Claims**



A fountain includes a closed fluid system having three superposed compartments. A first tube has an open end adjacent the bottom wall of the intermediate compartment and a nozzle end within the upper compartment. A second tube has an open end near the bottom of the upper compartment and extends downwardly into the bottom compartment. A third tube has an open end near the top wall of the bottom compartment and extends upwardly with an open end near the top wall of the intermediate compartment. A liquid is provided within the system of sufficient volume that, upon inversion of the device, it will fill the intermediate compartment and partially fill the normally upper compartment and, upon reinversion of the system to its upright position, will flow from the normally upper compartment through the second tube into the normally bottom compartment, displacing air from the bottom compartment into the intermediate compartment through the third tube, displacing liquid from the intermediate compartment through the first tube to cause a liquid jet into flow from the nozzle end into the upper compartment. Several embodiments of the fountain are disclosed. One embodiment includes an auxiliary compartment between the intermediate and bottom compartments to increase the pressure head causing the jet to flow. Another provides two closed fluid systems, one inverted with respect to the other, with compartments of the two systems interspersed in a vertical stack. An additional embodiment includes an upper compartment divided into two chambers with syphon means to transfer liquid received from the jet from the upper chamber to the lower chamber so that fluid may be transferred back through the second tube into the lower compartment. Toy and amusement devices of various types may be employed within the fountain for operation by or for use in conjunction with the jet.

3,570,766
INTEGRAL PLUG AND STRUT NOZZLE

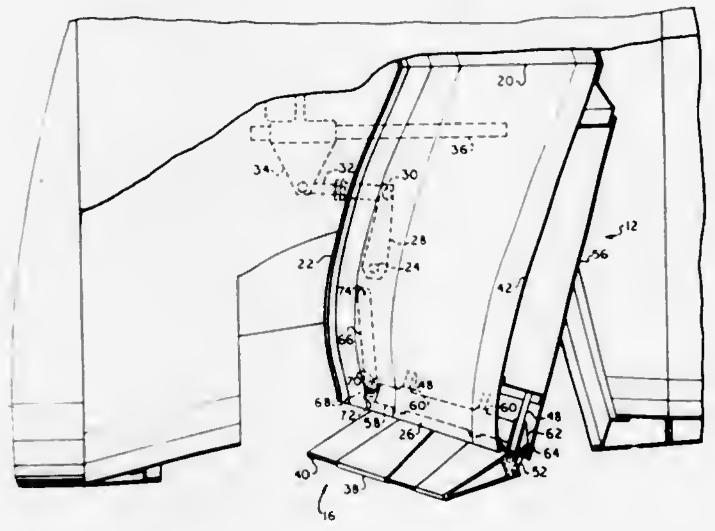
Albert W. Johnson, Austin, Tex., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 15, 1969, Ser. No. 791,528
Int. Cl. B64d *33/04*
U.S. Cl. 239—265.11 **2 Claims**



A one-piece exhaust nozzle for rocket motors. It is substantially cylindrical with three funneled inlet holes at its forward end, blending into a single opening at the aft end. A center body, pyramid shaped, forms a contoured inner wall for the nozzle which has a constantly expanding exhaust area.

3,570,767
THRUST REVERSING APPARATUS

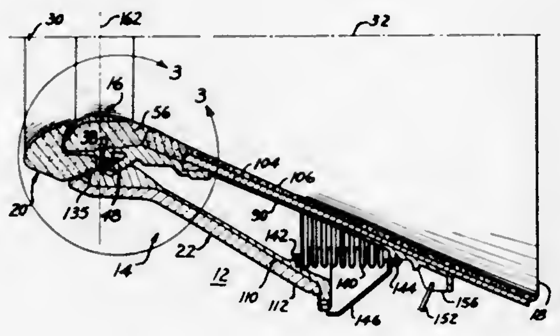
Dale W. R. Lawson, Bonita; Felix Hom, La Mesa, and Richard U. Moeller, El Cajon, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
Filed Oct. 1, 1969, Ser. No. 862,725
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.29 **15 Claims**



Apparatus includes housing to rear of jet nozzle to surround the gas stream. Housing has openings in wall to receive thrust reverser doors which close openings in stowed position and swing to deployed thrust reverse position with trailing edges together. Doors diverge forwardly and leading edges are adjacent housing wall. Doors are curved about longitudinal axis and have end plates at leading edges to divert gas stream forwardly. Each end plate is divided into segments along leading edge pivoted thereto for swinging from parallel to perpendicular position. Segments are overlapped to move as a unit while accommodating curvature of door. In one form, segments are forced to open position by gas flow and returned to stowed position by bumper when doors close. In an another form, yoke within door actuated by movement of doors acts through force linkage to positively swing segments in each direction.

3,570,768
OMNIVECTOR NOZZLE

Carle C. Conway, La Habra, Calif.; Kurt Barth, Farmington, Conn.; David R. Collis, Shingle Springs, and Kjell Steinmo, Fair Oaks, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
Filed Aug. 8, 1968, Ser. No. 751,202
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.35 **12 Claims**

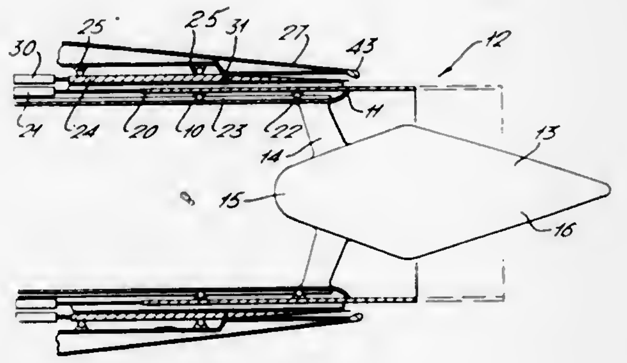


A nozzle according to the present disclosure comprises a movable section having a substantially semispherical ball surface, and a fixed section having a substantially semispherical socket surface. A gas seal is provided between the ball and socket surfaces. A load bearing surface, independent of the ball and socket surfaces, is provided for supporting loads between the fixed and movable sections of the nozzle.

According to an optional and desirable feature of the present disclosure, the ejection load on the movable section is minimized.

3,570,769
JET NOZZLE

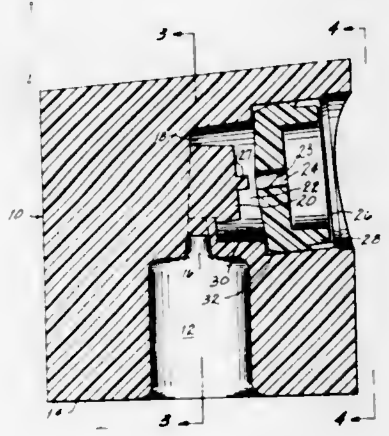
Frederick Freeman, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed Dec. 11, 1968, Ser. No. 782,900
Claims priority, application Great Britain, Dec. 28, 1967
58860/67
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.39 **8 Claims**



A jet nozzle comprises a cylindrical member whose downstream end is provided with a plurality of angularly spaced-apart, alternately arranged first and second flaps each of whose adjacent paris of longitudinal edges are interconnected by a plurality of lobe wall members, the flaps and lobe wall members being adapted collectively to provide the nozzle with a plurality of angularly spaced-apart lobes, each lobe wall member being pivotally connected along each of its longitudinal edges to the adjacent longitudinal edge of the adjacent flap or lobe wall member, and means for effecting relative radial movement of the first and second flaps so as to alter the radial depth of the downstream end of each of said lobes.

3,570,770
VALVE BUTTON

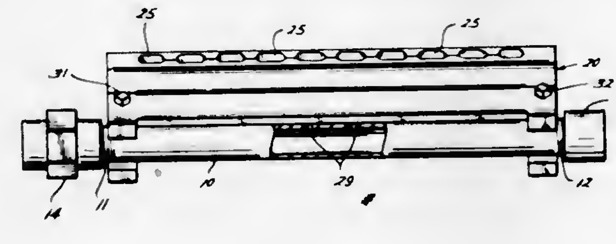
Ronald F. Ewald, Rolling Meadows, Ill., assignor to Seaquist Valve Company, Cary, Ill.
Filed May 8, 1968, Ser. No. 727,511
Int. Cl. B05b *1/34*
U.S. Cl. 239—337 **8 Claims**



A self-cleaning spray button designed especially for use on aerosol valves for spraying starch. The discharge passageway within the button comprises inlet from the valve stem leading into an annular expansion chamber which connects with a swirl chamber just behind the discharge outlet.

3,570,771
GAS BURNERS

James R. Richardson, and Elsinore M. Addis, 5900 Canal St., Houston, Tex.
Filed Dec. 27, 1968, Ser. No. 787,460
Int. Cl. B05b *1/20*
U.S. Cl. 239—566 **8 Claims**



Multiport gas burners of simple form having impingement surfaces adjacent to the gas jets.

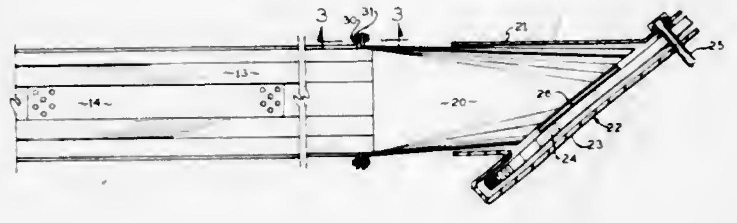
3,570,772
DI(4-5 CARBON BRANCHED PRIMARY ALKYL) DITHIOPHOSPHATE PROMOTERS FOR THE FLOTATION OF COPPER MIDDLINGS

Robert Ben Booth, Stamford, Conn.; Herman Hartjens, Ridgewood, N.J., and John Joseph Falvey, Noroton Heights, Conn., assignors to American Cyanamid Company, Stamford, Conn.
Continuation-in-part of application Ser. No. 617,069, Feb. 20, 1967, now abandoned. This application Aug. 22, 1969, Ser. No. 852,504
Int. Cl. B02c *11/00;* **B03d** *1/02, 1/08*
U.S. Cl. 241—24 **7 Claims**

In the flotation of copper sulfides; diisobutyl dithiophosphates, diisoamyl dithiophosphates and di(2-methyl-1-butyl) dithiophosphates give a superior flotation rate, recovery and selectivity as compared with conventional dialkyl dithiophosphates, often permitting a coarser grind, and flotation of middlings, followed by a regrind ultimately resulting in a higher recovery of copper.

3,570,773
CHIPPER FEEDER

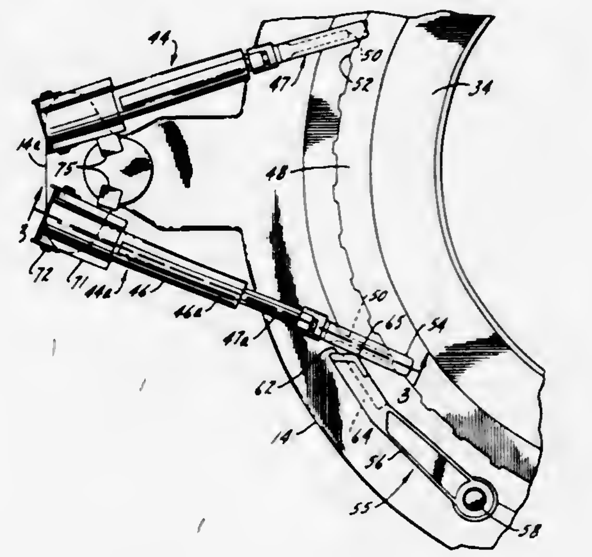
John I. Schneider, and John M. Morris, Louisville, Ky., assignors to Rex Chainbelt, Inc., Milwaukee, Wis.
Filed Aug. 15, 1968, Ser. No. 752,812
Int. Cl. B02c *18/22*
U.S. Cl. 241—81 **8 Claims**



A vibratory conveyor specially designed for ruggedness and ability to align elongated pieces of material and feed them through the infeed spout of a power driven chipper provides a virtually jam proof, maintenance free apparatus for reducing random length scrap lumber to chips suitable for use in pulp mills. The conveyor includes a screen section and a metal detecting section, the latter being arranged to stop the conveyor upon detecting any metal in material being fed to the chipper.

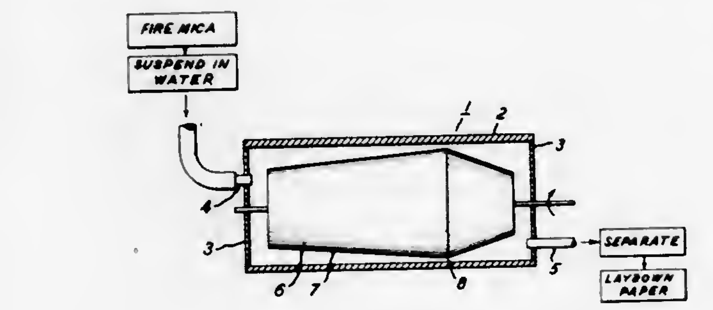
3,570,774
CRUSHER ADJUSTMENT

Rudolph J. Gasparac, and Arnold P. Szaj, Milwaukee, Wis., assignors to Nordberg Manufacturing Company, Milwaukee, Wis.
Filed June 2, 1969, Ser. No. 834,197
Int. Cl. B02c *2/00;* **B24b** *41/04;* **B02c** *23/00*
U.S. Cl. 241—207 **10 Claims**



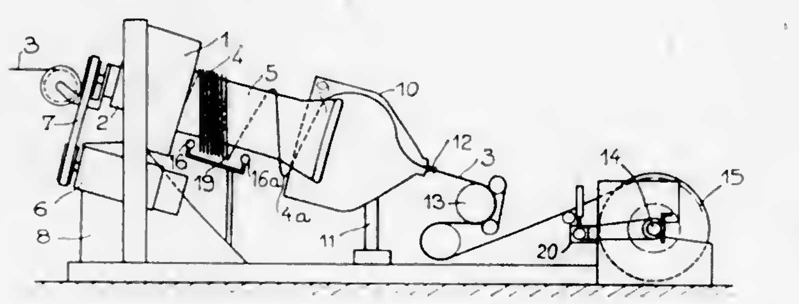
The invention relates to a bidirectional ram structure for rotating a rotatably adjustable bowl in relation to the main frame of a crusher. The invention includes means for normally holding the bowl against unintended rotary movement, and means for rotating the bowl alternatively in opposite rotational directions, depending upon whether the operator desires to increase or to diminish the clearance between the bowl and head of a gyrated head crusher.

3,570,775
MICA DELAMINATION
Donald C. Stavely, Scotia, N.Y., assignor to General Electric Company
Filed Dec. 21, 1967, Ser. No. 692,483
Int. Cl. B02c *4/10, 19/12*
U.S. Cl. 241—255 **5 Claims**



Flakes of micaceous material are delaminated by passing them at increasing speed through a progressively restricted annular space formed by a cylinder and a rotating inner rotor. The finely divided product is useful in making paper.

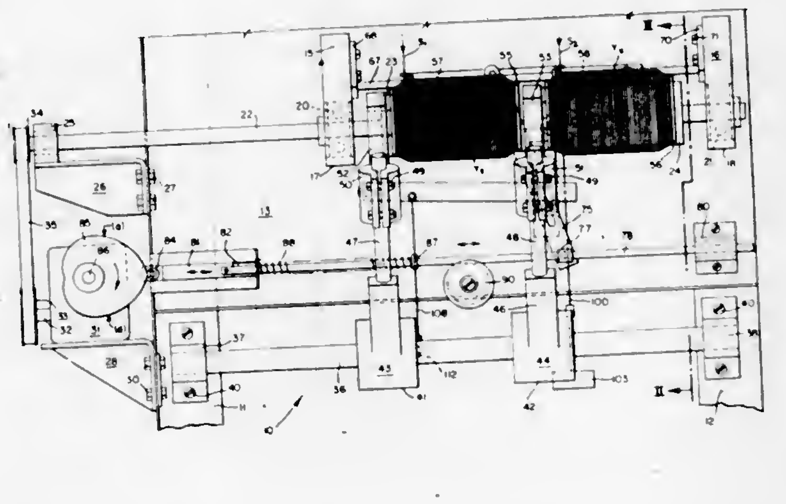
3,570,776
DEVICE FOR FEEDING WIRE ON TO A BOBBIN
Jean Godderidge, 11 Boulevard Henri Barbusse, 78 Houilles, France
Filed Jan. 2, 1969, Ser. No. 788,600
Claims priority, application France, Feb. 21, 1968, 140713
Int. Cl. B65h *54/00*
U.S. Cl. 242—25 **5 Claims**



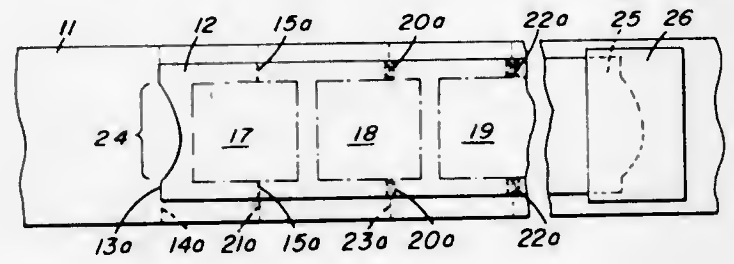
A device for the continuous feeding of wire onto a bobbin comprising a wire tensioning device including a capstan on which is secured a storage device of which the axis thereof common with the tensioning device is inclined to the horizontal, an antiballooning cone partially surrounding the free extremity of the storage device, a controllable brake for the wire disposed between the said cone and a bobbin frame which frame drives the bobbin to be loaded.

3,570,777
WINDER AND WINDING METHOD
Emil J. Berger, Jr., Wayne, Pa., assignor to Turbo Machine Company, Lansdale, Pa.
Filed Aug. 19, 1968, Ser. No. 753,413
Int. Cl. B65h *54/32, 54/28*
U.S. Cl. 242—43.1 **16 Claims**

A winder and winding method is provided for forming multiple yarn feeds into multiple packages having tapered ends, each having a yarn guide having a mechanical movement which controllably varies the axial movement of the guide in relation to the diameter of the yarn accumulated in the package.



3,570,778
FILM END TREATMENT ARRANGEMENT
Clifford B. Bushnell, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Original application Apr. 26, 1965, Ser. No. 450,948, now abandoned. Divided and this application Apr. 24, 1969, Ser. No. 818,947
Int. Cl. B65h *35/04*
U.S. Cl. 242—56 **8 Claims**

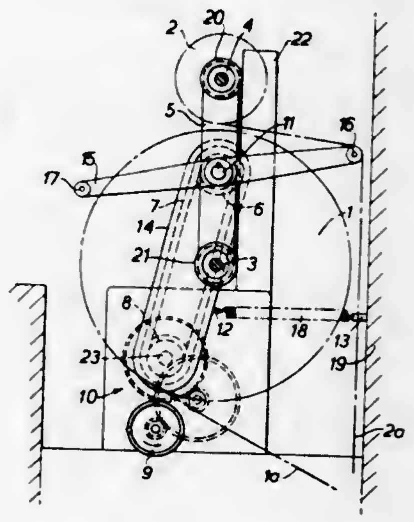


A method of forming a tightly wound roll of film comprising a backing paper strip interleaved with a length of pressure-sensitive photographic film, having a normal picture area between the lateral edges thereof, whereby the picture area is free of pressure marks. The method comprises the steps of starting to wind the backing paper strip tightly around a rotating mandrel, cutting an end of the film to have a reduced supporting configuration in the area corresponding to and longitudinally aligned with the normal picture area of the film and, while continuing the winding of the backing paper strip, maintaining tension in the backing paper strip. The cut end of the film is introduced into the nip of the backing paper being wound on the rotating mandrel, and the length of film is wound together with the remainder of the backing paper.

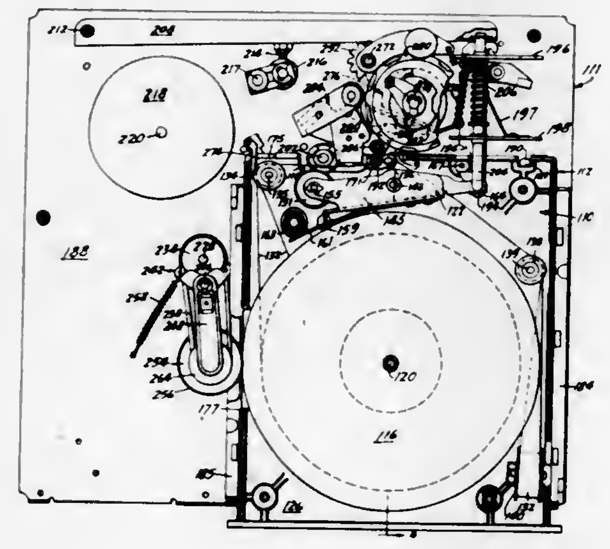
3,570,779
BOBBIN-CHANGING DEVICES
William Charles London, Deptford, London, England, assignor to Moline Machine Company Limited, London, England
Filed Dec. 4, 1968, Ser. No. 781,131
Claims priority, application Great Britain, Dec. 15, 1967, 57040/67
Int. Cl. B65h *49/32, 67/02*
U.S. Cl. 242—64 **7 Claims**

A bobbin changer has a carrier supporting two bobbins symmetrically placed relative to a pivot, and guide means

such as a fixed cam are provided so that, when the carrier is rotated on its pivot to interchange the positions of the bobbins, one bobbin moves in a shorter path than the other.



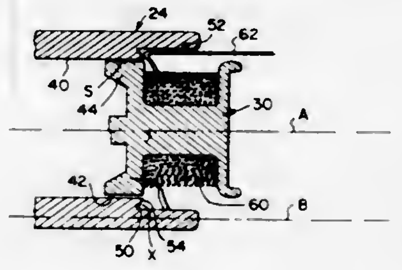
3,570,780
MAGNETIC TAPE CARTRIDGE
Sheldon Lee Pastor, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 489,534, Sept. 23, 1965, now abandoned. This application Feb. 12, 1969, Ser. No. 798,749
Int. Cl. G03b *1/04;* **G11b** *15/32*
U.S. Cl. 242—194 **8 Claims**



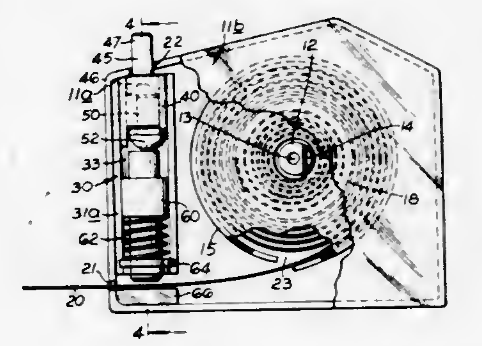
A cartridge enclosing a pair of tape reels independently rotatably mounted on a shaft and guide means in the container guiding the tape from one reel past an opening in one edge of the container and back across the same opening to the other reel.

3,570,781
REEL WITH INTEGRAL LINE STOP
Paul E. Allen, Ephrata, Pa., assignor to Woodstream Corporation, Lititz, Pa.,
Filed Aug. 26, 1968, Ser. No. 755,040
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.21 **2 Claims**

There is disclosed a fishing reel of the spinning type having inter alia, and as conventional, a spool housing or cup and a spool reciprocally movable within the spool housing or cup. The spool housing, however, has a first forwardly disposed inner wall portion of a larger diameter than the adjacent second and rearwardly disposed inner wall portion thereof, and a line stop face joins such first and second wall portions. The line stop face is disposed to engage and direct expanding turns of line unwrapping from the spool forwardly of the face so as to prevent line and/or reel fouling.

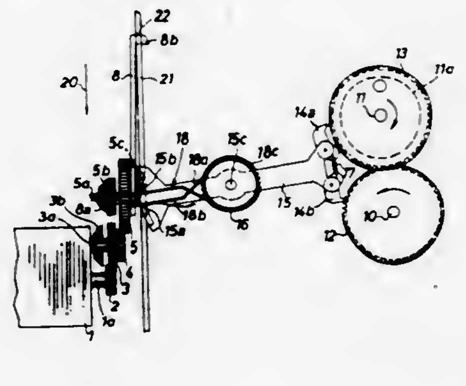


3,570,782
TAPE MEASURES
Derek Hayes, Birminghan, England, assignor to Rabone Chesterman Limited, Birmingham, England
Filed Jan. 14, 1969, Ser. No. 790,999
Claims priority, application Great Britain, Jan. 16, 1968, 2261/68
Int. Cl. B65h *75/48*
U.S. Cl. 242—107.2 **8 Claims**



A tape measure having a measuring tape coiled within a housing provided with a braking device, the latter including a button accessible externally of the housing to actuate a tape clamping member through an intermediate catch member so that the latter alternately engages and disengages a catch point in the housing to define a tape-clamping and a tape-released position respectively of the member.

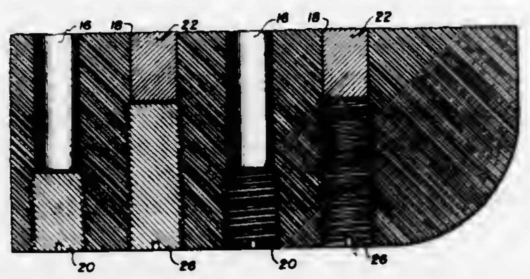
3,570,783
MOTION PICTURE CAMERA
Friedrich Winkler, Unterhaching, and Kurt Thate, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 17, 1969, Ser. No. 808,385
Claims priority, application Germany, Mar. 28, 1968, P 17 72 083.1
Int. Cl. B11b *15/32;* **G03b** *1/04*
U.S. Cl. 242—205 **14 Claims**



The takeup reel of a motion picture camera is rotated by way of the claw pulldown. The connection between the pulldown and the reel comprises a pair of meshing gears one of which is connected with the reel, a two-armed lever one arm of which is rocked by the pulldown by way of a torsion spring and the other arm of which carries two pawls. One pawl is disengaged from one of the gears when the other pawl rotates the other gear, and vice versa, whereby the reel rotates in a single direction.

3,570,784
LOW BALLISTIC COEFFICIENT RADIOISOTOPE HEAT SOURCE

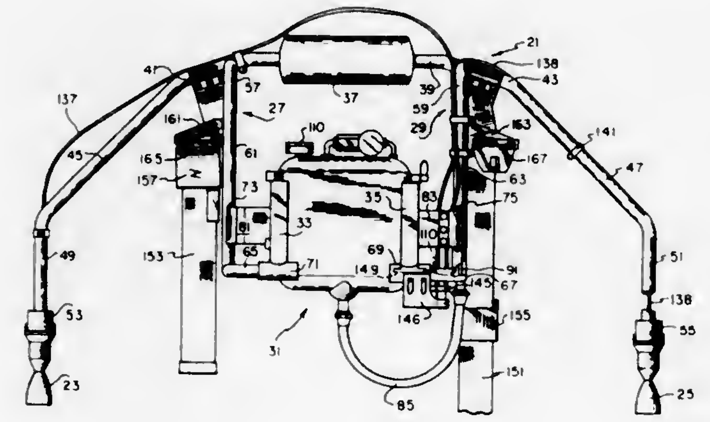
Martin R. Scheve, Baltimore, Md., assignor to Teledyne, Inc., Los Angeles, Calif.
Filed Oct. 20, 1967, Ser. No. 676,933
Int. Cl. B64g *1/30;* **G21c** *3/30*
U.S. Cl. 244—1 **13 Claims**



A radioisotope containing heat source for use in artificial satellites and space vehicles. The source is configured so as to have a low ballistic coefficient allowing its random reentry into the earth's atmosphere at low terminal velocities. The low velocity prevents burnup and allows intact reentry of the radioisotopic fuel capsules. The heat source may typically be configured as a flat rectangular panel through which empty cylindrical channels are formed for lowering its weight and within which capsules containing the radioisotope are disposed. Graphite may be used to form the body of the panel.

3,570,785
PERSONAL PROPULSION UNIT

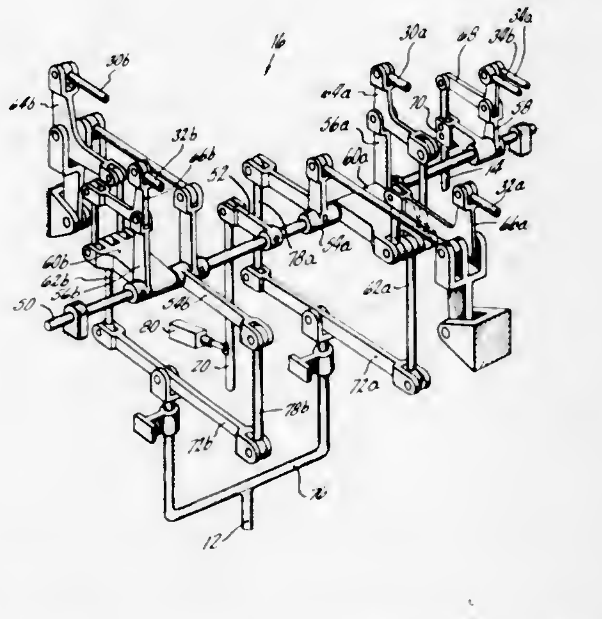
Robert M. Croft, Albertville; Alfred G. Orillion, and Thomas W. Barrett, Huntsville, Ala. Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 24, 1969, Ser. No. 809,822
Int. Cl. B64c *39/00*
U.S. Cl. 244—4 **1 Claim**



A monopropellant propulsion system which is used as an assist unit to augment an astronaut's jumping ability on the lunar surface. The unit is composed of a tubular framework which fits onto the shoulders of an astronaut and supports a disposable propellant tank adjacent the astronaut's chest and has thrusters adjacent each side of the astronaut about at the level of the hips. Propellant lines are contained within the tubular framework. Controls are provided for tilting the thrusters toward the front and back as well as for throttling the thrusters. Extensions may be added to the tubular framework to achieve different configurations, such as would be suitable for cargo handling.

3,570,786
CONTROL APPARATUS AND METHOD FOR OPERATING AN AIRCRAFT

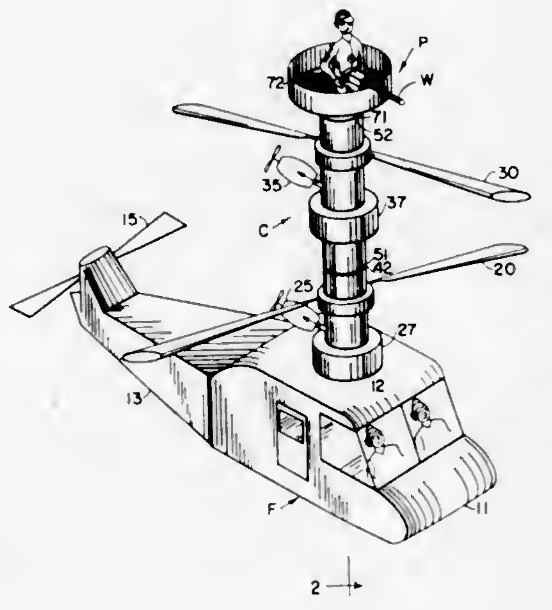
Richard B. Lewis II, Sepulveda, Calif., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Aug. 7, 1969, Ser. No. 848,264
Int. Cl. B64c *27/34, 27/44*
U.S. Cl. 244—17.13 **20 Claims**



A control device and method for operating an aircraft having rigid lifting rotors in which the rotor blades can carry steady offset lift vectors. The blades of the rotors are adjustable cyclically so that the thrust vector can be offset laterally and are adjustable collectively to vary the magnitude of the thrust vector. Collective-to-lateral coupling is provided which renders the lateral cyclic pitch a function of collective pitch. Above a given transition speed, collective pitch is held constant for straight-and-level flight. Maneuvering at high speed is performed by operating the cyclic stick along or in conjunction with an auxiliary propulsion device in the same manner as in fixed wing aircraft.

3,570,787
HELICOPTER COLUMN FOR SUPPORTING MULTIBLADE ROTORS AND SUMMIT LOADS

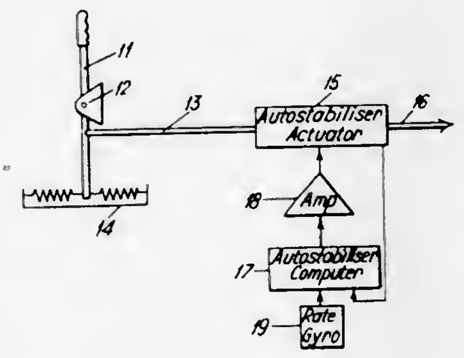
Bernhardt Stahmer, 1509 Chicago St., Omaha, Nebr.
Filed Aug. 30, 1968, Ser. No. 756,683
Int. Cl. B64c *27/08*
U.S. Cl. 244—17.23 **9 Claims**



This invention relates to a helicopter aircraft comprising a hollow fuselage and a stationary lofty upright column attached to the fuselage and extending loftily upwardly from the fuselage roof along a vertical axis, the lofty column being both adapted to rotatably support at least one substantially horizontal multiblade rotor thrust means and also adapted to support a weighty load at the column summit. The lofty column is desirably of a tubular configuration having two vertically-aligned tubular segments, including a lateral access opening into the lower segment from the fuselage interior, a multiblade rotor thrust means attached to each segment with the respective rotors being adapted to rotate in opposed directions about the column vertical axis, and platform means at the column summit adapted to carry a weighty load such as warfare weaponry.

3,570,788
FLIGHT AID SYSTEMS

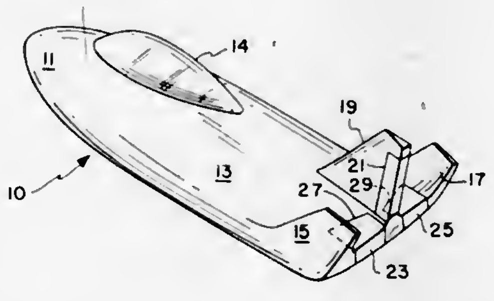
Joe Cox, Grantham, Lincs., England, assignor to Ferranti, Limited, Hollinwood, Lancashire, England
Filed Jan. 31, 1969, Ser. No. 795,627
Claims priority, application Great Britain, Feb. 6, 1968, 5859/68
Int. Cl. B64c *17/06*
U.S. Cl. 244—77 **2 Claims**



A flight aid system is provided for an aircraft having a control system in which two parallel control rods move together in the same or in opposite directions to control movement of the aircraft about a first or a second control axis respectively. The system includes, for each control rod, a closed-loop autostabilizer including a rate gyroscope. The two rate gyroscopes are mounted with their sensitive axes coplanar with the two control axes and displaced by equal and opposite angles about the second control axis.

3,570,789
HIGH-SPEED FLIGHT VEHICLE CONTROL

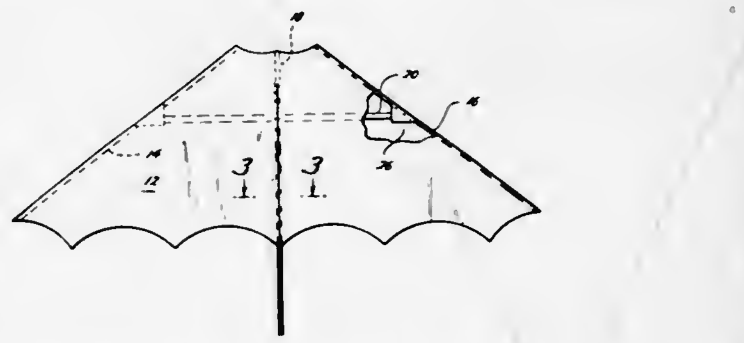
Robert W. Rainey, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 30, 1969, Ser. No. 837,830
Int. Cl. B64c *9/02*
U.S. Cl. 244—90 **3 Claims**



A vehicle having supersonic and hypersonic flight capabilities equipped with a pair of elevons on the aft end of the body and disposed with hinge lines swept forward relative to the aircraft centerline at an angle less than 90°.

3,570,790
METHOD OF MAKING A KITE AND KITE STRUCTURE

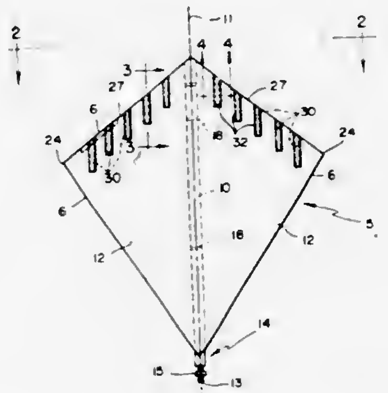
Julius M. Christoffel, and Lester F. Phillips, Houston, Tex., assignors to Gayla Industries Inc., Houston, Tex.
Filed Aug. 5, 1968, Ser. No. 750,326
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **6 Claims**



A kite structure having a body and structural members which are integrally bonded to the kite body and the method of making such kite structure.

3,570,791
BATTENED KITE CONSTRUCTION

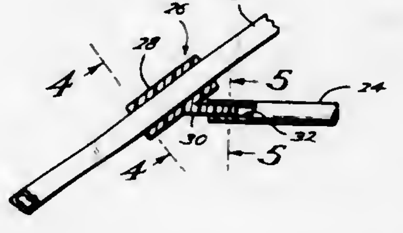
Richard R. Jackson, 8 Trinity Road, Marblehead, Mass.
Filed May 31, 1968, Ser. No. 733,599
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **6 Claims**



The specification describes a kite or kitelike device having substantially symmetrical wing sections made of highly flexible sheet material; stiffening battens are disposed at the leading edge of the wing sections to make the wing sections rigid in the chordal direction but yet permit free flexure of the wing sections in the direction of span.

3,570,792
KITE STRUCTURE

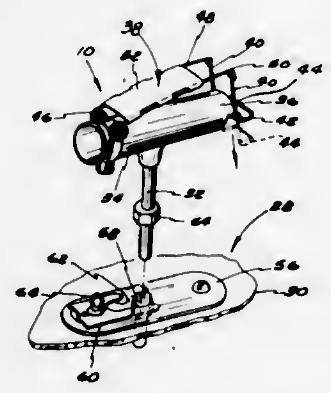
Julius M. Christoffel, and Lester F. Phillips, Houston, Tex., assignors to Gayla Industries, Inc., Houston, Tex.
Filed Aug. 5, 1968, Ser. No. 750,274
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **5 Claims**



A collapsible kite structure having a body of sheet material, a pair of structural members secured to said body and diverging with respect to each other when said body is extended to flying position, pins secured to said structural member and a cross brace adapted to engage said pins to hold said structural members in diverging position.

3,570,793
FISHING ROD HOLDER

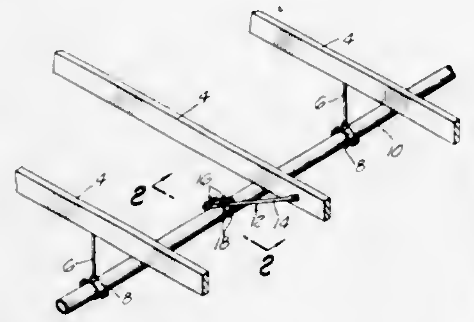
Joseph T. Shackel, 14636 Bringard, Detroit, Mich.
Filed Aug. 13, 1968, Ser. No. 752,230
Int. Cl. A01k *97/10*
U.S. Cl. 248—42 **9 Claims**



A pair of holders are disclosed for supporting a fishing rod in a selected orientation on a boat or other supporting surface. In each embodiment, the handle of the rod is seated in a support mounted at the upper end of an upright post, and a spring-biased keeper, mounted on the support, is movable between a first position in which it prevents removal of the fishing rod handle from its seat, and a second position in which it allows the handle to be inserted into or removed from its seat. In one embodiment the lower end of the post can be mounted in the oarlock of a boat, in the other embodiment the post can be mounted in a boat gunnell.

3,570,794
SWAY BRACE FOR PIPING

Joseph F. Kirschner, Arcadia, Calif., assignor to Automatic Fire Control, Inc., El Monte, Calif.
Filed Aug. 23, 1968, Ser. No. 754,804
Int. Cl. F16l *3/10*
U.S. Cl. 248—74 **1 Claim**

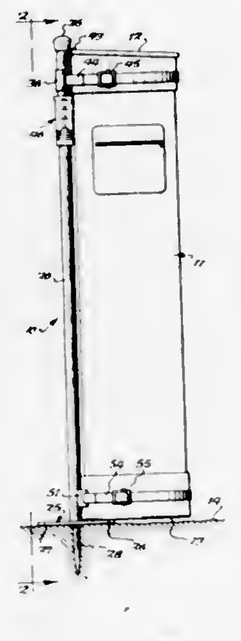


A sway brace for fluid lines in building structures such as water supply lines in sprinkler systems, the brace including a brace element having an end adapted to be anchored to a joist or other portion of a building and having its opposite end provided with a U-bolt clamp assembly, the sway brace being disposed at an angle to the horizontal of 0° to 45° and the U-bolt encircling the water pipe to be braced, and the clamps being located on the U-bolts and having portions clampingly engaging the diagonal brace.

3,570,795
GOLF BAG STAND

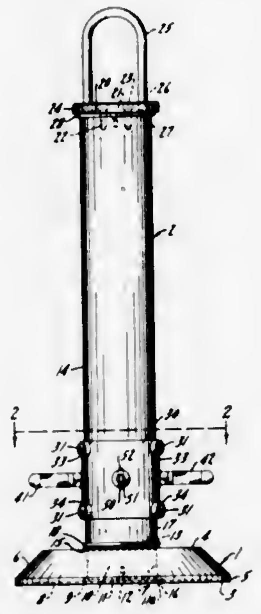
Howard A. Benzel, 20 Lombardy St., Lancaster, N.Y.
Filed Mar. 10, 1969, Ser. No. 805,544
Int. Cl. A63b *55/04*
U.S. Cl. 248—96 **5 Claims**

A stand for holding a golf bag in upright position on a golf course and adapted for convenient storage in small spaces when not in use. An elongated tubular supporting member has secured in one end thereof a mounting member to which are releasably attached a spike, a plate functioning as both a bottom support for the bag and a foot step, and a member which supports one side of the bag. A strap connected to the member is releasably buckled around the bag. A C-shaped hanger adapted to engage the bag top rim and a second bag-holding strap are connected to a clamp movably fastened on the tubular supporting member near the other end thereof. A tubular grip-type handle is positioned on the tubular supporting member intermediate the ends thereof.



3,570,796
INDICATOR-MEASURING DEVICE

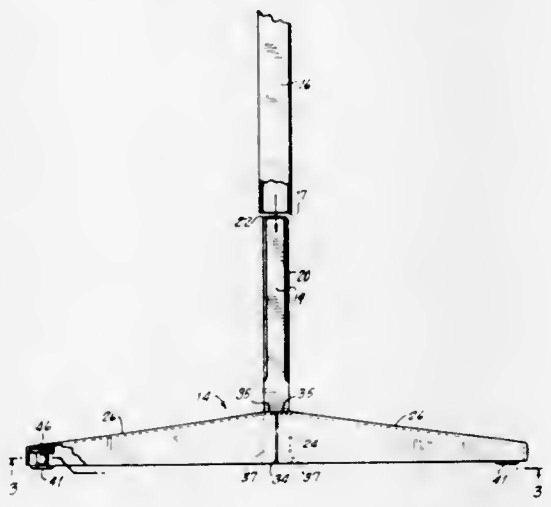
Doc R. Capps, South Bend, Ind., assignor to South Bend Tool & Die Co., Inc., South Bend, Ind.
Continuation-in-part of application Ser. No. 603,697, Nov. 14, 1966. This application Jan. 23, 1969, Ser. No. 793,366
Int. Cl. G01b *3/22*
U.S. Cl. 248—125 **5 Claims**



A gauge stand having predetermined paralleling and angularly related surfaces of controlled dimensions with an indicator-carrying sleeve manually slidable and rotatable but frictionally held in the position placed on a central post, and fluid pressure means facilitating manual movement of the device of the invention.

3,570,797
FURNITURE BASE

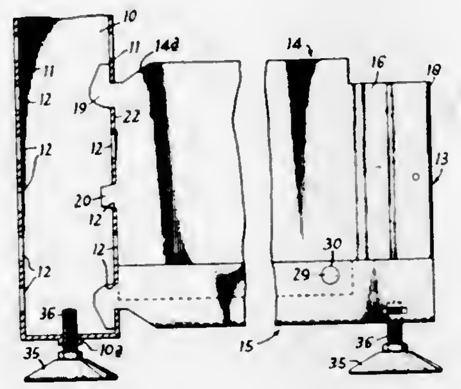
Forest G. Stark, Jamestown, and Burdette Bruce Hook, Ashville, N.Y., assignors to Art Metal-Knoll Coporation, Jamestown, N.Y.
Filed Apr. 16, 1969, Ser. No. 816,600
Int. Cl. F16m *11/20*
U.S. Cl. 248—188.7 **1 Claim**



An upright furniture support for use in a freestanding article of furniture wherein one or more elements such as horizontal shelves or vertical display boards are mounted between a pair of such supports. Each support includes an upright hollow metal tube of square cross section and a base comprising a solid metal post of square cross section press fitted within the lower end of the tube and having beveled vertical edges, and a pair of rigid elongated members fixedly secured to and projecting in opposite directions horizontally from the lower end portion of the post for engaging the floor. The two elongated members may be downwardly opening channel members which are welded to the lower end of the post and have sidewall portions extending toward each other over the side surfaces of the post.

3,570,798
SUPPORTING STRUCTURES FOR SHELVES, RAILS AND LIKE MEMBERS

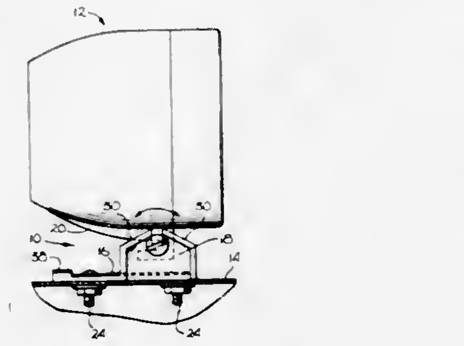
Dennis Edward Charles Squibb, Watford, England, assignor to Savage and Parsons Limited, Watford, Hertfordshire, England
Filed Oct. 28, 1968, Ser. No. 771,023
Claims priority, application Great Britain, Oct. 27, 1967, 49042/67
Int. Cl. A47f *5/08*
U.S. Cl. 248—223 **7 Claims**



A support structure includes an upright and a bracket extending laterally therefrom. The upright has slots therein. The bracket includes first and second members. The first member has hooks which engage in the apertures and stops which limit rotational movement of the member toward the second member. The second member has hooks which engage in the apertures and stops which limit rotational movement of the member toward the first member. Both members have transverse holes therethrough which become aligned for receiving a pin when the members are strained toward each other.

3,570,799
MOUNT FOR INSTRUMENTS AND THE LIKE

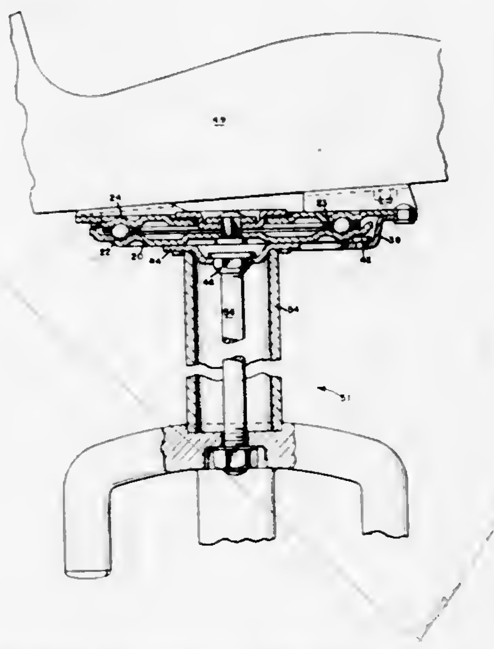
Edwin L. Schwartz, Los Angeles, Calif., assignor to Rite Autotronics Corporation, Los Angeles, Calif.
Filed Oct. 7, 1969, Ser. No. 864,310
Int. Cl. B60q *1/32*
U.S. Cl. 248—291 **10 Claims**



A mount for attaching an instrument or other article to a mounting surface. The mount includes a mounting bracket having a base to be attached to the mounting surface and a pair of parallel sidewalls rising from the base for straddling a coupling tongue on the article to be supported. The sidewalls are formed with outwardly directed flanges along their edges and with slots which open endwise through the sidewall edges and flanges. The article is attached to the mounting bracket by means of a coupling pin which extends through the bracket slots and the article coupling tongue. This coupling pin has enlarged shoulder elements which project laterally beyond the sides of the slots and under the sidewall flanges to effectively captivate the pin against axial and lateral separation from the bracket. The mounting bracket is uniquely shaped to be cast in finished form without the aid of removable cores, thus to minimize production cost.

3,570,800
SWIVEL

Izchak Cycowicz, Brooklyn, N.Y., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Continuation of application Ser. No. 706,389, Feb. 19, 1968, now abandoned. This application Mar. 20, 1970, Ser. No. 19,560
Int. Cl. F16m *11/00*
U.S. Cl. 248—415 **2 Claims**



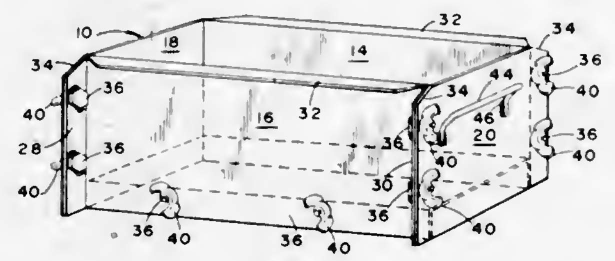
A low profile swivel device for chairs or the like.

3,570,801
MOLD FOR CONCRETE TEST BEAM

Earl F. Moritz, Dallastown, and George F. Wagman, Jr., York, Pa., assignors to Wagman Metal Products, Inc., Dallastown, Pa.

Filed Apr. 23, 1969, Ser. No. 818,663
Int. Cl. B41b *11/60*

U.S. Cl. 249—166 **4 Claims**



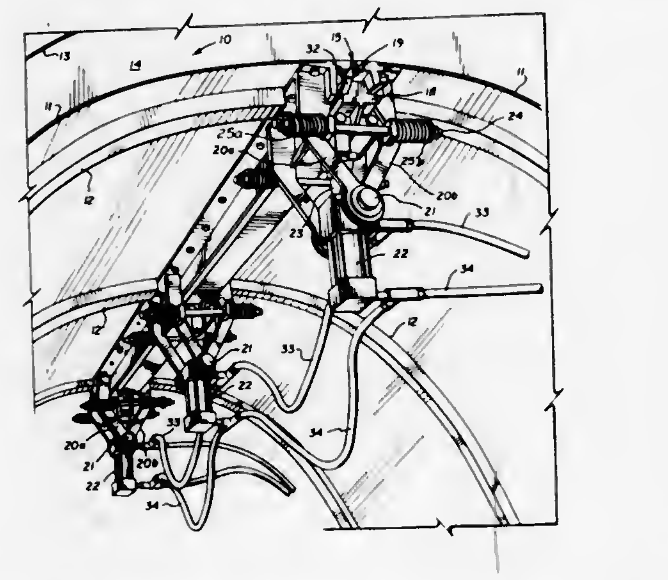
A mold for casting a concrete test beam having precise cross-sectional and length dimensions, the mold being formed from heavy gauge sheet metal and having a bottom panel with downwardly extending side flanges, a pair of side panels having outwardly extending end flanges and a top flange along the upper edge of the side panel, and end panels having a height, in use, equal to that of the side panels, and a minimum of at least two bolts fixed to each of the end flanges of the side panels and the side flanges of the bottom panel for projection through complementary holes in the abutting portions of the other panels which engage the same, whereby wing nuts tightly and effectively clamp the side panels to the bottom panel and connect the end panels to the side panels in a substantially watertight manner, the end panels also having handles projecting outwardly therefrom and the upper flanges on the side panels providing guide surfaces for a striking tool to level the concrete when poured into the mold.

3,570,802
CONCRETE-MOLDING APPARATUS HAVING AN INNER MOLD MEMBER WITH VARIABLE DIMENSION PERIPHERY

Ira B. Miller, Orange, Calif., assignor to Hydro Conduit Corporation, Orange, Calif.

Filed Oct. 10, 1968, Ser. No. 766,396
Int. Cl. B28b *7/30*

U.S. Cl. 249—179 **12 Claims**



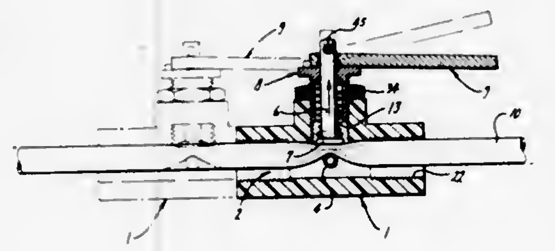
Withdrawal assembly for inner mold of a concrete tube mold having a linear seam throughout the lengthwise extent of a peripheral surface, mechanism adjacent the seam throughout its extent including a member having tapered sides for wedging insertion into the seam to spread the abutting surfaces and spring-biased drive means interiorly of the mold carrying the insert member and arranged to force said member into the seam in a spreading and sealing action for closing the seam during molding and initiating a withdrawal movement of the insert member with combined spring actuation thereby reducing the dimension of the peripheral surface by closing the seam to provide clearance with a formed tube in the mold.

3,570,803
CORROSIVE PROOF PINCH TUBE VALVE

Ray W. Cokeley, 3000 Broadway, Oakland, Calif., and David Y. Milburn, 14 Francisco Court, Orinda, Calif.

Filed Dec. 16, 1968, Ser. No. 783,845
Int. Cl. F16k *7/06*

U.S. Cl. 251—7 **2 Claims**



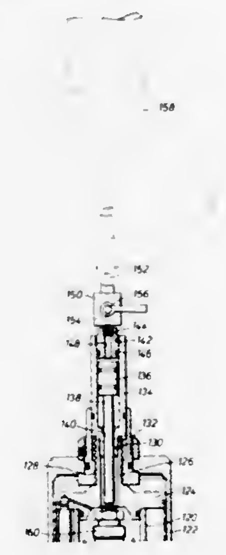
A valve for corrosive fluids consisting of a housing through which passes a flexible tube, a valve seat positioned in the housing passage having a convex striking surface, a plunger mounted on the housing having a plunger head movable toward and away from the valve seat, adjustable means adjusting the closure distance between the plunger head and the seat and manually engageable means connected to the plunger for operating the closure of the tube.

3,570,804
HYDRAULIC VALVE OPERATOR HAVING MANUAL OVERRIDE MECHANISM

Norman A. Nelson, Houston, and Jerry B. Tomlin, Houston, Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Apr. 18, 1969, Ser. No. 817,518
Int. Cl. F16k *31/143*

U.S. Cl. 251—25 **2 Claims**



A valve operator mechanism for valves having linearly actuated reciprocating gates. The valve operator mechanism includes an operator base portion and an operator closure member which cooperate with hydraulic cylinder to define a hydraulic chamber. A piston is movably disposed within the hydraulic chamber and is connected in unitary assembly with a reciprocating gate by a valve stem extending through the operator base and into the valve chamber. A hydraulic fluid supply is communicated into the operator chamber on one side of the piston for controllable actuation of said piston in one direction. A compression spring member is operable to return the piston to an initial position upon dissipation of the hydraulic fluid pressure above the piston. The valve operator mechanism is provided with mechanically or hydraulically actuatable override means controllable externally of the

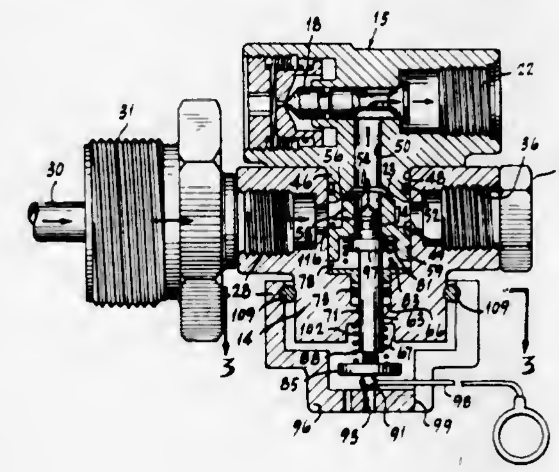
valve operator and being capable of overriding the spring means and biasing the gate member to any desired position thereof. Upon retraction of the override mechanism, the spring means will bias the piston, stem and gate assembly to another predetermined position.

3,570,805
VALVE HAVING QUICK RELEASE FLUID PRESSURE VALVE CLOSING MEANS

Harold J. Moran, Trenton, and Vincent F. Siravo, New Monmouth, N.J., assignors to Switlik Parachute Company Inc., Trenton, N.J.

Filed Jan. 31, 1969, Ser. No. 795,532
Int. Cl. F16k *31/383*

U.S. Cl. 251—38 **4 Claims**



A high-pressure valve structure to control admission of fluid from a high-pressure reservoir to an inflatable article, the said valve structure having a valve element maintained in its seated closed position to prevent leakage and fluid admission to the article by the high fluid pressure existing in the reservoir. Readily accessible manually operable valve release means are provided suddenly to release fluid seating pressure acting on the valve element and substantially instantaneously to permit admission of fluid from the reservoir to the article. The manually operable valve release mean is, preferably, operated by a pull on a lanyard, the latter serving to open the valve when pulled in any direction radially and axially, or either, of the axis of the valve structure. Actuation of the manually operable valve release means does not alter the external dimensions of the valve structure, which is an important feature of the invention as space is at a premium when the valve structure is to be installed in aircraft or, possibly, in space environment vehicles for inflation of emergency equipment such as, for example, a life raft or an escape chute.

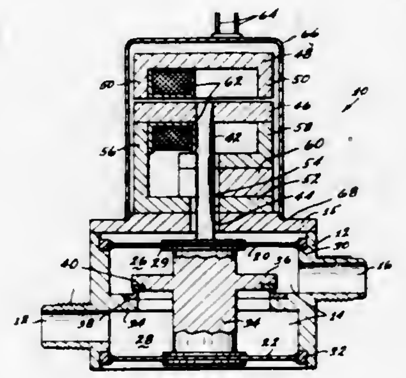
3,570,806
BALANCED ELECTROMECHANICAL CONTROL VALVE

Oded E. Sturman, Arleta; Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation

Filed Jan. 14, 1969, Ser. No. 791,027
Int. Cl. F16k *31/08*

U.S. Cl. 251—65 **4 Claims**

An electromechanical control valve in which a poppet is biased against a seat therefor within an enclosing chamber having inlet and outlet ports and which is balanced against fluid pressure forces. Oppositely disposed walls of the chamber are deformable and a force-transmitting rod carries the poppet between such deformable walls whereby displacement of the poppet causes deformation of the walls to urge the poppet in the opposite direction. A system geometry is utilized which takes into account the effective surfaces of the poppet and the configurations of the walls when deformed. In particular embodiments, bias on the poppet is obtained by the application of the magnetic potential of a permanent magnet operatively associated with an armature extension of the poppet outside the chamber. The permanent magnet biases the poppet to its seat and a coil is disposed on the armature to oppose the permanent magnet potential whereby the deformed chamber walls, acting as springs, urge the poppet to an open position.

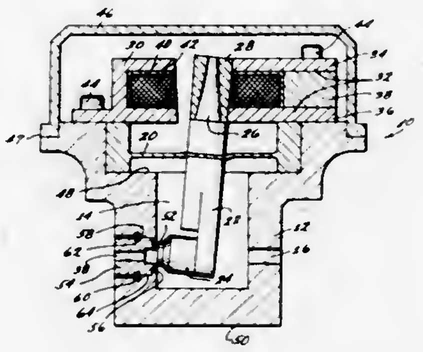


3,570,807
ELECTROMECHANICAL CONTROL VALVE

Oded E. Sturman, Arleta; Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation

Filed Jan. 14, 1969, Ser. No. 791,026
Int. Cl. F16k *31/08, 31/10*

U.S. Cl. 251—65 **4 Claims**



An electromechanical control valve in which a poppet is magnetically biased against a valve seat and is mechanically unseated upon decrease of the magnetic moment. A suspension plate carries the poppet on one side thereof and an armature on the other side to constitute an integrated assembly. A permanent magnet attracts the armature to thereby bias the poppet against the seat and deform the suspension plate. A coil is disposed on the armature and, when energized, develops a magnetic potential in opposition to the magnetic potential of the permanent magnet to thereby decrease the permanent magnet attraction whereby the deformed suspension plate, acting as a spring, urges the poppet out of the seat. The coil can be disposed so as to positively attract the armature through the null point to an opposite poll. The suspension plate also serves to isolate the magnetic circuit from the poppet-seat area.

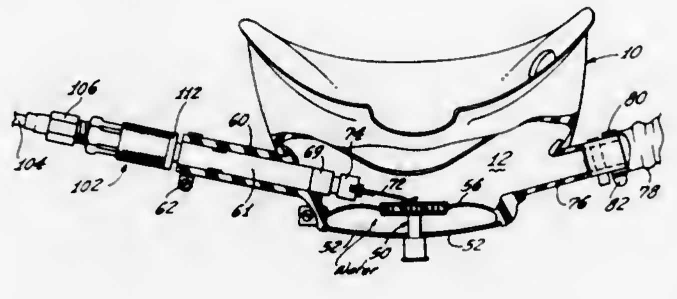
3,570,808
COUPLING ASSEMBLY FOR UNDERWATER FACE MASK

Jack Louis Wrenn, 2232 Via Corona, Montebello, Calif.

Filed Mar. 20, 1969, Ser. No. 808,886
Int. Cl. A62b *7/04;* **F16l** *37/28*

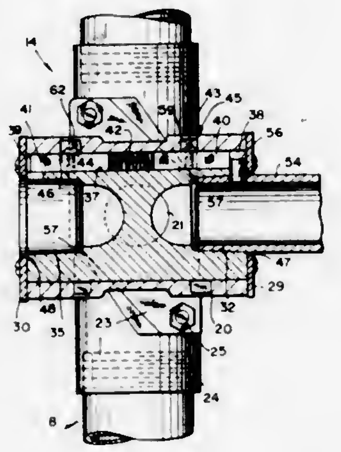
U.S. Cl. 251—149.6 **2 Claims**

An improved coupling assembly is provided for releasably attaching an air hose, or the like, to a second stage regulator of the type used in conjunction with the face mask or mouthpiece of underwater diving equipment. The coupling is readily detachable, and a double valve mechanism is provided, so that when the air hose is decoupled from the regulator underwater, valves in both the regulator air inlet and in the end of the air hose are immediately biased to a closed condition.



3,570,809
SILENT HOSE COUPLING

Hans Stuy, Canastota, N.Y., assignor to Clarkson Industries, Inc., Syracuse, N.Y.
Filed June 5, 1969, Ser. No. 830,772
Int. Cl. F16l *37/28*
U.S. Cl. 251—149.9 **7 Claims**

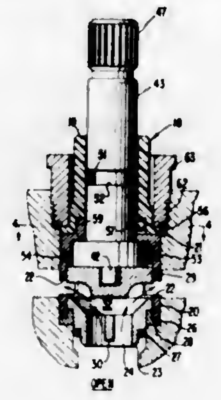


The disclosure is directed to a coupling which eliminates air noise when connecting and disconnecting a detachable cleaning hose to a built-in vacuum-cleaning system for buildings having outlets in separate rooms in which a nipple at the end of the hose is moved into sealing engagement with a valve plug in an outlet and then turned to connect the hose to an exhauster through built-in piping, and an interlocking arrangement to prevent rotation of the valve plug except when the hose nipple is in sealing engagement therewith.

3,570,810
FAUCET VALVE

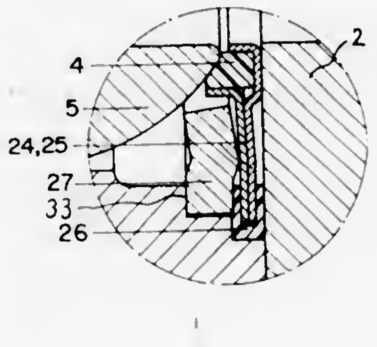
Raymond P. Kawolics, Marysville, Ohio, assignor to Wallace-Murray Corporation, Pittsburgh, Pa.
Filed Jan. 31, 1969, Ser. No. 795,628
Int. Cl. F16k *25/02*
U.S. Cl. 251—172 **3 Claims**

A faucet valve of the nonrise-type wherein the valve seat and the valve closure member are made of a wear- and corrosion-resistant material, such as a high alumina ceramic. The mating faces of the valve seat and the valve closure member are highly polished so that when the faucet valve is in the closed position, the valve seat and the valve closure member are held together in sealing relationship by the inlet liquid pressure. The sealing elements are held together in a valve housing as a module which can be inserted and removed from the faucet body as a unit.



3,570,811
SPHERICAL PLUG VALVE

Julius Kruschik, Gumpoldskirchen, Austria, assignor to Istag A. - G. Suhr/AG, Hint., Dorfstrasse, Suhr, Switzerland
Filed Jan. 3, 1969, Ser. No. 788,713
Claims priority, application Germany, Jan. 5, 1968,
P 16 75 433.9
Int. Cl. F16k *5/20*
U.S. Cl. 251—174 **4 Claims**



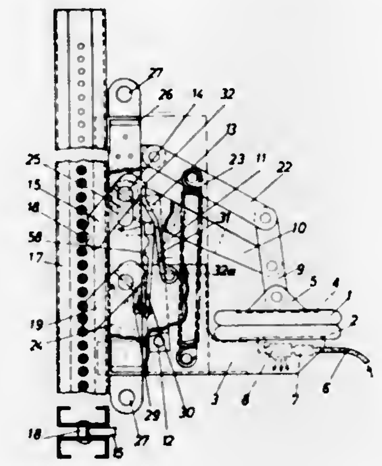
A spherical plug valve comprises a three-part casing, the middle part containing the spherical plug and an annular holding disc for sealing rings on either side of the plug. The holding discs are mounted in the planes of separation of the valve casing. Each annular holding disc carries at its inner periphery a sealing ring coacting with the spherical valve plug and at its outer periphery a sealing ring providing the seal between the two adjacent casing parts. The annular holding disc may be formed by two sheet metal discs which are axially flanged at their inner periphery to form two radially spaced axially extending flanges engaging between themselves the sealing ring coacting with the spherical valve plug. A supporting ring mounted in the middle part of the casing between the plug and the holding disc supports the holding disc against pressure when the valve is in closed position and allows a limited deformation of the holding disc.

3,570,812
LIFTING DEVICE OPERATED BY BELLOWS

Walter Finkbeiner, 729 Wittlensweilerstr, Freudenstadt, Germany
Filed Oct. 3, 1968, Ser. No. 764,838
Int. Cl. B66f *3/24, 1/04*
U.S. Cl. 254—93 **10 Claims**

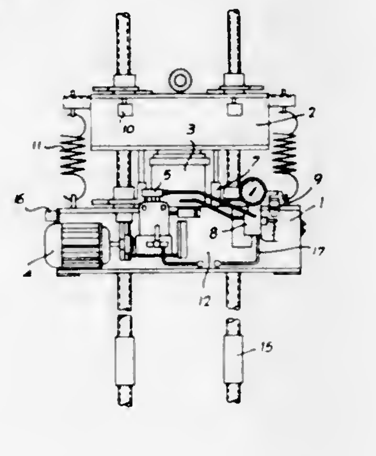
A reversible lifting device has an inflatable and deflatable bellows as a drive and catches which engage in recesses of a

guide pole. A rigid frame which can be connected to the load acts as one abutment for the bellows. A double-ended lever arm is pivotably mounted on the frame, has the other bellows abutment at one end and one of the catches at its other end.



3,570,813
LIFTING EQUIPMENT FOR THE ASSEMBLAGE IN VERTICAL DIRECTION OF BUILDING CONSTRUCTIONS MACHINES AND PLANTS

Hristo Ivanov Gretchenliev, and Atanas Gueorguiev Radev, Sofia, Bulgaria, assignors to Nautchno-Izsledovatelski Stroitelen Institut, Sofia, Bulgaria
Filed Sept. 12, 1968, Ser. No. 759,424
Claims priority, application Bulgaria, Sept. 20, 1967, I-1323
Int. Cl. B66f *1/00;* **E02d** *21/00*
U.S. Cl. 254—106 **6 Claims**

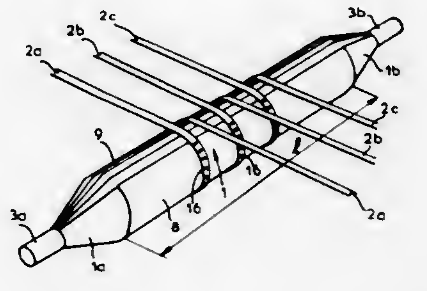


A system for lifting objects, e.g. parts of a building to be erected, wherein a plurality of lifting devices are spaced along the object and are connected thereto by threaded rods. The device comprises an upper and a lower member interconnected by a hydraulic jack and nuts on each of the members rotatable by mechanical means. The synchronization of the devices is carried out by a relay arrangement such that each device is associated with a respective switch having a plurality of contacts and coupled with the means for advancing one of the members with respect to the other. Movement is done in stages with each contact signaling the completion of its associated stage for all of the devices before any of them is energized to begin the second movement stage.

3,570,814
TRACTION CYLINDER

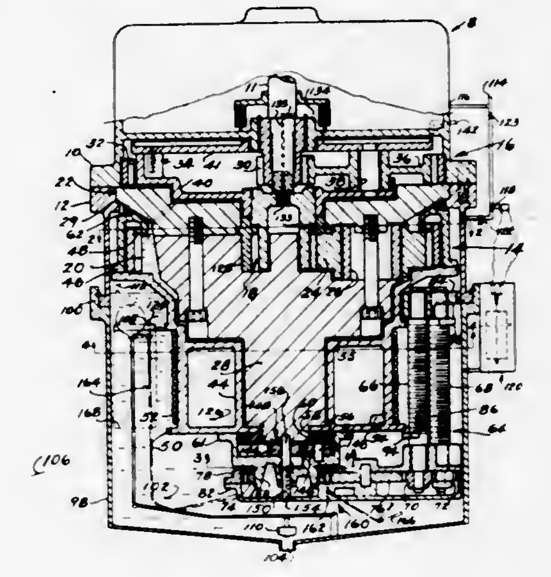
Paul J. Zuppiger, Athenaz, Switzerland, assignor to MacGregor-Comarain, Paris, France
Filed Feb. 24, 1969, Ser. No. 801,669
Int. Cl. B66d *1/30*
U.S. Cl. 254—150 **9 Claims**

The fluid-actuated traction cylinder according to the invention is of particular utility notably in the interior of deformable collapsible chambers. It comprises a substantially cylindrical tubular supple deformable enclosure closed at both ends and the lateral surface of which comprises elements articulated with one another along the generatrices of the surface of said cylindrical enclosure, supple band means, mounted on said cylindrical surface and having its ends attached to said members, and means for inflating or deflating said enclosure by means of a pressurized fluid.



3,570,815
APPARATUS FOR SUPPORT AND DRIVE OF ROTARY APPLIANCES

Arthur John Nelson, San Francisco, Calif. (3304 Shasta Drive, San Mateo, Calif. 94403)
Filed Aug. 18, 1969, Ser. No. 862,578
Int. Cl. B66d *3/22*
U.S. Cl. 254—150 **15 Claims**

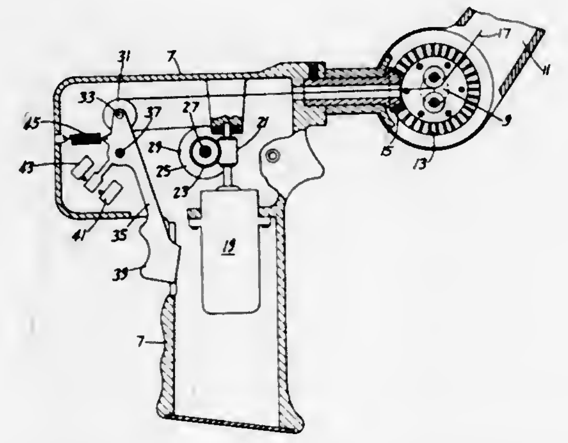


A power-consuming rotary appliance is supported and driven by elements involved in the speed changes of the power unit. The apparatus is applicable for either horizontal or vertical axis of rotation of the appliance by slight change to sealing details and with further modification is adaptable to immersion in a body of water. The speed changer comprises at least one planetary gear train and particular design assures proper conditioning and circulation of lube oil in contention with environmental conditions. The use of this apparatus to serve as a winch is stressed as one application.

3,570,816
MANIPULATOR HANDLE

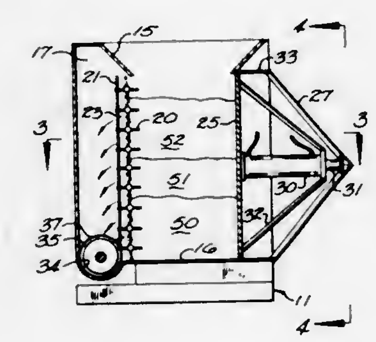
Jean Germond, Paris; Jean-P. Guilbaud, Jouars-Pontchartrain, and Jean Vertut, Paris, France, assignors to Central Research Laboratories, Inc., Red Wing, Minn.
Filed May 19, 1969, Ser. No. 825,494
Claims priority, application France, May 22, 1968, PV152,814
Int. Cl. B66d *1/46, 1/50, 1/56*
U.S. Cl. 254—173 **7 Claims**

A motorized handle for controlling the opening and closing of the grab or tong of a master-slave remote control manipulator characterized by increased ease of operation and mechanical boost of gripping force. A motor driven winch controlled by a pair of switches actuated by a lever or trigger manipulated by the operator from his normal handle gripping position provides auxiliary force supplementing that applied by the operator. Means are provided to lock the grab in closed position with a safety feature to prevent application of excessive force which might break the force transmitting cable.



3,570,817
BLENDING MACHINE

Patrick H. Claussen, Columbia, Mo., assignor to Fipps, Inc., Wellsville, Mo.
Filed Nov. 14, 1968, Ser. No. 775,633
Int. Cl. B01f *15/04*
U.S. Cl. 259—4 **11 Claims**

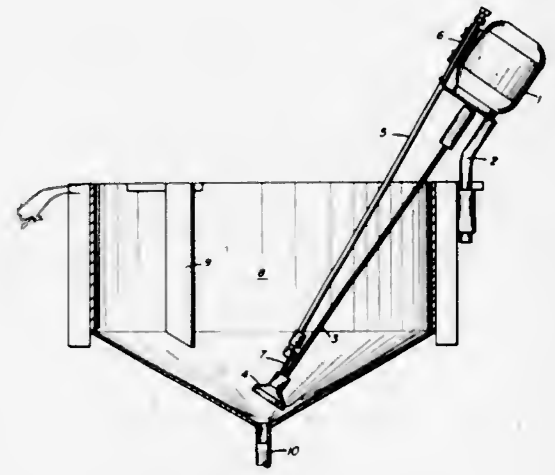


The blending machine includes a container which is adapted to hold successive layers of granular materials. The front wall of the container includes a plurality of closed louvers which, when open, form a plurality of vertically related dispensing apertures. The rear wall of the container is a movable plate, which when urged against the material in the container, forces the material through the dispensing apertures in proportion to the thickness of each layer. The granular material from each layer is blended by free fall and collected into a trough disposed below the apertures, the trough housing a screw conveyor which further blends and transports the granular material to a point of discharge.

3,570,818
ASPIRATING AGITATOR FOR DISPERSING NONAQUEOUS SOLUTION IN AQUEOUS GELATIN SOLUTIONS

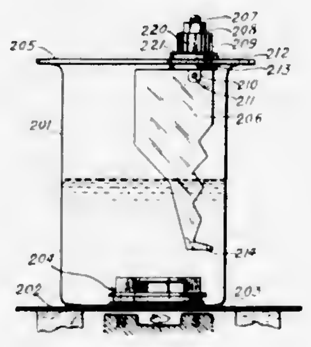
Benjamin A. Johnson, and Donald M. Forster, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 355,703, Mar. 30, 1964, Pat. No. 3,425,835.
this application Nov. 29, 1968, Ser. No. 779,719
Int. Cl. B01f *7/06*
U.S. Cl. 259—22 **13 Claims**

This invention relates to a mixing apparatus for dispersing small amounts of liquids in bulk liquids with substantial elimination of coagulation caused by low dispersion rates of portions of the added liquid. In one aspect this invention relates to a mixing apparatus which comprises a rotatable shaft having at one end a propeller agitator composed of blades, said blades encased in a funnel-shaped tubular confining means, means positioned at the larger end of said funnel-shaped confining means to form an annular opening, means for introducing into the interior of said confining means a liquid in bulk amounts and means for introducing into the interior of said confining means, at a point at which the liquid in bulk amount enters, a second liquid in an amount comparatively small relative to the liquid in bulk amount.



3,570,819
MAGNETIC STIRRERS

Arther Rosinger, 32 Colonial Terrace, Nutley, N.J.
Filed Jan. 8, 1968, Ser. No. 696,428
Int. Cl. B01f *7/16*
U.S. Cl. 259—108 **45 Claims**



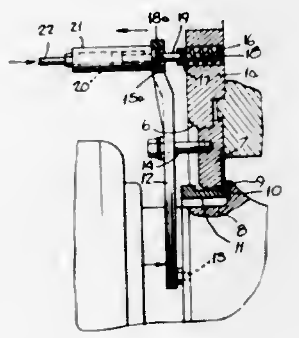
This invention relates to improvements in magnetic stirrers, wherein means such as, apparatus to change the relative position of the magnetic driving means and the vessel, a rotor having a substantially circular portion in its plane of rotation and adjustable baffle elements, are provided singly or in combination to enable the stirring characteristics of the stirrer to be adjustable over a wide range. Means are further provided for indexing the settings of the above variables so that any particular stirring pattern may be easily and accurately duplicated.

3,570,820
BANBURY-TYPE MIXER DUST STOP

Douglas W. Macleod, Oxford, Conn., assignor to USM Corporation, Boston, Mass.
Filed Jan. 9, 1969, Ser. No. 790,021
Int. Cl. B01f *7/02*
U.S. Cl. 259—109 **1 Claim**

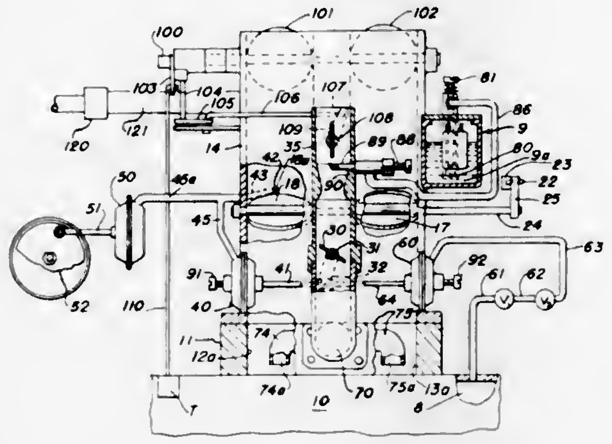
A Banbury-type mixer dust stop having the usual mechanical spring applying force to the dust stop yoke, has cylinder

and piston reciprocative elements with one element connected to the yoke and the other element connected to the spring.



3,570,821
CARBURETOR

Brooks Walker, 1280 Columbus Ave., San Francisco, Calif.
Filed Oct. 30, 1967, Ser. No. 678,967
Int. Cl. F02m *3/04*
U.S. Cl. 261—23 **4 Claims**

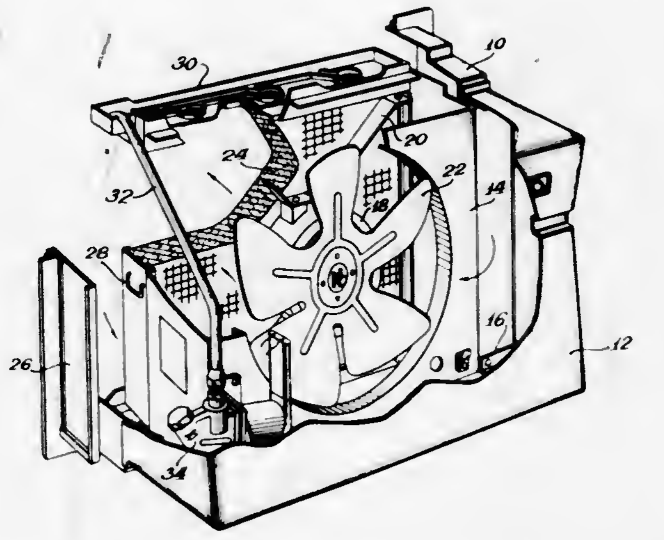


A multibarrel carburetor for an internal combustion engine having an auxiliary carburetor to provide fuel and air to idle, to the intake manifold, when the main throttles are closed at engine-idling speed. The auxiliary carburetor is provided with a throttle valve under the control of a pair of motors and has outlets for conducting idling fuel into a pair of throats of the carburetor. One of the motors is operated by manifold suction, when one of the valves of the carburetor is opened, to open the valve of the auxiliary carburetor. The other motor is operated when the valves of the carburetor are closed and the speed of the engine is above a preselected amount, to close the throttle of the auxiliary carburetor.

3,570,822
HUMIDIFIER

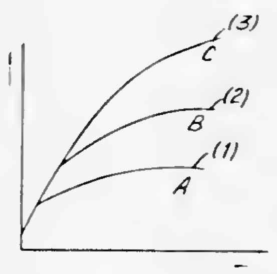
Clifford D. Peterson, and Donald A. Drew, Marshalltown, Iowa, assignors to Lennox Industries, Inc.
Filed Feb. 1, 1968, Ser. No. 702,322
Int. Cl. B01f *3/04;* **F24f** *3/14*
U.S. Cl. 261—29 **4 Claims**

In a humidifier with a motor-powered fan driving an airstream through a saturated water pad to humidify the air, the improvement of a water distribution pan for providing a uniform, metered flow of water to the water pad. The water distribution pan includes a number of apertures in the bottom with a channel leading from each aperture to a reservoir at one end of the pan. The reservoir is defined by the sidewalls of the pan and a dam in the pan between the sidewalls. Water spills over the dam, flows through the channels and drains out through the apertures. Ridges are provided around the apertures on both sides of the pan bottom to insure uniform distribution of the water.



3,570,823
CARBURETOR WITH FLUID AMPLIFYING ELEMENTS

Toshinori Arikawa, and Shigetaka Takada, Aichi, Japan, assignors to Aisan Kogyo Co., Ltd., Aichi Pref, Japan
Filed July 10, 1969, Ser. No. 840,670
Claims priority, application Japan, July 12, 1968, 43/49419
Int. Cl. F02m *7/04*
U.S. Cl. 261—36 **4 Claims**

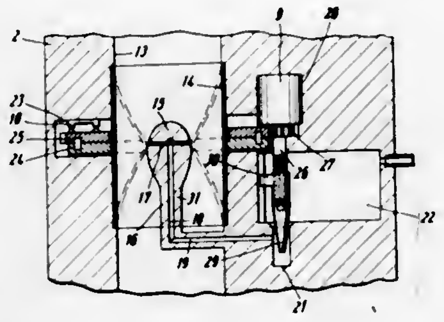


A carburetor employing three pure fluid amplifiers. Fuel from a supply source is applied to the power inputs of a first and a second amplifier, with a power outlet of the second amplifier being connected to the power inlet of the third amplifier. One power outlet of each amplifier terminates at an opening in a cylinder wall upstream of a throttle valve for supplying fuel to the cylinder. One control input of each amplifier terminates at an opening in the cylinder wall for sensing the pressure therein and controlling the amplifiers to supply fuel at a rate dependent upon the pressure sensed. The arrangement is such that one, two or all three amplifiers may supply fuel to the cylinder.

3,570,824
ELECTRONICALLY CONTROLLED CARBURETOR

Siegfried Strohm, and Erwin Pfisterer, Stuttgart-Stammheim, Germany, assignors to Firma Dr. Inq.h.c.F. Porsche K.G., Stuttgart-Zuffenhausen, Germany
Filed June 25, 1969, Ser. No. 836,520
Claims priority, application Germany, July 19, 1968,
P 17 51 733.8
Int. Cl. F02m *7/04*
U.S. Cl. 261—44 **12 Claims**

A control installation for the suction line of an internal combustion engine in which the elastic line section of the suction line is adapted to be adjusted by means of a shutter, actuated by an electric motor which is controlled from a control apparatus with two inputs dependent on conditions in the internal combustion engine.



3,570,825

WEIR FLOW DISTRIBUTORS OF THE PAN TYPE

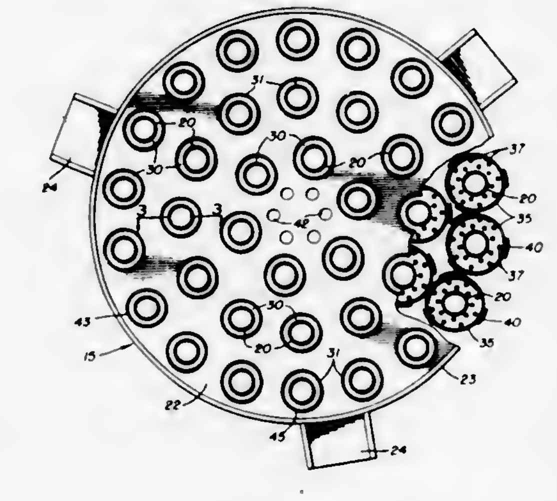
John S. Eckert, Silver Lake, Ohio, assignor to Norton Company

Continuation of application Ser. No. 592,246, Oct. 17, 1966, now abandoned , which is a continuation-in-part of application Ser. No. 524,992, Dec. 20, 1965, now abandoned. This application June 10, 1968, Ser. No. 742,950

Int. Cl. B01f *3/04, 5/18, 15/02*

U.S. Cl. 261—96 **4 Claims**

A distributor plate having a plurality of liquid passages therethrough, characterized by perforate liquid diffuser positioned beneath the plate and in correspondence with the passages, to subdivide liquid introduced into the passages, into a plurality of substreams. A plurality of openings in the plate and a cylindrical gas riser of smaller diameter than the openings are positioned in each opening. The gas risers coact with the openings as a core to define a plurality of annular passages through the plate. The liquid diffuser consists of discrete, perforate element in the form of a shallow, annular, open pan positioned below the plate and in correspondence with each of the plurality of passages. The pan has an inner periphery formed integral with the cylindrical gas riser, and an outer periphery of greater diameter than the outside diameter of its corresponding annular passage. Brackets secure a portion of the outer periphery of the annular pan to the plate. The annular passage and the annular pan coact to further divide the streams, each into a plurality of substreams.



3,570,826

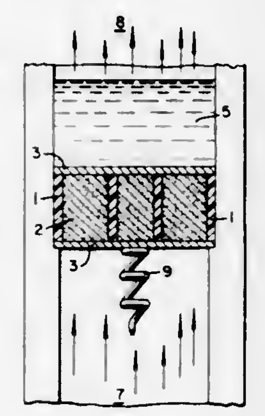
GAS-LIQUID-SOLID CONTACT DEVICE

Gustav Bergson, Apt. 319 Benson Apartments, Jenkintown, Pa. 19046

Filed July 5, 1966, Ser. No. 562,837

Int. Cl. B01f *3/04*

U.S. Cl. 261—122 **6 Claims**



Gas-liquid-solid contact device has an enclosure defined by top and bottom walls of porous material, side walls of a non-wettable material and discrete solid particles contained therein. The space between the discrete particles is filled with a liquid. Gas passed through the device thereby contacts the liquid-solid medium along maximum contact surface.

3,570,827

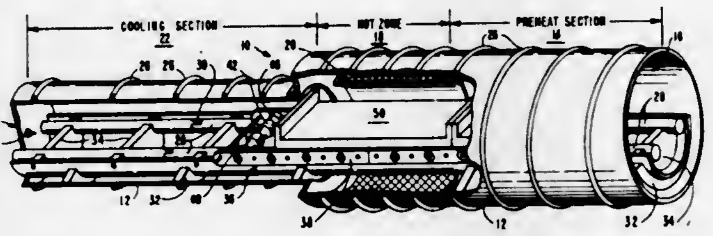
HIGH TEMPERATURE ROLLER CONVEYOR

Daniel F. Breedon, Goleta, Calif., assignor to Central Marking Systems, Inc., doing business as Astro Industries Inc.

Filed Apr. 1, 1969, Ser. No. 811,946

Int. Cl. F27b *9/14, 9/24*

U.S. Cl. 263—6 **13 Claims**



A roller conveyor system particularly suited for providing a continuous process high temperature furnace has a series of cylindrical rollers journaled parallel to one another in a supporting frame for free rotation. Each load of material to be heated is supported with its under surface in direct contact with the upper surfaces of the roller members, while the bottom roller surfaces are in direct contact with the surface of a horizontal track assembly so that the underlying rollers roll over the track surface to move the load longitudinally over the upper roller surfaces.

3,570,828

PROPANE VAPORIZER

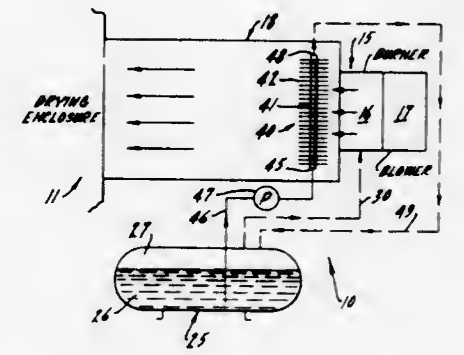
James A. Cowan, Marengo, Ill., assignor to Chicago Eastern Corporation, Marengo, Ill.

Filed Apr. 21, 1969, Ser. No. 817,656

Int. Cl. F23l *9/04*

U.S. Cl. 263—19 **4 Claims**

A hot air drying system wherein a vaporizing heat-exchanger in a hot air duct or plenum chamber of the system heats and vaporizes liquid fuel from a liquid fuel supply in a storage tank and returns heated, vapor enriched liquid to the tank. A burner in the system draws vaporous fuel from the tank for combustion upon demand during starting and normal operation; whether the system operates continuously or cyclically.



3,570,829

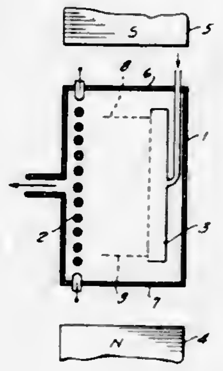
HIGH STRENGTH METAL FILAMENTS AND THE PROCESS AND APPARATUS FOR FORMING THE SAME

Hermann J. Schladitz, 12–14 Ruffini Strasse, Munich, Germany

Original application Nov. 10, 1965, Ser. No. 507,121, now Patent No. 3,441,408, dated Apr. 29, 1969. Divided and this application Aug. 26, 1968, Ser. No. 774,553

Int. Cl. C21b *15/04*

U.S. Cl. 266—1 **4 Claims**



An apparatus for forming from the gas phase of a carbonyl a metal filament of hair-like cross-section. A chamber including a discharge for carbonyl vapor and a heating surface spaced from the discharge providing a reaction zone in which exists a temperature gradient through which atoms of the decomposed carbonyl travel. The apparatus further including means for creating a magnetic field within the chamber for stabilizing the crystallite chain-like aggregate as it forms.

3,570,830

FURNACE FOR THE CONTINUOUS TREATMENT OF PULVERIZED OR GRANULAR MATERIALS

Michel Beaurain, Paris, France, assignor to Sestig, Courbovoie, France

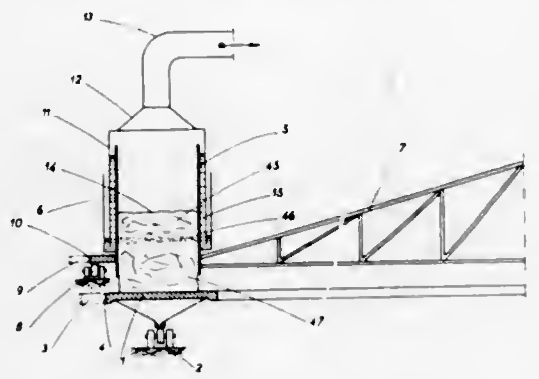
Filed June 3, 1969, Ser. No. 830,061

Claims priority, application France, June 6, 1968, 154,035

Int. Cl. F27b *21/00*

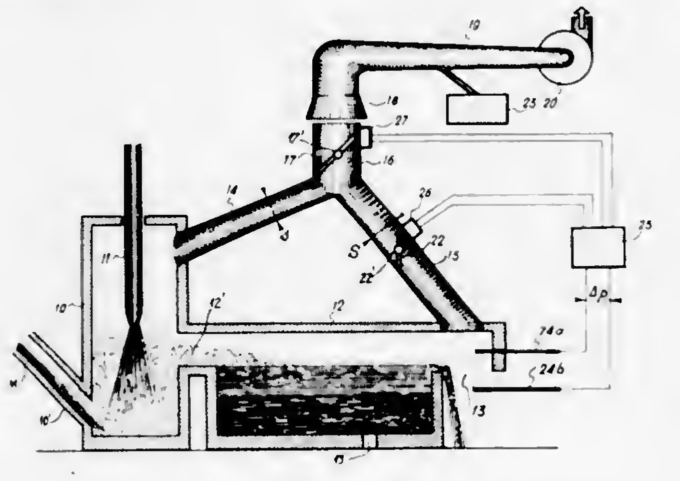
U.S. Cl. 266—20 **3 Claims**

An annular rotary furnace has spaced interior and exterior cylindrical walls and an annular rotary sole beneath the walls. The walls and sole are rotated synchronously. A stationary cap is mounted above the walls with a gas tight seal therebetween. Materials to be treated are introduced through the cap into the funace and are removed after treatment between the sole and the bottoms of the walls.



3,570,831
PROCESS AND ARRANGEMENT FOR EVACUATION OF GAS DEVELOPED DURING A CONTINUOUS METAL REFINING OPERATION

Jean Rouanet, Metz, France, assignor to Institut de Recherches de la Siderurgie Francaise, St. Germain-en-Laye, Yvelines, France
Filed Sept. 6, 1968, Ser. No. 757,954
Claims priority, application France, Apr. 18, 1967, 121,349; May 3, 1968, 150,385
Int. Cl. C21c *5/38*
U.S. Cl. 266—34 **7 Claims**

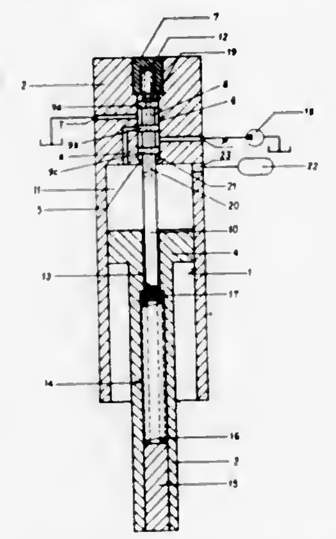


A process for discharging gas developed during a continuous metal refining operation in a refining apparatus including a first or reaction vessel and a last vessel communicating with the first vessel and provided with a slag discharge opening communicating with the outer atmosphere, in which the gas is exhausted through a pair of conduits respectively communicating with said first and said last vessel and in which the amount of gas passing through the pair of conduits is regulated in such a manner that escape of gas through the slag discharge opening is positively prevented, and an arrangement for carrying out the process.

3,570,832
HYDRO-PNEUMATIC SPRING CYLINDER FOR VEHICLES

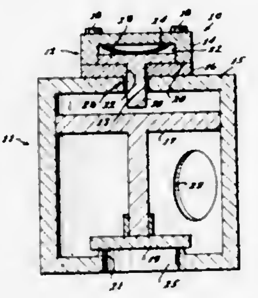
Johannes Ortheil, 10 Allee, 4151 Anrath, Germany
Filed Oct. 8, 1968, Ser. No. 765,862
Int. Cl. B60g *13/08*
U.S. Cl. 267—64 **11 Claims**

A hydro-pneumatic spring cylinder containing a level regulating device which maintains the height of the car above the wheels constant by a slide valve which controls the pressure fluid contained therein in which the slide valve is a 3/3 way slide valve which connects a piston chamber with a pressure source in one regulating position and a piston chamber with a discharge line in another regulating position and which blocks this position in a neutral position.



3,570,833
STEP CONTROL

Oded E. Sturman, Arleta, Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation
Filed Jan. 15, 1969, Ser. No. 800,794
Int. Cl. F16f *1/32*
U.S. Cl. 267—161 **8 Claims**

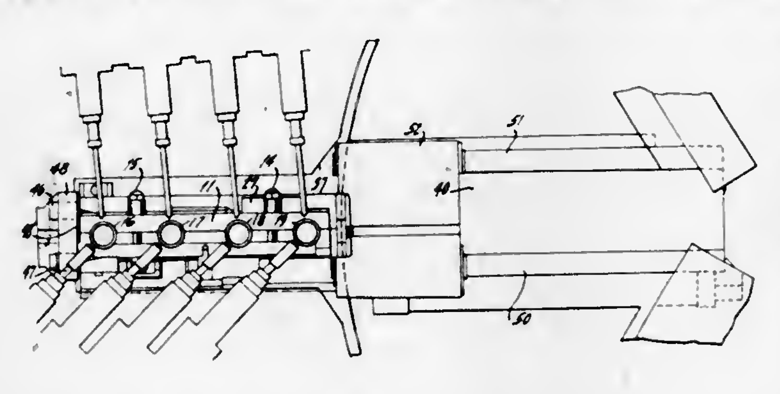


A step control utilizing a conical washer-shaped member, having a negative spring rate, that is abruptly snapped to a more flattened configuration when subjected to a force in excess of a predetermined magnitude. The control includes means for transmitting force to the conical member and a housing connecting the conical member and transmitting means and defining a reaction surface therefor. The force transmission means extends through an aperture in the housing for reaction with a force-supplying surface. In other embodiments, a plurality of such step controls are disposed in the path of movement of a surface to be controlled for successive abutment with such surface, each step control effecting abrupt release of such control surface, upon application of force thereto in excess of predetermined magnitude. In still other embodiments, one or more of such step controls are disposed in the path of movement of a valve control to provide step-wise change in the fluid flow rate of the valve.

3,570,834
WORK FIXTURE AND FIXTURE SHUTTLE FOR MOVING A PLURALITY OF WORKPIECES TO AND FROM WORKING POSITIONS

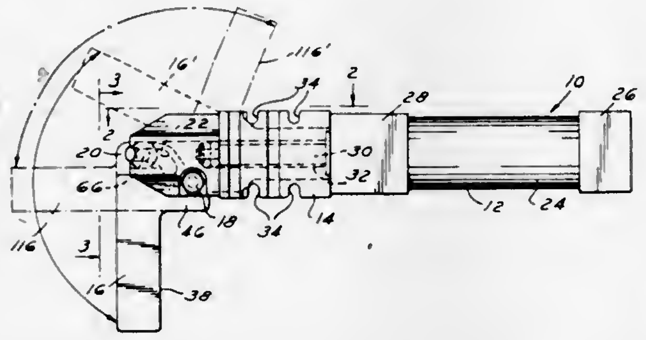
Carl F. Hoglund, Murray Hill, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.
Filed Aug. 9, 1968, Ser. No. 751,599
Int. Cl. B23q *1/16;* **B23p** *23/06*
U.S. Cl. 269—25 **4 Claims**

Apparatus including a shuttle slidably supported on a slide guide and movable between a retracted non working position and an extended working position, the shuttle having novel means for receiving and holding a fixture supporting a plurality of workpieces, other means on the shuttle for locking the fixture in the shuttle, other means for accurately positioning the fixture in working position and other means for releasing the locking means on the shuttle.



3,570,835
POWER OPERATED CLAMPING DEVICE

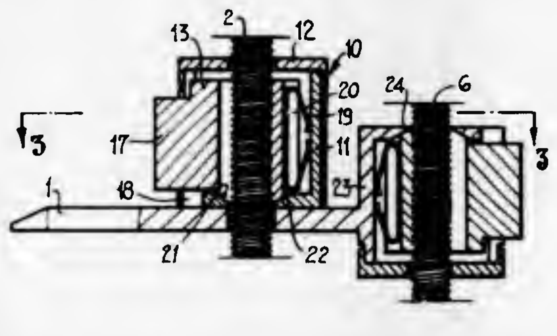
Alexander W. McPherson, Farmington, Mich., assignor to Dover Corporation (De Sta-Co Division)
Filed Oct. 8, 1968, Ser. No. 765,802
Int. Cl. B25b *1/18, 5/04*
U.S. Cl. 269—32 **9 Claims**



A power operated clamping device having a multiple mounting face base, a pivotally mounted clamping arm cam actuated to provide high pressure clamping and rapid wide angle opening, and a lost motion impact producing connection for clamp releasing actuation.

3,570,836
CLAMPING DEVICE FOR IMMOBILISING AN OBJECT ON A SUPPORT TABLE

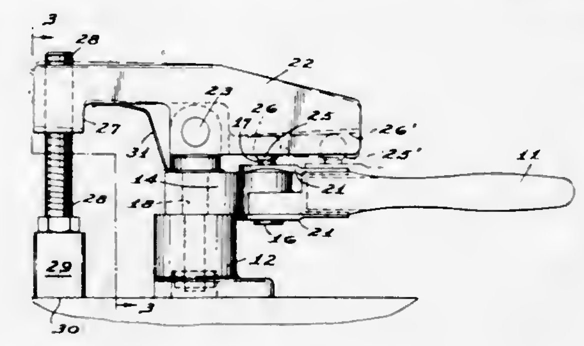
Jacques Pettavel, Geneva, Switzerland, assignor to Societe Genevoise d'Instruments de Physique, Geneva, Switzerland
Filed Dec. 10, 1968, Ser. No. 782,665
Int. Cl. B25b *5/02;* **B23q** *3/06*
U.S. Cl. 269—92 **2 Claims**



A clamping device for immobilising an object on a table has a cantilever type clip traversed by a screw which is anchored in the table. An adjustable nut borne coaxially on the screw to exert thrust against the clip can slide on the screw and comprises a slider element transversally movable in a cylindrical box element. The slider has a tapped concave surface which cooperates with the screw thread in a transversally advanced position and is spaced from the screw thread in a retracted position in which the nut can then slide freely axially. The slider can then effect a limited axial movement in the box. The two elements have cooperating conical surfaces to lock and unlock the transverse position of the slider when clamping and releasing respectively. A between box and slider urges it into advanced position. A nose of the slider opposite the concave tapping extends through a slot in the box for operational access. A second similar nut rigidly fixed on the clip is traversed by a second screw which thrusts against the table to increase the grip on the object.

3,570,837
THREE-WAY CLAMPING DEVICE

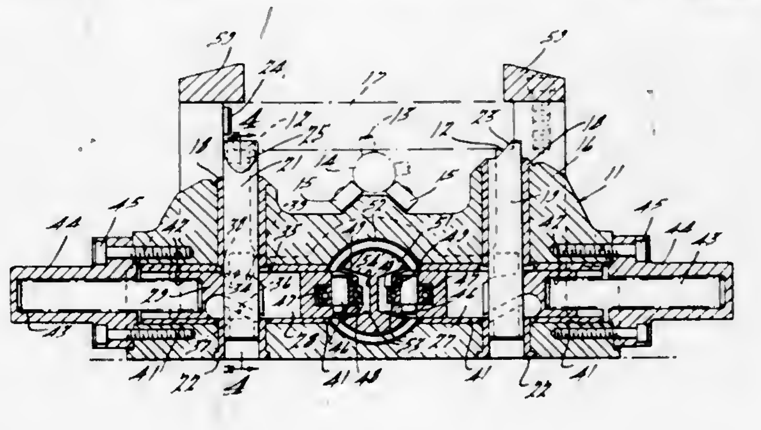
William L. Pohjola, Southfield, Mich., assignor to Dover Corporation (De-Sta-Co Division)
Filed Oct. 31, 1968, Ser. No. 772,226
Int. Cl. B25b *5/08, 5/12*
U.S. Cl. 269—94 **14 Claims**



The invention pertains to a clamping device suitable for clamping down a part to a machine bed plate by means of a holding force perpendicular to the plate. The device is manually operated with a pliers grip in a plane parallel to the plate surface and the device is fastened simply to the plate surface. A modification of the invention provides for the application of a clamping force in a plane parallel to the bed surface simultaneously with the application of a perpendicular force. The application of forces is provided by a combination of toggle and lever actions.

3,570,838
SPRING ACTUATED CLAMPING MECHANISM

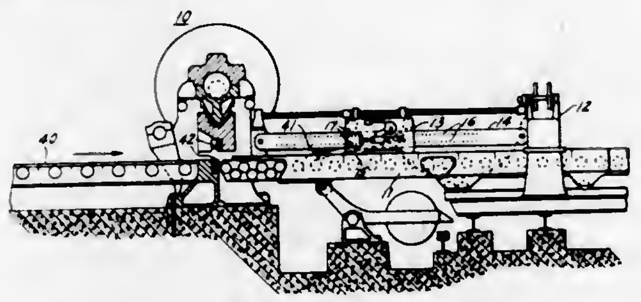
Lyman K. Shepard, Upper Saddle River, and William D. Walters, Ridgewood, N.J., assignors to Standard Tool & Manufacturing Company
Filed Dec. 4, 1968, Ser. No. 781,178
Int. Cl. B25b *5/08*
U.S. Cl. 269—254 **7 Claims**



The clamping mechanism locates, raises, and clamps a pallet to the underside of overhanging rail elements upon the release of spring actuated plungers which move clamping pins upwardly. Upon retracting the plungers and stressing the springs, the pins are positively lowered to lower the pallet on rails on which a plurality are advanced simultaneously to the next station.

3,570,839
SHEAR GAUGE LOCKING DEVICE

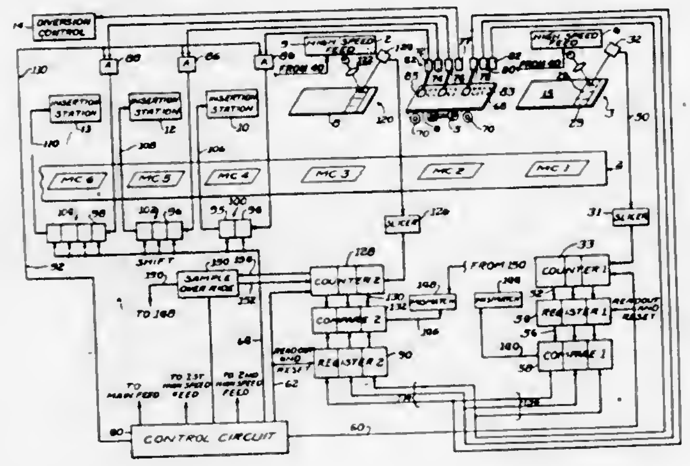
Stanley A. Spadt, Bethlehem, Pa., assignor to Bethlehem Steel Corporation
Filed Apr. 18, 1969, Ser. No. 817,506
Int. Cl. B23q *3/18*
U.S. Cl. 269—315 **3 Claims**



Apparatus for positioning a workpiece with respect to a work station which includes an automatic device for locking a positioning gauge in a preselected location.

3,570,840
SELECTIVE INSERTION MACHINE HAVING VARIABLE CAPACITY INSERTION STATION

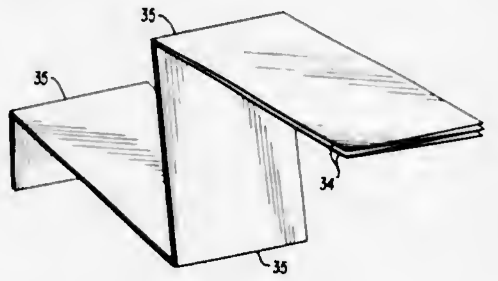
Eugene Washington Sather and Lester H. Stocker, Phillipsburg, N.J., and Kenneth A. Hams, Easton, Pa., assignors to Bell and Howell Company, Phillipsburg, N.J.
Original application July 14, 1967, Ser. No. 657,721, now Patent No. 3,484,100, dated Dec. 16, 1969. Divided and this application July 17, 1969, Ser. No. 859,603
Int. Cl. B65h *39/02*
U.S. Cl. 270—58 **1 Claim**



There is herein disclosed a main document feeding station, a control card feeding station, and a secondary document feeding station which are adapted to selectively place a variable number of matched documents into a single insertion packet on a main feed track which moves the packet past a plurality of conventional insertion stations. The conventional insertion stations add material to the particular packet in accordance with control signals derived from coded indicia on the control card. The main and secondary documents are matched with the control card by means of compare circuits for comparing signals that are sequentially derived from corresponding code indicia on each of the three documents that are to be matched. After the packet is moved past all of the machine's insertion stations, it is passed on to an envelope stuffing station and a postage meter. In this respect, however, the control card may also contain diversion indicia which, when present, are operative to divert a given envelope and its packet so that they are not passed through the postage meter.

3,570,841
APPARATUS FOR GROOVING AND FOLDING SHEET MATERIAL

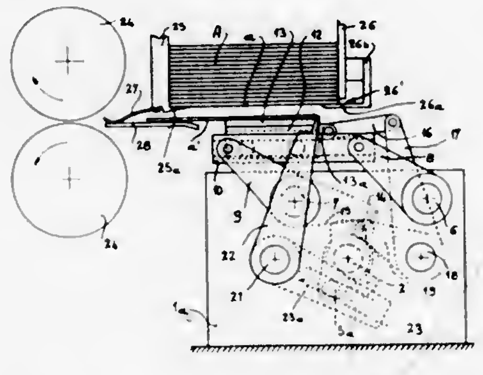
Friedrich Rettig, Darmstadt, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Feb. 3, 1969, Ser. No. 796,066
Claims priority, application Germany, Feb. 2, 1968, P 16 11 375.0
Int. Cl. B65h *45/20*
U.S. Cl. 270—73 **9 Claims**



This invention relates to an apparatus for grooving and folding sheet material, especially paper sheets, by means of alternately engaging grooving bars and grooving recesses on two rollers rotatable in opposite directions, each of the rollers having longitudinal grooving bars thereon and longitudinal grooving recesses therein which perpendicularly intersect on each roller with a transverse grooving bar and a transverse grooving recess, and including a receptable for zigzag-folding and collecting the folded sheets.

3,570,842
DELIVERY APPARATUS FOR SHEETS OR PLATES

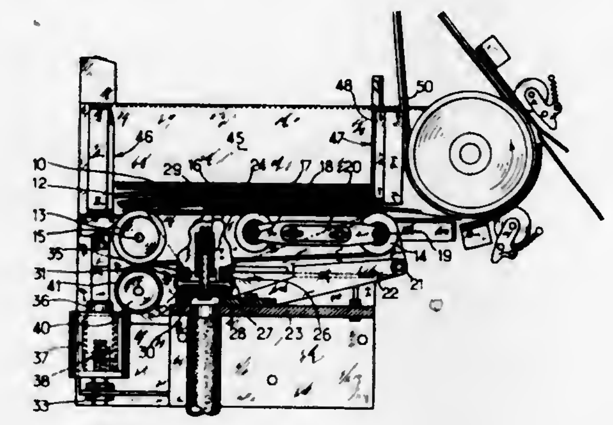
Louis Bonnard, Venissieux, France, assignor to Societe Jurine, Villeurbanne, Rhone, France
Filed Jan. 16, 1969, Ser. No. 791,743
Claims priority, application France, Jan. 26, 1968, 49,581
Int. Cl. B65h *3/12*
U.S. Cl. 271—14 **7 Claims**



The lowermost article of the pile from which the sheets or plates are to be delivered is supported by its front and rear edge. A suction box is applied against the exposed portion of its underside and is moved longitudinally in one and the other direction so as to disengage the edges of the said article from the front and rear supports of the pile, while the other articles of the pile are retained against horizontal displacement. The suction box is lowered and the article resting thereon is positively pushed towards the feed rollers of the machine with which the delivery apparatus is associated. This sliding movement may be facilitated by momentarily suppressing the negative pressure within the suction box.

3,570,843
DOCUMENT-EXTRACTING MECHANISMS FOR MAGAZINES FOR SUPPLYING RECORD CARDS, CHEQUES OR THE LIKE

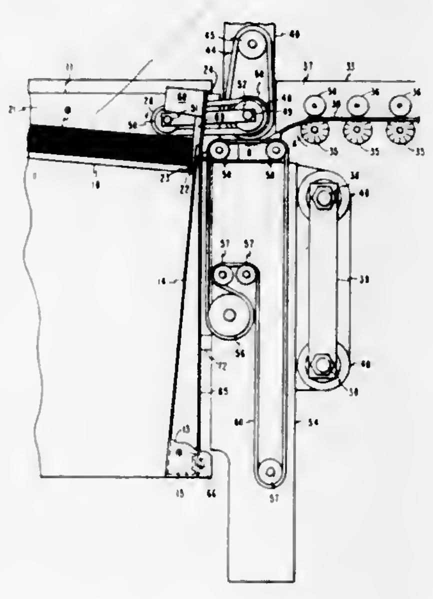
Gerben Jan Keulen, Amsterdam-Zuid, and Johannes Petrus Kroes, Amsterdam, Netherlands, assignors to Bull General Electrical (Nederland) N.V., Amsterdam, Netherlands
Filed Feb. 7, 1969, Ser. No. 797,489
Claims priority, application Netherlands, Feb. 19, 1968, 6802289
Int. Cl. B65h *3/12*
U.S. Cl. 271—32 **8 Claims**



The invention concerns, in a record-card supply magazine, a mechanism for extracting documents by means of a conveyor belt with pneumatic assistance in which a conveyor belt is mounted on a movable support in proximity to a driving shaft on one side and in proximity, on the other side, to a throat controlling the passage of the documents, a valve for controlling negative pneumatic pressure being partially fast with the movable support, which can occupy one of two positions under the action of an electromagnet, so that in the first position the belt is stopped and the valve and the throat are closed, while in the second position the belt is driven by the shaft, and the valve and the throat are open for the extraction of the cards.

3,570,844
POSITIONABLE SEPARATOR

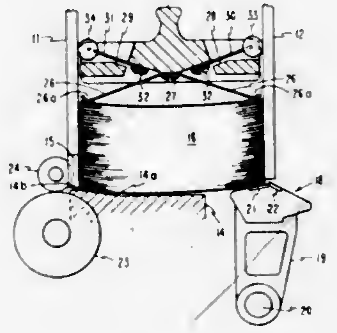
Theodore H. Anderson, Pine Island, and Delbert D. Towne, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 11, 1968, Ser. No. 744,181
Int. Cl. B65h *3/04*
U.S. Cl. 271—34 **7 Claims**



The disclosure pertains to a document separator which is adjustable to feed various size documents by positioning the separator in accordance with the width of the document stack to be processed.

3,570,845
CARD WEIGHT

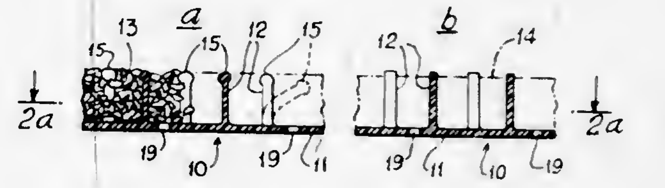
Clarence J. Kellerman, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 7, 1969, Ser. No. 789,567
Int. Cl. B65h *1/06*
U.S. Cl. 271—44 **5 Claims**



A weight for bearing on a stack of cards which are disposed in a vertical hopper and are fed one at a time from the bottom of the stack and including one-way engaging means carried by the weight and effective on the sides of the hopper for holding the weight against upward movement but allowing it to move freely downwardly.

3,570,846
SURFACING MEANS FOR SNOWLESS SKI SLOPES AND METHOD OF PRODUCING THE SAME

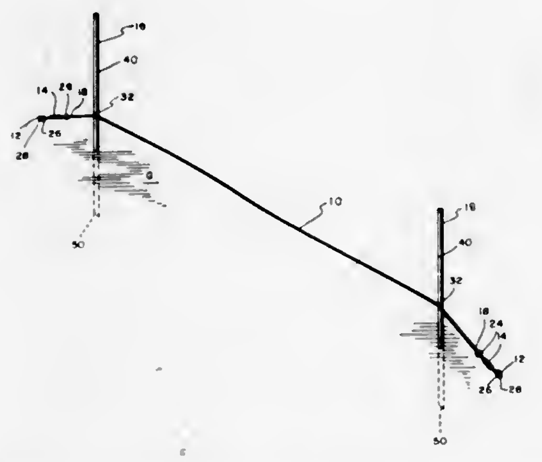
Arthur P. Weber, 1334 Surrey Lane N., Rockville Centre, N.Y. 11570, and David I. Marshall, 940 Iris Lane, Baldwin, N.Y. 11570
Filed Aug. 21, 1968, Ser. No. 754,386
Int. Cl. A63g *21/00*
U.S. Cl. 272—56.5 **23 Claims**



Surfacing means for snowless ski slopes and the like comprising a flexible support member in sheet form having protruding from one upper surface thereof a plurality of spaced and essentially perpendicular flexible rods forming an open brush-like surface, a bed of random shaped, generally elongated, flexible plastic particles substantially filling the spaces between said rods with portions of said particles extending above said rods, said rods and particles being substantially free of sharp edges, and means on said rods interfitting with said bed of particles restricting inadvertent displacement of said particles. Novelty is considered to reside both in the combination and in the flexible support member and artificial snow consisting of such plastic particles as separate articles of commerce.

3,570,847
TIGHTWIRE SPORTS EQUIPMENT

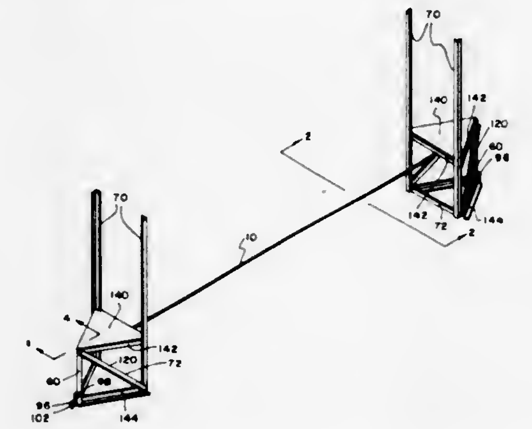
Duane C. Bowen, Wichita, Kans.
(2541 State St., Carlsbad, Calif. 92008)
Filed July 7, 1969, Ser. No. 839,179
Int. Cl. A63b *23/04*
U.S. Cl. 272—60 **12 Claims**



Tightwire sports equipment includes a pair of single post standards and a tightwire stretched therebetween and secured thereto. The standards penetrate the ground and, optionally, have sheet metal stampings forming at each pole (a) a ground penetration limiting annulus and (b) a platform partly supported by the wire and partly supported by the pole. The wire, optionally, has a coating to increase friction.

3,570,848
TIGHTWIRE

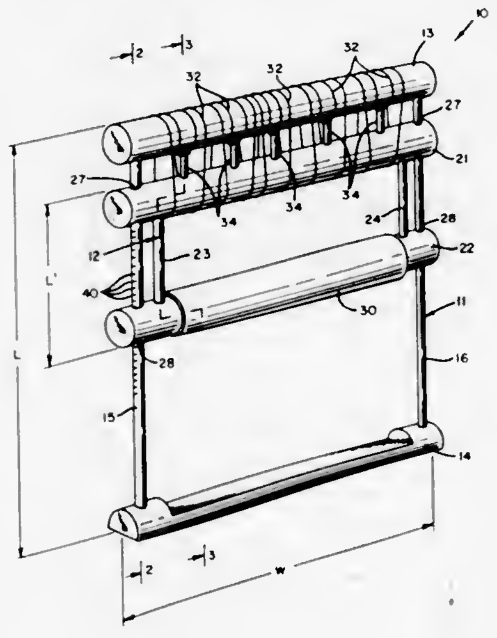
Duane C. Bowen, Wichita, Kans.
(2541 State St., Carlsbad, Calif. 92008)
Filed Sept. 16, 1969, Ser. No. 861,544
Int. Cl. A63b *23/04*
U.S. Cl. 272—60 **19 Claims**



Tightwire sports equipment includes standards, between which a cable is tensed, each having a foot portion compressively engaging the ground and a second portion in tension secured to the ground against an upsetting movement about the foot portion from tension. Alternatively or additionally a standard portion in the ground has a broader spade portion to resist working in the ground under cable tension. A platform is optionally provided of triangular or annular plan view.

3,570,849
HAND AND FINGER EXERCISER

Harry L. Ratchford, 4177 Hubbartt Drive,
Palo Alto, Calif. 94306
Filed July 25, 1969, Ser. No. 844,818
Int. Cl. A63b *11/08, 21/14, 23/00*
U.S. Cl. 272—68 **6 Claims**



A hand and finger exerciser comprising a parallel bar inner frame slidably supported for reciprocating movement within the plane of an outer frame to which one of the crossbars of the inner frame is anchored by a plurality of rubber bands. A sleeve rotatably mounted on the opposite parallel crossbar of the inner frame is adapted to be gripped by four fingers of the user's open hand whose palm and thumb engage the adjacent bar of the outer frame. The sleeve rotates as the user closes his hand and thus facilitates natural movements of the fingers for optimum therapeutic exercising of tendons and muscles of the hand and forearm. The uniformly transversely spaced rubber bands are looped over adjacent bars of the inner and outer frames and the ends of each band are looped over an anchor pin on the outer frame for easy removal or attachment by the user without special tools. The inner frame as well as the rubber bands and anchor pins are disposed inside the outer frame, thus resulting in a compact mechanism.

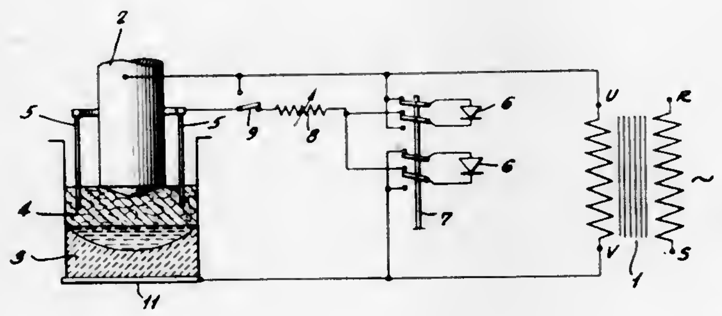
3,570,850 through 3,571,474

VOID

ELECTRICAL

3,571,475
ELECTROSLAG REFINING APPARATUS

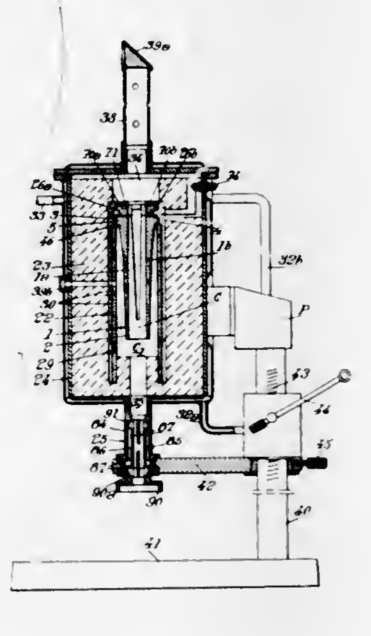
Wolfgang Holzgruber, Peter Tunnergasse 16, A-8605 Kapfenberg, and Peter Machner, Mullgasse 7, A-8700 Leoben, Austria
Filed Oct. 18, 1967, Ser. No. 676,094
Claims priority, application Austria, Oct. 2, 1967, A-7290/67
Int. Cl. H05b *7/18*
U.S. Cl. 13—9 **8 Claims**



High melting point solid metal is maintained immersed in an electrically conducting, electrolyzable slag and is melted to form and maintain a pool of molten metal under said slag. An auxiliary electrode is maintained immersed in said slag. Unidirectional electric current is conducted through said auxiliary electrode and through said slag to induce fusion electrolysis in said slag so as to control ionic chemical reactions in a predetermined polarity direction taking place in said slag.

3,571,476
HEATING ELEMENT AND ELECTRIC FURNACE EQUIPPED WITH SUCH AN ELEMENT

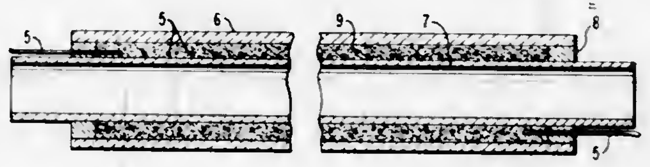
Anne-Marie, Anthony, nee Barbier Meudon; Michele, Faucher, nee Dupre Fontenay-Le-Fleury, and Krzysztof Dembinski, Tigy, France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Puteaux, France
Filed May 16, 1969, Ser. No. 825,306
Claims priority, application France, May 17, 1968, Oct. 24, 1968, Dec. 31, 1968, 152,366;171,236;182,837
Int. Cl. H05b *3/62*
U.S. Cl. 13—20 **10 Claims**



An electric furnace comprising a heating element and a preheating element wherein the heating element is suspended within the preheating element the suspension means preventing direct contact between the heating elements.

3,571,477
PROTECTION OF OXIDIZABLE ELECTRIC FURNACE ELEMENTS AT HIGH TEMPERATURES

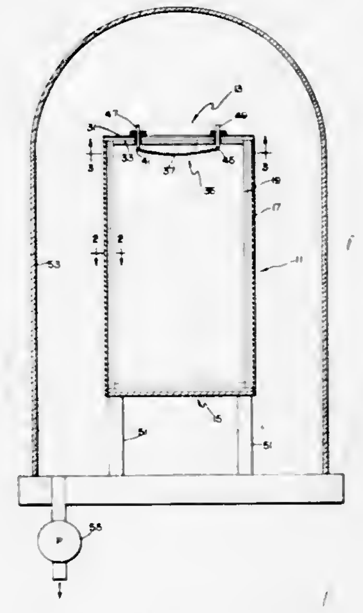
Bert Phillips, 215 Wilpot Drive, State College, Pa.
Filed June 21, 1968, Ser. No. 739,088
Int. Cl. H05b *3/62;* **H01c** *1/02*
U.S. Cl. 13—25 **8 Claims**



Electrical furnace heating elements and structural components are confined within closed or limited access volumes against oxidation by establishing and maintaining a low partial pressure of oxygen in the volume containing the oxidizable element or component. This is effected by including in the volume with the element an oxygen-buffering material, such as a carbonaceous material, which buffering material is potentially reactive with oxygen to react with oxygen at elevated temperatures to establish a reducing atmosphere about such elements, the carbonaceous materials being available to react with any oxygen in the confined volume.

3,571,478
VACUUM FURNACE

William P. Teagan, Billerica, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.
Filed July 25, 1969, Ser. No. 844,942
Int. Cl. H05b *3/00;* **F27d** *1/00*
U.S. Cl. 13—31 **11 Claims**

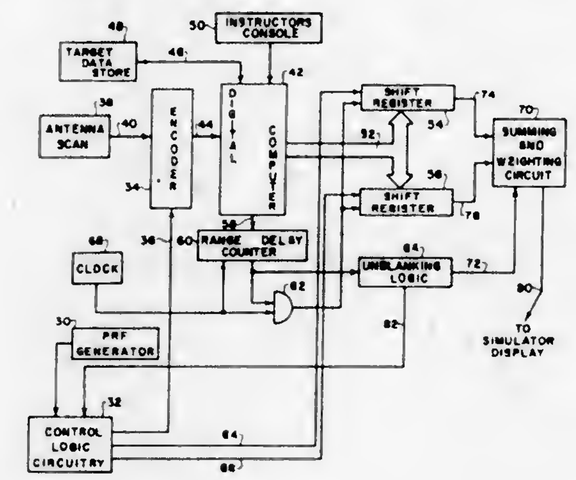


In the vacuum furnace disclosed herein, heat losses through radiation are reduced by a radiation shield of novel construction. The shield is formed of a spiral of a foil of metal in which the adjacent turns of the foil are separated by a sparse scattering of a relatively nonconducting material such as a ceramic powder.

3,571,479
DIGITAL ELECTRONIC RADAR TARGET GENERATOR

Chris G. Horattas, Stow, and Richard A. Hujar, Munroe Falls, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio
Filed June 30, 1969, Ser. No. 837,608
Int. Cl. G09b *9/00*
U.S. Cl. 35—10.4 **7 Claims**

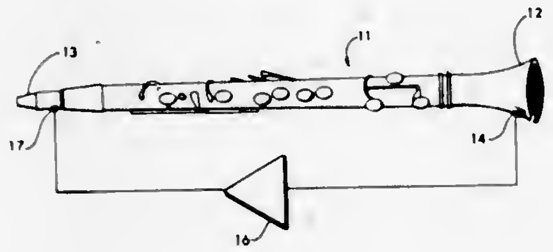
Digitized radar targets are stored in a memory matrix where range is "bit" oriented and azimuth is "word" oriented. Each word in the matrix represents an azimuth line segment of a target on a radar display and the bit position within a matrix word represents the target range, each bit being the smallest range unit defined by the resolution of the display. A computer identifies the location of all targets in the display matrix and transfers the data to parallel-to-serial shift registers which output serial pulse trains representative of the target words. Summing of the shift register outputs results in a signal having analogue characteristics and capable of use in a simulator visual display.



3,571,480
FEEDBACK LOOP FOR MUSICAL INSTRUMENTS

Clyde L. Tichenor, Sepulveda, Calif., and Jody C. Hall, Elkhart, Ind., assignors to Warwick Electronics Inc., Chicago, Ill.

Filed July 5, 1967, Ser. No. 651,178
Int. Cl. G10m *3/00*; **G10d** *9/02*
U.S. Cl. 84—1.05 **1 Claim**



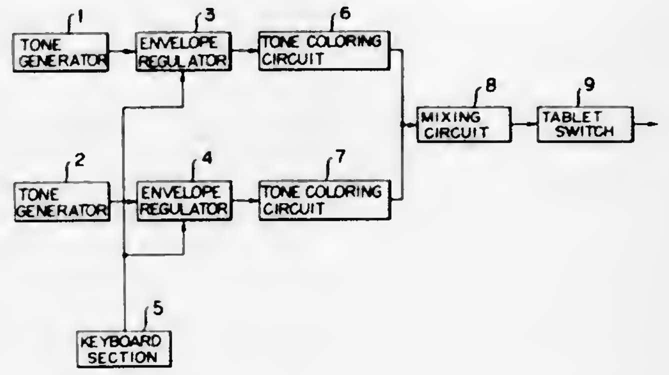
An electrical pickup is secured to the output of a musical instrument, such as the bell end of a horn. The signal is amplified. The output of the amplifier is applied through a feedback loop to the input of the musical instrument, such as the mouthpiece of the horn. The feedback loop includes a small speaker. In one form of the invention, the speaker is mounted at the mouthpiece of the horn so that its output fortifies the input acoustic energy developed at the mouthpiece by the instrument player. In another form of the invention, the speaker consists of an earphone worn by or held against the ear of the instrument player. In this case the instrument player himself modifies his playing mode in accordance with what he hears in the earphone. Thus the player himself is involved in the feedback loop.

3,571,481
MARIMBA TONE FORMING SYSTEM FOR AN ELECTRONIC MUSICAL INSTRUMENT

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Japan

Filed Jan. 15, 1969, Ser. No. 791,315
Claims priority, application Japan, Jan. 18, 1968, 2792/43
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.13 **7 Claims**

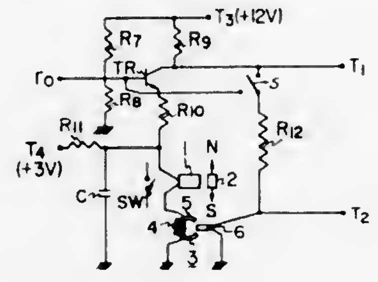
A marimba tone forming system mixes a fundamental tone signal of a flute voice, having an envelope whose rising time is about 10 milliseconds and whose attenuation time is about 1 second, with a sixth or third order overtone signal of the same voice, having an envelope whose maximum amplitude is slightly larger than that of said fundamental tone signal, whose rising time is about 3 to 5 milliseconds and whose attenuation time is about 100 milliseconds. The said fundamental tone and said overtone sound at the same time.



3,571,482
ATTACK AND SUSTAIN SWITCHING CIRCUIT FOR AN ELECTRONIC MUSICAL INSTRUMENT

Yasuji Uchiyama, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha,, Nakazawa-Cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Apr. 1, 1969, Ser. No. 811,788
Claims priority, application Japan, Apr. 2, 1968, 21197/68
Int. Cl. G10f *1/02*
U.S. Cl. 84—1.13 **4 Claims**



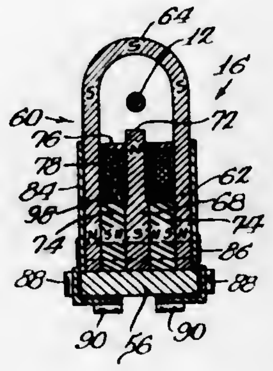
An attack switching circuit is composed of a transistor, a key switch connected in the emitter circuit of the transistor, the transistor being connected with an input signal source and so biased as to be rendered into a nonconducting state when the key switch is left in an opened state, a coil of an electromagnet connected in series with the key switch and included in the emitter circuit, a capacitor also included in the emitter circuit in parallel with the key switch and coil and charged beforehand while the key switch is opened and discharged through the key switch and coil when the key switch is closed, and a magnetosensitive element disposed in the magnetic field of the electromagnet and connected through a high resistance to the collector of the transistor or to the input signal source, whereby an output of "sustain" is delivered from the collector circuit of the transistor and an output of "attack" characteristic is delivered from a junction point between the magnetosensitive element and the high resistance.

3,571,483
VARIABLE RELUCTANCE GUITAR PICKUP SYSTEM

Peter Davidson, Chicago, Ill., assignor to Hammond Corporation, Deerfield, Ill.

Filed Feb. 2, 1970, Ser. No. 7,476
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.16 **11 Claims**

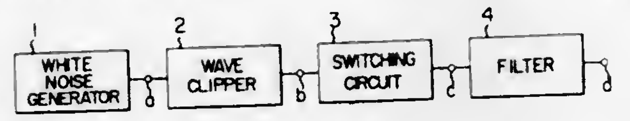
A variable reluctance guitar pickup system which provides six individual pickups for the six steel strings, each developing an output voltage with string movement which is substantially insensitive to the plane of string vibration. The pickups have a central post of one magnetic polarity and a U-shaped enclosing yoke of opposite polarity. The string passes centrally through the yoke such that displacement of the string in any direction changes the reluctance of the magnetic circuit to which a pickup coil is sensitive. The yokes, all of the same polarity, provide extremely high isolation of the individual magnetic circuits and sound signals. The organization provides for ease of assembly and ready removability and replacement of the individual pickups which are in cartridge form and interchangeable.



3,571,484
WHITE NOISE SWITCHING SYSTEM FOR PERCUSSION TONE SYNTHESIS

Yasunori Hirose, Shizuoka-ken, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Jan. 29, 1969, Ser. No. 794,947
Claims priority, application Japan, Jan. 30, 1968, 43/ 5171
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.19 **4 Claims**

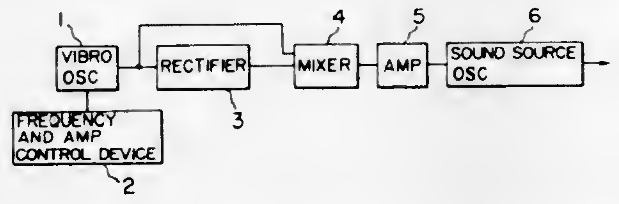


A switching system in which a wave clipping circuit removes one side of a white noise signal, and a switching circuit switches this one-side-removed signal in accordance with bias control between a conducting region and a cutoff region, the white noise signal wave being caused to enter the cutoff region from the not-removed side during the signal attenuation process in the switching circuit.

3,571,485
VIBRATO SYSTEM FOR ELECTRICAL MUSICAL INSTRUMENTS

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Sept. 17, 1969, Ser. No. 858,767
Claims priority, application Japan, Sept. 26, 1968, June 27, 1969, 43/69085;44/50880
Int. Cl. G01h *1/04*
U.S. Cl. 84—1.25 **4 Claims**

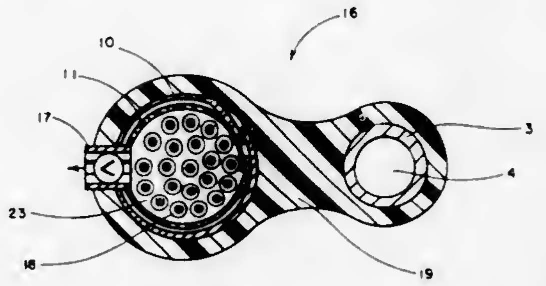


In an electronic musical instrument including a tone generator, a vibrato signal generated by a vibrato oscillator is supplied to the tone generator together with a DC voltage proportional to the amplitude of the vibrato signal so as to cause the oscillation frequency of the tone generator to vary by a greater amount above the nominal frequency than below.

3,571,486
PRESSURIZED COMMUNICATION CABLE AND SYSTEM

Walter T. Kennedy, 1120 Prescott Road, Newton Square, Pa.

Filed Feb. 7, 1969, Ser. No. 797,490
Int. Cl. H01b *7/00*
U.S. Cl. 174—11 **12 Claims**

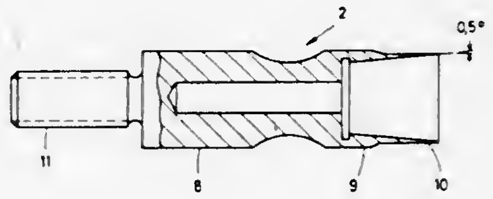


Disclosed herein is a pressurized communication system and a novel-type cable forming a significant component of the pressurized system. Such a system is composed of a plurality of spaced-apart enclosures, which may contain means for transmitting, modifying, amplifying or repeating an electrical signal. Each of the enclosures is connected one to another by a novel-type cable, which comprises a plastic sheath surrounding and defining a first cable portion containing electrical conductors and a second cable portion containing a longitudinally disposed cavity adapted for the transport of a fluid (dry gas). The electrical conductors of the cable are in electrical connection with a transmitter, repeater, modifier, or amplifying means and the fluid carrying cavity portion of the cable may be in pneumatic communication with the inside of the enclosure and physically separable either in whole or in part from that portion of the cable containing the electrical conductors.

3,571,487
VITREOUS SILICA-TO-METAL SEAL

Alfred Tietze, Munich, Germany, assignor to Patent-Treuhand-Gesellschaft Fur Elektrische Gluhlampen MBH

Filed Nov. 18, 1968, Ser. No. 776,715
Claims priority, application Germany, Nov. 30, 1967, P 15 89 309.1
Int. Cl. H01j *5/32*
U.S. Cl. 174—50.61 **5 Claims**



A refractory metal hollow cap has a forward end of its interior frustoconical enlarging toward said end which is feather edged to foil thickness with the added assistance of inward tapering of the exterior surface of the cap in approach to said end, the interior hollow conical portion of the cap receives a correspondingly tapered end margin of a vitreous capillary tube; a rod extends from outside of the lamp axially through the refractory cap and the vitreous capillary tube, and where it passes through the stem or more solid end of the cap it is sealed thereto by fusion or welding; the conical end margin of the vitreous capillary tube substantially fills the conical hollow portion of the cap; the seal is completed by collapsing a juxtaposed area of a vitreous envelope in tight sealing engagement against the outside tapering surface of the cap thus including the feather edge within vitreous material both inside and outside with extensive sealing surface.

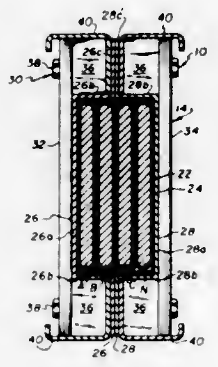
3,571,488
ENCLOSED BUS DUCT

William R. Douglass, Somerset, N.J., assignor to Federal Pacific Electric Company, Newark, N.J.

Filed Apr. 11, 1969, Ser. No. 815,310

Int. Cl. H02g *5/06, 5/08*

U.S. Cl. 174—68 **8 Claims**



The disclosed bus duct has bus bars stacked face-to-face and contained in a pair of confronting channels forming part of a heat-dissipating and structurally stiff elongated housing. Through electrical insulation that separates the bus bars from each other and from the housing, the stack of bus bars is edgewise and laterally in intimate heat-transfer relation to the channels of the housing. Stiffening pairs of elongated sheet steel members that are J-shaped in cross section are united to the flanges of the channels. The latter are of nonmagnetic material, especially aluminum to avoid increasing the inductance of the bus bars. The housing includes sheet metal cover parts at the joint-forming ends of the bus bars. The mutually contacting portions of the cover parts and the housing engaged by the cover parts have low-resistance electroplated contact surfaces.

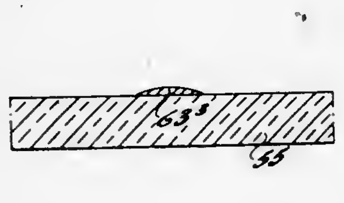
3,571,489
TRANSPARENT SUBSTRATE HAVING GRADED OPTICAL DENSITY CONDUCTORS THEREON

Edgar B. Coale, Philadelphia, Pa., assignor to Max Levy & Company, Inc., Philadelphia, Pa.

Filed Dec. 23, 1966, Ser. No. 604,233

Int. Cl. H05k *1/02*

U.S. Cl. 174—68.5 **8 Claims**



Electrical conductors in an array which are present in transparent insulating material such as glass and transparent plastic cause diffraction which interferes with viewing an image. By grading the optical density of the conductors from a maximum near the center to a minimum remote from the center of each conductor, diffraction is markedly reduced.

3,571,490
FLAME RESISTANT ELECTRIC CABLE

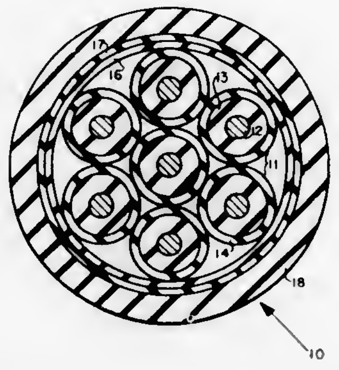
Steve Bunish; Ting H. Ling, Marion, and William A. Beasley, Fairmont, Ind., assignors to Anaconda Wire and Cable Company

Filed Jan. 16, 1970, Ser. No. 3,406

Int. Cl. H01b *7/02*

U.S. Cl. 174—113 **9 Claims**

A cable that will withstand a severe flaming burlap test is constructed without any metal barrier or heavy asbestos layer using ethylene-propylene insulation, polychloroprene jackets and sheath and two film-supported asbestos tapes only 6 mils thick.



3,571,491
ELECTRICAL INSULATING COMPOSITIONS OF POLYESTER RESIN, EPOXY RESIN, POLYVINYL ACETAL RESIN AND FINELY DIVIDED FILLER

Henry J. Markowski, Scotia, N.Y., assignor to General Electric Company

Filed Aug. 22, 1968, Ser. No. 754,712

Int. Cl. H01b *3/40, 3/42, 3/44*

U.S. Cl. 174—121 **7 Claims**

Acid-rich polyester epoxy resin compositions containing polyvinyl acetal and finely divided filler are characterized by improved mechanical and electrical qualities and are useful as coating and impregnating compositions for tapes.

3,571,492
R.F. HIGH VOLTAGE INSULATION LINK

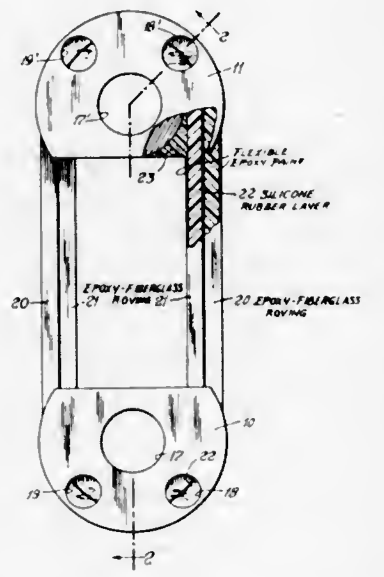
August C. Clark, Manhattan; Charles Christianson, Bronx; Julius Kaminetsky, Forest Hills, N.Y., and Edward F. Duffy, Rockville, Md.

The United States of America as represented by the Secretary of the Navy

Filed Mar. 25, 1969, Ser. No. 810,265

Int. Cl. H01b *17/02*

U.S. Cl. 174—178 **4 Claims**



A high R.F. voltage, low capacitance insulation link having a high breaking strength comprising a pair of galvanized steel thimbles or saddles joined by a pair of overlayed fiberglass loops. The loops are circumferentially filament wound epoxy impregnated S-type fiberglass roving with a layer of silicone rubber therebetween. The inner layer or loop abuts the peripheral surface of the saddles and is bonded thereto by an epoxy resin. All the inner voids of the saddle are filled with epoxy filler and the exposed surfaces of the loops are coated with a flexible epoxy paint. Additionally, the saddles are provided with inspection holes aligned with the loops.

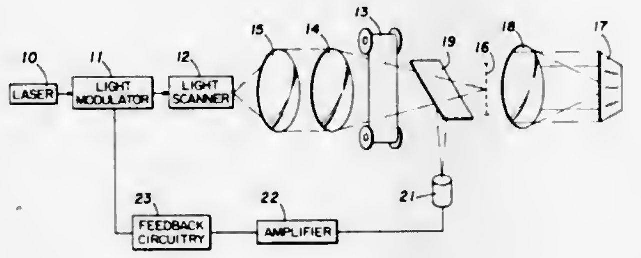
3,571,493
INTENSITY MODULATED LASER IMAGERY DISPLAY

Charles E. Baker, and Jack J. Burch, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 20, 1967, Ser. No. 676,786

Int. Cl. H04n *1/00, 1/46*

U.S. Cl. 178—5.2 **26 Claims**



Apparatus for producing a display of imagery including a laser generating a high-intensity collimated light beam which is intensity modulated by means of a light modulator and caused to sweep the image area by a light scanner. After the sweeping light beam passes through the imagery, it is focused by means of a condensing lens and partially reflected by means of a beam splitter to a light-sensitive detector. A signal generated by the detector is amplified and characterized into a control signal for the light modulator. Light passing through the beam splitter is focused by a projection lens on a display raster.

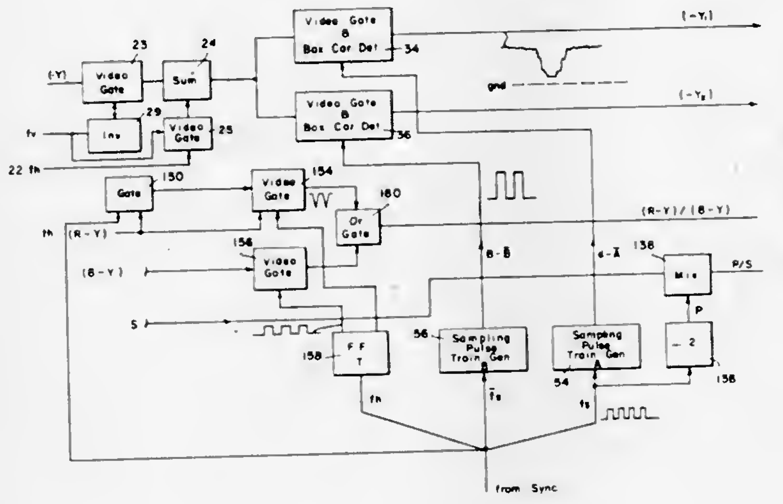
3,571,494
TELEVISION BANDWIDTH REDUCTION

Russell R. Law, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed July 8, 1966, Ser. No. 563,763

Int. Cl. H04n *5/78;* **H04m** *9/38*

U.S. Cl. 178—5.4 **4 Claims**



This is a video tape recorder in which an encoder samples equally-spaced luminance information, at a rate of $(n + \frac{1}{3})$ timers per horizontal video line, in a stable, recurring pattern that is repeated every 3 lines. Additional parallel sets of data $(-Y_k)$ can be sampled by the encoder to partially fill in the information areas between other sets of sampled data. The chrominance signal is processed so that only the red information signal (R–Y) and then the blue information signal (B–Y) are gated alternately on a horizontal video line-by-line basis. The parallel sets of sampled luminance and chrominance signals are recorded on parallel recording tracks along with a pilot signal P. To reconstruct the chrominance signals, the played-back chrominance signals are delayed for one horizontal video line and combined with the nondelayed chrominance signals to obtain a red signal (R–Y), a blue signal (B–Y), and a green signal (G–Y).

3,571,495
LIGHT-INTENSITY CONTROL DEVICE FOR A TELEVISION CAMERA

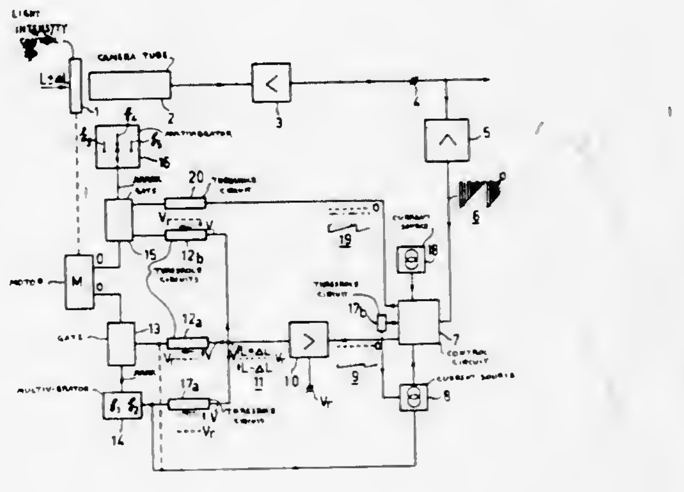
Marcel Johan Marie Konings, Emmasingel, Eindohoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 18, 1968, Ser. No. 760,448

Claims priority, application Netherlands, Sept. 30, 1967, 6,713,338

Int. Cl. H04n *9/04, 5/34*

U.S. Cl. 178—5.4 **9 Claims**



A light-intensity control system for a television camera, in which a capacitor circuit is charged by the video signal and discharged by a control current. The system has a first threshold circuit with narrow limits for controlling the aperture, in order to obtain accurate, but slow, control. The circuit also has a second threshold circuit with wider limits that effects a more rapid control and increases the control current discharging the capacitor.

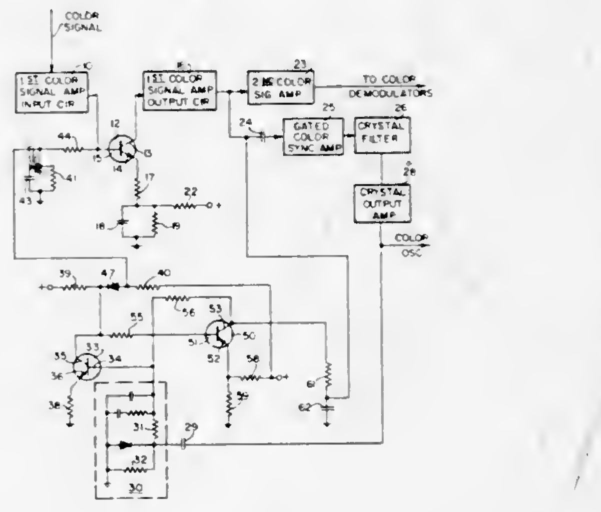
3,571,496
COMBINED ACC AMPLIFIER AND REGENERATIVE COLOR KILLER

William H. Slavik, Oak Lawn, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 29, 1968, Ser. No. 748,429

Int. Cl. H04n *9/48;* **H03k** *17/00*

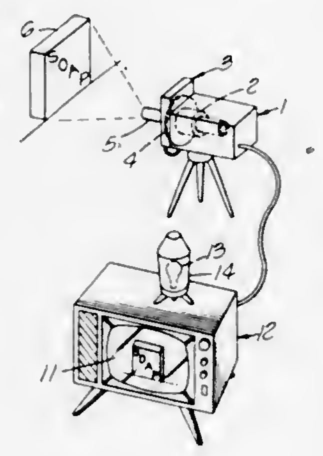
U.S. Cl. 178—5.4 **8 Claims**



The ACC amplifier of a color television receiver is also used as part of a regenerative color killer circuit in order to reduce the number of components used.

3,571,497
LIGHT PUMP FOR ENHANCING SUBJECTIVE COLOR

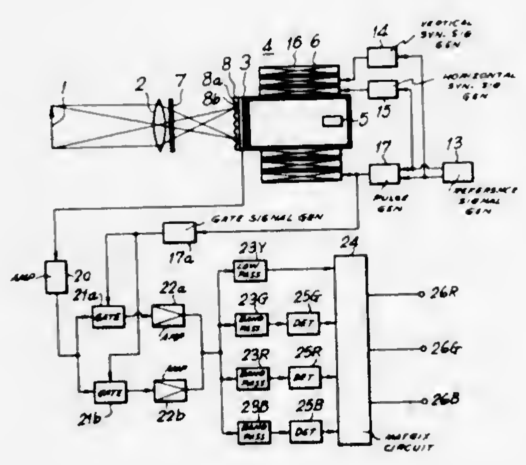
James F. Butterfield, Van Nuys, Calif., assignor to The Battelle Development Corporation, Columbus, Ohio
Filed May 8, 1968, Ser. No. 727,412
Int. Cl. H04n *9/22*
U.S. Cl. 178—5.4 **22 Claims**



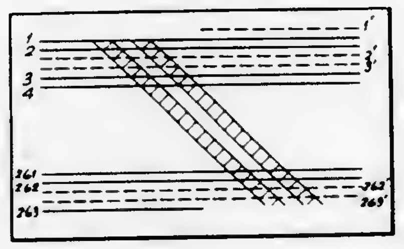
Colored light is added to information displayed in subjective color to provide more saturated color. The colored light is added at the display to impinge upon the eyes of a viewer. Hues of colored light may be synchronized with the subjective color information sequence to enhance selected subjective colors and to reduce flicker. There are also disclosed various forms of light pumps, the manner in which synchronization is achieved, and the effect of selected colors on certain subjective colors.

3,571,498
SINGLE TUBE COLOR CAMERA UTILIZING COLOR FILTER STRIPS AND MODIFIED INTERLACING

Hiromichi Kurokawa, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Feb. 5, 1969, Ser. No. 796,708
Claims priority, application Japan, Feb. 5, 1968, 43/7043
Int. Cl. H04n *9/06*
U.S. Cl. 178—5.4 **10 Claims**

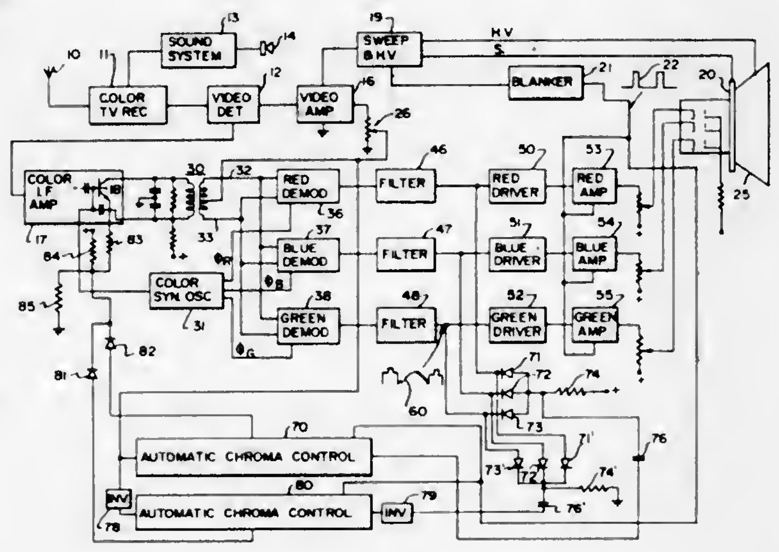


In a color video signal generating apparatus in which an image of an object to be reproduced is projected, as stripelike color components thereof, onto the photoconductive layer of a vidicon tube having an electrical output composed of successive signals corresponding to the light intensities successively encountered by the electron beam of the tube in scanning the photoconductive layer, such stripelike components of the image are extended obliquely to the line scanning direction, and the electron beam is deflected from the normal scanning line, preferably by one-half the pitch between successive scanning lines of a standard raster, for every other scanning line of such raster, so that, when a picture is reproduced from the tube output with the standard raster, periodic noises appearing in the tube output will be randomly distributed in the reproduced picture and hence not readily perceptible.



3,571,499
AUTOMATIC SATURATION CONTROL FOR A COLOR TELEVISION RECEIVER

Robert B. Hansen, Arlington Heights; William H. Slavik, Oak Lawn, and Arthur F. Seymour, Schaumburg, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Apr. 1, 1969, Ser. No. 811,887
Int. Cl. H04n *9/48*
U.S. Cl. 178—5.4 **14 Claims**

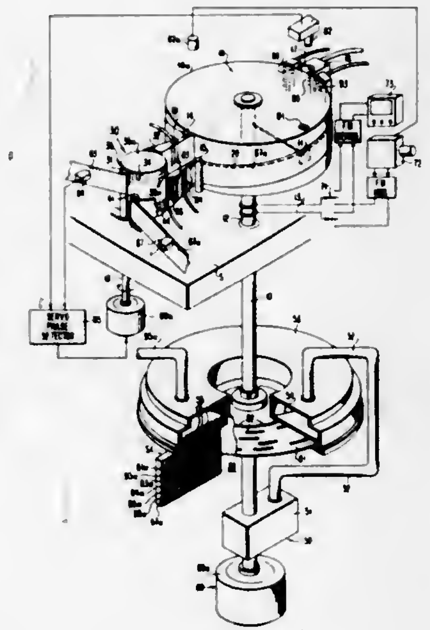


A color television receiver using direct demodulation of the color and brightness signals is provided with an automatic chroma control circuit for controlling the gain of the color IF amplifier stage in order to prevent the saturation of the demodulated color signals from exceeding the peak brightness signals. The output of the video amplifier is supplied through a peak detector to one input of a differential amplifier, the other input to which is obtained through a second peak detector from the outputs of the color demodulators. The output of the differential amplifier is used to control a switching transistor, which supplies D.C. control signals to the color IF amplifier to control the bias on the final stage thereof.

A pair of comparison circuits of the same type are provided, with the second circuit being responsive to the peak blackness signals and the saturation of the color components occurring during the black-going portions of the video signals, while the first comparison circuit compares the white-going peak portions of the video signal with the saturated color appearing during the white-going portions. The blanking circuit operates to disable the comparison circuits during the blanking intervals, so that the automatic chroma control circuit is responsive only to the video signals present during the trace portion of the video signal.

3,571,500
REPRODUCTION SYSTEM USING AN INCREMENTAL SCAN

Ernie G. Nassimbene, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of application Ser. No. 653,782, July 17, 1967, now abandoned. This application Jan. 15, 1968, Ser. No. 697,846
Int. Cl. G11b *3/40;* **H04n** *1/16, 5/78*
U.S. Cl. 178—6.6 **12 Claims**

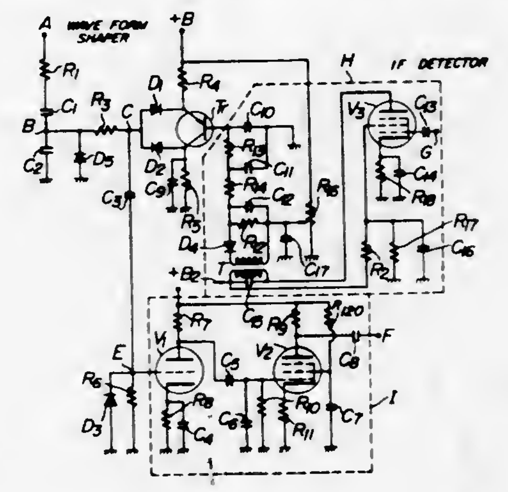


A video recorder wherein the magnetic tape is helically wound about a drum with the drum containing a magnetic record and playback head for recording and playing back video information on angularly disposed tracks on the video tape. The magnetic head scans a first semicircular portion of the tape while this portion of the tape is being held fixed by two vacuum brakes positioned at both ends of the semicircular portion. While the head is so scanning this first portion of the tape, pneumatic brakes at either end of the second semicircular portion of the tape are not actuated and this portion of the tape is moved longitudinally removing a slack portion between the first and second portions. As the head approaches the second portion of the tape, two vacuum brakes at either end of this portion are actuated so as to fix the second portion of the tape. While the magnetic head is scanning the second semicircular portion of the video tape, the two brakes at either end of the first semicircular portion are deactivated and this portion is moved longitudinally the distance between two tracks. The cycle then repeats and the head scans the next track.

3,571,501
ON SCREEN TUNING INDICATOR DEVICE FOR TELEVISION RECEIVER

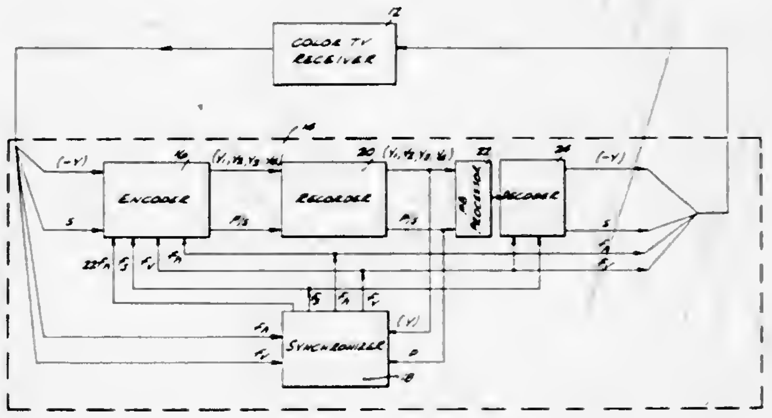
Keisuke Yamamoto, Hirakata-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 10, 1968, Ser. No. 735,626
Claims priority, application Japan, Sept. 18, 1967, Feb. 26, 1968, Feb. 26, 1968, Feb. 26, 1968, 42/60394, 43/12717, 43/12718, 43/12719
Int. Cl. H04n *5/50;* **H03k** *5/00*
U.S. Cl. 178—5.8 **6 Claims**

This specification discloses a tuning indicator device for a television receiver, wherein a waveform having a slope depending upon the horizontal or vertical synchronizing circuit is sliced at upper and lower levels in accordance with a voltage which depends upon the state of tuning, and a rectangular wave is formed from the sloped portion of said sliced waveform to be indicated on the picture tube screen as a tuning indication signal.



3,571,502
TV BANDWIDTH REDUCTION SYSTEM WITH REDUCED FIELD RATE

Russell R. Law, Pacific Palisades, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed June 7, 1968, Ser. No. 735,383
Int. Cl. H04n *5/78*
U.S. Cl. 178—6.6 **14 Claims**

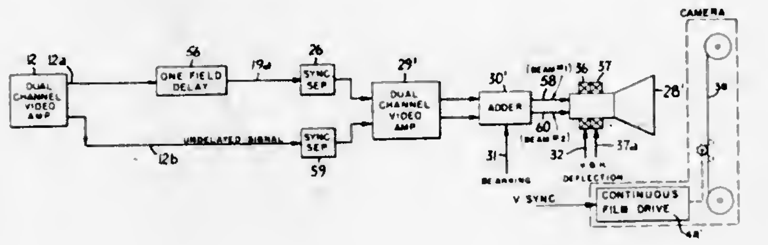


A video tape recorder system including an encoder for sampling video information in a repetitive pattern of evenly spaced information elements; a multichannel recorder coupled to record the encoded information; and a playback processor for playing back each encoded information element four times—once as a real time information element, and the other three times positioned between the real time information elements as artificial information elements—preferably from the real-time line and the subsequent and preceding interlaced lines of leading and trailing fields, respectively, to fill in the otherwise blank space between spaced real time information elements in the real time field.

3,571,503
METHOD AND APPARATUS FOR SIMULTANEOUSLY RECORDING ON FILM TIME DISPLACED SEGMENTS OF AN ELECTRICAL SIGNAL

Renville H. McMann, Jr., New Canaan, Conn., assignor to Columbia Broadcasting Systems, Inc., New York, N.Y.
Filed Nov. 24, 1967, Ser. No. 691,093
Int. Cl. H04m *5/84;* **H04n** *5/86*
U.S. Cl. 178—6.7 **8 Claims**

Recording method and apparatus for simultaneously recording on film two time displaced segments of an electrical signal, in which one or more recording beams sweeping transversely of the film are modulated in intensity by the segments, the first of which is delayed in time from its occurrence by an amount equal to the original time displacement between the signal segments. Two recording beams, each modulated by a respective signal segment, or one beam, sequentially modulated with the signal segments, can be employed. Where the signal segments comprise the field signals of a composite television signal, the recording beam(s) may



be positioned, to record the corresponding field lines adjacent to one another or, alternatively, in separate frames on the record medium. Both intermittent and continuous film motion may be employed. A variable delay servoloop responsive to the television synchronization pulses maintains the exact delay so that the fields are recorded simultaneously.

3,571,504
INFRARED RAY TELEVISION APPARATUS

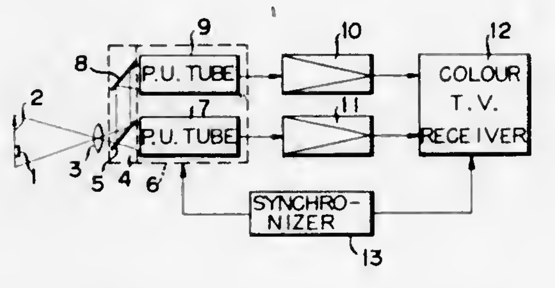
Yuji Kiuchi, Yokohama-shi; Hiroo Hori, Kawasaki-shi; Mineo Iwasawa, Kanagawa-ken, and Junichi Hashimoto, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd, Kawasaki-shi, Japan

Filed Nov. 18, 1968, Ser. No. 776,445

Claims priority, application Japan, Nov. 22, 1967, Jan. 6, 1968, 42/97825;43/541

Int. Cl. H04n *7/18*

U.S. Cl. 178—6.8 **3 Claims**



An infrared ray television apparatus wherein an incident light from a foreground subject is separated into an infrared ray and visible ray, these rays are converted to television signals by the respective image pickup means, and said signals corresponding to the infrared and visible rays are supplied to the input terminals of the red color electron gun and green color electron gun involved in a color television image-reproducing means thereby to reproduce on the same screen the infrared ray image and visible ray image in red and green colors respectively.

3,571,505
REDUNDANCY REDUCTION SYSTEM FOR VIDEO SIGNALS

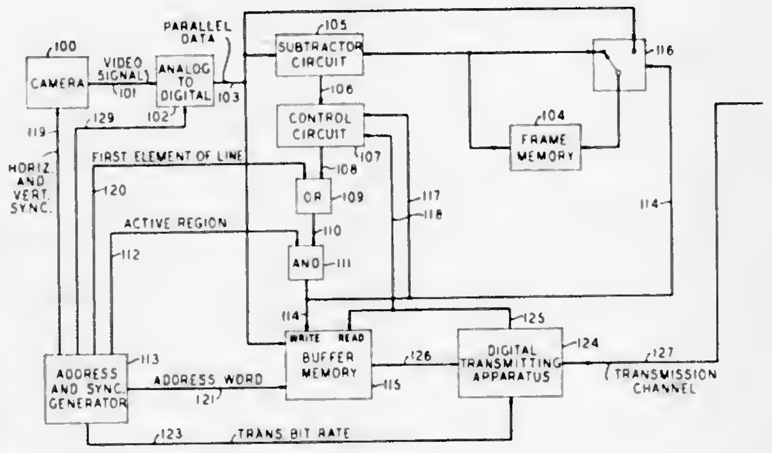
Frank W. Mounts, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 2, 1968, Ser. No. 749,770

Int. Cl. H04n *5/38, 5/44*

U.S. Cl. 178—6.8 **20 Claims**

A redundancy reduction system is described for processing video signals by comparing each digital word derived from the video signal amplitude for each picture element with a stored word corresponding to the amplitude for that picture element in a previous frame. Only if a significant difference exists between the new word and the previously stored word is the new amplitude word transmitted to the receiving location. The position of the transmitted amplitude word in the video frame is indicated to the receiver by an address word which is also transmitted. The address word indicates only the relative position of a picture element in the active region of the horizontal scanning line. The first picture element of the video frame is provided with a unique address word and in addition, the first picture element of each line is forced to be transmitted whether or not a significant difference exists



between the new amplitude and previously stored amplitude. The received amplitude and address words are stored before processing in a receiving buffer memory. Initial readout of the receiving buffer memory is prohibited until a sufficient number of words have been received in order to insure proper synchronization with this unique method of addressing.

3,571,506
PULSE SHAPING MEANS FOR BLANKING PULSES

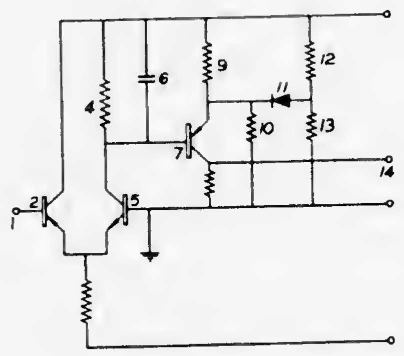
John David Millward, Orpington, England, assignor to The Rank Organisation Limited, London, England

Filed Jan. 2, 1968, Ser. No. 695,091

Claims priority, application Great Britain, Feb. 7, 1967, 5712/67

Int. Cl. H04n *5/38*

U.S. Cl. 178—7.1 **2 Claims**



A television video signal blanking pulse generator produces relatively clean blanking pulses by being arranged to increase the rise and fall rates of each blanking pulse amplitude as said amplitude passes a predetermined limit, suitably the maximum video signal amplitude.

3,571,507
OPTICAL APPARATUS FOR DEVELOPING DISPLAY INFORMATION SIGNALS OF FREQUENCY MULTIPLEX CHARACTER

Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

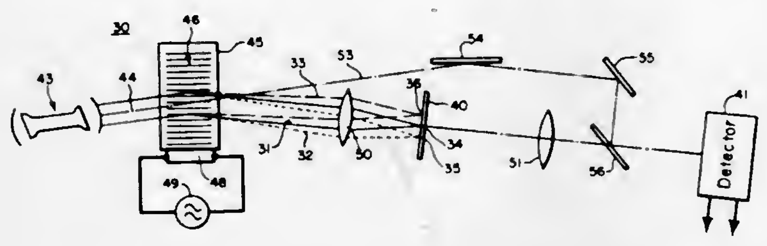
Filed May 15, 1968, Ser. No. 729,243

Int. Cl. H04n *3/10, 5/30*

U.S. Cl. 178—7.1 **10 Claims**

By plural diffraction of a single beam of monochromatic light, a plurality of beams of such light, each of a different frequency, are caused to follow respectively different paths toward an image defining medium. On traversing the medium, the different beams are differently attenuated in correspondence with variations in contrast or opacity

throughout the image. After traversing the medium, the beams are heterodyned with another beam upon a photodetector to produce a plurality of output signals of respective different frequencies and individually having amplitudes pro-



portional to the respective different beam intensities. Those output signals define a video image in a manner such that the various frequency components correspond to spatial position and their respective amplitudes correspond to brightness at each position.

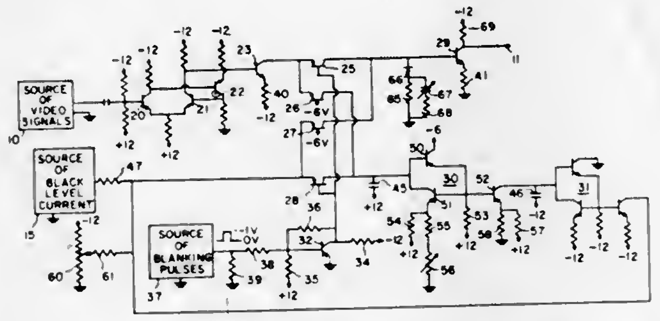
3,571,508
BLANKING AND BLACK LEVEL CONTROL CIRCUIT FOR VIDEO SIGNALS

Frederik J. Van Roessel, Mahwah, N.J., assignor to U. S. Philips Corporation, New York, N.Y.

Filed Aug. 27, 1968, Ser. No. 755,578

Int. Cl. H04n *3/24*

U.S. Cl. 178—7.1 **8 Claims**



A blanking and black level insertion circuit for video signals includes a switch which, during the scan period connects the video source directly to the video output and provides a loop circuit including an amplifier and a shunt capacitor. An external black level control current is inserted in the loop circuit at the output of the amplifier. During the blanking period the loop circuit is opened and the video signal is applied to the video output by way of the amplifier, with the shunt capacitor still connected to the circuit and the black level control current still being inserted at the amplifier output.

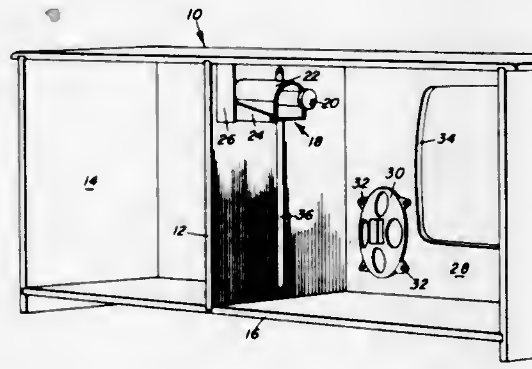
3,571,509
INHIBITING TRANSFER OF VIBRATORY ENERGY BETWEEN AN ACOUSTIC REPRODUCER AND A FLYING SPOT SCANNER TUBE

Donald J. Cross, Tonawanda, and Ira Eglowstein, Williamsville, N.Y., assignors to Sylvania Electric Products Inc.

Filed Oct. 4, 1968, Ser. No. 765,191

Int. Cl. H04n *5/64*

U.S. Cl. 178—7.9 **5 Claims**



Vibrations from a speaker mounted on a wall of a cabinet of a television receiver via the walls of the cabinet are minimized by providing a slot in the wall which mounts the equipment to isolate the vibrations from the equipment.

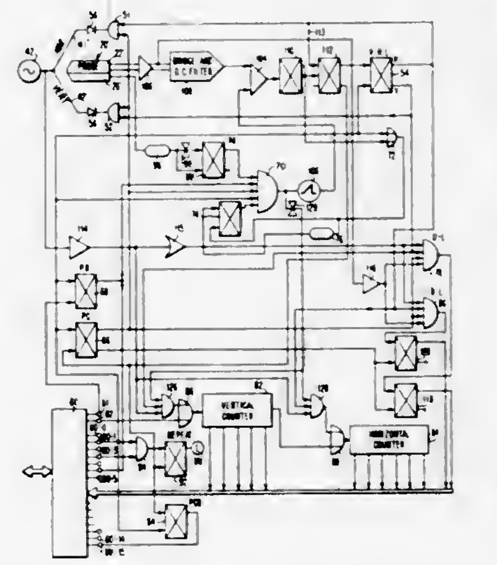
3,571,510
COORDINATED DATA DETERMINATION SYSTEM

Richard Dean Weir, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 27, 1968, Ser. No. 787,421

Int. Cl. G08c *21/00*

U.S. Cl. 178—18 **10 Claims**



The use of graphical display devices in conjunction with digital computer and data processing systems is enhanced by a rectangular, or XY, coordinate determinate system providing a completely unobstructed view of the display by means of electromagnetic fields propagated in the plane of the display. A pair of wire radiating elements are arranged parallel to each other at opposite edges of the display for radiating opposing electromagnetic fields therebetween at a frequency of the order of 25 kilohertz (kHz.) for each ordinate direction (X or Y). An electromagnetic field probe tuned to the frequency of the radiation derives analogue voltages proportional to the distances of the probe with respect to the null at the center of the display. The analogue voltages are converted to digital representation by means of analogue-to-digital converters (ADC). The conversion circuitry comprises a ramp voltage generator having a characteristic compensating for the nonlinear characteristic of the electromagnetic fields which controls an X and Y counter advanced by pulses derived from the 25 kHz. oscillator under control of circuitry comprising conventional gating circuits and latches. Cartesian coordinates are derived from the X and Y coordinate data thus far developed by means of a quadrant detector which is switched by the control circuitry in response to energy picked up by the probe in the particular quadrant at which it is positioned for the desired data input.

3,571,511
DROSOGRAPH DISPLAY SYSTEM

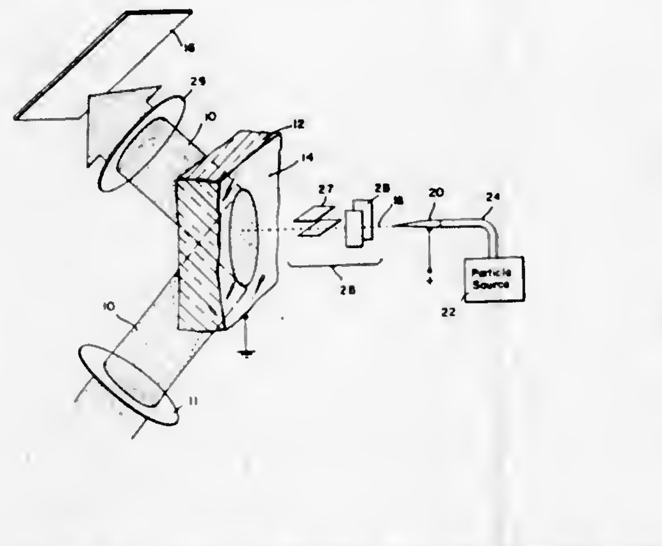
Jon H. Myer, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 25, 1968, Ser. No. 770,504

Int. Cl. H04n *3/02*

U.S. Cl. 178—7.30 **19 Claims**

The disclosed system serves to provide live images on a display screen by modulating a light beam projected towards the display screen through a transparent medium having a totally internally reflecting surface. The modulation is accomplished by selectively frustrating the total internal reflection with a stream of solid or liquid particles which are capable of being applied to the reflecting surface electrostatically. Thus, the system may be called a Drosograph Display System, "drosograph" being derived from the Greek words, "drosos" and "graphein," respectively meaning "dew" and "to write".



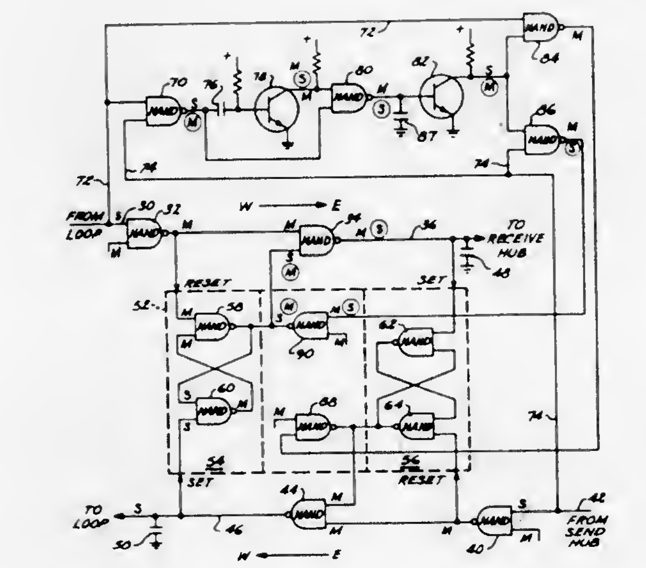
3,571,512
INTERRUPT CIRCUIT FOR USE IN A DUPLEX CONTROL CIRCUIT

Alvaro Quiros, Springfield, Va., assignor to The Susquehanna Corporation, Fairfax, Va.

Continuation-in-part of application Ser. No. 789,842, Jan. 8, 1969, now abandoned. This application Mar. 7, 1969, Ser. No. 816,142

Int. Cl. H04l *5/16*

U.S. Cl. 178—58 11 Claims



The interrupt circuit is combined with a half-duplex repeater having a duplex control circuit. When an interrupt signal is received, the interrupt circuit, after the passage of a predetermined interval of time, overrides the control which the duplex control circuit is exercising on the passive repeater channel, and lets the interrupt signal through to terminate transmission in the communication system.

3,571,513
PAL COMPATIBLE COLOR TELEVISION SYNCHRONIZATION GENERATOR

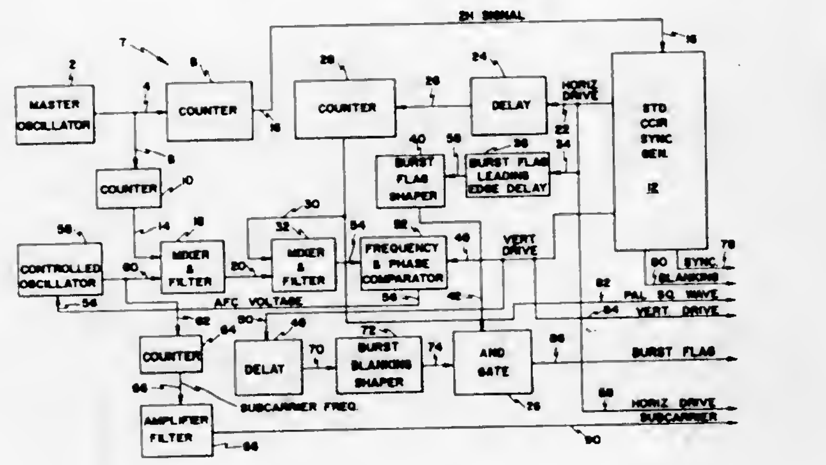
Ronald C. Ward, and Daniel C. Perry, Salt Lake City, Utah, assignors to Telemation, Inc., Salt Lake City, Utah

Filed Mar. 21, 1969, Ser. No. 809,343

Int. Cl. H04l *7/00*

U.S. Cl. 178—69.5 10 Claims

Color television synchronizing systems, including method and apparatus for generating timing signals compatible with the phase alternate line (PAL) standard, the apparatus comprising a conventional CCIR or comparable synchronizing generator clocked by signals derived from a master oscillator and from which all synchronizing signals other than the color subcarrier are derived. The color subcarrier is derived from a slave oscillator, the output of which is correlated in frequency and phase, to comply with the PAL standard, with signals derived from the master oscillator by use of an automatic frequency control servo loop.



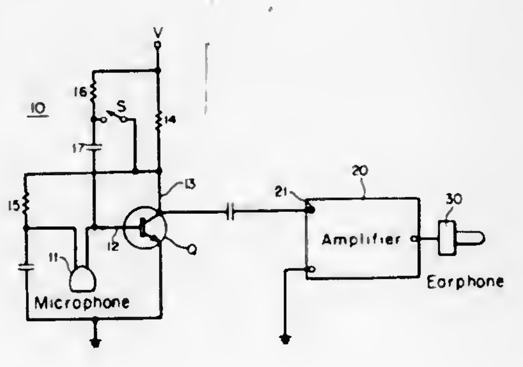
3,571,514
HEARING AID TONE CONTROL

Kenneth R. Wruk, Joliet, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Jan. 7, 1969, Ser. No. 789,581

Int. Cl. H03g *5/12*; H04r *25/00*

U.S. Cl. 179—1 1 Claim



A tone control circuit for a transistorized hearing aid amplifier comprising a transistor amplifier stage with an electromagnetic hearing aid microphone connected to its input. The output has a resistor connected thereto for establishing the operating point of the stage. A switch is provided for connecting a second resistor and a capacitor in parallel with the first resistor to change the operating point of the transistor in such a manner as to lower the input impedance of the transistor. The decrease in input impedance reduces the high frequency response of the microphone-transistor combination and thereby provides treble tone control action.

3,571,515
VOICE ANALYSIS AND RECOVERY SYSTEM

Rene B. Buron, Saint Paul; Marc L. Levillon, Nice; Henri N. Nussbaumer, La Gaude; Etienne P. Paris, and Vladimir R. Riso, Nice, France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 12, 1968, Ser. No. 736,357

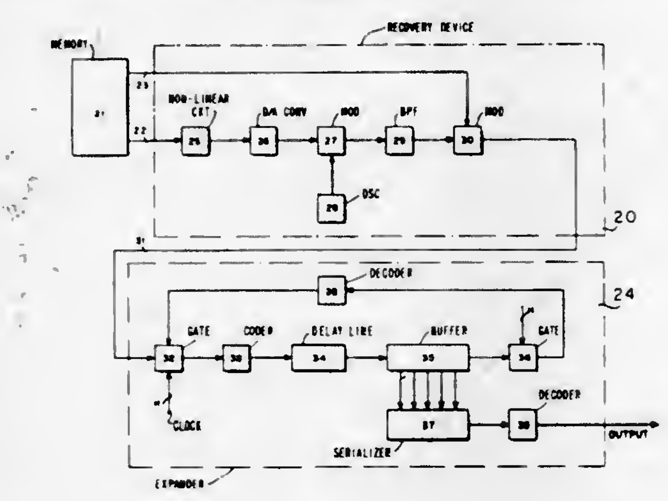
Claims priority, application France, June 14, 1967, 8568

Int. Cl. G10l *1/00*

U.S. Cl. 179—1 3 Claims

Vocal sound analysis device to represent the said sounds in the form of coded signals and recovery device, to reconstitute these sounds from the said coded signals. The vocal sounds to be analyzed are digitized, thus producing a signal which is time compressed, then decoded to obtain an analogue signal which is frequency expanded. The analysis is

carried out on this last signal, by means of any type of analyzing device. The resulting signals are digitized and stored. At recovery, the coded signals are converted into frequency expanded analogue signals on which the reconstitution device operates. The reconstituted vocal signals are then digitized, expanded in time and decoded in order to obtain the original vocal sounds.



3,571,516
DEMULTIPLEXING APPARATUS

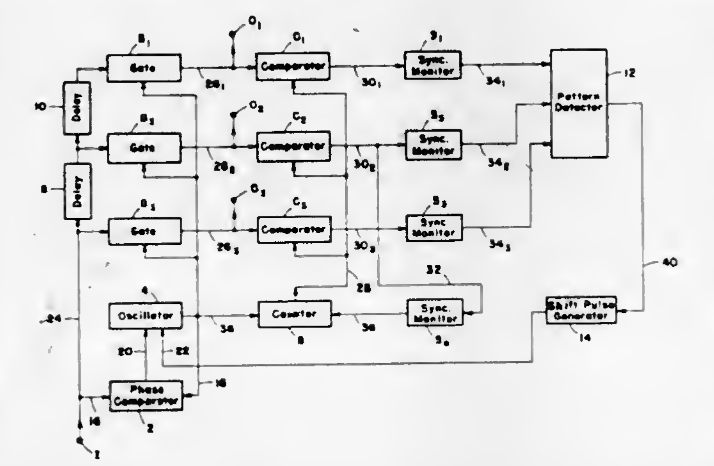
Chishio Ohyama, and Kotaro Kato, Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed July 22, 1969, Ser. No. 843,513

Claims priority, application Japan, July 22, 1968, 43/51742

Int. Cl. H04j *3/06*

U.S. Cl. 179—15 9 Claims



Demultiplexing apparatus is provided in accordance with the teachings of the present invention wherein a high-speed pulse train comprising a plurality of low-speed pulse trains, which each include a frame-synchronizing signal therein, is received and each of said low-speed pulse trains is demultiplexed from said high-speed pulse train without relation to its time assignment within said high-speed pulse train. The time positions of said plurality of low-speed pulse trains within said high-speed pulse train being determined by the detection of the relative time difference between each of the corresponding frame-synchronizing signals present in the low-speed pulse trains.

3,571,517
AUTOMATIC INTERCEPT NUMBER IDENTIFICATION SYSTEM

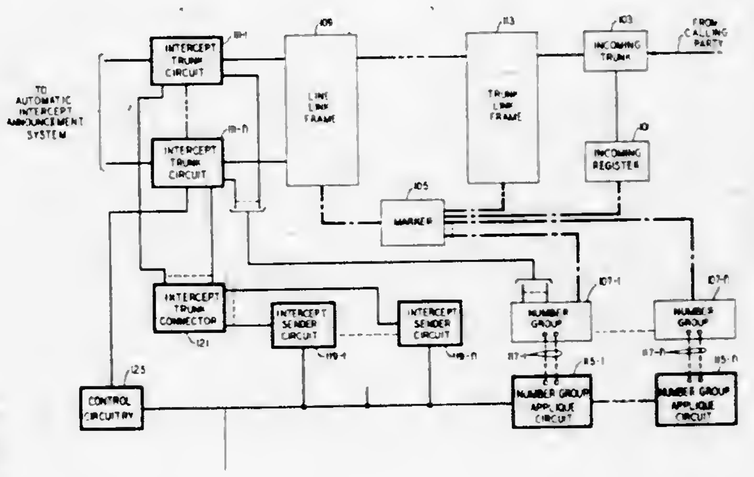
Amos E. Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 8, 1969, Ser. No. 822,930

Int. Cl. H04q *3/72*; H04m *3/52*

U.S. Cl. 179—18 14 Claims

A number identification arrangement for a crossbar telephone-switching system is disclosed wherein seizure of the number group by the marker on an intercepted call is used to transmit the digits of the called number to a special sender circuit. This circuit selects a trunk terminating in an intercept announcement system, transmits the called number to the announcement system over the selected trunk, and forces the marker to connect the calling party to the selected trunk. In the alternative, if the called number is in an unequipped thousands group so that the marker seizes a trunk terminating in an intercept announcement system without seizing a number group, the seized trunk in turn seizes a special sender circuit which then transmits a predetermined code to the announcement system over the seized trunk.



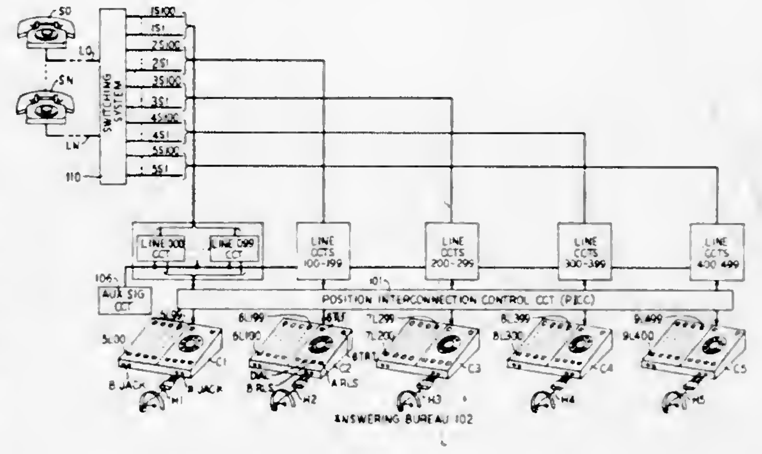
3,571,518
TELEPHONE ANSWERING SYSTEM

Elmer O. Chipman, North Arlington; Robert J. McCarroll, Iselin, and Seymour B. Weinberg, Old Bridge, N.J., assignors to said Weinberg assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J. and said Chipman and McCarroll assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 13, 1968, Ser. No. 752,274

Int. Cl. H04m *5/06*

U.S. Cl. 179—27 12 Claims



A multiple attendant position telephone switching system is arranged with switching circuitry responsive to the removal of an attendant's headset at any one position to permit an attendant at another position to answer calls that would otherwise be directed to the position from which the headset has been removed. The switching circuitry is arranged to recognize and to respond to the occupied or unoccupied status of the positions so as to interconnect unoccupied positions with adjacent occupied positions prior to interconnecting those positions with positions more remotely located. Occupied consoles may be selectively interconnected so that an idle attendant may assist a busy attendant on a one call basis under control of the assisting attendant.

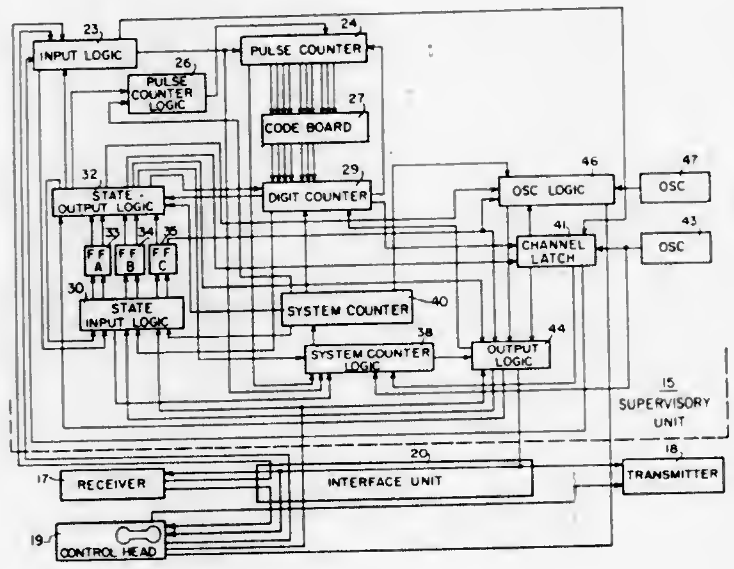
3,571,519
SYNCHRONOUS SUPERVISORY UNIT FOR MOBILE TELEPHONE SYSTEM

John J. Tsimbidis, Cicero, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 31, 1968, Ser. No. 772,098

Int. Cl. H04g *7/04*

U.S. Cl. 179—41 **10 Claims**



A synchronous supervisory unit for mobile telephone operation is capable of assuming any one of a plurality of states depending upon the operations to be carried out by the supervisory system. A shift from one state to another occurs when certain predetermined conditions exist. A single oscillator provides a plurality of timing pulses to synchronize the operation of the system. A separate oscillator develops a plurality of tone signals for use in the telephone system.

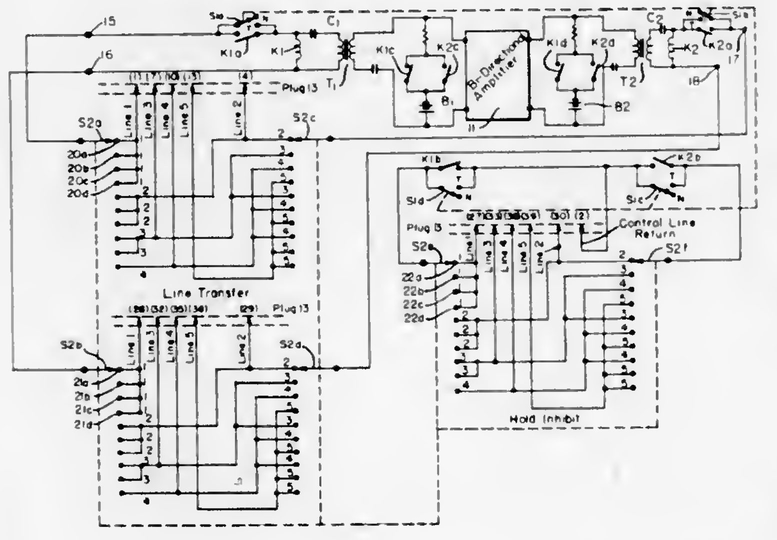
3,571,520
COMMUNICATION SWITCHING UNIT

James W. Clarke, Jr, Plantation, and William P. Parmer, Fort Lauderdale, Fla., assignors to Data Research Corporation, Fractional interest to each and Computer Utilities Corporation, Fort Lauderdale, Fla., Fractional interest to each

Filed July 1, 1969, Ser. No. 838,144

Int. Cl. H04m *5/08*

U.S. Cl. 179—42 **12 Claims**



A multiposition switching unit located adjacent a telephone set includes means for connecting an incoming telephone call on any line with a remotely located telephone contacted on any other line without using a patch panel or similar device.

3,571,521
IMPEDANCE-MATCHING ARRANGEMENT FOR TELEPHONE CIRCUIT INCLUDING INPUT AND/OR OUTPUT AMPLIFIERS

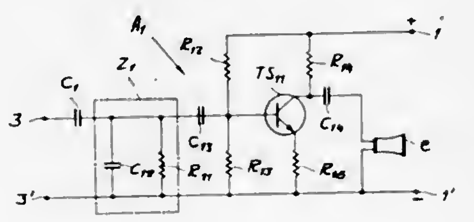
Eriberto Kleissl, and Pasquale Postorino, Milan, Italy, assignors to Societa Italiana Telecommunicazioni Siemens s.p.a.

Filed June 2, 1969, Ser. No. 829,372

Claims priority, application Italy, June 3, 1968, 17279 A/68

Int. Cl. H04m *1/60*

U.S. Cl. 179—81 **10 Claims**



Telephone system wherein a coupling circuit including a hybrid coil connects a receiver and a transmitter in conjugate relationship between a two-wire subscriber line and a balancing network, the receiver input and/or the transmitter output including an amplifier with a pair of line-side terminals bridged by a predominantly capacitive shunt. The sum of the effective receiver input and transmitter output impedances substantially equals the line impedance over a band of voice frequencies to be transmitted over the line, these two impedances being approximately equal if both conjugate branches have amplifiers.

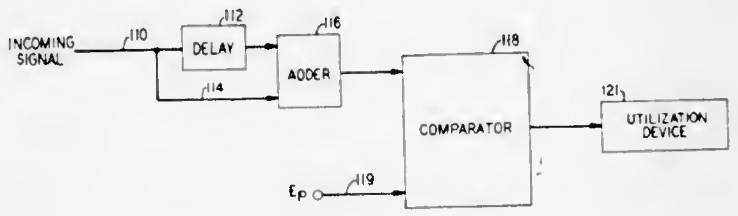
3,571,522
TONE DETECTOR

Leslie A. Cox, Point Claire, Quebec, Canada, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 29, 1968, Ser. No. 779,787

Int. Cl. H03d *3/02;* **H04m** *1/50*

U.S. Cl. 179—84 **14 Claims**



An inband signal tone detector is described in which an incoming signal is compared with the same signal delayed for a fixed time to determine degree of alternation asymmetry of the incoming signal. The result of the comparison is evaluated to detect the presence of the signal tone and the absence of all other signals.

3,571,523
RECEIVING DEVICE FOR DISTINGUISHING SUPERVISORY SIGNALS FOR OTHER AUDIOFREQUENCY SIGNALS

Eberhard Herter, Stuttgart, Germany, assignor to International Standard Electric Corporation

Filed Nov. 29, 1967, Ser. No. 686,631

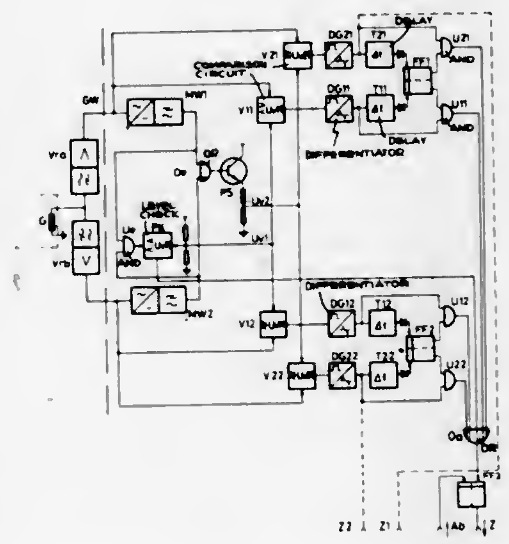
Claims priority, application Germany, Dec. 3, 1966, P 15 12 006.6

Int. Cl. H04m *1/50;* **H04q** *9/12*

U.S. Cl. 179—84 **17 Claims**

Means are provided for automatically distinguishing supervisory signals from other audiofrequency signals in a

telephone system. Supervisory signals are generally uniform, frequently being sine waves. These supervisory signals are distinguished from other audiosignals (which generally are not uniform) by determining each time the signals pass through two instantaneous amplitude levels to exceed successive reference levels of different amplitudes. This information is used to set and to store a bistable device, thereby producing evenly spaced pulses of even width. Other audiosignals, having eratic waveforms, cause the same bistable device to produce pulses which are not uniform in width and spacing.



3,571,524
MAGNETIC RECORDING AND REPRODUCING APPARATUS WITH MEANS TO MECHANICALLY MEMORIZE A LENGTH OF TAPE

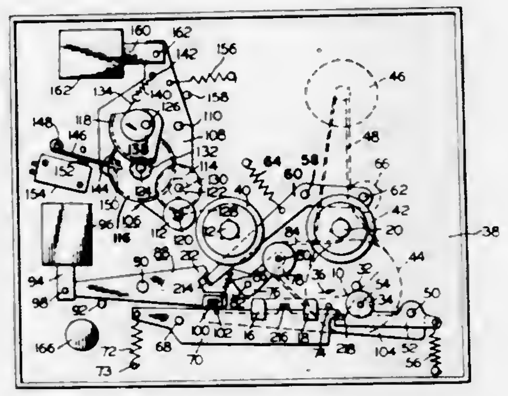
Isao Kozu; Akio Nishiyama; Yukitada Ayukawa, and Takao Orita, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd, Kadoma,Osaka, Japan

Filed June 18, 1968, Ser. No. 738,057

Claims priority, application Japan, June 30, 1967, 42/42720

Int. Cl. G11b *15/02, 15/20;* **G09h** *5/04*

U.S. Cl. 179—100.2 **9 Claims**



A magnetic recording and reproducing apparatus. The apparatus has tape-moving means including a tape drive capstan, a pinch roller, a takeup reel roller, and a supply reel roller, and has magnetic heads for recording and or reproducing signals on said tape. Memory means is provided for mechanically memorizing a length which the tape has moved. Driving means causes switch means to change said magnetic heads from the reproducing condition to the recording condition, and simultaneously engages said memory means with one of said reel rollers. Rewind means drives said supply reel roller to rewind said tape after the recording is completed and is moved out of engagement with said supply reel roller when the length of said tape that has been memorized by said memory means has been rewound.

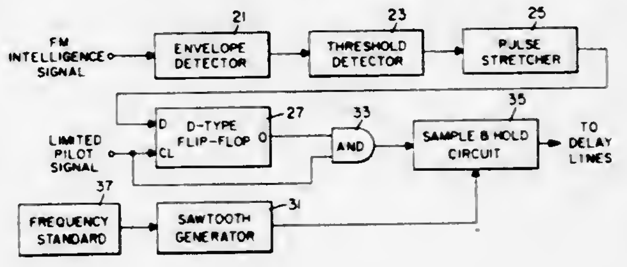
3,571,525
PILOT SIGNAL PLAYBACK CLAMPING DURING DROPOUTS TO PREVENT SPURIOUS TIME-BASE ERRORS

Jerry W. Miller, Menlo Park, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Sept. 30, 1968, Ser. No. 763,641

Int. Cl. G11b *5/04;* **H04n** *5/78*

U.S. Cl. 179—100.2 **5 Claims**



Method and apparatus for sensing tape dropouts in pilot-stabilized magnetic tape recorders and preventing spurious time-base errors. In playback, a level detecting means senses the occurrence of tape dropouts of the recorded signals. Inhibitor means respond to the occurrence of a dropout and the time-base error signal preceding the dropout is held during the dropout interval and for a time thereafter.

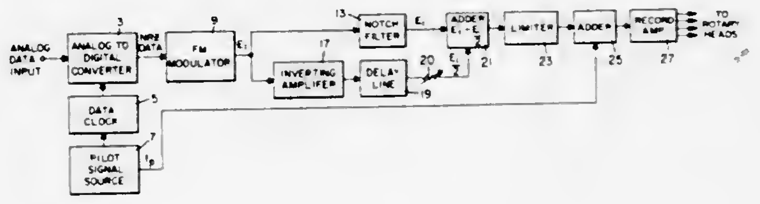
3,571,526
METHOD AND APPARATUS OF ELIMINATING PILOT SIGNAL INTERFERENCE IN FM MAGNETIC TAPE RECORDER SYSTEMS

Paul R. Stockwell, Redwood City, and Jerry W. Miller, Menlo Park, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Sept. 30, 1968, Ser. No. 763,642

Int. Cl. G11b *5/04;* **H03c** *3/04*

U.S. Cl. 179—100.2 **9 Claims**

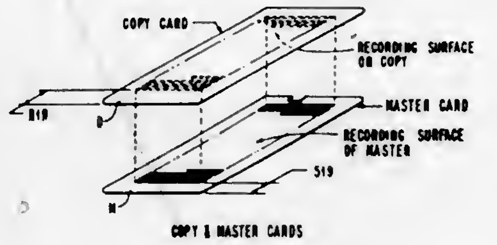


Method and apparatus for improving time-base error correction in magnetic tape recorders utilizing frequency-modulation and constant-frequency pilot signal recording techniques. Spurious nonessential frequency regions of the intelligence signal falling within the region of the pilot signal frequency are cancelled by processing the intelligence signal to generate a frequency spectrum in which the nonessential sidebands within the pilot signal region are redistributed to be concentrated on the frequency spectrum side of the carrier frequency opposite from the side of the pilot frequency. The pilot signal in the frequency range of the shifted nonessential sidebands is then added to be recorded with the processed intelligence signal.

3,571,527
MAGNETIC COPY SYSTEM

Frank E. Becker; Walter F. Klein, and William R. Yount, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 16, 1968, Ser. No. 698,294
Int. Cl. G11b *5/80, 5/86*
U.S. Cl. 179—100.2 **14 Claims**

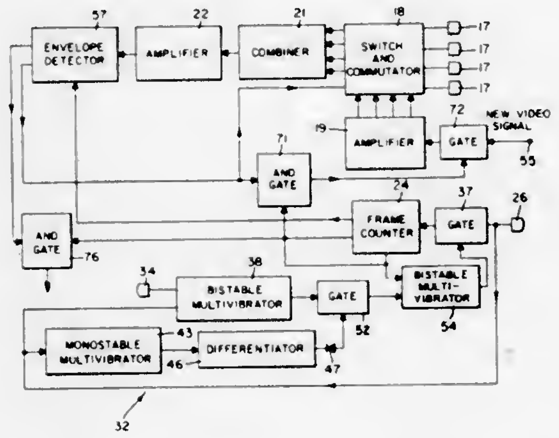


The invention concerns methods and apparatus for establishing accurate positioning and registration of master and duplicate magnetic record media during a magnetic transfer operation to insure compatibility of each kind of media in a utilization device. The invention is particularly useful with media having magnetic signals recorded according to a Boustrophedonic pattern. Such a pattern is created when the record head traces a signal path having a plurality of tracks with, as an example, tracks 1, 3, 5, 7, etc. recorded left to right, tracks 2, 4, 6, 8, etc. recorded right to left, and wherein the head steps a fixed distance at the end of each track.

3,571,528
VERIFYING THE RECORDING OF INFORMATION ON A MAGNETIC RECORDING MEDIUM

Grant M. Smith, Mountain View, Calif., assignor to Ampex Corporation, Redwood, Calif.

Filed Feb. 20, 1969, Ser. No. 801,103
Int. Cl. G11b *5/46, 27/36*
U.S. Cl. 179—100.2 **15 Claims**



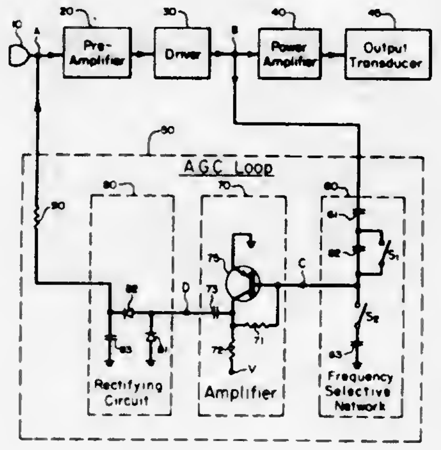
A magnetic head employed to record information on a magnetic tape is activated to read information previously recorded in a frame before it is activated to record information at another frame.

3,571,529
HEARING AID WITH FREQUENCY-SELECTIVE AGC

Iraj Gharib, Glenview, and William H. Greenbaum, Oak Park, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Sept. 9, 1968, Ser. No. 758,272
Int. Cl. H04r *25/00*
U.S. Cl. 179—107 **1 Claim**

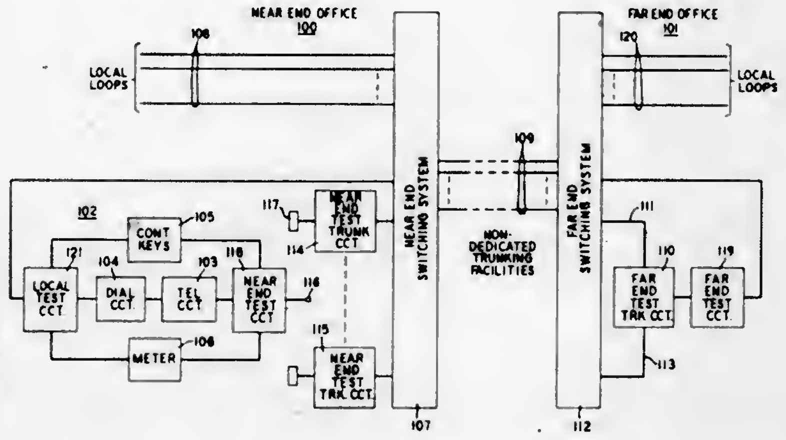
A hearing aid wherein automatic gain control (AGC) is provided by using an AGC system incorporating a user-variable, frequency-selective amplifier to simultaneously establish an adequate range of AGC control voltage and enable selection of the frequencies to which the AGC system responds. The control circuit comprises a frequency-selective network, an amplifier, and a rectifier connected in cascade to limit the gain of the hearing aid only in response to received audio sound waves of frequencies within a selected portion of the frequency response range of the hearing aid.



3,571,530
SYSTEM FOR REMOTE TESTING OF TELEPHONE SUBSCRIBERS' LINES

Chauncey R. Davies, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y.

Original application May 27, 1965, Ser. No. 459,396, now Patent No. 3,410,966. Divided and this application Jan. 22, 1968, Ser. No. 721,907
Int. Cl. H04m *3/22;* **H04q** *9/12*
U.S. Cl. 179—175.2 **3 Claims**

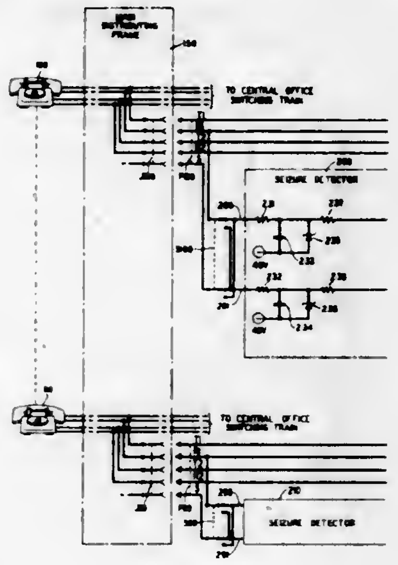


A remotely controlled telephone loop testing system is disclosed in which the loop test circuits are set up by multifrequency tone bursts from the controlling station. The direct current in the remote loop is transmitted back by being translated into a variable frequency signal which is retranslated to direct current at the control station, and displayed on a meter. All signalling is over nondedicated trunks, and a gate is provided to cut off the variable frequency signal when multifrequency signals are detected on the trunk.

3,571,531
SELECTIVE AUTOMATIC SERVICE OBSERVING IN COMMUNICATION SYSTEMS

Harvey Rubin, New York, N.Y.; Robert M. Taylor, Middletown, and Edward J. Wilkens, Jr, Freehold, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 29, 1968, Ser. No. 779,737
Int. Cl. H04m *3/24*
U.S. Cl. 179—175.2 **11 Claims**


TO CENTRAL OFFICE SWITCHING TRAIN
SEIZURE DETECTOR
TO CENTRAL OFFICE SWITCHING TRAIN
SEIZURE DETECTOR

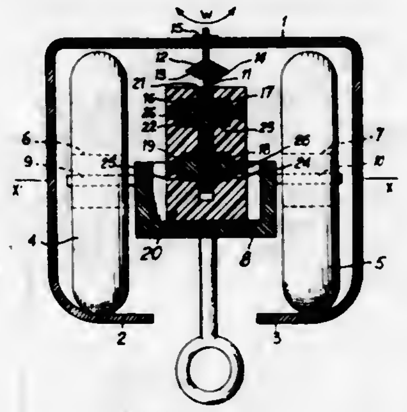
A service observing system is disclosed having circuitry which connects to a group of lines and which selectively connects either terminating calls only or originating calls only to a service observing position. A seizure detector is associated with each observed line for detecting seizures in the selected mode. The first of the observed lines seized in the selected mode is connected to the observing position immediately upon seizure for observation of the detected call.

3,571,532
DEVICES FOR FEEDING ELECTRIC CURRENT TO MOBILE ELECTRIC MACHINES

Christian Falque, 7, rue Franquet, 75 Paris 15e, France

Filed Oct. 21, 1968, Ser. No. 769,062
Claims priority, application France, Jan. 26, 1968, 137511
Int. Cl. B60l *5/00;* **B60m** *1/34*
U.S. Cl. 191—23 **12 Claims**

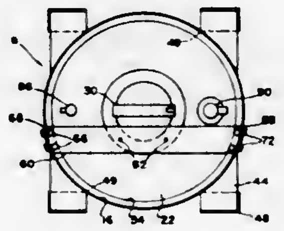
This disclosure concerns a device for supplying electric current to machines moving along one or several guide rails in which one or several linear conductors and a unit of current outlets are urged constantly by elastic members against and rub on one or several conductors, the assembly formed by the unit and a core carrying the conductors having a certain freedom of transverse movement relative to the guide to which the core, which is itself rigid or flexible, is secured in a flexible or rigid manner.



3,571,533
PRESSURE BIN

Clareance B. Coleman, Oakland, Calif., assignor to Fabricated Metals, Inc.

Filed Aug. 30, 1968, Ser. No. 756,624
Int. Cl. B65d *7/02, 7/40, 21/02*
U.S. Cl. 220—5 **8 Claims**



A portable pressure bin defined by a tubular tank terminating in upper and lower heads and having an access and a drainage opening respectively. A support structure depends from the tank adjacent the drainage opening and supports the tank in an upright position. A tubular skirt extends upwardly of the tank adjacent the head with the access opening and includes apertures for engaging the bin with hoisting means such as hooks or cables. A ring-shaped stiffener with a U-shaped cross section is secured to the free end of the skirt portion to impart rigidity thereto and prevent its deflection or crushing while the bin is suspended by the hoisting means. Means for closing the apertures in the heads, for limiting the maximum pressure inside the tank, and for determining the quantity of fluid in the tank are further provided.

DESIGNS

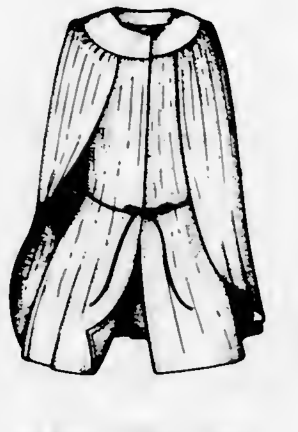
MARCH 16, 1971

220,163

WOMAN'S CAPE

Phyllis L. Meyers, 5235 Linwood Drive,
Los Angeles, Calif. 90027
Filed Aug. 11, 1969, Ser. No. 18,619
Term of patent 14 years
Int. Cl. D2—*01*

U.S. Cl. D2—179

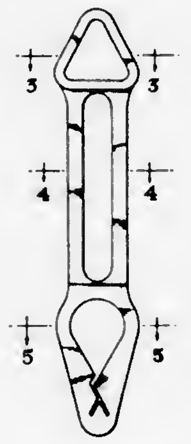


220,164

SANITARY NAPKIN HANGER

James B. Kruger, New Haven, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Dec. 5, 1969, Ser. No. 20,375
Term of patent 14 years
Int. Cl. D2—*08*

U.S. Cl. D2—409

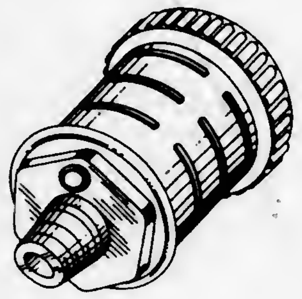


220,165

MUFFLER

John B. Trainor, 2771 Charter Blvd.,
Troy, Mich. 48084
Filed Nov. 28, 1969, Ser. No. 20,313
Term of patent 14 years
Int. Cl. D9—*01;* D12—*14;* D15—*01*

U.S. Cl. D8—70

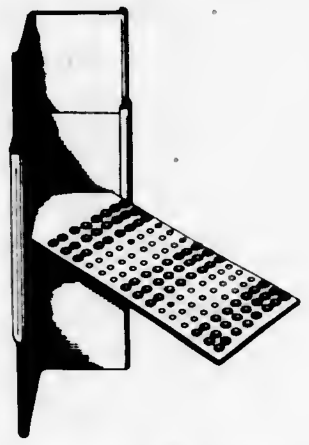


220,166

CARTON STACKING BRACKET FOR PALLETS OR THE LIKE

Robert Lee Griffith, 501 Russell St.,
Covington, Ky. 41011
Filed Aug. 21, 1969, Ser. No. 18,794
Term of patent 14 years
Int. Cl. D8—*03*

U.S. Cl. D8—233

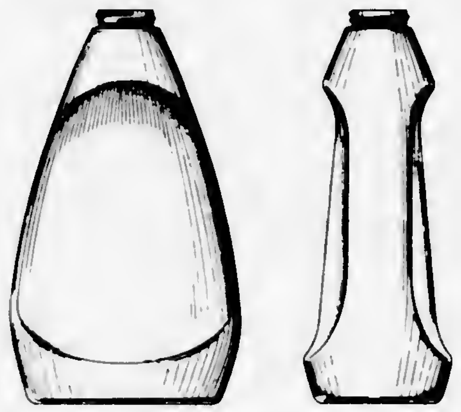


220,167

BOTTLE OR SIMILAR ARTICLE

Jim D. Barker, 7700 Loma Vista Drive,
Kansas City, Mo. 64138
Filed Mar. 2, 1970, Ser. No. 21,674
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—143

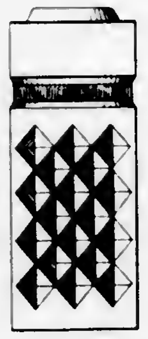


220,168

CARTON FOR BOTTLE OR SIMILAR ARTICLE

Richard G. Gelak, Cherry Hill, and Vero Ricci, Collingswood, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 22, 1969, Ser. No. 18,805
Term of patent 14 years
Int. Cl. D9—*04*

U.S. Cl. D9—225

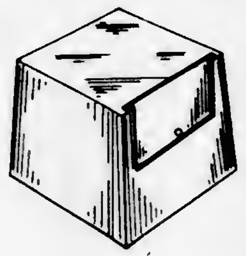


220,169

BOTTLE CAP

David L. Lundberg, 3417 S. 77th St.,
Omaha, Nebr. 68124
Filed Mar. 24, 1969, Ser. No. 16,413
Term of patent 14 years
Int. Cl. D9—*02*

U.S. Cl. D9—275

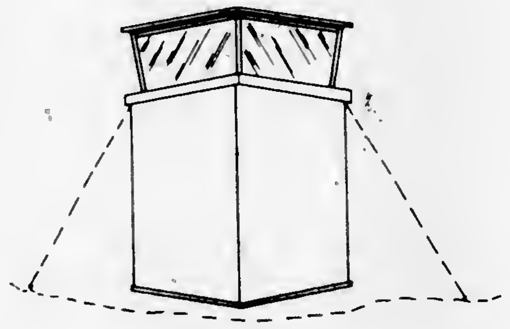


220,170

AIR TRAFFIC CONTROL TOWER

John H. Criswell, Berea, Anthony A. Coletto, Jr., Cleveland Heights, and Charles L. Benzon, Middleburg Heights, Ohio, assignors to Air Traffic Control Systems, Inc.
Filed Aug. 30, 1968, Ser. No. 13,342
Term of patent 14 years
Int. Cl. D25—*04*

U.S. Cl. D13—1

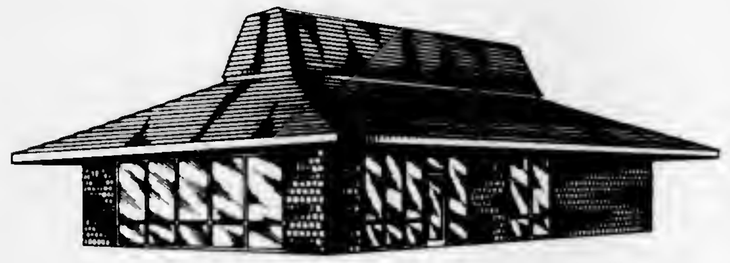


220,171

BUILDING

John A. Roschman, Dayton, Ohio, assignor to RIX Systems Inc., Indianapolis, Ind.
Continuation of design application Ser. No. 10,533, Feb. 12, 1968. This application July 9, 1969, Ser. No. 18,279
Term of patent 14 years
Int. Cl. D25—*04*

U.S. Cl. D13—1

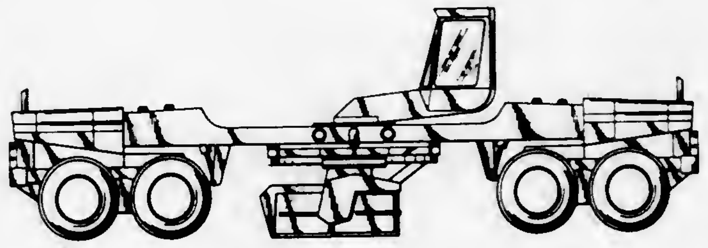


220,172

COMBINATION TRIMMER AND SPREADER MACHINE

George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Mar. 28, 1969, Ser. No. 16,507
Term of patent 14 years
Int. Cl. D12—*09*

U.S. Cl. D14—3

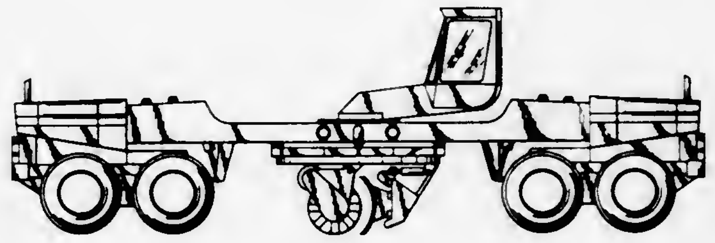


220,173

COMBINATION MOTOR GRADER AND CUTTER

George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Apr. 14, 1969, Ser. No. 16,740
Term of patent 14 years
Int. Cl. D12—*09*

U.S. Cl. D14—3

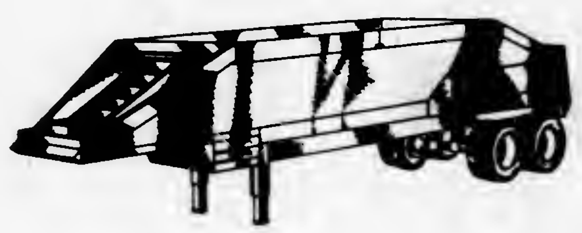


220,174

SEMI-TRAILER

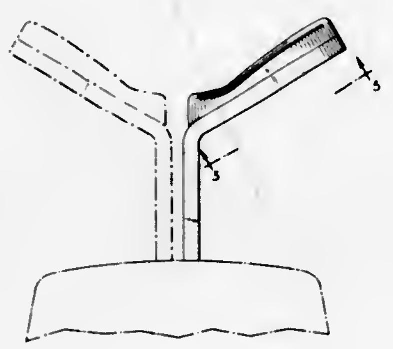
John H. Holland, Norman, Okla., assignor to Arkansas Rock & Gravel Corporation
Filed Mar. 4, 1970, Ser. No. 21,737
Term of patent 14 years
Int. Cl. D12—*10*

U.S. Cl. D14—3



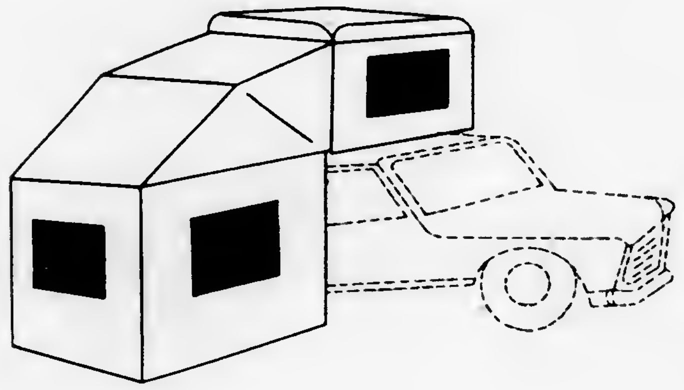
220,175
OPERATING DEVICE FOR AUTOMOBILE TRANSMISSIONS

William J. Bieber, Doylestown, and Rene L. Guerster, Maple Glen, Pa., assignors to Bieber Enterprises, Inc., Doylestown, Pa.
Filed June 30, 1969, Ser. No. 17,941
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—6



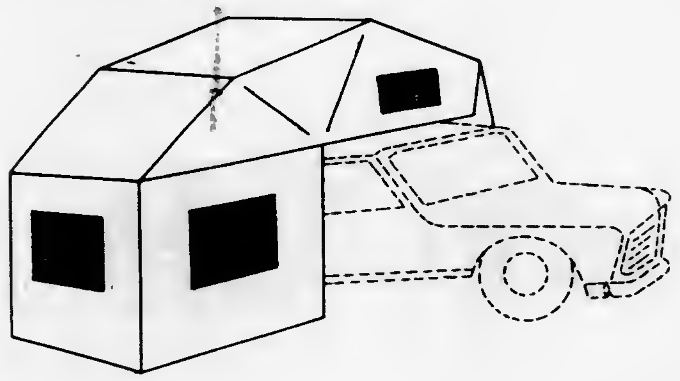
220,176
CAR-TOP CAMPER

Jimmy M. Lambert, 1501 Tonawanda Drive,
Dothan, Ala. 36301
Filed Feb. 13, 1969, Ser. No. 15,761
Term of patent 14 years
Int. Cl. D12—*14;* D21—*05*
U.S. Cl. D14—27



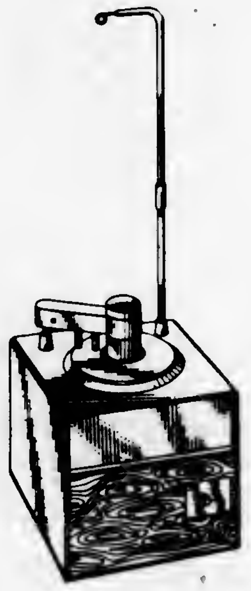
220,177
CAR-TOP CAMPER

Jimmy M. Lambert, 1501 Tonawanda Drive,
Dothan, Ala. 36301
Filed Feb. 13, 1969, Ser. No. 15,769
Term of patent 14 years
Int. Cl. D12—*14;* D21—*05*
U.S. Cl. D14—27



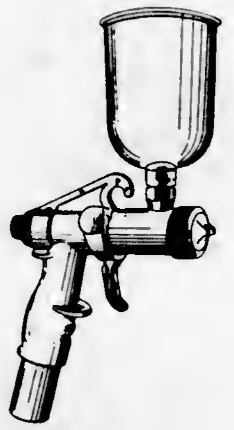
220,178
CENTRIFUGE

Richard W. Lanigan, Arlington Heights, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Oct. 9, 1969, Ser. No. 19,486
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D16—2



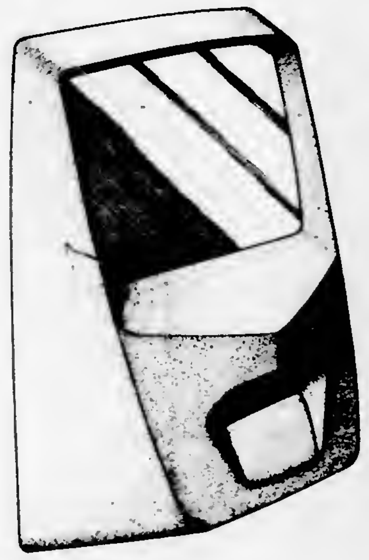
220,179
SPRAY GUN

Irmgard Farnsteiner, nee Hegler, Boulevard du tenao, Monte-Carlo, Monaco
Filed July 22, 1969, Ser. No. 18,287
Claims priority, application Monaco Jan. 24, 1969
Term of patent 3½ years
Int. Cl. D23—*01*
U.S. Cl. D23—18



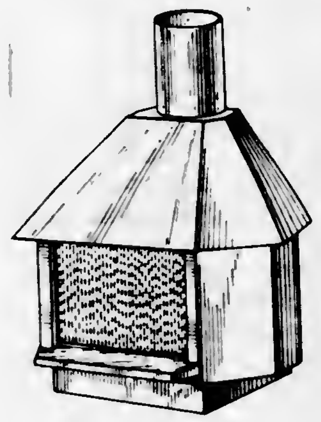
220,180
WALL MOUNTED HAND DRYER

Jerrell J. Griffin, Los Angeles, Calif.
(18658 Napa St., Northridge, Calif. 91324)
Filed Sept. 8, 1969, Ser. No. 19,062
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—74



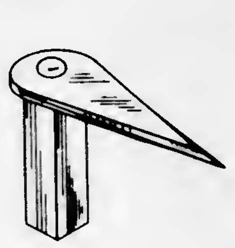
220,181
FIREPLACE OR THE LIKE

Ray Derringer, Port Edwards, Wis., assignor to Preway Inc.
Filed Sept. 30, 1969, Ser. No. 19,351
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



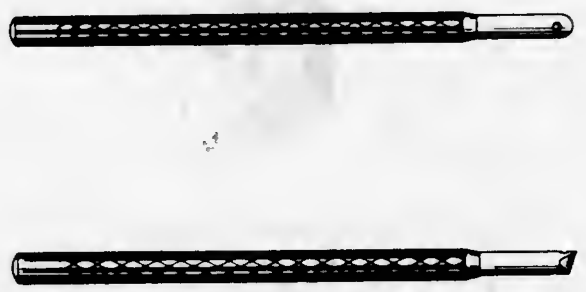
220,182
BLADE UNIT FOR DENTAL INSTRUMENT

James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,515
Term of patent 14 years
Int. Cl. D24—*03;* D8—*02*
U.S. Cl. D24—1



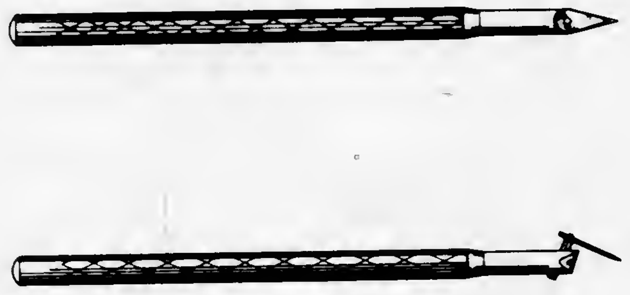
220,183
HANDLE FOR DENTAL INSTRUMENT

James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,526
Term of patent 14 years
Int. Cl. D24—*03;* D8—*02*
U.S. Cl. D24—1



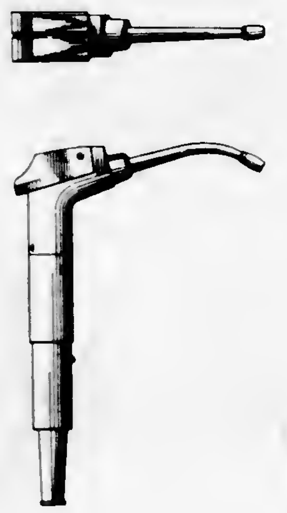
220,184
DENTAL INSTRUMENT

James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,527
Term of patent 14 years
Int. Cl. D8—*02;* D24—*03*
U.S. Cl. D24—1



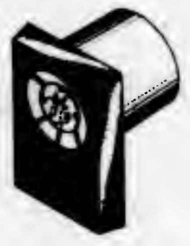
220,185
DENTAL SYRINGE

Charles C. Lake, Park Ridge, and Robert A. Grzelewski, Buffalo Grove, Ill., assignors to American Hospital Supply Corporation, Evanston, Ill.
Filed Feb. 9, 1970, Ser. No. 21,337
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1



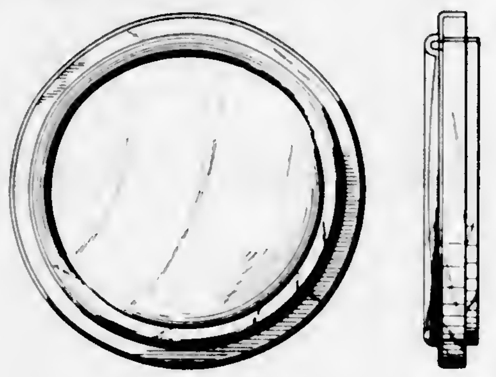
220,186
CASING FOR CAPS AND CONNECTORS

Lawrence P. Mellyn, Gloucester, R.I., assignor to
General Electric Company
Filed Mar. 17, 1969, Ser. No. 16,280
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1



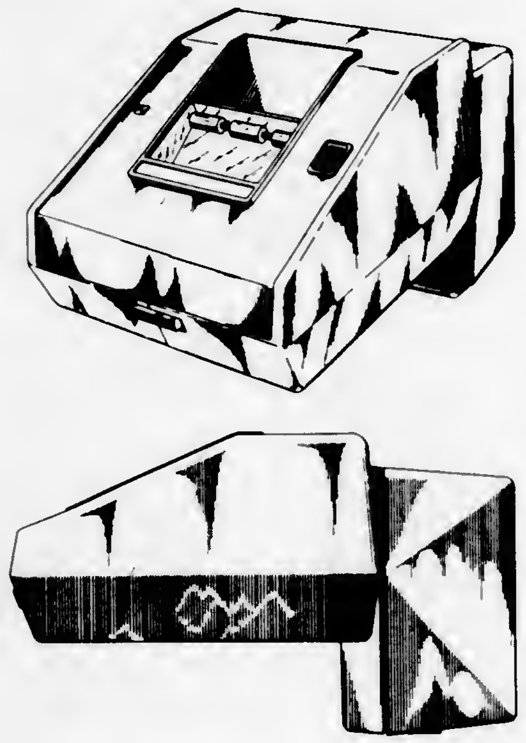
220,187
CLOSING PLATE FOR ELECTRIC METER SOCKET

Jack Moran, Muskogee, Boyd Steveson, Fort Gibson, and William A. Reynolds, Oklahoma City, Okla., assignors to M-R-S Inc., Fort Gibson, Okla.
Filed Aug. 14, 1969, Ser. No. 18,687
Term of patent 14 years
Int. Cl. D13—*99*
U.S. Cl. D26—1



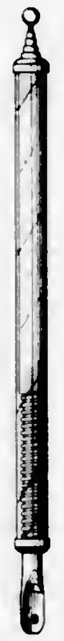
220,188
MOBILE PRINTER

Robert E. Kalvitis, Fairport, N.Y., assignor to
Xerox Corporation, Rochester, N.Y.
Filed July 31, 1969, Ser. No. 18,497
Term of patent 14 years
Int. Cl. D14—*03;* D18—*03*
U.S. Cl. D26—14



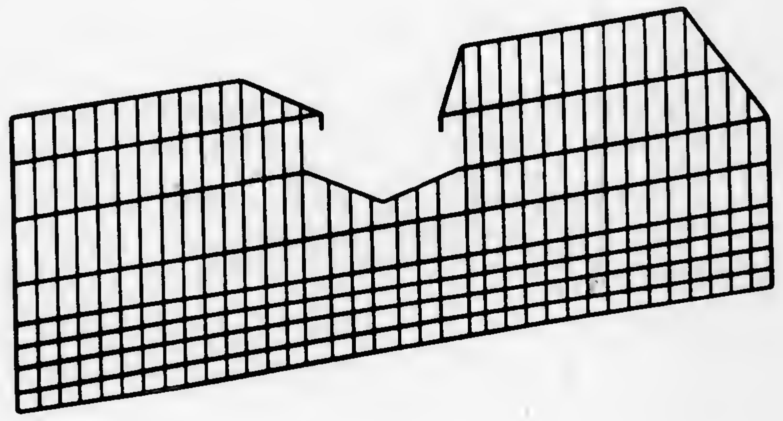
220,189
TELEVISION ANTENNA ROD FOR INDOOR USE

Marvin P. Middlemark, 96 Shore Hill Road,
Old Westbury, N.Y. 11590
Filed May 20, 1970, Ser. No. 23,064
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D26—14



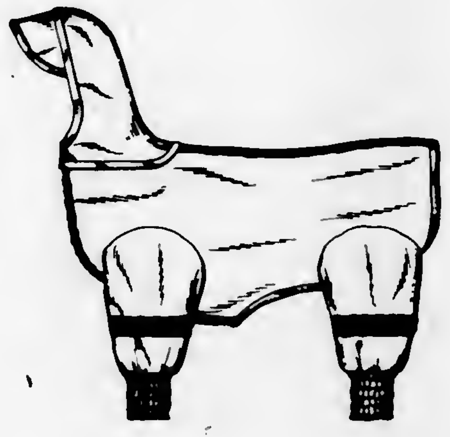
220,190
WIRE MESH PANEL FOR POULTRY CAGES

Gerald L. Kitson, 9709 Belding Road,
Rockford, Mich. 49341
Continuation-in-part of design application Ser. No. 10,409, Feb. 1, 1968. This application June 24, 1969, Ser. No. 17,843
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—2



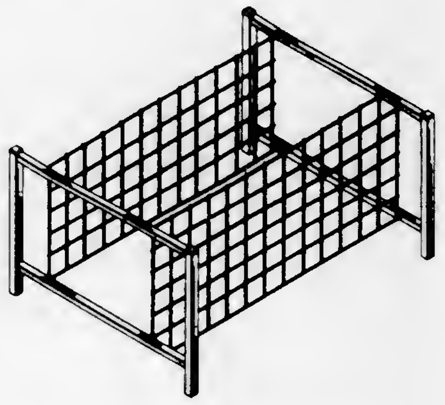
220,191
PET SNOW SUIT

Constance Giordano, 110—20 71st Road,
Forest Hills, N.Y. 11375
Filed Mar. 3, 1970, Ser. No. 21,721
Term of patent 14 years
Int. Cl. D30—*04*
U.S. Cl. D30—37



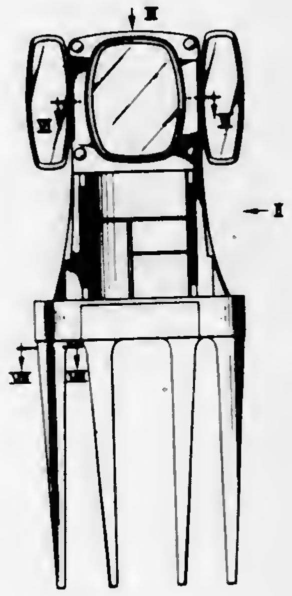
220,192
STORAGE RACK FOR ROLL GOODS OR CARTONS, OR THE LIKE

Kenneth William Baxter, Burbank, Calif.
(1209 Air Way, Glendale, Calif. 91201)
Filed June 20, 1969, Ser. No. 17,786
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D33—3



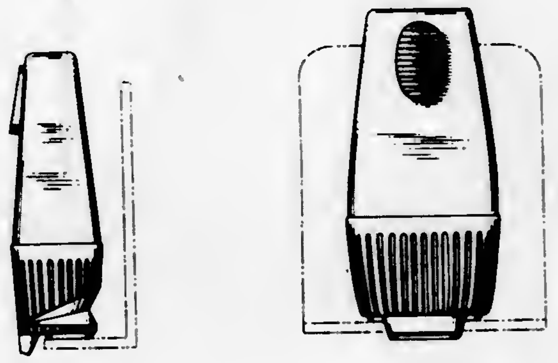
220,193
VANITY TABLE

Earl R. Wright, 8124 Victoria Ave.,
South Gate, Calif. 90280
Filed Oct. 3, 1969, Ser. No. 19,406
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—6



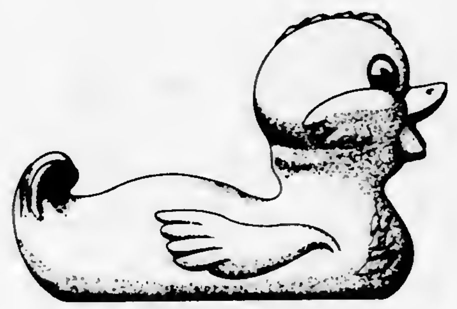
220,194
DISPENSER FOR TOILET ARTICLES

Guido R. di Giuseppe, 2519 S. Sartain St.,
Philadelphia, Pa. 19148
Filed May 19, 1969, Ser. No. 17,221
Claims priority, application Italy Nov. 19, 1968
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D33—30



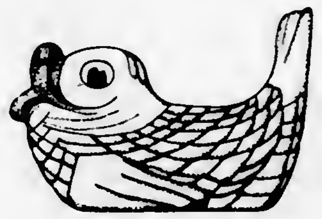
220,195
TOY ANIMAL FIGURE

John Steffens, Ardsley, N.Y., assignor to J. L. Prescott
Company, Passaic, N.J.
Filed July 22, 1969, Ser. No. 18,299
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



220,196
TOY ANIMAL FIGURE

John Steffens, Ardsley, N.Y., assignor to J. L. Prescott
Company, Passaic, N.J.
Filed July 22, 1969, Ser. No. 18,315
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2

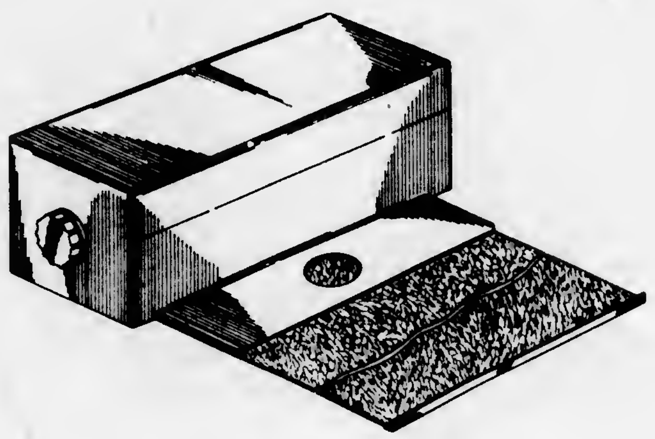


220,197

GOLF PRACTICE PUTTING MAT

John Thomas Sarvay, Lakewood, Ohio, assignor to The Standard Products Company, Cleveland, Ohio
Filed Dec. 15, 1969, Ser. No. 20,499
Term of patent 14 years
Int. Cl. D21—*01*

U.S. Cl. D34—5

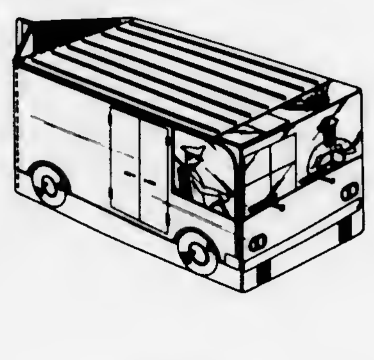


220,198

CARTON TOY

Donald F. Clauser, Sr., Leavenworth, Kans., assignor to Toy-Pak, Inc., Leavenworth, Kans.
Filed Jan. 19, 1970, Ser. No. 20,961
Term of patent 14 years
Int. Cl. D21—*02*

U.S. Cl. D34—15

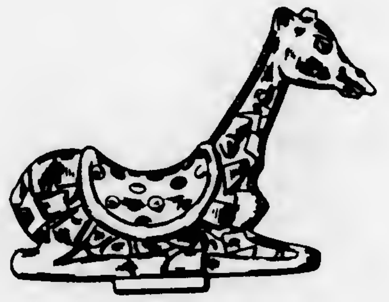


220,199

GIRAFFE FIGURE SEAT FOR PLAY-GROUND EQUIPMENT

Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
Filed Feb. 9, 1970, Ser. No. 21,350
Term of patent 14 years
Int. Cl. D21—*04*

U.S. Cl. D34—15

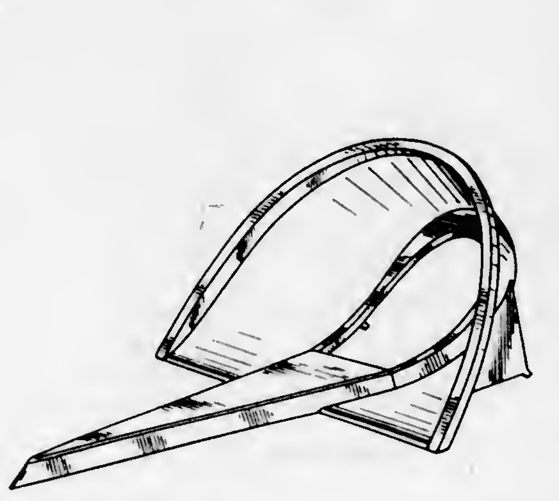


220,200

TRACKWAY TURNABOUT FOR TOY VEHICLES

Cecil F. Adickes, Playa Del Rey, Calif., assignor to Tonka Corporation, Mound, Minn.
Filed May 1, 1970, Ser. No. 22,763
Term of patent 7 years
Int. Cl. D21—*02*

U.S. Cl. D34—15

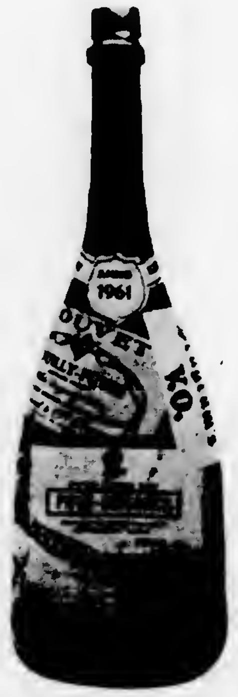


220,201

CUTTING BOARD

Elizabeth Mason Cairns, Deep Brook Road, Wyckoff, N.J. 07481
Filed July 23, 1969, Ser. No. 18,348
Term of patent 14 years
Int. Cl. D7—*99*

U.S. Cl. D44—1

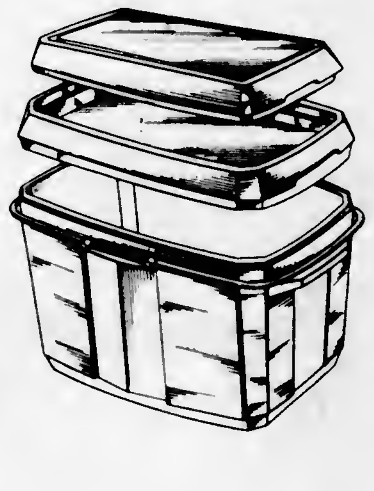


220,202

COMBINED ICE CHEST AND TRAY

Joseph D. Brown, 20 Red Fox Road, Stamford, Conn. 06903, and Robert P. Brown, 76 Burning Tree Road, Greenwich, Conn. 06830
Filed Jan. 27, 1970, Ser. No. 21,106
Term of patent 14 years
Int. Cl. D7—*99*

U.S. Cl. D44—1

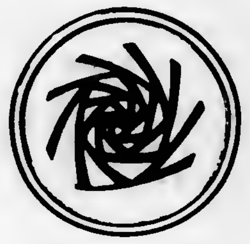


220,203

COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR

Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 07050
Continuation-in-part of design application Ser. No. 11,907, May 14, 1968. This application Sept. 4, 1969, Ser. No. 18,994
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—9

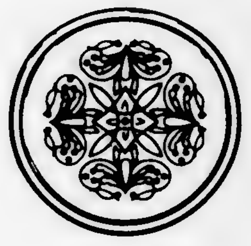


220,204

COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR

Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 07050
Continuation-in-part of design application Ser. No. 11,939, May 14, 1968. This application Sept. 4, 1969, Ser. No. 19,009
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—9

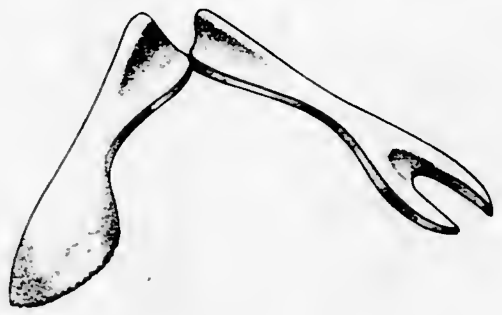


220,205

COMBINED FORK, KNIFE AND SPOON

Clement P. Saila, 790 Bay St., Toronto, Ontario, Canada
Filed Apr. 1, 1969, Ser. No. 16,528
Term of patent 14 years
Int. Cl. D7—*03*

U.S. Cl. D44—29

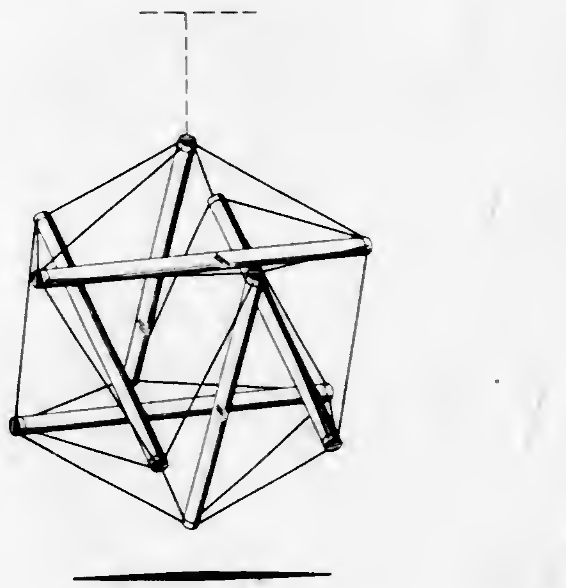


220,206

SUSPENDED ELECTRIC LAMP

Peter Hamburger, 36 Commerce St., New York, N.Y. 10014
Filed Jan. 21, 1970, Ser. No. 21,015
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—23

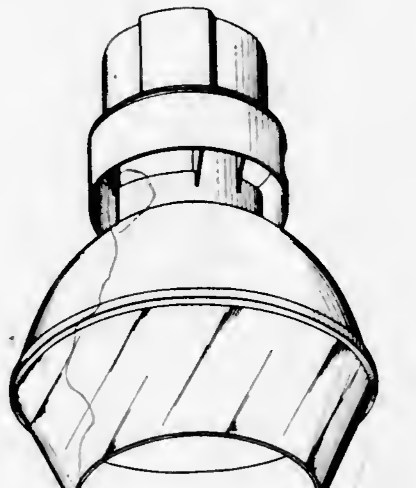


220,207

LUMINAIRE

Warren H. Edman, Hohokus, N.J., and James W. Patyrak and Kenneth F. Miller, Newark, Ohio, assignors to Holophane Company, Inc., New York, N.Y.
Filed Oct. 1, 1969, Ser. No. 19,370
Term of patent 14 years
Int. Cl. D26—*03, 02*

U.S. Cl. D48—31

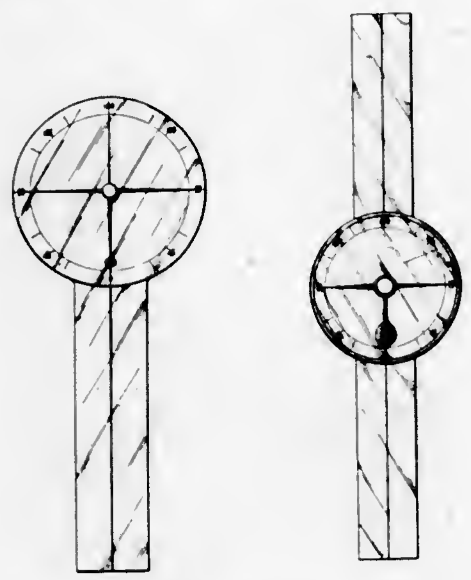


220,208

GONIOMETER

Randhir S. Dhir, 850 Amsterdam Ave., Apt. 17D,
New York, N.Y. 10025
Filed Sept. 4, 1969, Ser. No. 19,028
Term of patent 14 years
Int. Cl. D24—*02*

U.S. Cl. D52—6

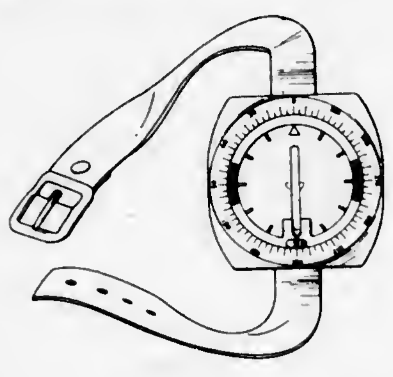


220,209

WRIST COMPASS

Owsley H. Brigham, 7510 Morningside Drive,
Indianapolis, Ind. 46240
Filed Nov. 24, 1969, Ser. No. 20,231
Term of patent 14 years
Int. Cl. D10—*07*

U.S. Cl. D52—6

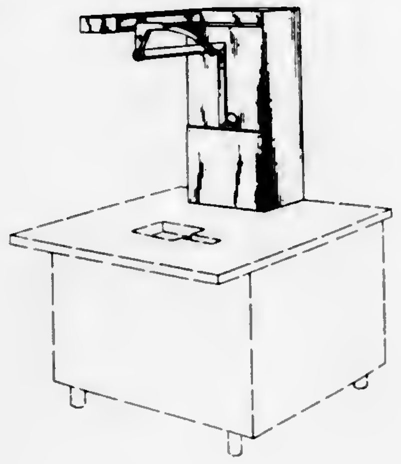


220,210

MECHANISM TOWER FOR A BUNDLE TYING MACHINE

Douglas C. Mills, Adrian, Mich., assignor to
SOS Consolidated, Inc., Birmingham, Mich.
Filed Dec. 29, 1969, Ser. No. 20,655
Term of patent 14 years
Int. Cl. D15—*05*

U.S. Cl. D55—1

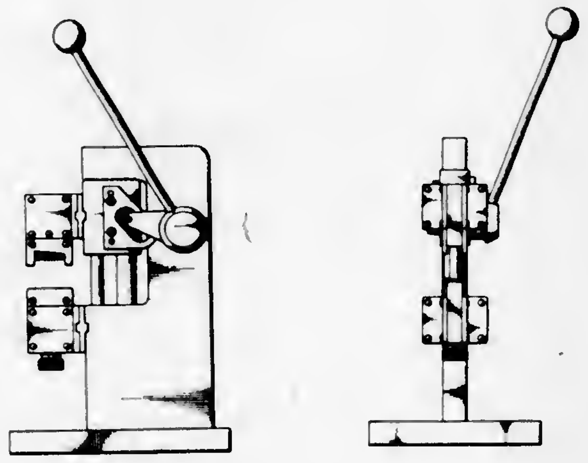


220,211

COMBINATION MINIATURIZED CIRCUIT LEAD-FORMING AND TRIMMING APPARATUS

Andrew Edstrom, San Carlos, Calif., assignor to
Seymour Golub, Woodland Hills, Calif.
Filed Dec. 22, 1969, Ser. No. 20,580
Term of patent 14 years
Int. Cl. D15—*05*

U.S. Cl. D55—1

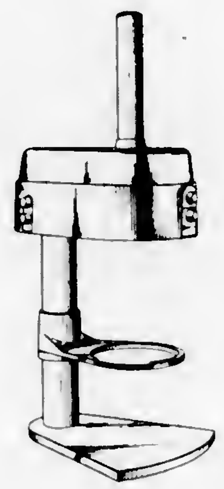


220,212

POTATO CHIP MAKING MACHINE

Frederick Charles Ashford, 14 Grosvenor Place, Hyde Park Corner, London, SW. 1, England, and Robert Charles Quarmby and Barry Charles Wright, both of Union Works, Belgrave Road, Leicester, England
Filed June 5, 1969, Ser. No. 17,531
Claims priority, application Great Britain Dec. 12, 1968
Term of patent 14 years
Int. Cl. D15—*12*

U.S. Cl. D55—1

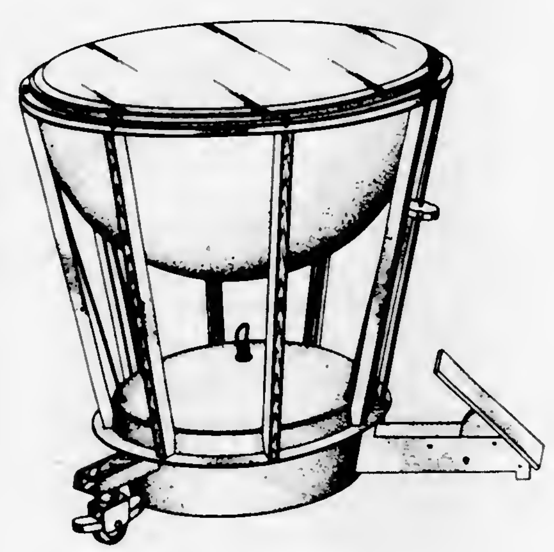


220,213

KETTLEDRUM

William H. Chaffee, Hinsdale, Ill., Donald G. Canedy, Covington, Ohio, and Josephus B. Thompson, deceased, late of Covington, Ohio, by K. E. Stade, administrator, Covington, Ohio, assignors to Columbia Broadcasting System, Inc., New York, N.Y.
Filed May 7, 1969, Ser. No. 17,105
Term of patent 14 years
Int. Cl. D17—*04*

U.S. Cl. D56—1

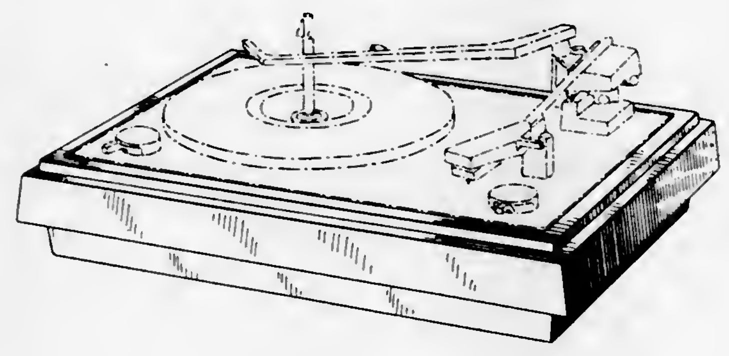


220,214

PHONOGRAPH RECORD CHANGER BASE

Earl E. Hoyt, Northvale, N.J., assignor to BSR (USA) Limited, Blauvelt, N.Y.
Original design application Dec. 2, 1968, Ser. No. 14,732, now Patent No. 217,295, dated Apr. 21, 1970. Divided and this application Sept. 9, 1969, Ser. No. 19,077
Term of patent 14 years
Int. Cl. D14—*01*

U.S. Cl. D56—4

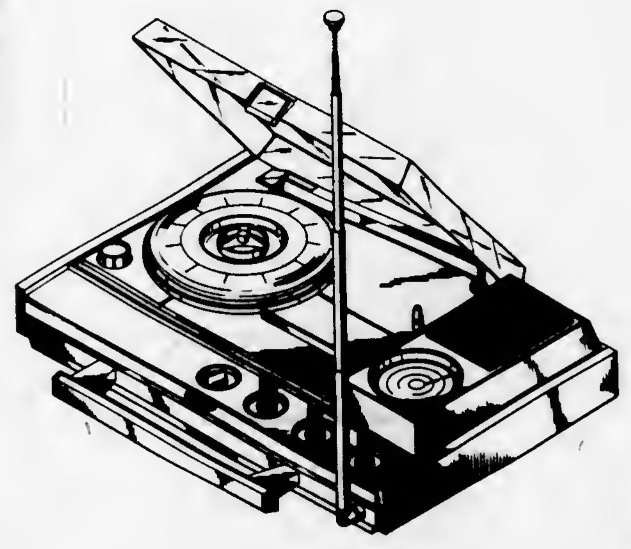


220,215

PORTABLE RADIO-PHONOGRAPH

Kaoru Eguchi, 70—25 Yellowstone Blvd.,
Forest Hills, N.Y.
Filed Feb. 20, 1970, Ser. No. 21,532
Term of patent 3½ years
Int. Cl. D14—*03*

U.S. Cl. D56—4

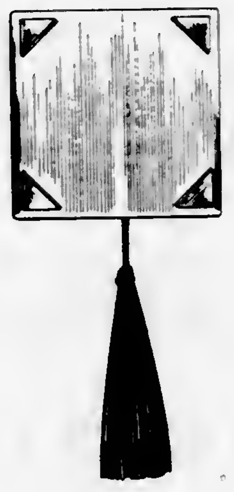


220,216

ANNOUNCEMENT CARD HOLDER

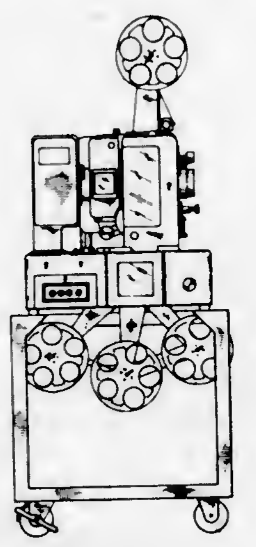
Beth C. Coder, 247 Wellington St.,
Dighton, Mass. 02715
Filed Sept. 23, 1969, Ser. No. 19,268
Term of patent 14 years
Int. Cl. D19—*05*

U.S. Cl. D59—2



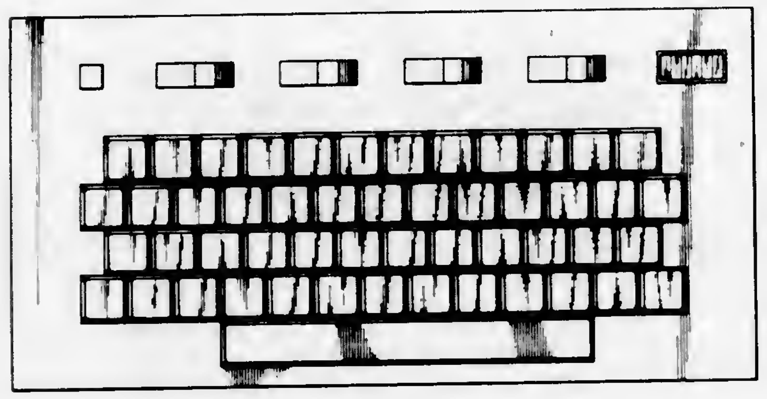
220,217
COMBINED MOTION PICTURE PROJECTOR AND SUPPORT STAND
Charles Ajar, 4265 Clybourn, North Hollywood, Calif. 91602
Filed Oct. 6, 1969, Ser. No. 19,426
Term of patent 14 years
Int. Cl. D16—*04*

U.S. Cl. D61—1



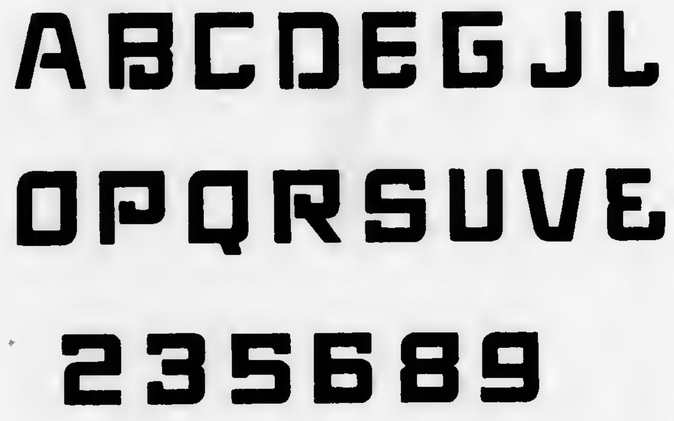
220,218
KEYBOARD PANEL
Karel Jacobs, Huntington Beach, Agazio S. Gugliotta, Hacienda Heights, Alexander M. Bradley, Huntington Beach, and Joseph A. Meng, Costa Mesa, Calif., assignors to Vanguard Data Systems, Inc.
Filed Dec. 2, 1968, Ser. No. 14,741
Term of patent 14 years
Int. Cl. D18—*01*

U.S. Cl. D64—11



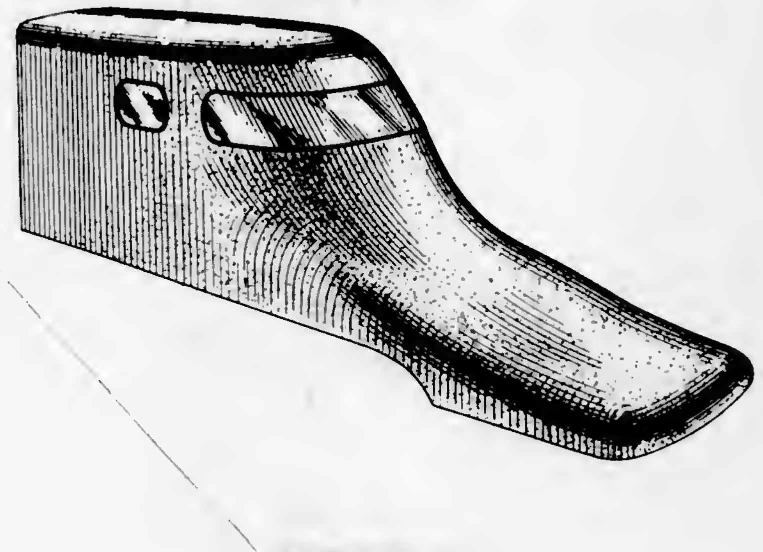
220,219
FONT OF PRINTING TYPE
Gerald E. Stahl, New York, N.Y., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed July 24, 1969, Ser. No. 18,371
Term of patent 14 years
Int. Cl. D18—*04*

U.S. Cl. D64—12



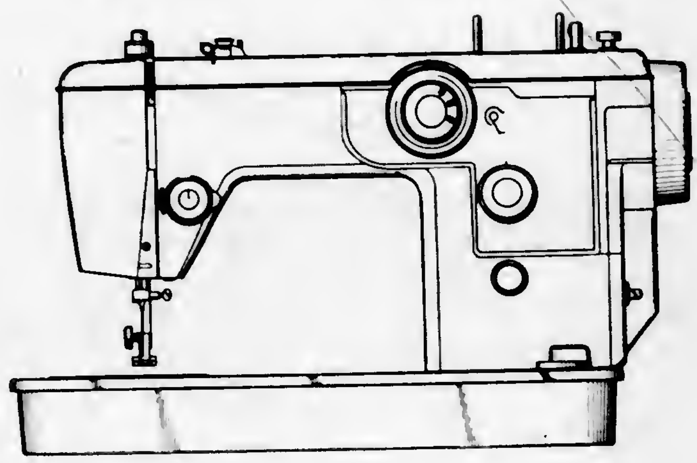
220,220
NOSE UNIT FOR HIGH SPEED RAILROAD TRAIN
Ivan L. Joy, 1616 W. 29th St., Topeka, Kans. 66614
Filed Oct. 13, 1969, Ser. No. 19,520
Term of patent 14 years
Int. Cl. D12—*03*

U.S. Cl. D66—1



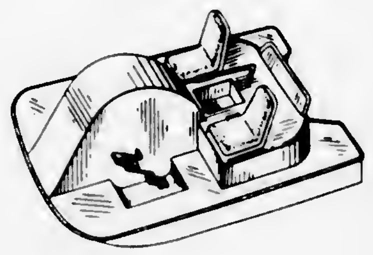
220,221
SEWING MACHINE
Yasuaki Yamamoto, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Oct. 28, 1969, Ser. No. 19,765
Claims priority, application Japan May 28, 1969
Term of patent 14 years
Int. Cl. D15—*09*

U.S. Cl. D70—1



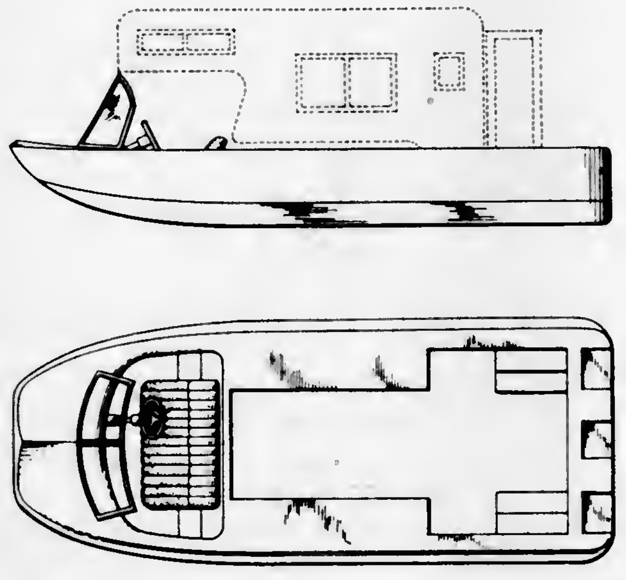
220,222
WATERCRAFT
Jean Nolet, 157 Lavoisler, Laval, Quebec, Canada, and Louis Landry, 10142 Rue Cartier, Montreal, Quebec, Canada
Filed Sept. 19, 1969, Ser. No. 19,226
Term of patent 14 years
Int. Cl. D12—*06*

U.S. Cl. D71—1



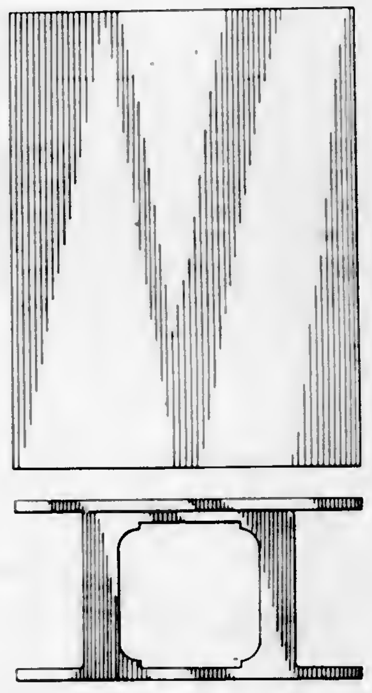
220,223
CAMPER BOAT
Harry W. Thompson, 8007 S. Chappel Ave., Chicago, Ill. 60617
Filed Sept. 10, 1969, Ser. No. 19,093
Term of patent 14 years
Int. Cl. D12—*06*

U.S. Cl. D71—1



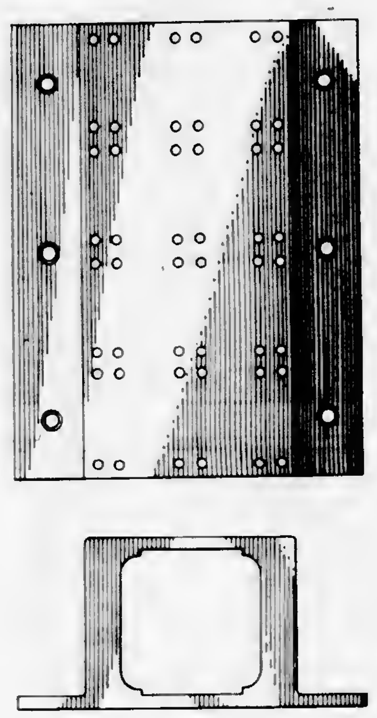
220,224
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,699
Term of patent 14 years
Int. Cl. D12—*99*

U.S. Cl. D71—1



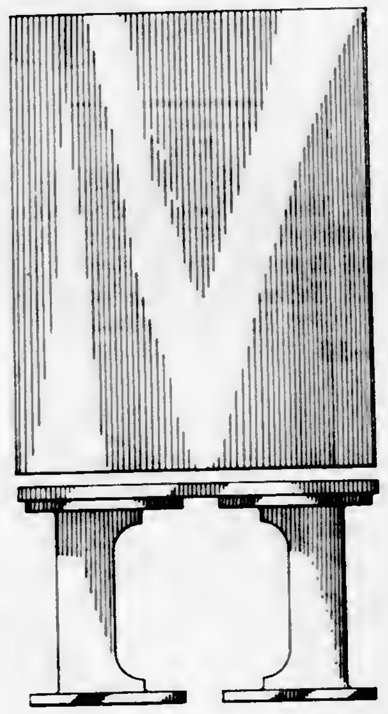
220,225
MARINE FENDER OR THE LIKE
Jirio Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,700
Term of patent 14 years
Int. Cl. D12—*99*

U.S. Cl. D71—1

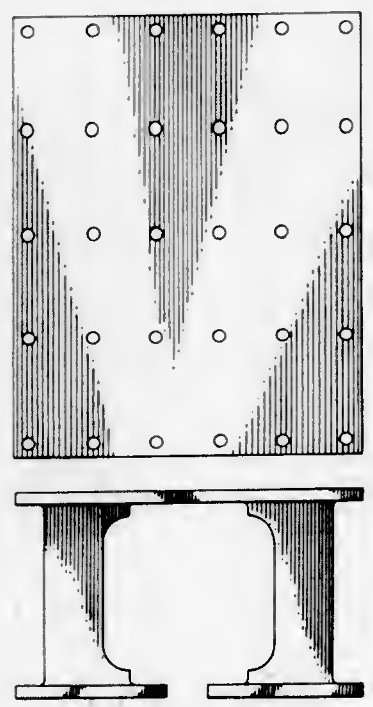


220,226
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,701
Term of patent 14 years
Int. Cl. D12—*99*

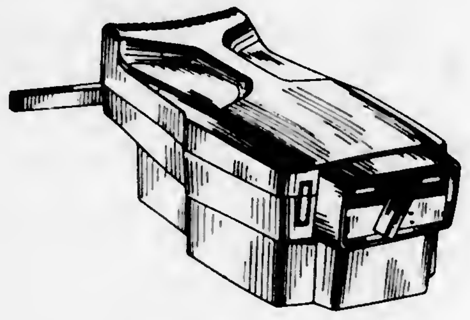
U.S. Cl. D71—1



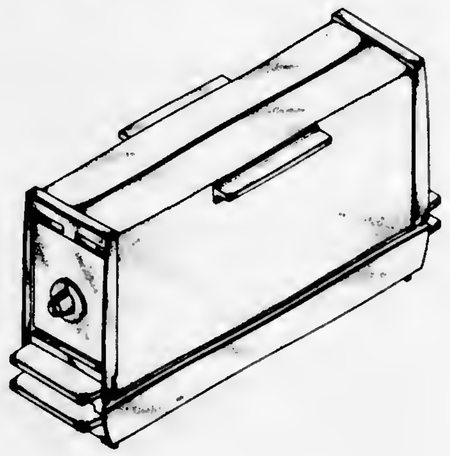
220,227
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,702
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



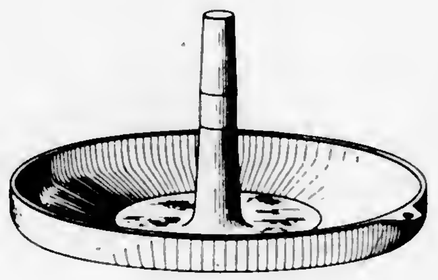
220,228
ENGINE HOUSING
Rustan Lange, Jonkoping, Sweden, assignor to Kendale Industries, Inc., Independence, Ohio
Filed Oct. 16, 1969, Ser. No. 19,588
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D77—1



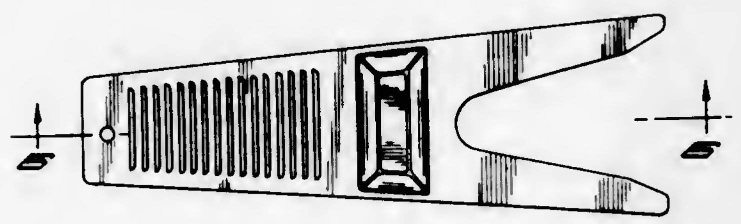
220,229
BACON COOKER
Richard F. Saurer, Lexington, Ohio, assignor to Westinghouse Electric Corporation
Filed Apr. 16, 1970, Ser. No. 22,467
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



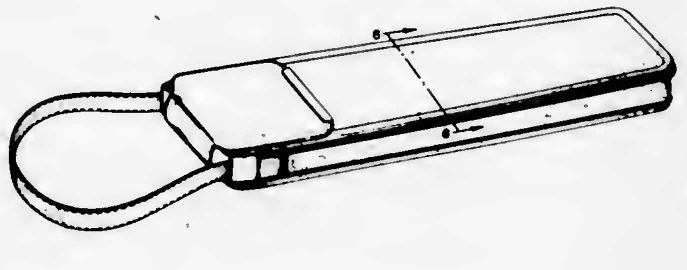
220,230
WIG STYLING TRAY
Bernard Friedman, Allentown, Pa.
Filed Feb. 27, 1970, Ser. No. 21,665
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10



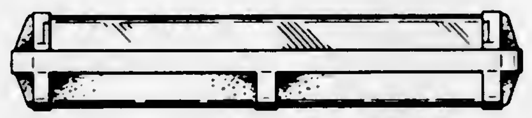
220,231
BOOT JACK
Don J. McDonald, Minneapolis, Minn., assignor to Burd, Braddock & Bartz, Minneapolis, Minn., a fractional part interest
Filed Apr. 1, 1970, Ser. No. 22,189
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D86—10



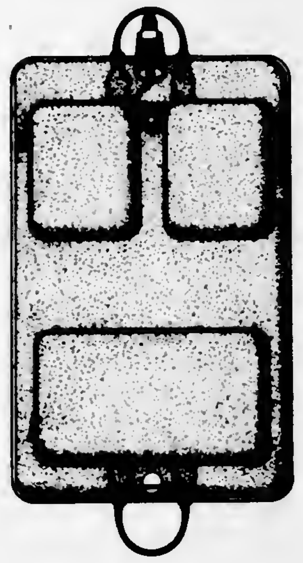
220,232
COMBINED UMBRELLA AND SHEATH
Fritz Bremshey, 28 Wilhelmstrasse, 565 Solingen-Ohligs, Germany
Filed Nov. 3, 1969, Ser. No. 19,892
Claims priority, application Germany May 7, 1969
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1



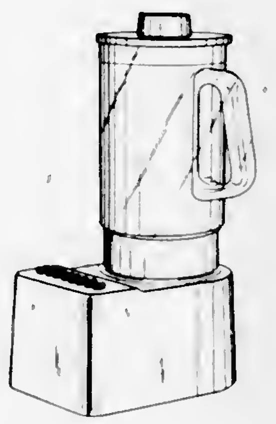
220,233
COMBINED CARRYING AND STORAGE CASE
Peter T. Schurman, Woodbridge, Conn., assignor to The Plastic Forming Company, Inc., Woodbridge, Conn.
Original design application July 1, 1968, Ser. No. 12,586, now Patent No. 216,853, dated Mar. 10, 1970. Divided and this application Mar. 9, 1970, Ser. No. 21,790
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1



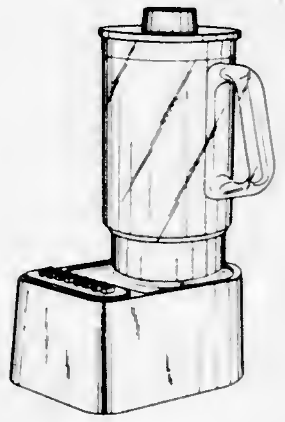
220,234
GARMENT BAG
Louis Marshall, Bronx, N.Y., assignor to General Utility Bag Corporation, Jersey City, N.J.
Filed Mar. 13, 1970, Ser. No. 21,886
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—5



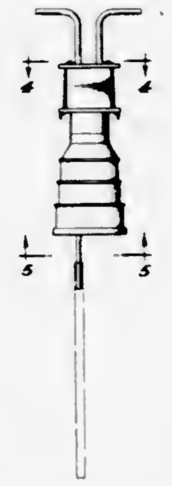
220,235
BLENDER
Juergen Greubel, Eschenhahn, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Nov. 6, 1969, Ser. No. 19,971
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D89—1



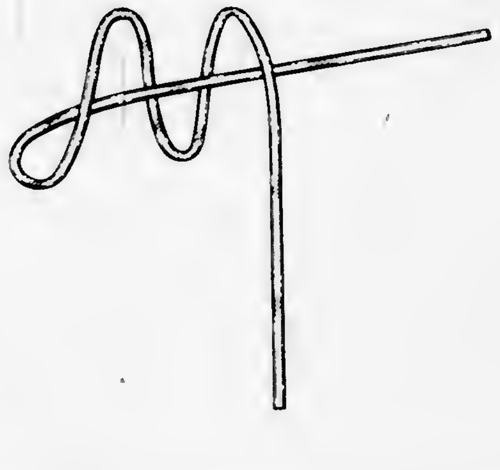
220,236
BLENDER
Juergen Greubel, 6271 Eschenhahn, Schone Aussicht, Germany
Filed Nov. 6, 1969, Ser. No. 19,972
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D89—1



220,237
TAPPER FOR BAR LIQUOR DISPENSER SYSTEM
Samuel W. Neidorf, Los Angeles, and Chester H. Haynoski, Granada Hills, Calif., assignors to Bar-O-Matic Sales Co., Van Nuys, Calif.
Filed June 13, 1969, Ser. No. 17,700
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D94—3



220,238
DRINKING STRAW
Robert A. Bernstein, Kansas City, Mo., assignor to Specialty Premiums Inc., Kansas City, Mo.
Filed May 21, 1970, Ser. No. 23,082
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D94—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF MARCH, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A A A Pipe cleaning Corporation: *See—*
Fisco, Benjamin P., Jr., 3,570,526.

Abbott, Joseph L., Jr., to Packaging Industries, Inc. Roller die cutting machine or the like. 3,570,341, Cl. 83-55.

Abu Aktiebolag: *See—*
Murvall, Ake Eugen, 3,570,165.

ACF Industries, Incorporated: *See—*
Nelson, Norman A.; and Tomlin, Jerry B., 3,570,804.
Rollins, Dallas W., 3,570,592.

Ackerman, Daniel W.; Holmes, Robert H.; and Zemek, Albert W., to Universal Instruments Corporation. Unit carrier loader. 3,570,099, Cl. 29-203.

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki. Electronic musical instrument with a touch responsive D.C. voltage generator. 3,570,357, Cl. 84-1.26

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Marimba tone forming system for an electronic musical instrument. 3,571,481, Cl. 84-1.13

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Vibrato system for electrical musical instruments. 3,571,485, Cl. 84-1.25

Adams, William E.; Bauer, Werner R.; and Schultheis, John B., to Robertshaw Controls Company. Method of making a switch with molded bearing. 3,570,120, Cl. 29-622.

Adamson United Company: *See—*
Seanor, Rex C.; and Lake, Charles G., 3,570,054.
Stephenson, Daniel W., 3,570,060.

Addis, Elsinore M.: *See—*
Richardson, James R.; and Addis, Elsinore M.,3,570,771.

Addmaster Corporation: *See—*
Grey, Michael W., 3,570,756.

Adler, Franklin P.; and Shaner, Glen R., 1/2 to Pullman Incorporated, mesne, and 1/2 to Pullman Transport Leasing Company, mesne. Railway box car. 3,570,411, Cl. 105-366.

Aerojet-General Corporation: *See—*
Conway, Carle C.; Barth, Kurt; Collis, David R.; and Steinmo, Kjell, 3,570,768.

Agence Nationale de Valorisation de la Recherche: *See—*
Anthony, Anne-Marie, nee Birbier; Faucher, Michele, nee Dupre; and Dembinski, Krzysztof, 3,571,476.

Agfa-Gevaert Aktiengesellschaft: *See—*
Neudecker, Karl; Zanner, Johann; and Theer, Anton, 3,570,382.
Winkler, Friedrich; and Thate, Kurt, 3,570,783.

Aisan Kogyo Co., Ltd.: *See—*
Arikawa, Toshinori; and Takada, Shigetaka, 3,570,823.

Aisin Seiki Company, Limited: *See—*
Yamamoto, Takekazu, 3,570,634.

Aktiebolaget Bofors: *See—*
Ohlsson, Axel Erik Ludvig, 3,570,157.

Aktiebolaget Imo-Industri: *See—*
Montelius, Torsten C. O., 3,570,722.

Albert, William C., to Singer-General Precision, Inc. Gyroscope having liquid metal suspension means. 3,570,281, Cl. 74-5.

Albrecht, Wilhelm; and Eibl, Josef, to Daimler-Benz Aktiengesellschaft. Safety steering device for motor vehicles. 3,570,326, Cl. 74-552.

Alexander, Eric Archie, to Rolls-Royce Limited. Flame tube for combustion chamber of a gas turbine engine. 3,570,241, Cl. 60-39.65

Allard, Harry: *See—*
Allard, Patrick Leo; and Allard, Harry,3,570,604.

Allard, Patrick Leo; and Allard, Harry. Soil penetrating implements. 3,570,604, Cl. 172-22.

Allen, Byron W.Power actuated plates glass cutter's table. 3,570,733, Cl. 225-104.

Allen, Byron W.Power actuated plate glass cutter's table. 3,570,734, Cl. 225-104.

Allen, Derek R., to Allen Medical Instruments Division of Bio-Dynamics, Inc. Stethoscope with high intensity audio output. 3,570,625, Cl. 181-24.

Allen, Earle F., 1/2 to Marcy, Valentine E., Jr. High vertical lift bridge. 3,570,032, Cl. 14-42.

Allen Medical Instruments Division of Bio-Dynamics, Inc.: *See—*
Allen, Derek R., 3,570,625.

Allen, Paul E., to Woodstream Corporation. Reel with integral line stop. 3,570,781, Cl. 242-84.21

Allis-Chalmers Manufacturing Company: *See—*
Comfort, Samuel T.; and Finlayson, Thomas J., 3,570,696.

Allison, Frances W. Baby bed sheet with removable panel. 3,570,026, Cl. 5-334.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Keding, Olle; and Fahlman, Per-Ola, 3,570,189.

Alvarez, Robert J.; and Horvay, Julius B., to General Electric Company. Refrigerator including ice maker water reservoir. 3,570,266, Cl. 62-338.

American Air Filter Company, Inc.: *See—*
Dahlem, Francis E., 3,570,674.
Payne, Charles, 3,570,205.

American Cyanamid Company: *See—*
Booth, Robert Ben; Hartjens, Herman; and Falvey, John Joseph, 3,570,772.

American Foods Machinery Corporation: *See—*
Pontecorvo, Nicholas E.; and Shaffer, Wilfred A., 3,570,389.

American Hoist & Derrick Company: *See—*
Parsons, Walter M., 3,570,650.

American Home Products Corporation: *See—*
Heeisterkamp, Charles A.; and Walker, William K., 3,570,385.

American Magnesium Company: *See—*
Pitts, Joe H., 3,570,664.

American Stamping Co.: *See—*
Turner, George L., 3,570,079.

American Standard Inc.: *See—*
Ruggles, Kay L.; Gunnerson, Dale B.; and Clark, Howard S., 3,570,068.

AMP Incorporated: *See—*
Kindell, Colin David; and Raynor, Terence Robert, 3,570,100.

Ampex Corporation: *See—*
Miller, Jerry W., 3,571,525.
Smith, Grant M., 3,571,528.
Stockwell, Paul R.; and Miller, Jerry W., 3,571,526.

Anaconda Wire and Cable Company: *See—*
Bunish, Steve; Ling, Ting H.; and Beasley, William A., 3,571,490.

Andersen, Jan Oddvard; Bru, Inge; and Sirevaag, Olav, to A/S Seseam. Method for connecting and disconnecting a crane with a truck. 3,570,692, Cl. 214-152.

Anderson, David Keay Crichton; Ellis, Keith Brian; Mullen, Edward; Murray, Frank McDonald; and Neilson, William, to Imperial Chemical Industries Limited. Detonator connector. 3,570,402, Cl. 102-28.

Anderson, Fletcher Andrew: *See—*
Wilson, Truman Foy; Anderson, Fletcher Andrew; and Groce, Ben Rodney,3,570,599.

Anderson, James B., to Heinz, H. J., Company. Method of and apparatus for filling bottles. 3,570,556, Cl. 141-11.

Anderson, Theodore H.; and Towne, Delbert D., to International Business Machines Corporation. Positionable separator. 3,570,844, Cl. 271-34.

Andrews, Alvadore M. Molding apparatus. 3,570,061, Cl. 18-26.

Andrews, Sydney Alan: *See—*
Parkin, Leslie; and Andrews, Sydney Alan,3,570,362.

Andrus, Frank S.: *See—*
Neumann, Harry A.; and Saure, Oliver C., 3,570,078.

Angier, John T. Drive mechanism for toy wheeled vehicle. 3,570,175, Cl. 46-206.

Anthony, Anne-Marie, nee Birbier; Faucher, Michele, nee Dupre; and Dembinski, Krzysztof, to Agence Nationale de Valorisation de la Recherche. Heating element and electric furnace equipped with such in element. 3,571,476, Cl. 13-20.

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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Blades, Herbert, and D. W. Johnson, to E. I. du Pont de Nemours and Co. Injection valve. T884,012, 3–16–71, Cl. 137—341.
Caldwell, Melvin A. Multiple step disperse and basic dye pad steam dyeing of blends of polyester and basic dyeable polyester with or without cellulose dye with cellulosic dyes and carpets dyed thereby. T884,017, 3–16–71, Cl. 8—21.
Dannelly, Clarence C. Flame resistant carpet. T884,014, 3–16–71, Cl. 117—137.
Du Pont de Nemours, E. I., and Co.: *See—*
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  Gumerman, Carl. T884,008.
  Jonkoff, Imre M. T884,016.
  Wolinski, Leon E. T884,010.
  Yunan, Malak E. T884,009.
Garner, Paul J., to Imperial Chemical Industries Limited. Clips. T884,011, 3–16–71, Cl. 24—73.
Gumerman, Carl, to E. I. du Pont de Nemours and Co. Electrical conductor having an insulation covering of a polyimide film having fluorocarbon resin coatings. T884,008, 3–16–71, Cl. 117—218.
Imperial Chemical Industries Limited: *See—*
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Jonkoff, Imre M., to E. I. du Pont de Nemours and Co. Process for improving the uniformity of crimped continous acrylic tow. T884,016, 3–16–71, Cl. 19—66.
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Staudenmayer, William J., and S. H. Merrill, Copolycarbonate binders for use in electrophotographic elements. T884,015, 3–16–71, Cl. 96—1.5.
Wolinski, Leon E., to E. I. du Pont de Nemours and Co. Oriented foam laminar structures. T884,010, 3–16–71, Cl. 161—88.
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LIST OF DESIGN PATENTEES

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Swisher, George W., Jr., D. W. Smith, and G. L. Spivey, to CMI Corp. Combination trimmer and spreader machine. 220,172, 3-16-71, Cl. D14—3.

Swisher, George W., Jr., D. W. Smith, and G. L. Spivey, to CMI Corp. Combination motor grader and cutter. 220,173, 3-16-71, Cl. D14—3.

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The identifying data on the post card intended for evidence that the Patent Office has received a complete set of application papers should include applicant's name(s); title of the invention; number of pages of specification, claims, and sheets of drawing; whether oath or declaration used; and amount and manner of paying the fee.

When more than one set of application papers is filed under one cover, a return post card should be attached to each set of papers for which a receipt is desired.

RICHARD A. WAHL,
Mar. 10, 1971. *Assistant Commissioner.*

Republication of Marks Published for Opposition in the Official Gazettes (Trademark Section) of February 2, 9, 16, and 23 and March 2, 9, and 16, 1971

Since it appears that a substantial portion of the interested public did not receive copies of the OFFICIAL GAZETTE (Trademark Section) for the issues of February 2, 9, 16, and 23 and March 2, 9, and 16, 1971, in sufficient time to consider the filing of oppositions, all marks published for opposition in those issues are hereby declared to be republished as of March 23, 1971, pursuant to Section 12(a) of the Trademark Act of 1946, as amended. Opposition to those marks may be filed within the time after March 23, 1971, specified in Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any oppositions to these marks received prior to this republication will be considered to have been timely filed.

WILLIAM E. SCHUYLER, JR.,
Feb. 25, 1971. *Commissioner of Patents.*

Patent Suits

(D.C. Md.) West Patent No. 2,667,243 (189—46), for GLASS DOOR, *Held* invalid and not infringed. *National Steel Corp.* v. *Baltimore & Ohio Railroad,* 313 F. Supp. 934, 166 USPQ 9.

(D.C. Mass.) Smith Patent No. 2,714,978 (223—69), for DEVICE FOR DRYING SWEATERS, *Held* invalid. *Smith* v. *J. H. Smith Co. Inc.,* 315 F. Supp. 1059, 166 USPQ 266.

(C.A. Fla.) Van Waes Patent No. 2,727,069 (260—555), for PREPARATION OF UREA, *Held* valid and infringed. *Stamicarbon, N.U.* v. *Escambia Chemical Corp.,* 430 F.2d 920, 166 USPQ 362.

(C.A. Ala.) Heisler Patent No. 2,738,992 (285—59), for PIPE COUPLING, *Held* claims 1 and 2 invalid. *Johns-Manville Corp.* v. *Cement Asbestos Products Co.,* 428 F.2d 1381, 166 USPQ 359.

(C.A.N.Y.) Eichmeier Patent No. 2,739,068 (106—38.5), for STEREOTYPE MAT, *Held* invalid. *Burgess Cellulose Co.* v. *Wood Flong Corp.,* 431 F.2d 505, 166 USPQ 417.

(D.C. Mo.) Gallo Patent No. 2,746,262 (62—7), for ICE MAKING MACHINE, *Held* invalid. *Gallo* v. *Norris Dispensers Inc.,* 315 F. Supp. 38, 166 USPQ 509.

(C.A. Mich.) Troy et al. Patent No. 2,753,694 (62—106), for ICE DISINTEGRATING ICE CHIP PRODUCING MACHINE, *Held* valid and claim 4 infringed. *Uniflo Mfg. Co.* v. *King-Seeley Thermos Co.,* 428 F.2d 335, 166 USPQ 70.

(C.A. Ill.) Sutter Patent No. 2,856,653 (22—10), for METHOD AND APPARATUS FOR MAKING HOLLOW SHELL FOUNDRY SAND ARTICLES, *Held* claims 1 and 7 invalid. *Sutter Products Co.* v. *Pettibone Mulliken Corp.,* 428 F.2d 639, 166 USPQ 100.

(C.A. Ill.) Sutter Patent No. 2,867,017 (22—10), for METHOD OF AND APPARATUS FOR MAKING RESIN BONDED SAND SHELL MOLDS AND CORES, *Held* claims 2 and 3 invalid. *Sutter Products Co.* v. *Pettibone Mulliken Corp.,* 428 F.2d 639, 166 USPQ 100.

(C.A. Tex.) Clark Patent No. 2,913,386 (204—195), for ELECTROCHEMICAL DEVICE FOR CHEMICAL ANALYSIS, *Held* invalid. *Beckman Instruments Inc.* v. *Chemitronics, Inc.,* 428 F.2d 555, 165 USPQ 355.

(D.C. Minn.) Johnson et al. Patent No. 2,947,104 (43—3), for WATER FOWL DECOY, *Held* claim 2 invalid. *Woodstream Corp.* v. *Herter's, Inc.,* 312 F. Supp. 369, 165 USPQ 609.

(C.A. Pa.) Allen Patent No. 2,948,899 (2—94), for WRINKLE FREE GUN BUTT PAD FOR SHOOTING GARMENT, *Held invalid. Allen* v. *Ideal Products, Inc.,* 426 F.2d 185, 165 USPQ 417.

(D.C.N.Y.) Scharf Patent No. 2,974,055 (117—4), for LUSTROUS FABRICS AND METHODS OF PRODUCING SAME, *Held* claims 1, 3, 4, 9, and 11 valid and infringed. *Metal Film Co.* v. *Metlow Corp.,* 316 F. Supp. 96, 167 USPQ 267.

(D.C. Tenn.) Holt Patent No. 2,995,999 (100—232), for BALING PRESS, *Held* invalid. *Galland-Henning Mfg. Co.* v. *Dempter Bros., Inc.,* 315 F. Supp. 68, 165 USPQ 688.

(C.A. Tex.) Levey et al. Patent No. 3,000,576 (239—499), for SPRAY GUN, *Held* valid and infringed. *Spee-Flo Mfg. Co.* v. *Braniff Airways, Inc.,* 430 F.2d 74, 166 USPQ 371.

(C.A. Calif.) Bagerman Patent No. 3,002,388 (73—483), for WHEEL BALANCING, *Held* invalid. *Bada Co.* v. *Montgomery Ward & Co.,* 426 F.2d 8, 165 USPQ 483.

(D.C. Minn.) Conibear Patent No. 3,010,245 (43—90), for TRAPS, *Held* invalid. *Woodstream Corp.* v. *Herter's Inc.,* 312 F. Supp. 369, 165 USPQ 609.

(C.A. Tex.) Levey Patent No. 3,018,968 (239—124), for CLOSED SYSTEM RECIRCULATING ASSEMBLY, *Held* valid and infringed. *Spee-Flo Mfg. Corp.* v. *Braniff Airways, Inc.,* 430 F.2d 74, 166 USPQ 371.

(C.A. Md.) Brooks et al. Patent No. 3,024,258 (260—400), for CONTINUOUS SULFONATION PROCESS, *Held* invalid. *Chemithon Corp.* v. *Procter & Gamble Co.,* 427 F.2d 893, 165 USPQ 678.

(C.A. Mich.) Walch Patent No. 3,024,301 (174—72), for WIRING GRILLE, *Held* claim 5 valid and infringed. *Panduit Corp.* v. *Stahlin Bros. Fibre Works, Inc.,* 430 F.2d 221, 166 USPQ 524.

(C.A.N.H.) Greig Patent No. 3,052,540 (96—1), for DYE SENSITIZATION OF ELECTROPHOTOGRAPHIC MATERIALS, *Held* invalid. *Nashua Corp.* v. *RCA Corp.,* 431 F.2d 220,165 USPQ 89.

(C.A. Calif.) Bagerman et al. Patent No. 3,055,221 (73—484), for PIVOT MOUNTING FOR STATIC WHEEL BALANCER, *Held* invalid. *Bada Co.* v. *Montgomery Ward & Co.,* 426 F.2d 8, 165 USPQ 483.

(C.A. Md.) Brooks et al. Patent No. 3,058,920 (252—353), for PROCESS FOR PREPARING A MIXTURE OF AN ALKYL BENZENE SULFONATE AND AN ALCOHOL SULFATE, *Held* invalid. *Chemithon Corp.* v. *Procter & Gamble Co.,* 427 F.2d 893, 165 USPQ 678.

(D.C. Wis.) Norvell Patent No. 3,069,092 (239—133), for LIQUID VAPORIZER, *Held* claims 1 and 2 invalid. *Norvell* v. *McGraw-Edison Co.,* 316 F. Supp. 198, 167 USPQ 47.

(D.C.R.I.) Torti Patent No. 3,089,310 (61—41), for TRENCH SHORING MACHINE, *Held* valid but not infringed. *Shields-Jetco, Inc.* v. *Torti,* 314 F. Supp. 1292, 166 USPQ 397.

(C.A. Ind.) McElvenny et al. Patent No. 3,115,188 (128—278), for EVACUATOR, *Held* valid and infringed. *Mercantile Nat. Bank of Chicago* v. *Quest, Inc.,* 431 F.2d 261, 166 USPQ 513.

(C.A. Fla.) Guggermos Patent No. 3,141,620 (240—3), for LIGHTING DEVICE, *Held* valid and not infringed. *Sterner Lighting Inc.* v. *Allied Elec. Supply, Inc.,* 431 F.2d 539, 166 USPQ 455.

(D.C. Ill.) Eichert et al. Patent No. 3,155,766 (174—52), for ELECTRICAL COMPONENT ASSEMBLAGE AND CASING THEREFOR, *Held* claims 1–4 and 6–9 invalid. *Technitrol Inc.* v. *Aladdin Industries Inc.,* 316 F. Supp. 639, 166 USPQ 4.

(C.A. Pa.) Cochran Patent No. 3,160,321 (222—64), for CONTROL SYSTEM, *Held* valid and infringed. *Eagle Iron Works* v. *McLanahan Corp.,* 429 F.2d 1375, 166 USPQ 225.

(C.A. Ill.) Parsell Patent No. 3,171,700 (312—200), for BAR CABINET, *Held* invalid. *Ever-Wear, Inc.* v. *Wieboldt Stores, Inc.,* 427 F.2d 373, 166 USPQ 109.

(C.A. Tex.) Van der Lely Patent No. 3,260,025 (52—228), for PRECOMPRESSED VERTICALLY STACKED, PREFABRICATED BUILDING ELEMENTS, *Held* claim 1 not infringed. *Fraser* v. *City of San Antonio, Texas,* 430 F.2d 1218, 167 USPQ 1.

(C.A. Okla.) Scaramucci Patent No. 3,266,384 (92—192), for WELL SWAB ASSEMBLY, *Held* invalid and not infringed. *Scaramucci* v. *Dresser Industries, Inc.,* 427 F.2d 1309, 165 USPQ 759.

(C.A. Okla.) Scaramucci Patent No. 3,266,386 (92—242), for SWAB CUP, *Held* invalid and not infringed. *Scaramucci* v. *Dresser Industries, Inc.,* 427 F.2d 1309, 165 USPQ 759.

(D.C. Calif.) Worson et al. Patent No. 3,274,906 (94—39), for JOINT INSTALLATION APPARATUS, *Held* claims 1, 2, 3, and 5 valid and infringed. *Edoco-Technical Products, Inc.* v. *Peter Kiewit Sons Co.,* 313 F. Supp. 1081, 165 USPQ 207.

(D.C. Pa.) Kinnan Patent No. 3,307,363 (61—72.6), for CABLE LAYING MACHINE, *Held* claims 1, 2, 5, and 6 invalid. *Henkels & McCoy, Inc.* v. *Elkin,* 316 F. Supp. 303, 167 USPQ 97.

(C.A. Ill.) Beer Patent No. 3,310,824 (15—21), for VEHICLE WASHER, *Held* infringed. *Sherman Car Wash Equipment Co.* v. *Grand Car Wash, Inc.,* 429 F.2d 1363, 166 USPQ 377.

(D.C. Oreg.) Silvey Patent No. 3,349,645 (76—40), for SAW CHAIN GRINDING MACHINE, *Held* invalid. *Silvey* v. *Nielsen Corp.,* 315 F. Supp. 211, 164 USPQ 657.

(D.C. Tex.) Huffman Patent No. 3,382,280 (260—526), for 3′,4′-DICHLOROPROPIONANILIDE, *Held* valid and infringed. *Monsanto Co.* v. *Dawson Chemical Co.,* 312 F. Supp. 452, 165 USPQ 560.

(D.C. Pa.) Huffman Patent No. 3,382,280 (260—562), for 3′,4′-DICHLOROPROPIONANILIDE, *Held* invalid. *Monsanto Co.* v. *Rohm & Haas Co.,* 312 F. Supp. 778, 165 USPQ 683.

(D.C. Tex.) Sanderson et al. Patent No. 3,397,522 (56—30), for COTTON HARVESTER, *Held* claims 15, 16, 18, and 19 invalid. *Deere & Co.* v. *Hesston Corp.,* 316 F. Supp. 866, 167 USPQ 102.

(D.C. Del.) Henricks Reissue Patent No. 24,017 (148—6.15), for METHOD OF COATING AND DRAWING METAL AND COMPOSITION THEREFOR, *Held* not infringed. *Devex Corp.* v. *General Motors Corp.,* 316 F. Supp. 1376, 167 USPQ 141.

(D.C.N.Y.) Myerberg Reissue Patent No. 25,402 (240—4.1), for MAKE-UP MIRROR, *Held* invalid. *Brown* v. *Myerberg et al.,* 314 F. Supp. 939, 164 USPQ 505.

(C.A. Mass.) Anderson et al. Reissue Patent No. 26,672 (76—112), for METHOD OF MAKING BAND SAW BLADE, *Held* claims 1 and 2 valid and infringed. *Contour Saws, Inc.* v. *L. S. Starrett Co.,* 428 F.2d 314, 164 USPQ 208.

(D.C. Pa.) Daum Design Patent No. 199,143 (48—31), for LIGHTING FIXTURE, *Held* valid and infringed. *Hadco Products, Inc.* v. *Lighting Corp. of America,* 312 F. Supp. 1173, 165 USPQ 496.

Certificates of Correction for the Week of Mar. 23, 1971

3,422,928
3,440,530
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Disclaimer

3,542,684.—*George H. Hunt*, West Newton, Mass. VOLTAGE STABILIZED POLYOLEFIN DIELECTRIC COMPOSITIONS USING LIQUID-AROMATIC COMPOUNDS AND VOLTAGE STABILIZING ADDITIVES. Patent dated Nov. 24, 1970. Disclaimer filed Oct. 23, 1970, by the assignee, *Simplex Wire and Cable Company.*

Hereby disclaims the terminal portion of the term of said patent subsequent to May 19, 1986.

Notice of Trademark Publications in February and March

Beginning Feb. 2, 1971, the OFFICIAL GAZETTE of the United States Patent Office, consisting of patent and trademark Sections, was separated into two distinct publications, the "OFFICIAL GAZETTE (Patent Section)" and the "OFFICIAL GAZETTE (Trademark Section)." Those subscribing to the OFFICIAL GAZETTE prior to the separation have received only the OFFICIAL GAZETTE (Patent Section) beginning with the date of its separation unless they requested a subscription to the OFFICIAL GAZETTE (Trademark Section). An effort was made to notify these subscribers that they would not receive the OFFICIAL GAZETTE (Trademark Section) after the separation on February 2 unless they subscribed separately to this publication. However, the notice has been misinterpreted by some former subscribers who, accordingly, have not requested a separate subscription to the OFFICIAL GAZETTE (Trademark Section) and, therefore, have not received this publication.

In view of the above, jurisdiction will be restored for all marks published for opposition on Feb. 2, 9, 16, and 23, Mar. 2, 9, and 16, 1971, to the Examiner of Trademarks and these marks will, by notice in the OFFICIAL GAZETTE (Trademark Section) of Mar. 23, 1971, be republished for opposition by reference to the OFFICIAL GAZETTE (Trademark Section) for those dates. The republication of these marks by reference will be effective as a publication in accordance with Section 12(a) of the Trademark Act of 1946 for the purpose of opposition by any person who believes he will be damaged by the registration of the mark. Oppositions to such republished marks may be filed within the time specified by Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any opposition received after the original publication and on or before Apr. 22, 1971, will be deemed to have been timely filed.

In addition, all persons desiring to receive the OFFICIAL GAZETTE (Trademark Section) should contact the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription to this publication costs $17.00 per annum. The Superintendent of Documents has advised that all persons subscribing during March will receive the previous February and March issues of the OFFICIAL GAZETTE (Trademark Section) until the excess weekly inventory of approximately 3000 copies is exhausted.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Feb. 25, 1971.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	9-29-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-30-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-12-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-02-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-22-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	5-26-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-04-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-27-70
PHYSICS, GROUP 280—R. L. EVANS, Director Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-17-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts; Household, Personal and Fine Arts.	5-18-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-15-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-27-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-03-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-19-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods: Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	1-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents .... Numbers 2,670,468 to 2,673,977. inclusive
Plant Patents .... Numbers 1,260 to 1,266, inclusive

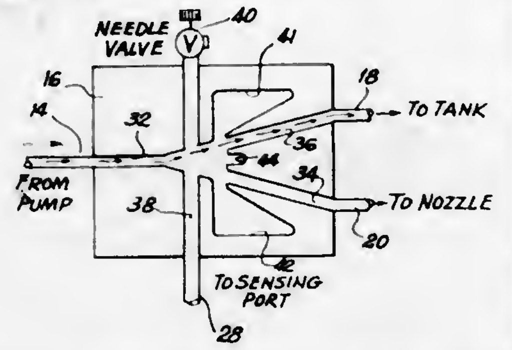
REISSUES

MARCH 23, 1971

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,087
FUEL INDUCTION DEVICE

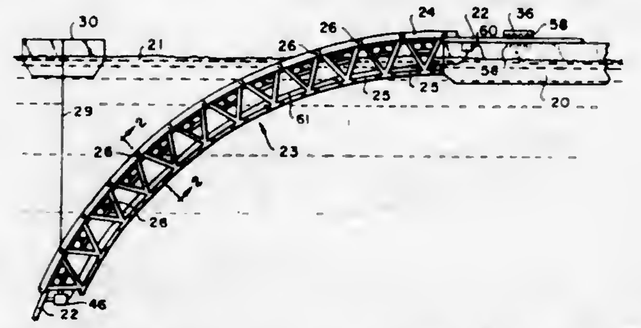
Alan M. Binder, 13 Emerson Gardens, Lexington, Mass. 02173
Original No. 3,389,894, dated June 25, 1968, Ser. No. 494,726, Oct. 11, 1965. Application for reissue May 28, 1969, Ser. No. 845,105
Int. Cl. F02m *69/04*
U.S. Cl. 261—36 **22 Claims**



An induction device including a fluid amplifier adapted to proportion liquid flow between separate outlet passages in response to the flow of a controlling fluid through said amplifier.

27,088
PIPE-LAYING BARGE WITH ADJUSTABLE PIPE DISCHARGE RAMP

Douglas E. Broussard, Houston, Tex., Donald W. Barry, Centralia, Ill., and Robert B. Kinzbach, Houston, and Stuart G. Kershner, Austin, Tex., assignors to Shell Oil Company, New York, N.Y.
Original No. 3,438,213, dated Apr. 15, 1969, Ser. No. 600,196, Dec. 8, 1966. Application for reissue Jan. 22, 1970, Ser. No. 10,665
Int. Cl. B63b *5/04;* **F16l** *1/00*
U.S. Cl. 61—72.3 **19 Claims**

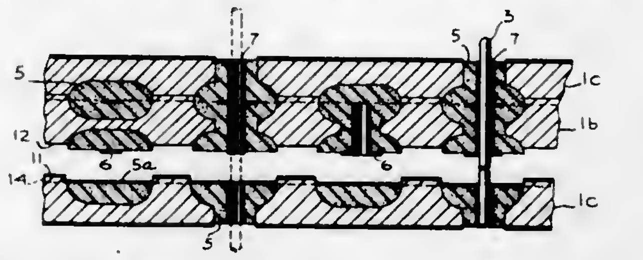


A pipe-laying apparatus for laying pipe on a water floor comprising a pipe-laying vessel having an articulated, adjustable, curved guide for directing a pipeline into the water and adjustment means for selectively varying the curvature of the guide to accommodate differing pipe sizes and water depths.

27,089
PLANAR COAXIAL CIRCUITRY

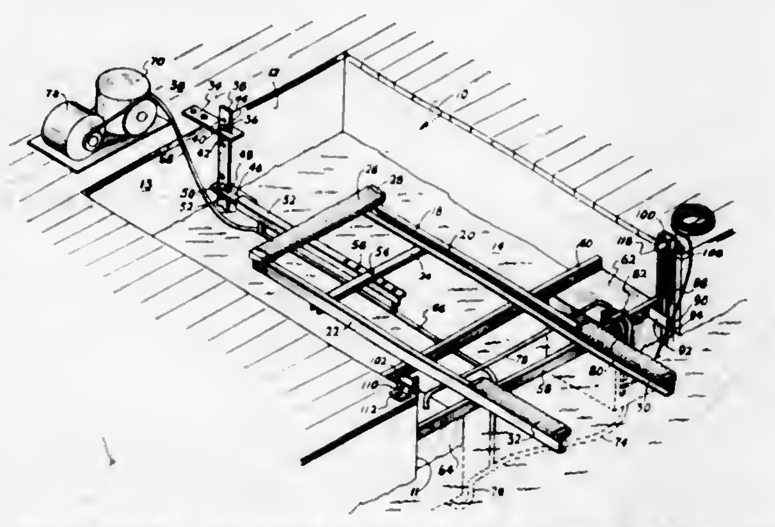
Brian E. Sear, Woodland Hills, Calif., Raymond A. Stephens, Dallas, Tex., and Robert C. Williams, Woodland Hills, Calif., assignors to The Bunker-Ramo Corporation, Stamford, Conn.
Original No. 3,351,816, dated Nov. 7, 1967, Ser. No. 430,321, Feb. 4, 1965. Application for reissue Oct. 24, 1969, Ser. No. 869,978
Int. Cl. H01b *11/06;* **H05k** *1/14*
U.S. Cl. 317—101 **15 Claims**

A structure for supporting and interconnecting electrical circuit components. The structure is comprised of a stack of electrically conductive plates. Interconnections, effectively constituting coaxial transmission lines, are formed using the conductive plates as ground planes. Aligned recesses are formed in opposed surfaces of the plates. Dielectric material is disposed in the recesses with a conductive path being formed between the dielectric material filled recesses. Adjacent plates are bonded together by an electrically conductive bonding material.



27,090
INDIVIDUAL DRY DOCK FOR BOATS

Henry A. Rutter, Rte. 1, Eucha, Okla. 74342
Original No. 3,362,172, dated Jan. 9, 1968, Ser. No. 435,816, Mar. 1, 1965. Application for reissue Nov. 6, 1969, Ser. No. 871,497
Int. Cl. B63c *1/06;* **E02c** *3/00*
U.S. Cl. 61—65 **10 Claims**

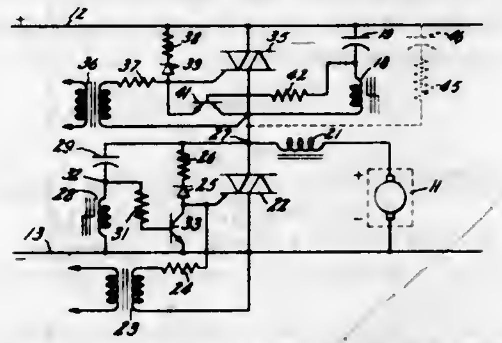


An individual dry dock particularly for relatively small water craft wherein a movable frame is pivotally and vertically reciprocally mounted in a boat well filled with water. In a lowered position of the frame the boat may be floated thereon and pontoons are provided for the frame which may be filled with air in order to elevate the frame and boat to a position out of the water. Conversely, air may be withdrawn from the pontoon for lowering the frame and boat into the water.

27,091
TIME RATIO CONTROL AND INVERTER POWER CIRCUITS

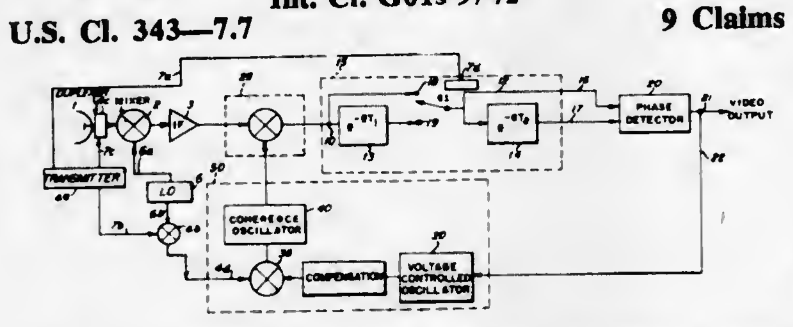
Raymond E. Morgan, deceased, late of Schenectady, N.Y., by Agnes T. Morgan, administratrix, Schenectady, N.Y., assignor to General Electric Company
Original No. 3,353,085, dated Nov. 14, 1967, Ser. No. 347,731, Feb. 27, 1964. Application for reissue Apr. 1, 1969, Ser. No. 878,517
Int. Cl. H02m *7/52*
U.S. Cl. 321—43 **28 Claims**

A family of time ratio control D-C power circuits comprise a load current carrying SCR, triac, diac, or dv/dt fired SCR which is turned on and commutated off at desired intervals to supply power to the load through a filter inductance. For inductive loads, a coasting diode is in parallel with the load and filter inductance, and for power generating loads the coasting diode is replaced by a dv/dt fired SCR diode combination, triac or diac and a bi-directional conducting load current carrying means is used to additionally pump power back to the supply. The commutation circuit comprises a commutating capacitor in series with a saturable reactor tuned to series resonance at the commutating frequency, and a blocking circuit renders the gating circuit ineffective during commutating intervals of the commutation circuit. Inverters comprise two cooperating pairs of time ratio control circuits bridge-connected to the load.



27,092
MOVING TARGET INDICATION SYSTEM USING A STAGGERED REPETITION RATE

Francis J. Stifter, Natick, and William W. Shrader, West Newton, Mass., assignors to Raytheon Company, Lexington, Mass.
Original No. 3,417,396, dated Dec. 17, 1968, Ser. No. 679,911, Nov. 1, 1967. Application for reissue Apr. 25, 1969, Ser. No. 822,066
Int. Cl. G01s *9/42*
U.S. Cl. 343—7.7 **9 Claims**



A moving target indication system including a radar receiver operable with a transmitter which radiates pulses at staggered repetition rates. The receiver includes a delay line canceller operative in the intermediate frequency stages. The receiver further includes a first mixing arrangement for rephasing the system by generating a frequency difference signal between each radar return signal and a reference signal. The multiple delay line canceller forms a phase difference signal between each frequency difference signal and a frequency difference signal delayed by at least one transmitter interpulse interval. A second mixing arrangement, also in the receiver, keeps the reference signal coherent in phase with each transmitted pulse and the phase difference signal so that the system is automatically rephased.

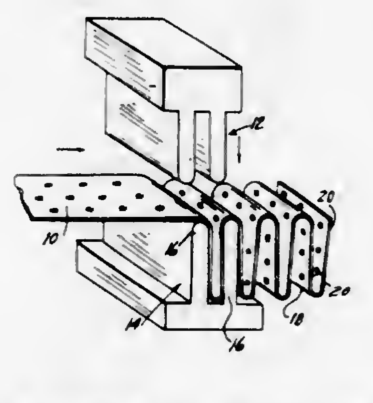
27,093
THICK, CURED POLYMETHYL METHACRYLATE ARTICLE AND PROCESS FOR ITS PREPARATION

Donald H. Slocum, Moorestown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original No. 3,405,088, dated Oct. 8, 1968, Ser. No. 434,691, Feb. 23, 1965. Application for reissue Feb. 2, 1970, Ser. No. 11,239
Int. Cl. C08f *29/46, 45/04, 45/06*
U.S. Cl. 260—41 **16 Claims**

The use of at least 40% of an inert filler, e.g., calcium carbonate, calcium sulfate, clay, silica, calcium silicate, etc. along with a hemi-perester of maleic acid catalyst in the polymerization and curing of methyl methacrylate-containing sirups provides a process for forming thick (¼" to 2" or more) articles of polymeric methyl methacrylate within reasonable periods and at moderate temperatures.

27,094
METHOD OF MANUFACTURING PLEATED FILTERS

Nils O. Rosaen, Bloomfield Hills, Borje O. Rosaen, Ann Arbor, and Oscar E. Rosaen, Grosse Pointe, Mich., assignors to Universal Filters, Inc., Hazel Park, Mich.
Original No. 3,465,413, dated Sept. 9, 1969, Ser. No. 589,329, Oct. 25, 1966, which is a continuation-in-part of Ser. No. 532,232, Mar. 7, 1966. Application for reissue Sept. 30, 1969, Ser. No. 868,952
Int. Cl. B23p *9/00*
U.S. Cl. 29—445 **19 Claims**



A method for forming a flat circular pleated filter element includes the steps of using a pair of die members to form pleats in a flat perforated metal sheet, providing an elongated corrugated spacing element between each fold to prevent collapsing, and forming an annular frame of thermosetting material around the periphery of the pleated sheet using a rotating mold member.

27,095
AMMONIUM NITRATE SLURRY BLASTING COMPOSITION CONTAINING SULFUR-SODIUM NITRATE SENSITIZER

Robert B. Clay, Bountiful, and Lex L. Udy, Salt Lake City, Utah, assignors to Intermountain Research and Engineering Company, Inc.
No Drawing. Original No. 3,249,477, dated May 3, 1966, Ser. No. 364,289, May 1, 1964. Application for reissue Jan. 14, 1970, Ser. No. 7,559
Int. Cl. C06b *15/00*
U.S. Cl. 149—41 **13 Claims**

This invention is an improved blasting agent composition of ammonium nitrate in a predominantly aqueous slurry with a sensitizer which is a combination of elemental sulfur and sodium nitrate. This sensitizer is free of self explosive ingredients providing greater safety in handling and processing of the explosive composition.

27,096
DETERGENT COMPOSITION

Arthur Polden Walker, Whitley Bay, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Original No. 3,332,876, dated July 25, 1967, Ser. No. 561,374, June 29, 1966, which is a continuation of Ser. No. 423,298, Jan. 4, 1965. Application for reissue Nov. 15, 1968, Ser. No. 808,709
Claims priority, application Great Britain, Oct. 15, 1966, 42,112
Int. Cl. C11d *1/12, 1/18*
U.S. Cl. 252—152 **10 Claims**

A detergent composition having outstanding sudsing and detergent properties. The composition is a synergistic ternary mixture of olefin sulfonates, alkyl, benzene sulfonates and alkyl ether sulfates.

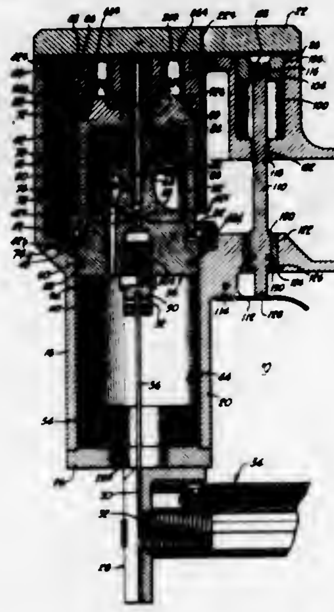
27,097
FLUID MOTOR HAVING A SUPPLY-AND-EXHAUST VALVE CARRIED BY THE PISTON

Edward J. Novak, Franklin Park, Ill., assignor to Fastener Corporation, Franklin Park, Ill.

Original No. 3,405,602, dated Oct. 15, 1968, Ser. No. 514,502, Dec. 17, 1965. Application for reissue Mar. 27, 1969, Ser. No. 817,608

Int. Cl. F15b *13/042, 15/17, 11/15*

U.S. Cl. 91—28 **25 Claims**



A single stroke pneumatic motor for a fastener driving tool comprising a housing defining a reservoir for pressurized fluid, a cylinder in the housing, and piston means slidably mounted in the cylinder including a piston valve means and a valve seat thereon. The piston valve means are movable bodily with the piston means and are movable against the seat for normally closing the communication between the reservoir and one end of the cylinder. Means are provided for moving the piston valve means away from the seat to place the reservoir in communication with the cylinder, thereby admitting pressurized fluid for driving the piston means.

27,098
METHOD FOR THE PREPARATION OF 2-AMINO-1-ALKANOLS

Stanley B. Cavitt and George P. Speranza, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Original No. 3,448,153, dated June 3, 1969, Ser. No. 553,726, May 31, 1966. Application for reissue Apr. 6, 1970, Ser. No. 26,179

Int. Cl. C07c *91/02, 95/02, 97/02*

U.S. Cl. 260—584 **4 Claims**

The reductive amination of 2-keto-1-alkanols produces 2-amino-1-alkanols. The products prepared in accordance with the invention are emulsifying agents that find application in the preparation of floor polishes, shoe polishes, automobile cleansers-polishes, emulsion paste waxes, and substituted piperazines by means of a cyclic reductive amination reaction. Further, alkylene oxides may be reacted with the amino-alkanols to yield nitrogen-containing polyether polyols useful in the preparation of polyurethanes.

PATENTS

GRANTED MARCH 23, 1971

ELECTRICAL

3,571,534
ELECTRIC SWITCH STRUCTURE WITH IMPROVED PRINTED CIRCUIT CONTACT BOARD ASSEMBLY

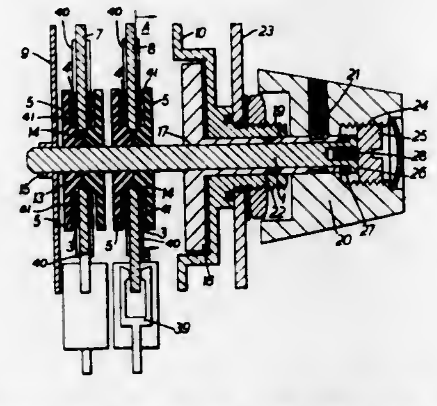
John R. Ashman, Ilford, England, assignor to The Plessey Company Limited, Ilford, England

Filed Mar. 12, 1968, Ser. No. 712,527

Claims priority, application Great Britain, Mar. 15, 1967, 12,054/67

Int. Cl. H01h *19/58, 19/64*

U.S. Cl. 200—11 **10 Claims**



A rotary switch having a rotor comprising at least one wiper assembly carried by a rotor spindle and having a stator comprising at least one printed contact board which has contacts thereon selectively engageable by said wiper assembly and through which the rotor spindle extends, said wiper assembly being slidably mounted on the rotor spindle which has a cross-sectional configuration for imparting rotary drive to said assembly and the rotor spindle being readily withdrawable from the printed contact board and its associated wiper assembly upon the release of axial restraining means normally acting on the spindle.

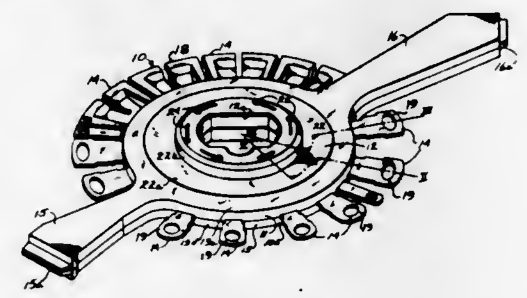
3,571,535
ELECTRIC ROTARY SWITCH WITH IMPROVED STAMPED CONTACT MEANS

Thomas R. Beaver, Elkhart, Ind., and Kenneth C. Allison, Crystal Lake, Ill., assignors to CTS Corporation., Elkhart, Ind.

Filed Mar. 10, 1969, Ser. No. 843,864

Int. Cl. H01h *19/58*

U.S. Cl. 200—11 **13 Claims**



An electric switch having a plurality of individual spaced contacts and a common contact lying in the same plane and supported by a stationary contact carrier of insulating material. Certain of the individual spaced contacts and at least a portion of the common contact have edge portions equally spaced from an elongated surface of the stationary contact carrier. Depending upon the switching requirements, the individual spaced contacts and the common contact can be provided with integral terminal means for connecting the contacts into an electrical circuit or some of the individual spaced contacts can be provided with integral stamped inductance means. A movable contact carrier of insulating material is movable along the elongated surface of the stationary contact carrier and a bridging contactor constrained to move with the movable contact carrier selectively connects or shorts certain individual spaced contacts. The bridging contactor for the electric switch is blanked from sheet material with a plurality of contact portions and stored for future use. Depending upon the application of the switch, the extra contact portions are severed from the contactor which is then curved and ready for assembly to produce the electric switch.

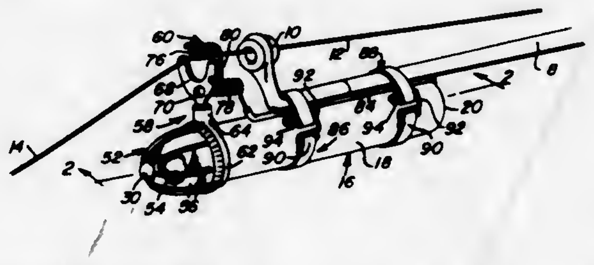
3,571,536
IMPROVED PULL-RESPONSIVE BITE-SIGNALLING LIGHT FOR FLASHLIGHTS

Virgil H. Sparks, Box 343, Chickasha, Okla.

Filed Feb. 7, 1969, Ser. No. 797,517

Int. Cl. F21v *23/04*

U.S. Cl. 200—60 **12 Claims**



A flashlight is equipped with circuit make and break means so constructed and cooperatively oriented with the coacting battery case that when a fish bites, the pull which is exerted acts on the movable contact, in a manner to (1) close the circuit (2) bring the signal light into play and (3) alert the fisherman. Several similar but structurally distinct circuit make and break adaptations are herein disclosed. Means is provided for mounting the flashlight on a rod, a pole, or where a trotline is used, on a vertical stake. The light bulb is provided with novel inner and outer caps, the outer cap being provided with distinguishably and selectively usable colored segments, that is, where a plurality of individual bite signals are grouped adjacent each other.

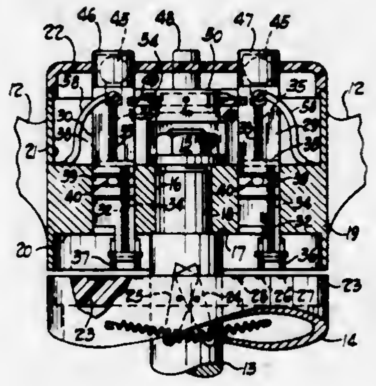
3,571,537
AUTOMOBILE TURNING-LIGHT SWITCH

Darlo J. Cook, 193 Hawthorn Drive, Painesville, Ohio, and Thomas E. Boyance, 8431 O'Melveny Ave., Sun Valley, Calif.

Filed Jan. 7, 1970, Ser. No. 1,097

Int. Cl. H01h *3/16*

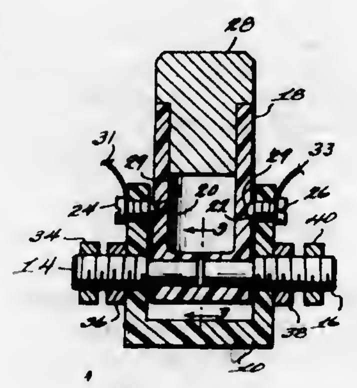
U.S. Cl. 200—61.38 **4 Claims**



An automobile directional signal switch having signal control buttons positioned at the center of the automobile steering wheel.

3,571,538
INERTIALLY OPERATED SAFETY SWITCH

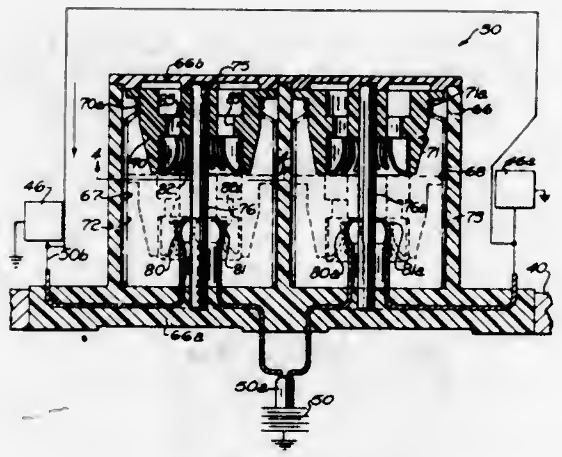
William O. Swanson, 303 Leslie Lane, Columbia, Mo.
Continuation-in-part of application Ser. No. 829,911, June 3, 1969, now abandoned. This application Sept. 30, 1969, Ser. No. 862,298
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.47 **10 Claims**



A gravity or inertially operated safety switch for use with electrical systems of vehicles wherein liquid mercury or other electrically conductive fluid is normally contained between two axially aligned connectors for completion of an electrical circuit and wherein upon impact or sudden deceleration of the vehicle the housing containing the mercury rotates about the connectors so that the mercury is removed from between the connectors and the electrical circuit therebetween is broken. The housing also has an electrically conductive wire embedded therein for normally completing a second circuit through two detents whereby this second circuit is opened when the housing rotates upon impact and the wire is no longer in contact with the detents.

3,571,539
COLLISION SENSOR

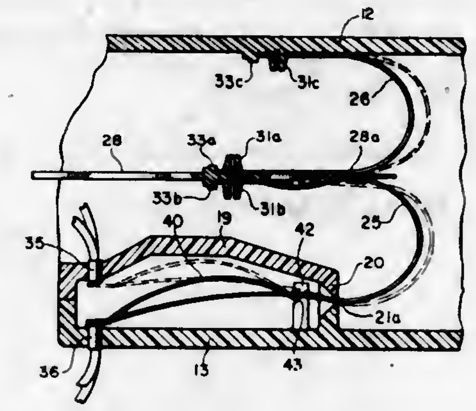
Herman Kaiser, and George W. Goetz, Detroit, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Aug. 20, 1968, Ser. No. 753,946
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.53 **14 Claims**



An improved sensor assembly for actuating a vehicle safety apparatus upon the occurrence of a collision includes a mass which is movable through a distance to a position for actuating the safety apparatus. The mass moves through the aforementioned distance when the vehicle is involved in a collision which could result in injury to an occupant of the vehicle due to impact with a structural part of the vehicle. The mass will not move through the aforementioned distance as a result of the vehicle encountering normal road conditions or during vehicle braking.

3,571,540
RESILIENT REED TYPE ACTUATOR MECHANISM

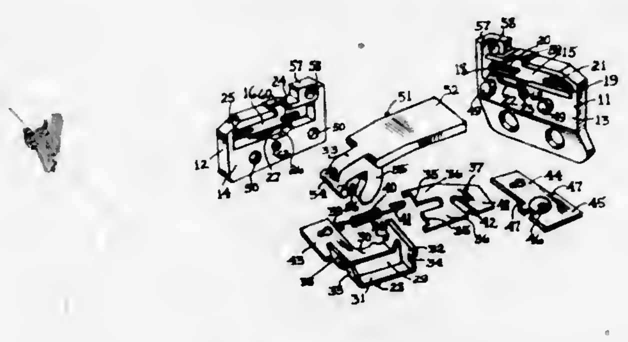
George B. Richards, P.O. Box 278, Highland Park, Ill.
Filed Sept. 6, 1967, Ser. No. 665,923
Int. Cl. H01h *13/36*
U.S. Cl. 200—67 **23 Claims**



An actuator mechanism includes a chamber with one end portion of an elongated resilient reed member disposed therein. The reed member is pivotally but nonshiftably associated with the chamber at its point of entry therein to facilitate sealing of the chamber from the external environment. Overcenter or toggle means are provided for yieldably maintaining the one end portion of the reed member in either of two spaced positions. Several preferred arrangements are disclosed for effecting a crisp, toggle action on angular displacement of the one reed end portion between its spaced positions irrespective of the rate of movement of the remaining reed end portion. A variation of the above construction which is especially well suited for use as a miniature electrical switch is also disclosed.

3,571,541
SNAP ACTION SWITCH

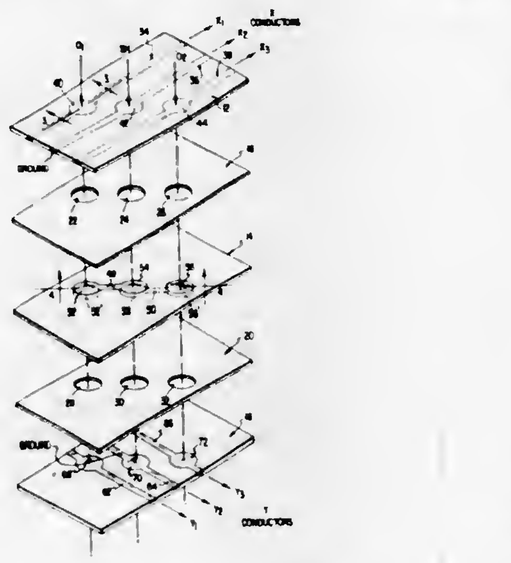
Michael F. Bedocs, and Fred N. Anderson, Highland Park, Ill., assignors to Cherry Electrical Products Corporation, Highland Park, Ill.
Filed Feb. 17, 1969, Ser. No. 799,723
Int. Cl. H01h *13/28*
U.S. Cl. 200—67 **1 Claim**



A switch of the snap action type wherein a switch blade is pivotally carried by a combined bracket and terminal member which constitutes a part of the switch actuating overcentering mechanism, all of which has a construction whereby it may be easily and economically assembled within the switch housing. The combination bracket and terminal member is generally formed to provide spaced parallel base sections, with one of the base sections including a terminal portion disposed in coplanar relationship and extending laterally therefrom through one sidewall of the switch housing. The sidewalls of the switch housing each provide shelf members and retaining ribs positioned about the laterally disposed terminal portion as well as the medial portions of the terminal member for mounting the same thereto.

3,571,542
FLUID LOGIC CONTROLLED ELASTIC DIAPHRAGM SWITCH MATRIX WITH CROSS POINT SHIELDING

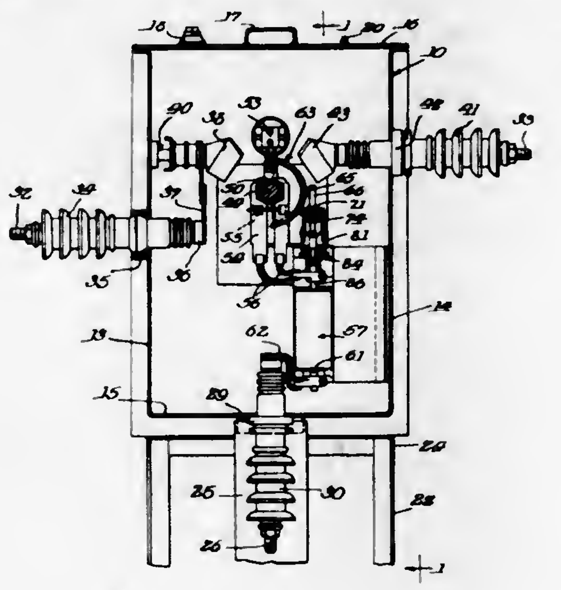
Thomas F. Madden, New Canaan, Conn.; Lawrence A. Tate, Irvington, and Alfred Weiss, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 12, 1969, Ser. No. 849,422
Int. Cl. F15c *1/10;* **H01h** *35/34*
U.S. Cl. 200—83 **9 Claims**



The fluid logic controlled elastic diaphragm switch matrix is formed of multiple elastic diaphragms having conductive surface portions in alignment with apertures carried by interspersed rigid sheets with the central elastic diaphragm carrying opposed and insulated conducting surfaces which are grounded when the switch point is open to act as shields. The matrix coordinate input pulses are amplified at each matrix unit to verify proper operation of the switch actuating fluid amplifier.

3,571,543
MULTIPLE POSITION VACUUM INTERRUPTER SWITCHING DEVICE

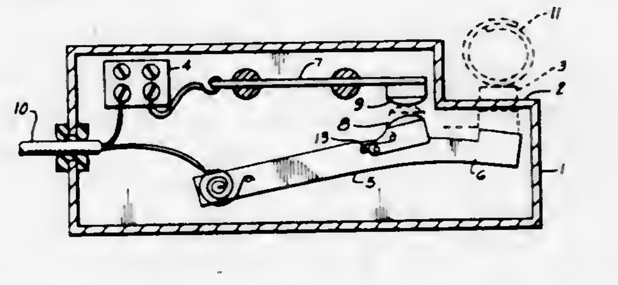
Gordon O. Perkins, Flossmoor, Ill., and Howard E. Swanson, Chicago, Ill., assignors to G & W Electric Specialty Company, Blue Iland, Ill.
Filed Sept. 30, 1968, Ser. No. 763,809
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 **6 Claims**



The operating and programming mechanism of the invention is designed to actuate the contacts of a vacuum switch and the contacts of a selector switch in a predetermined sequence. The vacuum switch contacts are connected in series with the contacts of the selector switch and a cam is provided as the programming means. The cam converts a portion of the operator output into linear motion so that the vacuum switch contacts are caused to close after the selector switch contacts close and are opened before the selector switch contacts open.

3,571,544
MAGNETIC KEY OPERATED SWITCH FOR ELECTRICALLY OPERATED HAND TOOLS

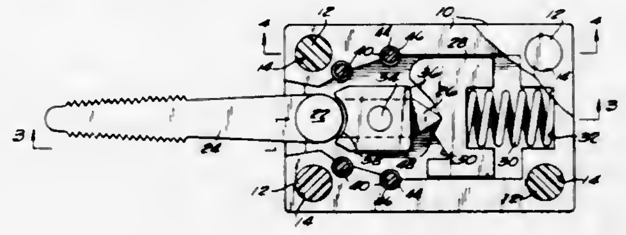
Hilary William Sheehan, 1408 Leneva Lane, Pasadena, Tex.
Filed Oct. 21, 1968, Ser. No. 769,189
Int. Cl. H01h *9/06, 36/00, 1/36*
U.S. Cl. 200—157 **2 Claims**



This invention relates to a switch for electrically operated hand tools, and the like, wherein the contact points of the switch are normally maintained yieldably separated, and one arm of said points is movable, and a ring is provided for the user of the device having a magnetized key, shaped to fit the particular key opening of the tool, so that when the key, mounted on a ring worn on a finger of the user, is inserted into the key opening, the movable arm will be moved into closed position, completing an electrical circuit through the motor of the tool, and upon removal of the key, for any reason, the tool will be immediately deactivated.

3,571,545
TOGGLE SWITCH WITH PIVOTAL SHORTING BAR BRIDGING STATIONARY CONTACT PINS, AND SLIDABLE CAM BLOCK DETENT MEANS

Edward G. Haderer, Newtown Square, Pa., assignor to Controls Company of America, Melrose Park, Ill.
Filed Nov. 13, 1968, Ser. No. 775,381
Int. Cl. H01h *1/22, 1/20, 23/30*
U.S. Cl. 200—166 **5 Claims**

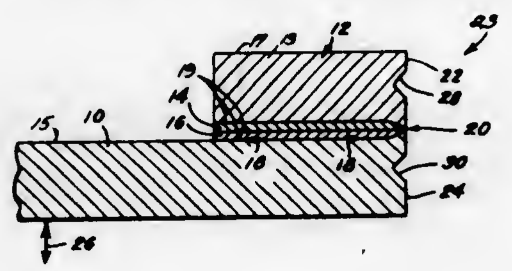


The point of the pivoted toggle lever acts on the cam surfaces of the spring biased slidable cam to obtain the desired action depending upon the cam configuration. The shorting bar is mounted on the toggle lever for limited pivoting action to insure equal pressure against the contact pins at the extremes of motion. The pins are brought out of the case for simple connection to printed circuit boards. All parts are mounted in and retained by the case halves which are identical and snap together.

3,571,546
CONTACT MEMBER

Charles D. Sedlak, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 19, 1968, Ser. No. 785,325
Int. Cl. H01h *1/02*
U.S. Cl. 200—166 **16 Claims**

An electrical contact member including an electrical contact and a contact support which are secured together by welding, soldering or the like to form an interface between the contact and support. The contact member is mechanically reinforced along the edge of this interface between the contact and support to retard separation of the contact and support at the interface edge during use of the contact member.

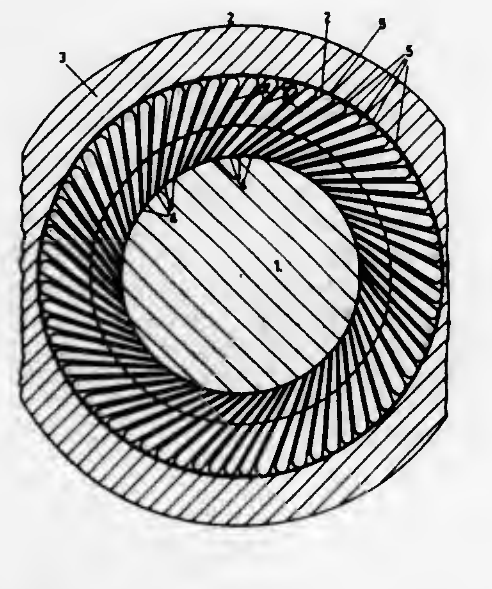


3,571,547
ELECTRIC CURRENT CONTACT

Rintje Boersma, Harmelen, and Gijsbert W. Irik, Bilthoven, Netherlands, assignors to N.V. "COQ", Utrecht, Netherlands

Filed June 4, 1969, Ser. No. 830,345
Claims priority, application Netherlands, June 5, 1968, 68.07852
Int. Cl. H01h *1/48*

U.S. Cl. 200—166 **3 Claims**



An electric switch having an axially movable switching contact and a resilient annular fixed contact. The fixed contact is in permanent contact with said switching contact and consists of a zigzag folded metal strip surrounded and supported by an annular holder. The metal strip is bent in the shape of a ring which snugly encloses the switching contact and is constituted by a circular series of pairs of contact lips.

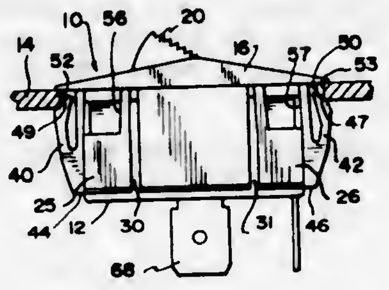
3,571,548
SNAP-IN MOUNTING FOR AN ELECTRICAL SWITCH

Thomas F. Osika, Gary, Ind., assignor to McGill Manufacturing Company, Inc., Valparaiso, Ind.

Filed Apr. 1, 1969, Ser. No. 812,114
Int. Cl. H01h *9/02*

U.S. Cl. 200—168 **3 Claims**

Apparatus for attaching an electrical switch case to a mounting plate includes a cover member for the switch casing, having an upper bezeled portion which is supported by the mounting plate. Switch case locking tabs are molded integral with the bezel and extend downward through an aperture in the mounting plate. The switch case is connected to the cover member by snapping the locking tabs thereabout. Integral with each of the end locking tabs extend resilient arms for mounting the cover member with the switch casing positioned therein to the mounting plate. The end of each of the arms has a groove therein which engages the corresponding edge of the aperture in the mounting plate thereby resiliently securing the cover to the plate. Compression of the arms also biases the end locking tabs tightly against the switch casing to lock the same in place.

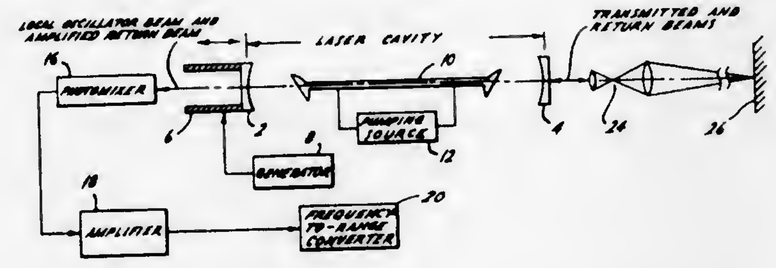


3,571,549
AUTOCOLLIMATING OPTICAL HETERODYNE TRANSCEIVER

Walter M. Doyle, Laguna Beach; Matthew B White, Newport Beach; Elias Reisman, Orange; George Joseph Galassi, and Wesley Duane Gerber, Santa Ana, Calif., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed May 3, 1968, Ser. No. 726,315
Int. Cl. H04b *9/00*

U.S. Cl. 200—199 **11 Claims**


LOCAL OSCILLATOR BEAM AND AMPLIFIED RETURN BEAM
LASER CAVITY
TRANSMITTED AND RETURN BEAMS
16
PHOTOMIXER
10
6
2
8
PUMPING SOURCE
12
4
24
26
GENERATOR
18
AMPLIFIER
20
FREQUENCY TO-RANGE CONVERTER

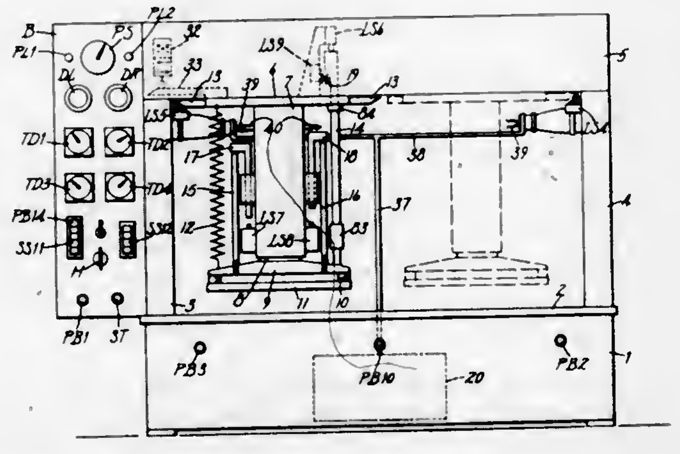
A laser system that utilizes a single laser as a transmitter, a local oscillator and a preamplifier. This system also provides automatic collimating of the transmitter and local oscillator light beams. The frequency of the local oscillator beam and the frequency of the transmitted beam are made different so that a difference frequency beat note can be obtained. This beat note is indicative of the information gathered by the system.

3,571,550
CONTROL SYSTEM FOR A HIGH-FREQUENCY WELDING AND CUTTING PRESS

Robert Rose, Schwalbach am Taunus, and Anton Muhlbach, Frankfurt am Main, Germany, assignors to USM Corporation, Flemington, N.J.

Filed Mar. 17, 1969, Ser. No. 807,786
Claims priority, application Germany, Mar. 20, 1968, P 17 78 008.4
Int. Cl. B23k *13/02;* **H05b** *5/00*

U.S. Cl. 219—10.53 **4 Claims**



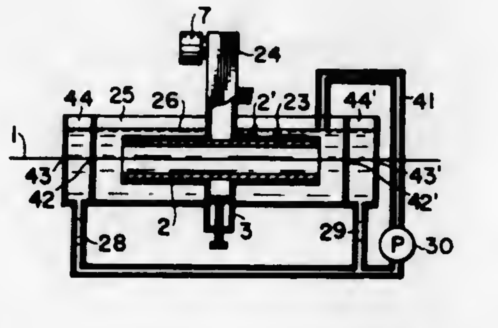
A welding and cutting press having a platen movable transversely over its work support to plural working positions is provided with a control comprising a plurality of sets of adjustable control means for establishing different values of operating conditions at said plurality of working positions of the press.

3,571,551
HIGH FREQUENCY HEATING APPARATUS

Naoyuki Ogasawara, Tokyo; Takao Namiki, Chiba-ken, and Katsutoshi Sone, Chiba-ken, Japan, assignors to Furukawa Denki Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 26, 1969, Ser. No. 810,650
Claims priority, application Japan, Apr. 3, 1968, Nov. 13, 1968, Jan. 24, 1969, 43/21465;43/83092;44/4722
Int. Cl. H05b *9/06, 5/00*

U.S. Cl. 219—10.55 **4 Claims**



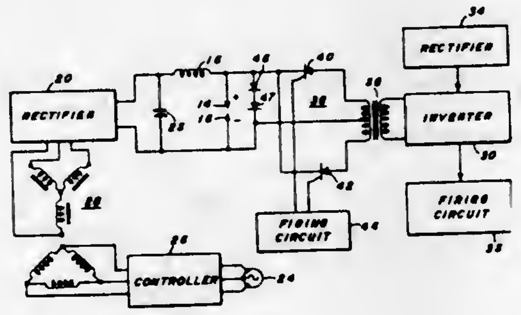
An apparatus for noncontact heating of a continuously running metal wire with microwave power, which consists of a high loss transmission line such as coaxial line, strip line, or slab line, or its resonator, with the wire serving as an inner conductor. A bare or insulated wire to be heated and a conductor surrounding the wire together constitute a high loss transmission line such as a coaxial line, a strip line or a slab line. Such a transmission line is shorted at both ends thereof to form a resonator. The transmission line or resonator is fed with a high frequency power from a high frequency power source such as magnetron through a waveguide system connected to the transmission line or resonator in noncontacting relationship to the wire. Heat that develops either by the resistance loss in the wire or by the dielectric loss in the insulation layer is used for annealing of the wire or curing of the insulation layer.

3,571,552
METHOD OF RESISTANCE WELDING USING PULSED DC SUPERIMPOSED OVER STEADY STATE DC VOLTAGE

Kenneth E. Opal, Oakmont, Pa., assignor to Power Control Corporation, Pittsburgh, Pa.

Original application Oct. 10, 1968, Ser. No. 766,533, now Patent No. 3,521,025, dated June 21, 1970. Divided and this application Feb. 24, 1970, Ser. No. 13,695
Int. Cl. B23k *3/06*

U.S. Cl. 219—59 **4 Claims**



Apparatus for welding, particularly resistance seam welding, wherein the voltage applied across the weld comprises a steady state direct current voltage having superimposed thereon an alternating current voltage or a chopped direct current voltage. This provides a true diffusion weld, results in a substantially uniform grain structure across the weld, and enables extremely high welding speeds.

3,571,553
BAND ELECTRODE SUBMERGED ARC WELDING OF CHROMIUM STAINLESS STEEL AND A MATERIAL USED IN SAID WELDING

Tomokazu Godai; Makoto Tomita, and Osamu Tanaka, Kamakura-shi, Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Dec. 31, 1968, Ser. No. 788,240
Claims priority, application Japan, Jan. 9, 1968, 43/966
Int. Cl. B23k *9/18, 25/00, 35/00*

U.S. Cl. 219—73 **1 Claim**

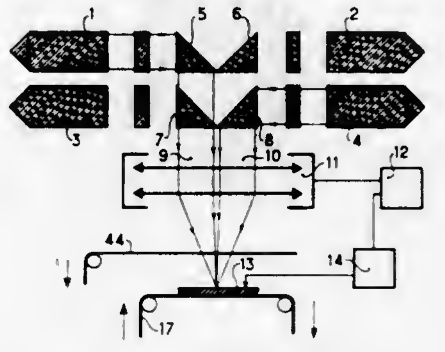
The band electrode submerged arc-welding of chromium stainless steel, a weld metal which is excellent in ductility and crack resistance can be obtained by means of using a band electrode of chromium stainless steel in combination with a flux containing 25 to 50 percent calcium carbonate, 30 to 50 percent alumina, 1 to 10 percent fluorite, and 1 to 10 percent magnesia, said electrode and/or flux being blended with aluminum, titanium, columbium, nitrogen, chromium, manganese, and nickel or cobalt, so that the weld metal contains these elements in the ratio of 0.015 to 0.15 percent aluminum, 0.0025 to 0.22 percent titanium, 0.35 to 2,8 percent columbium, 0.01 to 0.075 percent nitrogen, 8.5 to 25 percent chromium, 0.15 to 2.0 percent manganese, and less than 2.8 percent nickel or cobalt.

3,571,554
LASER TOOL

Jean Baujoin, Meudon, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed Jan. 15, 1969, Ser. No. 791,411
Claims priority, application France, Jan. 15, 1968, 135,924
Int. Cl. B23k *9/00*

U.S. Cl. 219—121 **2 Claims**



An optical system employed by a laser tool having multiple laser heads for combining corresponding laser beams and concentrating the same at a single point with a fine film of material disposed between the point and the optical system to protect the same.

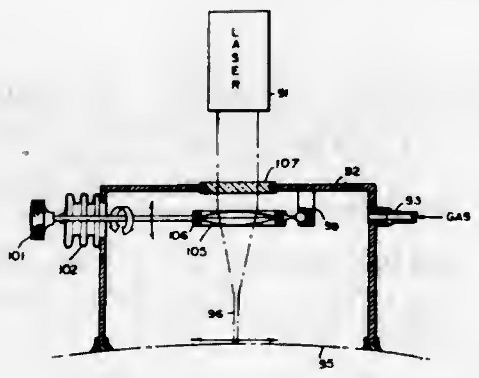
3,571,555
LASER MACHINING APPARATUS

Charles H. Townes, Cambridge; Raymond Y. Chiao, Boston, and Elsa M. Garmire, Cambridge, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Original application Oct. 11, 1965, Ser. No. 494,739, now Patent No. 3,556,634, dated Jan. 19, 1971. Divided and this application Jan. 24, 1969, Ser. No. 822,088
Int. Cl. B23k *27/00*

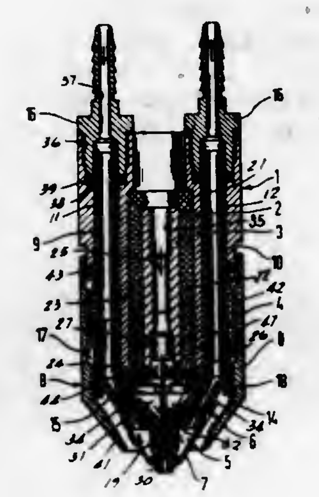
U.S. Cl. 219—121 **4 Claims**

Apparatus for machining a workpiece by electromagnetic energy, preferably laser energy. The apparatus includes a dielectric through which a laser is directed toward the workpiece. At a critical power and wavelength, the dielectric functions as an optical waveguide preventing beam diver-



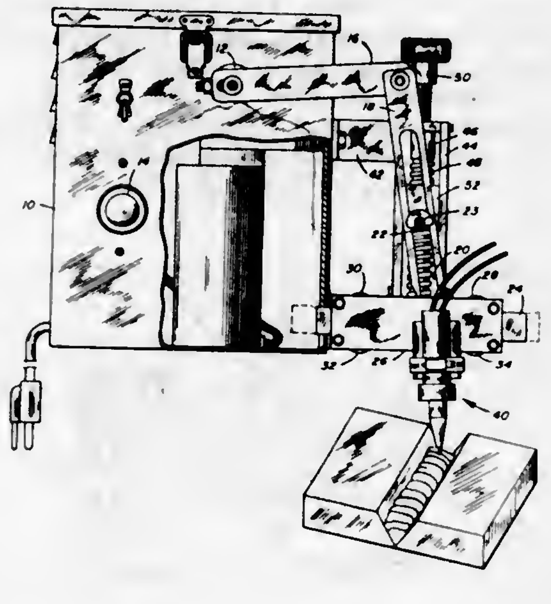
gence. The apparatus further includes an optical element and position control means for the optical element.

3,571,556
PLASMA WELDING TORCH
Friedrich Wustner, Wolfratshausen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed Mar. 21, 1969, Ser. No. 809,063
Claims priority, application Switzerland, Apr. 8, 1968, 5,208/68
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 **6 Claims**



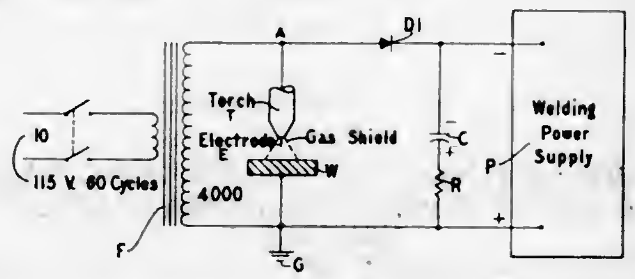
A plasma welding torch or burner generally including a cylindrical body portion, an electrode carried by the body, a plasma gas nozzle, a protective gas nozzle concentrically disposed around the plasma gas nozzle and engaging the body in a manner to clamp the plasma nozzle in position on an end portion of the body. The body has a pair of elongated apertures formed therethrough and aligned with a longitudinal axis thereof. A pair of conduits are secured to the plasma nozzle and form inlet and outlet passageways for directing coolant through a coolant chamber in the plasma gas nozzle. The pair of conduits are carried within the elongated apertures formed in the body, and a pair of connectors overlie an end portion of the conduits to provide connection means to a source of coolant and to seal the conduits in position. The body portion is further characterized by another elongated aperture formed parallel of the longitudinal axis and opening into an annular chamber formed between the protective gas nozzle and an outer surface of the body to provide passageway means for directing protective gas through the protective gas nozzle. Plasma gas passes through a passageway formed in a sleeve disposed coaxially of the body and enters the plasma nozzle through lateral slots formed in a collet received in the sleeve and securing the electrode onto the body.

3,571,557
WELDING TORCH OSCILLATOR
Lamar T. Valentine, Tulsa, Okla., assignor to Welding Process Company, Tulsa, Okla.
Filed Apr. 1, 1969, Ser. No. 812,042
Int. Cl. B23k *9/00*
U.S. Cl. 219—130 **1 Claim**



A welding torch oscillator includes linkage from an electric motor drive. One portion of the linkage includes a slot within which is a movable fulcrum, the position of which varies the ultimate width of torch oscillation. The fulcrum is a bearing member which is attached to a nut through which a fixed threaded shaft is rotatable. A hand knob attached to the shaft permits immediate adjustment to a desired oscillation.

3,571,558
APPARATUS FOR ARC STARTING
John A. Hogan, Jr., Somerset, N.J., assignor to Union Carbide Corporation
Filed July 24, 1968, Ser. No. 747,354
Int. Cl. B23k *9/10*
U.S. Cl. 219—131 **6 Claims**

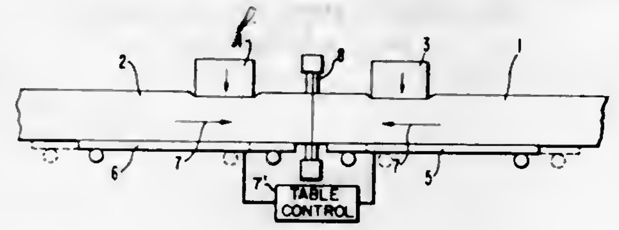


Apparatus for starting an arc between an electrode and a workpiece comprising means for impressing a high DC voltage across the gap formed between the electrode and the work, the voltage having a sufficient magnitude to establish a spark in the form of a very low current streamer and means including energy storage means for discharging a predetermined amount of electrical energy into the spark to initiate thermionic emission wherein such energy storage means is connected in such manner as to be charged by the welding power supply.

3,571,559
APPARATUS FOR WELDING THERMOPLASTIC SYNTHETIC FOAM BLOCKS
Josef Becker, Spich, and Michael Wienand, Siegburg, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Dec. 23, 1968, Ser. No. 786,081
Claims priority, application Germany, Dec. 22, 1967, P 17 04 012.9
Int. Cl. H05b *1/00*
U.S. Cl. 219—243 **15 Claims**

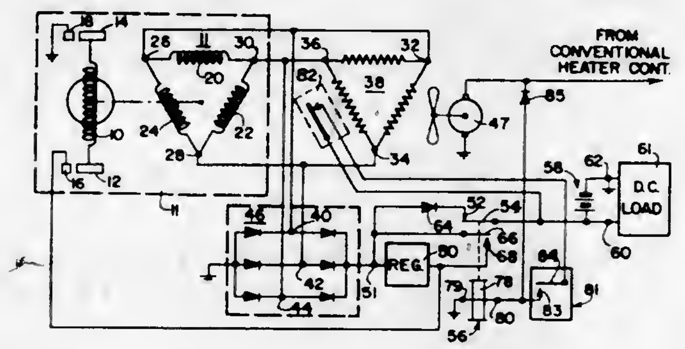
Apparatus for welding blocks or other molded forms of

synthetic foam materials, such as, for example, thermoplastic polymers, including a welding device incorporating wedge-shaped separating means disposed in advance of a heating wire for traversing the desired location of the seam, whereby



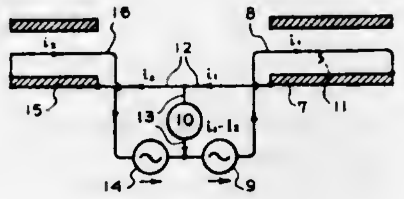
the heating wire is able to pass through the location of the seam substantially unobstructed by forces of friction and the like between the wire and the surfaces of the forms to be welded.

3,571,560
AUXILIARY AUTOMOTIVE HEATING SYSTEM
Ole K. Nilssen, Bensenville, and James R. Cherry, Barrington, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed May 8, 1969, Ser. No. 823,134
Int. Cl. B60l *1/02*
U.S. Cl. 219—279 **9 Claims**



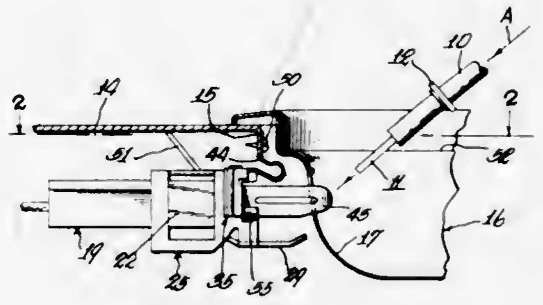
An electrical quick heat system for instantly supplying heat from resistive heating elements to the passenger compartment of an automotive vehicle. The quick heat system includes a heavy duty alternator, which is always directly connected to the resistive heating elements, and a switching mechanism for simultaneously bypassing the regulator to operate the alternator in its unregulated mode and for disconnecting the battery along with the automotive circuits from the alternator so that they are not subjected to the increased amplitude of the unregulated voltage.

3,571,561
CIRCUIT FOR DETECTING ABNORMALITY IN ELECTRIC HEATING APPARATUS OF PIPE LINES
Masao Ando, Yokohamashi, Japan, assignor to Chisso Corporation, Osaka, Japan
Filed Mar. 10, 1969, Ser. No. 805,480
Claims priority, application Japan, Mar. 8, 1968, 43/15081
Int. Cl. H05b *3/00*
U.S. Cl. 219—300 **6 Claims**



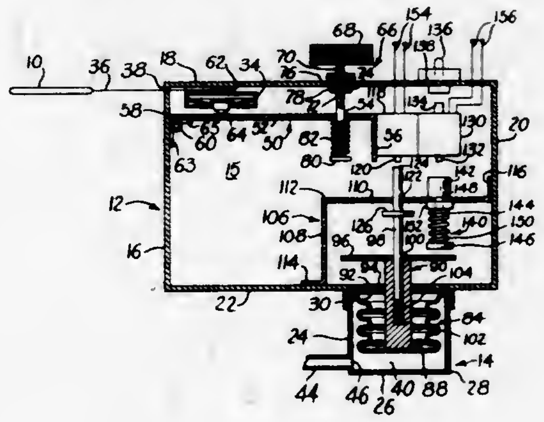
An abnormality-detecting circuit in a long electric heat-generating apparatus to be attached on pipelines which circuit is so arranged that abnormality can be detected by electrically dividing said heat-generating apparatus into two portions, supplying to each electrically divided portion of said heat-generating apparatus, voltages of the same phase, which are approximately proportional to the length of said divided portion so as to flow as equal a current through each divided portion as possible, and measuring the difference of the above-mentioned two currents which are normally set as equal as possible.

3,571,562
TERMINAL ASSEMBLIES FOR ELECTRIC HEATING ELEMENTS
Donald M. Cunningham, Pittsburgh, Pa., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Apr. 22, 1969, Ser. No. 818,276
Int. Cl. H01r *3/06*
U.S. Cl. 219—451 **11 Claims**



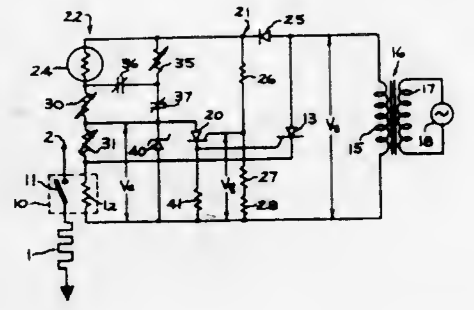
A plug-in terminal assembly for an electric heating element supported in an opening in a stove top, the assembly comprising a rigid sheet metal bracket straddling a dielectric terminal block, and a connecting member of spring sheet metal straddling the bracket and having a top connected to the bracket and formed with a spring loop extension which terminates in an ear connected to the stove top adjacent the stove opening. The sides of the connecting member have arm extensions which form grounding springs for grounding the heating element as it is plugged into the dielectric terminal block.

3,571,563
COMBINED AUTOCLAVE AND CONTROL SYSTEM AND METHOD THEREFOR
Robert J. Shulz, Brookfield, Ill., assignor to Vischer Products Company, Chicago, Ill.
Filed Oct. 7, 1968, Ser. No. 765,351
Int. Cl. H05b *1/02;* **A61l** *3/00, 3/02*
U.S. Cl. 219—491 **9 Claims**



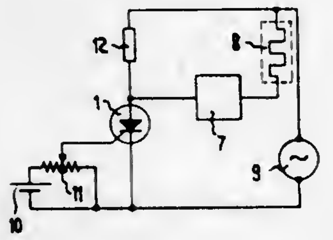
A steam autoclave containing a steam chamber and heater for generating steam to fill said steam chamber in combination with a control system therefor. The control system automatically energizes the heater in response to a combined signal, incorporating both temperature and pressure measurements, when the combined signal is below a predetermined level and automatically deenergizes the heater when the combined signal exceeds said predetermined level. The control system also deenergizes the heater in response to signals indicating maximum individual predetermined levels of temperature or pressure, and thereby acts as a temperature and pressure override safety system for the autoclave. Deenergization of the heater by one of the override controls requires manual reenergization of the heater.

3,571,564
MULTILEVEL TEMPERATURE CONTROL CIRCUIT
Stanley B. Welch, Louisville, Ky., assignor to General Electric Company
Filed Nov. 29, 1968, Ser. No. 779,869
Int. Cl. H05b *1/02*
U.S. Cl. 219—501 **6 Claims**



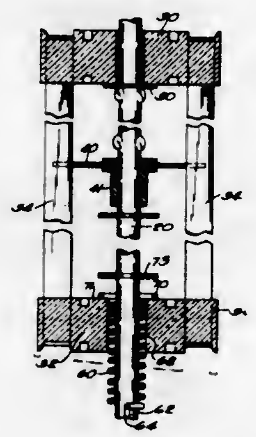
A solid-state circuit for maintaining the temperature of an oven at a first or second selected level. A voltage divider supplies a temperature-dependent voltage to a threshold switching device such as a silicon controlled switch. When the oven temperature is below a first set point, the SCS is turned on and gates an SCR connected in series with a hot wire relay. The hot wire relay biases a pair of contacts closed to energize the oven heating element. When oven temperature rises above the set point, the voltage applied to the SCS decreases below the threshold voltage. The SCR is no longer gated, and the hot wire relay cools so that the relay contacts open. A single switch is employed to connect a differing resistance into the voltage divider to change the control circuit set point. In addition, the hot wire relay may be included in the voltage divider and act as a thermistor upon being energized and deenergized. In this manner, fluctuation of the voltage applied to the SCS at the threshold level is prevented and rapid cycling of the relay cannot occur.

3,571,565
ELECTRONIC THERMOSTAT
Brian Edward Hasler, Neuchatel, Switzerland, assignor to Ebauches S.A., Neuchatel, Canton of Neuchatel, Switzerland
Filed Jan. 15, 1969, Ser. No. 791,227
Claims priority, application Switzerland, Jan. 19, 1968, 885/68
Int. Cl. H05b *1/02*
U.S. Cl. 219—501 **6 Claims**



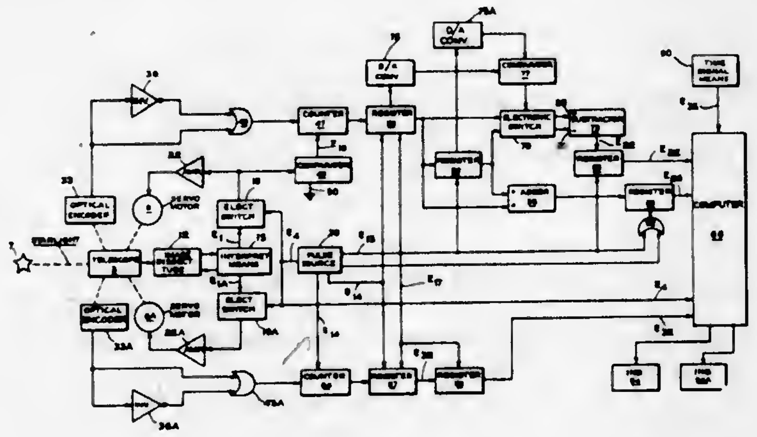
An electronic thermostat having a thermosensitive semiconductor element in its measuring circuit, the hysteresis of the thermostat being substantially reduced by pulsating or alternating signals in said semiconductor element.

3,571,566
ELECTRIC RESISTANCE HEATER WITH A TENSION COIL SPRING
John C. Kuzara, Columbia, Mo., assignor to McGraw-Edison Company, Elgin, Ill.
Filed Aug. 27, 1969, Ser. No. 853,329
Int. Cl. H05b *3/06*
U.S. Cl. 219—536 **9 Claims**



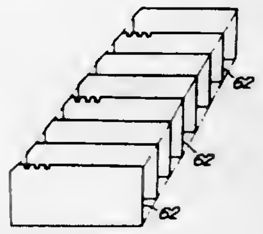
In an electric resistance heater having a heating element extended between spaced insulators, improved means for supporting the insulators at variably spaced distances to maintain nominal tightness in the heating element, including a support rod, and a coil spring secured at a first portion over the rod and having a second portion confined axially within an opening in one insulator operable thereby to bias the insulators apart.

3,571,567
APPARATUS WHICH DETERMINES LATITUDE AND LONGITUDE FROM THE DERIVATIVES OF TWO COORDINATES OF A STAR
Alfred E. Eckermann, Littleton, Colo., assignor to The Bendix Corporation
Filed Dec. 19, 1969, Ser. No. 889,866
Int. Cl. G01c *17/34;* **G01j** *1/20;* **G06f** *15/50*
U.S. Cl. 235—150.271 **14 Claims**



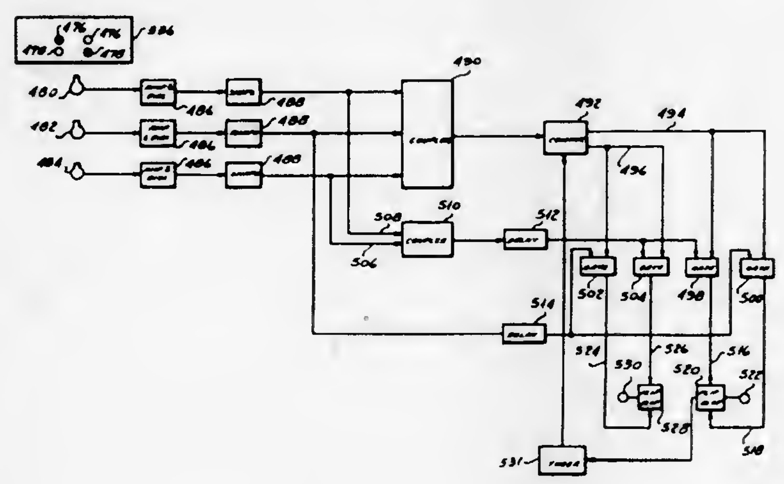
An astronavigational system comprising a telescope which is automatically controlled to periodically track a star. A pulse source periodically activates switching means which control servo circuits that drive the telescope through a change in the zenith angle and a change in the azimuth angle of the star, which has moved between trackings, until an image of the star is aligned with the center of the photosurface of an image-dissector tube. A zenith-angle-measuring circuit provides signal corresponding to the average zenith angle and the change in zenith angle for the time period between trackings of the star. An azimuth-angle-measuring circuit provides a signal corresponding to the change in azimuth angle for the time period. A computer uses the signals from the measuring circuits and a time-base signal from the pulse source to compute longitude and latitude.

3,571,568
CARD PROCESSING SYSTEM
Shu Ono, Yamato-shi; Eiichi Goto, Koganei-shi, and Tadao Mitsui, Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 12, 1968, Ser. No. 712,455
Claims priority, application Japan, Mar. 17, 1967, 42/16381
Int. Cl. G06k *1/05, 1/18*
U.S. Cl. 235—61.1 **3 Claims**



This specification discloses a card processing system wherein use is made of partition cards having open apertures formed in the periphery thereof as means for making distinctions between a plurality of card groups to be distinguished from each other in an attempt to take out outputs corresponding to the perforations of said plurality of card groups in an electronic computer system including at least a central processing unit, a card-punch controlling unit and a card punch, thereby reducing the operator's intervention and eliminating the use of any expensive auxiliary machine.

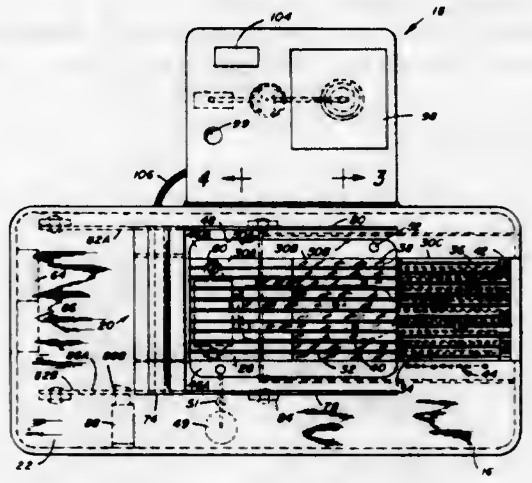
3,571,569
CAR IDENTIFICATION SYSTEM
Eric W. Leaver, 4 Royalcrest Ave., and George R. Mounce, 18 Bridle Path, Willowdale, Ontario, Canada
Continuation-in-part of application Ser. No. 670820, July 9, 1957, now abandoned. This application Oct. 15, 1962, Ser. No. 230,568
Int. Cl. G06k *7/00*
U.S. Cl. 235—61.11 **18 Claims**



A car identification system in which spaced sources of energy carried by the car are read by detecting heads disposed on the railway bed or roadway over which the car passes. One form produces rod, indication of both direction of movement and the speed of the car.

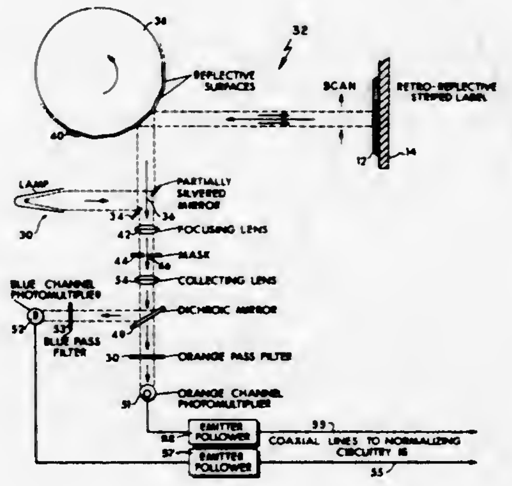
3,571,570
THEFTPROOF CREDIT CARD APPARATUS
Noel William Taulman, 3714 E. Virgin St., Tulsa, Okla.
Filed June 18, 1969, Ser. No. 834,464
Int. Cl. G06k *7/10*
U.S. Cl. 235—61.7 **4 Claims**

In an apparatus for the recordation of credit sales to be used in conjunction with a card having a plurality of apertures therein, light rays passing through apertures in a housing member and apertures on the card, said apertures being in registered alignment, impinge upon a photosensitive receptacle which triggers an electrical circuit whereby a roller



mechanism is allowed to be passed over said card thereby imprinting the desired information upon a credit ticket.

3,571,571
INFORMATION PROCESSING SYSTEMS
Christos B. Kapsambelis, Canton, Mass., assignor to Sylvania Electric Products Inc.
Filed Oct. 14, 1968, Ser. No. 767,213
Int. Cl. G06k *7/12*
U.S. Cl. 235—61.11 **12 Claims**

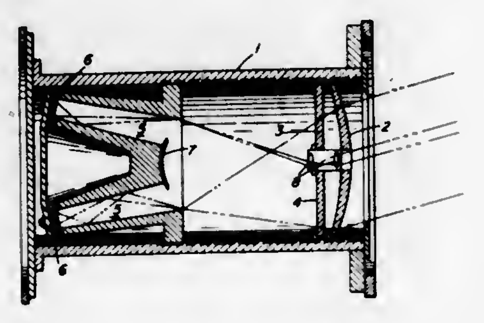


A coded vehicle identification system including a label-data recognition arrangement for recognizing data derived in response to scanning a coded retroreflective label affixed to a vehicle and for preventing the processing of noise signals occurring during the scanning of the label. The label comprises a vertical array of rectangular orange, blue, and white retroreflective stripes and black nonretroreflective stripes arranged in a plurality of two-stripe combinations to represent, in a two-position base-four code format, information pertaining to the vehicle. Distinguishable coded START and STOP stripe-pairs are provided at opposite ends of the array to respectively initiate and terminate processing of the data content of the label.

The individual light patterns retroreflected from the plurality of coded pairs of stripes, in response to being successively scanned, are converted into corresponding coded electrical signals and entered sequentially, by means of shift pulses initiated by the coded electrical signals, into successive stages of a plurality of storage shift registers. A label-data recognition arrangement is provided for allowing the coded electrical signals stored in the shift registers to be applied to a readout apparatus if the coded signals are recognized to be label data. If, at any time, however, a signal is recognized not to be label data, for example, a noise signal derived from a source extraneous to the label, all of the stages of the registers are reset.

3,571,572
RADIATION BALANCE HORIZON SENSOR WITH AN EARTH TANGENCY MASK

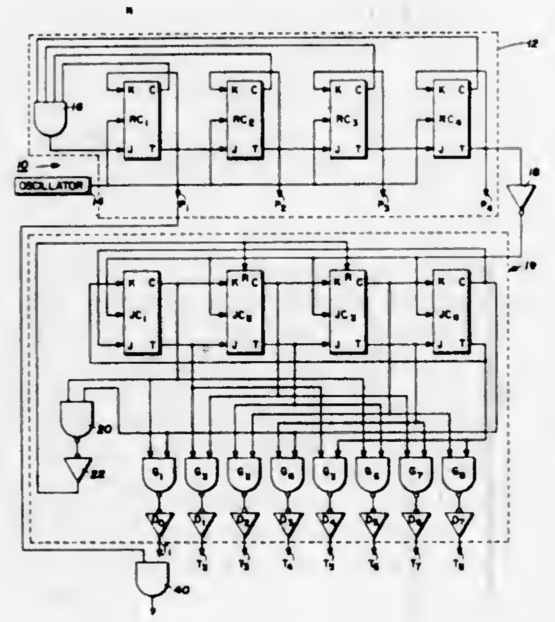
Gerald Falbel, Stamford, Conn., assignor to Barnes Engineering Company, Stamford, Conn.
Continuation-in-part of application Ser. No. 566,163, July 18, 1966, now abandoned. This application June 2, 1969, Ser. No. 829,219
Int. Cl. G01p *13/00*
U.S. Cl. 250—83.3 **3 Claims**



A horizon sensor of the radiation balance type is described with an earth tangency mask so that the horizon sensor detectors are illuminated only by a narrow band of radiation at the horizon of the earth's disc when the horizon sensor is positioned for correct vehicle attitude.

3,571,573
CLOCKING SYSTEM

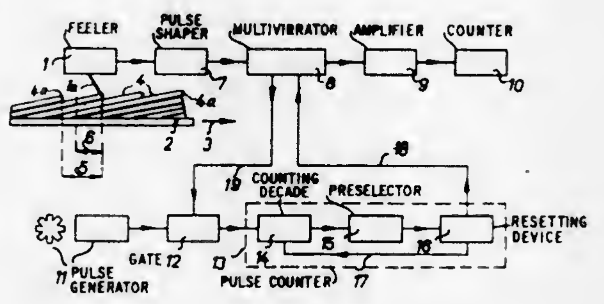
Granville E. Ott, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 30, 1966, Ser. No. 606,066
Int. Cl. G06m *3/02;* **H03k** *21/08*
U.S. Cl. 235—92 **2 Claims**



A ring counter having a one count delay during each cycle is used to clock a Johnson counter during the one count delay. A number of individually identifiable clock pulses are then available for clocking and sequential control functions by ANDing any one of the outputs of the ring counter with any one of the outputs of the Johnson counter, the total number being equal to the product of the number of ring counter outputs and the number of Johnson counter outputs.

3,571,574
COUNTING DEVICE FOR FOLDED SHEETS, PARTICULARLY FOLDED NEWSPAPERS

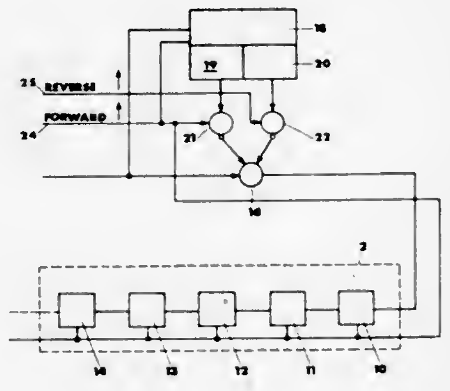
Walter Gerber, Uster, Zurich, Switzerland, assignor to Ferag, Fehr & Reist AG., Zurich, Switzerland
Filed June 13, 1967, Ser. No. 645,758
Claims priority, application Switzerland, June 15, 1966, 8606
Int. Cl. G06m *7/06*
U.S. Cl. 235—92 **4 Claims**



The counting device according to the invention is particularly adapted to count newspapers travelling in imbricated arrangement on a conveyor means past a feeler which upon being actuated by each successive protruding folding edge of the overlapping newspapers produces an electrical pulse to be registered by a counter. Means are provided for blocking the registering operation of the counter during a period of time corresponding to the time of passage of a fraction of the distance between two successive folding edges past said feeler.

3,571,575
MEASUREMENT DEVICES

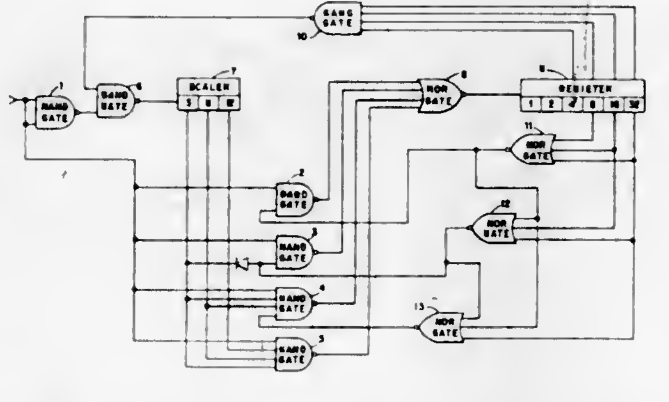
John Denzil Barr, Oadby, Leicester, and Peter Frederic Thomas Cryer Stillwell, Aldershot, England, assignors to The Rank Organisation Limited, London, England
Filed June 28, 1967, Ser. No. 649,603
Int. Cl. G06m *1/272, 3/14*
U.S. Cl. 235—92 **3 Claims**



An electronic counter is provided for use in counting pulses, for example pulses representing interference fringes in laser interferometers. In order to give an output reading in a predetermined scale of measurement, for example, the metric system the pulses are counted in a first counter and pass through a gate to a second counter which gives the output reading, the gate being controlled in dependence upon the first counter so that the gate is blocked, for the duration of one input pulse, at predetermined intervals, such that the count in the second counter is modified by a predetermined ratio to give an output count in the desired scale of measurement.

3,571,576
COMPRESSION OF STATISTICAL DATA FOR COMPUTER TAPE STORAGE

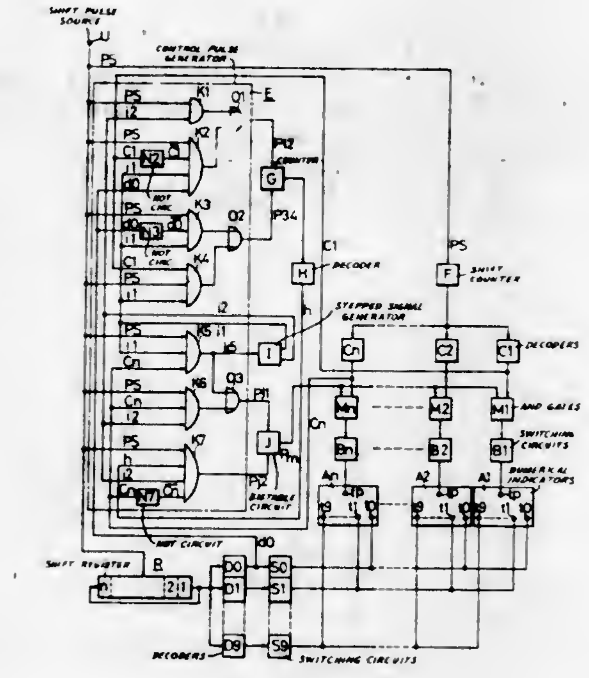
Marion M. Satterfield, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 10, 1968, Ser. No. 766,434
Int. Cl. Ho3k *21/02*
U.S. Cl. 235—92 **5 Claims**



Circuitry has been provided which compresses statistical data with an error less than one standard deviation to permit recording approximately 500 counts in six levels of one character of a storage tape. Counts are fed into a six-place digital accumulator, the first eight individually, then by threes until the accumulator reaches 16, then by sixes until the accumulator reaches 32, and then by twelves until the six places are full. The information stored in the accumulator can then be read onto conventional magnetic or paper storage tape.

3,571,577
NUMERICAL DISPLAY SYSTEM

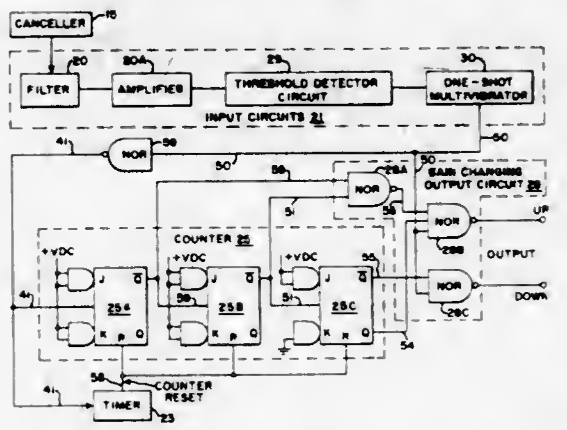
Kikuo Kubo, and Takafumi Kumagai, Tokyo, Japan, assignors to Nippon Columbia Company, Limited, Tokyo, Japan
Filed Jan. 17, 1968, Ser. No. 698,450
Claims priority, application Japan, Jan. 25, 1967, 42/5167
Int. Cl. G09f *9/00*
U.S. Cl. 235—92 **5 Claims**



A numerical display system characterized in that a plurality of numerical indicators are sequentially and serially driven from the least significant one to the most significant one in synchronism with the sequential period of a register including a plurality of digit portions in which numerical contents to be displayed are stored and digit sequentially taken out therefrom by way of right shift, and the contents of said register are displayed with invalid zero or zeros prevented from being indicated.

3,571,578
DIGITAL ADAPTIVE CONTROL SYSTEM SENSOR

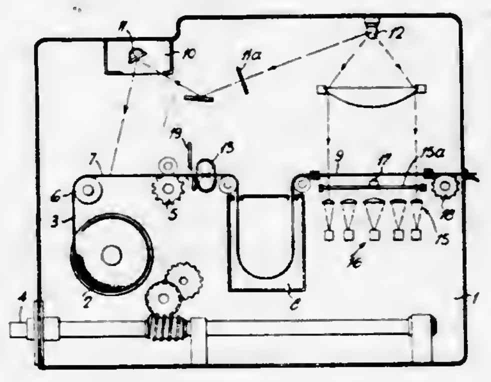
Laurel D. Fry, Endwell, N.Y., assignor to General Electric Company
Continuation of application Ser. No. 370,227, May 26, 1964, now abandoned. This application Mar. 20, 1969, Ser. No. 814,502
Int. Cl. G05b *13/02*
U.S. Cl. 235—150.1 **7 Claims**



A damping sensor that counts the number of signal half cycles of an adaptive mode signal between the occurrence of a transient signal exceeding a selected threshold level and the time at which system damping reduces the adaptive signal amplitude below the threshold level, times the signal half cycles, and generates gain changing signals in accordance with the count. The sensor counts signal threshold crossings during each of repetitive adaptive sensing program cycles. The program cycles are initiated by a transient signal exceeding a threshold established by a deadband circuit and terminated by a timer after a fixed time from the last signal half cycle exceeding the threshold or after the first zero crossing if the second zero crossing comes after the fixed time setting of the timer in those instances in which the adaptive mode signal frequency is too low.

3,571,579
ASSESSING OF SURFACE PROFILES

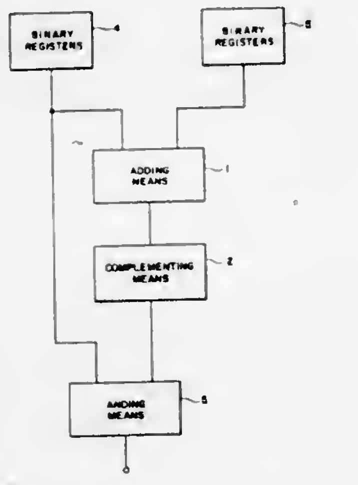
David John Whitehouse, Melton Mowbray; John Denzil Barr, Oadby; Richard Edmund Reason, Market Harborough; Thomas Charles Reeve, London; Robert Claude Spragg, Leicester; Arthur Tisso Starr, New Barnet, and Peter Frederic Thomas Cryer Stillwell, Aldershot, England, assignors to The Rank Organisation Limited, London, England
Continuation-in-part of application Ser. No. 521,286, Jan. 18, 1966, now abandoned. This application Apr. 25, 1968, Ser. No. 723,978
Int. Cl. G01b *7/34;* **G06g** *7/19*
U.S. Cl. 235—151.3 **31 Claims**



This invention relates to an instrument for testing the surface profile of a workpiece for irregularities. A conventional stylus arrangement is used to derive signals representative of the irregularities of the workpiece profile relative to a convenient datum, and these signals are stored, for example on a film strip or a magnetic tape. Signals are then extracted from the store by operating on each successive value of the stored signal with a weighting function which is nominally symmetrical about an instantaneous midordinate. The resulting signal represents, for each successive part of the profile under test, the convolution of the respective part of the first signal with the said weighting function, and is arranged to represent a useful means line from which the surface irregularities indicated by the first signal may be assessed.

3,571,580
DEVICE FOR DETERMINING LEAST SIGNIFICANT "ONE" IN A BINARY WORD

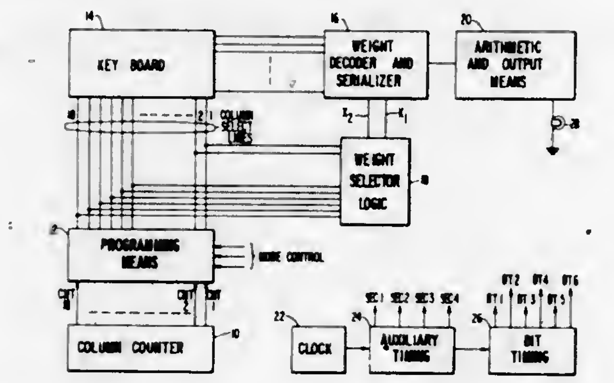
John S. Buchan, Ottawa, and Leonard C. Beaumont, Kanata, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Feb. 6, 1969, Ser. No. 797,077
Int. Cl. G06f *7/385, 7/00, 7/06*
U.S. Cl. 235—152 **4 Claims**



The position of the least or most significant ONE-bit in a binary word is determined by adding the binary word to another binary word of the same length but consisting of all ONE-bits. The carry bits which are generated in the addition are complemented and ANDED with the original word to result in a binary word consisting of all ZERO-bits except for a ONE-bit at the position of the least significant bit in the original binary word.

3,571,581
DIGIT VERIFICATION SYSTEM FOR AN ELECTRONIC TRANSACTION RECORDER

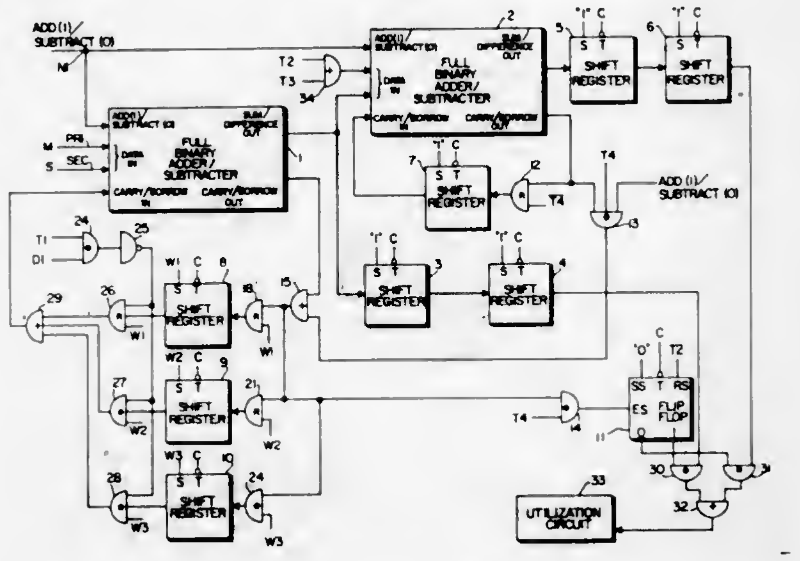
Roger D. Kaus, and John A. Muehlenbein, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 10, 1968, Ser. No. 758,873
Int. Cl. G06f *11/08*
U.S. Cl. 235—153 **17 Claims**



A number entered into an electronic transaction recorder is verified for accuracy in accordance with a mathematical prescription or predetermined mathematical rules. The numbers entered are assumed to be preassigned numbers which conform to a prescribed and predetermined rule of composition. If a number was incorrectly entered, an indication is provided that an error was made in the entry. By including a programming means within the verification apparatus, the system is flexible with regard to the length of the numbers to be checked and the keyboard position of the numbers to be checked.

3,571,582
SERIAL BCD ADDER/SUBTRACTER UTILIZING INTERLACED DATA

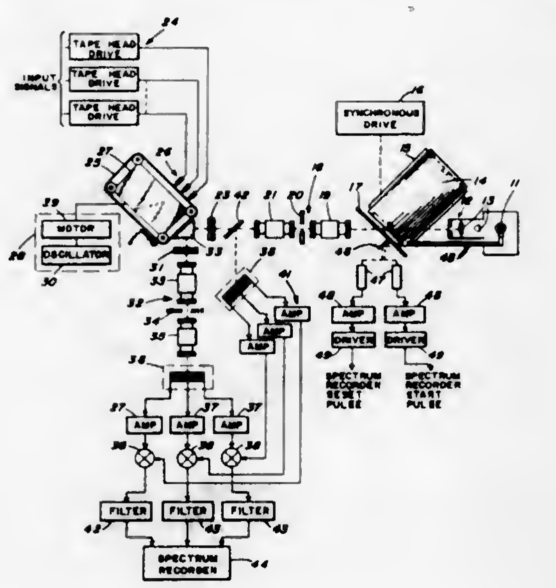
Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company
Filed Feb. 29, 1968, Ser. No. 709,404
Int. Cl. G06f *7/50*
U.S. Cl. 235—170 **13 Claims**



A serial digital adding/subtracting arrangement for binary coded decimal data presented in interlaced format. The input data comprises a series of multidigit decimal words interlaced by serially presenting the least significant digit of each word in predetermined sequence, followed by the next digit of each word similarly interlaced, and so on throughout the data. The adding/subtracting utilizes two full adder/subtracters, the first for adding or subtracting the input data, the second for adding or subtracting six to or from the sum or difference generated by the first. The presence of a carry from either adder during the fourth bit time indicates the need for a radix correction from binary to decimal in which case the output of the second adder is selected. Several shift registers, one associated with each word, are provided to store the interdigital carries associated with that word during the processing of other words through the system.

3,571,583
MULTICHANNEL

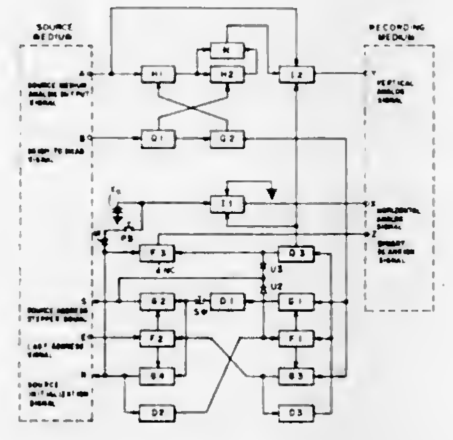
Henry M. Halpern, Cherry Hill, N.J., and Jack J. Rudnick, Bala Cynwood, Pa., Assignor to the United States of America as represented by the Department of Navy
Filed Sept. 30, 1968, Ser. No. 763,862
Int. Cl. G06g *7/19;* **G01r** *23/18*
U.S. Cl. 235—181 **7 Claims**



This invention is directed to a multichannel optical cross-correlation analyzer. The analyzer utilizes two function on recording media whose directions of motion are perpendicular to each other. One of the functions is recorded on a Kerr magneto-optic surface. A beam of light is first modulated by one of the functions and then is modulated by the other of the functions. The modulated beam is then integrated by a photodiode array and the electrical output of the diodes recorded. The analyzer implements the integral;

3,571,584
FUNICULAR DIAGRAM GENERATOR FOR GENERATING AN AUTOMATIC GRAPHICAL DISPLAY OF A FIRST VARIABLE AS A FUNCTION OF A SECOND VARIABLE

Victor W. Bolie, Stillwater, Okla., assignor to Okahoma State University, Still Water, Okla.
Filed June 23, 1969, Ser. No. 835,634
Int. Cl. G06g *7/26;* **G06j** *1/00*
U.S. Cl. 235—197 **4 Claims**

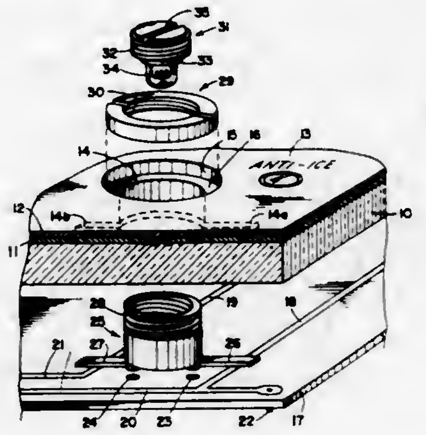


This invention provides a funicular diagram generator. More particularly, the invention relates to a funicular diagram generator for use as an interface between a source medium having the form of a stepwise addressable sequential channel output of analogue signal samples and a recording medium in the form of a graph tracer having separate horizontal and vertical analogue deflection signal inputs, the generator providing means of graphically plotting and displaying the analogue signal samples in the form of a continuous funicular diagram consisting of adjacent connected straight-line segments joining adjacent data points having equally spaced abscissas. The funicular diagram generator includes a first and second sample-and-hold circuit means, a summing amplifier receiving the output of the sample-and-hold means, an analogue integrator receiving the output of the summing amplifier and the source medium analogue output signal and a means of sequentially stepping the source medium and the sample-and-hold circuit means in time relationed sequential steps to provide at the output of the analogue integrator a composite signal functioning as the vertical analogue signal which may be impressed on the horizontal and vertical inputs of the graph tracer to provide a funicular diagram display.

3,571,585
PANEL AND EDGE LIGHTING ASSEMBLY

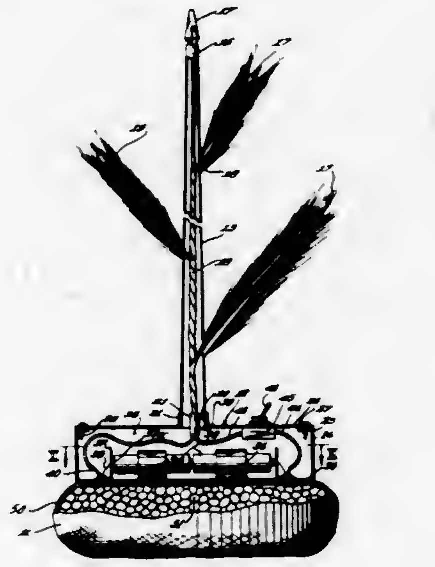
Louis Clarence Schermerhorn, Simi, Calif., assignor to Coastal Dynamics Corporation
Filed Nov. 12, 1968, Ser. No. 774,938
Int. Cl. B60q *3/04*
U.S. Cl. 240—8.16 **3 Claims**

An edge lighted panel for use principally in illuminating nomenclature associated with aircraft instruments is provided with front mounted lamps in substantially flush relationship with the front surface of the panel and yet so designed that they may be removed and replaced from the front surface. Electrical energy is provided for the lamps by means of a printed circuit board affixed to the rear of the panel and having conductive paths connecting to leads associated with a filter housing for the lamp received in a bore in the panel itself. The arrangement is such that replacement of the lamps can be effected without having to disturb the panel, filter housing and printed circuit board assembly.



3,571,586
AN ARTIFICIAL CHRISTMAS TREE WITH INTEGRAL LIGHTING MEANS

Hugh L. Duckworth, 3305 W. Palner St., Chicago, Ill.
Filed Apr. 29, 1969, Ser. No. 820,115
Int. Cl. A47g *33/16*
U.S. Cl. 240—10 **4 Claims**

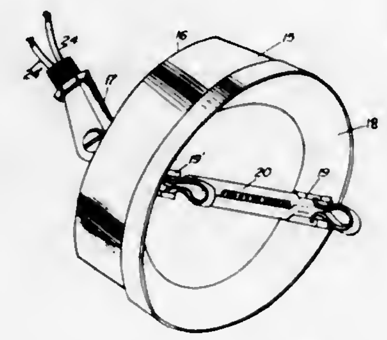


An artificial tree in the nature of a Christmas tree having a base portion from which projects a trunk portion and a plurality of individual branch portions projecting at angles from the trunk portion. The base, trunk and branch portions are hollow and have an electric circuit running therethrough. The base portion has contained therein an electric power source and an off-on switch for the circuit. Lights are provided in the trunk and branch portions connected to the circuit. The base is mounted on a fabric or flexible plastic member which is loosely filled with granular material whereby the member will readily conform to any surface on which it is placed and provide a weighted nonsliding bottom for the tree.

3,571,587
LIGHTING FIXTURE USING DOUBLE-ENDED QUARTZ LAMPS

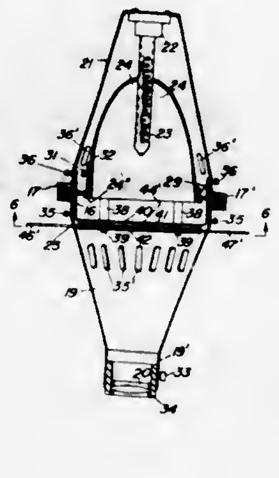
Hy Hilzen, Yonkers, N.Y. (29 Grant St., P.O. Box 285 Walden, N.Y. 12586)
Filed Aug. 2, 1968, Ser. No. 749,872
Int. Cl. F21m *7/00*
U.S. Cl. 240—11.4 **2 Claims**

An electrical lighting fixture having an easily mountable and removable bail at each mounting bracket for supporting and connecting the lamp of the lighting fixture. The bail serves to intercept the lamp should it become detached at either or both ends and hold it from falling. The bails are either manually pinched or manually spread to mount and remove them form the bifurcated ceramic body of each mounting bracket. The distal end of the lamp having a metal terminal socket is positioned between the tines of the mounting bracket and receives a spring-biased pin providing support and electrical connection for the lamp. In a modification, the bails extend from the floor of a pan made of a material through which light can pass and serves to catch fragments of the lamp should it become shattered and also serves to diffuse the light. The pan and its associated bails are in releasable engagement.



3,571,588
ELECTRICAL SPOTLIGHT CONSTRUCTION AFFORDING ECONOMICAL ASSEMBLY AND EASY MANIPULATION

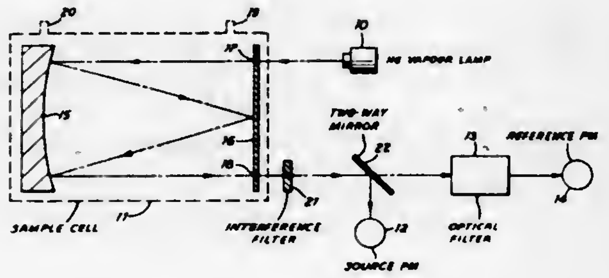
Hy Hilzen, Yonkers, N.Y. (29 Grant St. P.O. ox 285 Walden, NY 12586)
Filed Sept. 6, 1968, Ser. No. 757,906
Int. Cl. F21v *29/00*
U.S. Cl. 240—47 **5 Claims**



The spotlight comprises a central ring structure swingably mounted within a fixed bail, and carrying a releasable rear casing part which is a shell holding the lamp socket, and a releasable front tubular casing part holding an adjustably positioned lens. The ring structure comprises two concentric rings connected by a web having openings. The casing parts are on opposite ends of the outer ring. A shell serving as a reflector, extends into the rear casing part, and has an outward flange around its mouth which bears against the forward end of the inner ring. The reflector is through the inner ring. Setscrews through tabs on the inner ring, engage the reflector. A straight lamp extends from its socket mounted in the rear casing part, and through an apex hole in the reflector. The ring structure is spanned by an adjustable light beam framing structure.

3,571,589
METHOD FOR ABSORPTION ANALYSIS USING A SOURCE HAVING A BROADENED EMISSION LINE

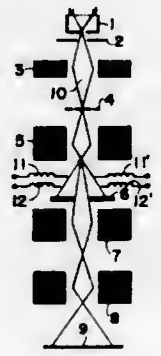
Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada
Continuation of application Ser. No. 494,680, Oct. 11, 1965, now Patent No. 3,449,565, dated June 10, 1969. This application June 4, 1969, Ser. No. 830,406
Int. Cl. G01n *23/12*
U.S. Cl. 250—43.5 **4 Claims**



A spectrophotometer for analyzing vapors having characteristic absorption lines. A particular vapor to be analyzed is illuminated by a lamp having a broadened emission line centered at a characteristic absorption line of the vapor. The width of the emission line is greater than the width of the absorption line. The portion of the broadened emission line that is outside the absorption line of the vapor is not absorbed by the vapor, and this portion of the broadened emission line is used as a reference against which to compare absorption of light of wavelengths within the absorption line width.

3,571,590
ELECTRON MICROSCOPE HAVING A COMPENSATION DEVICE FOR COMPENSATING THE DEVIATION OF A DIFFRACTION IMAGE

Shinjiro Katagiri, and Mamoru Nakano, Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo-To, Japan
Filed May 27, 1968, Ser. No. 732,249
Int. Cl. H01j *37/26*
U.S. Cl. 250—49.5 **9 Claims**



An electron microscope wherein deflecting coils disposed between an objective lens and an intermediate lens are provided to compensate for the deviation of the diffraction image of a specimen by adjusting the deflecting magnetic field which is produced by the deflecting coils to which exciting currents proportional to an exciting current of the intermediate lens are applied.

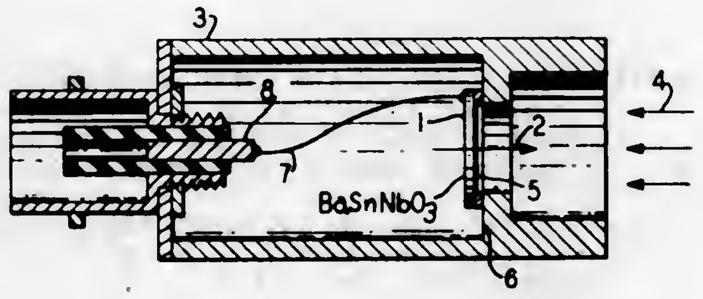
3,571,591
METHOD FOR DETERMINING THE ORIGIN OF HYDROCARBON SEEPS IN WATER-COVERED AREAS AS AN AIR TO PETROLEUM EXPLORATION ACTIVITIES

John S. Bradley, Tulsa, Okla.; William H. Luehrmann, and Glenn D. Roe, Dallas, Tex., assignors to The Atlantic Richfield Company, Philadelphia, Pa.
Filed Feb. 11, 1966, Ser. No. 526,808
Int. Cl. G01n *32/00, 1/00*
U.S. Cl. 250—83 **6 Claims**

A method for determining the origin of hydrocarbon seeps in water-covered areas in order to establish whether the seeps are derived from depth and thereby indicative of subsurface deposits of petroleum or whether they merely represent marsh gas. The seep gases are sampled directly and also by degassing water samples taken from sediments in the immediate vicinity of the seeps. Alpha-activity measurements are made on the seep gases and their origin is determined by comparison with alpha-activity ratios obtained using known standards.

3,571,592
PYROELECTRIC DEVICES OF HIGH ACOUSTIC LOSS SHOWING INCREASED FREQUENCY RESPONSE

Alastair M. Glass, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights
Filed Aug. 1, 1968, Ser. No. 749,354
Int. Cl. G01k *7/02;* **H01j** *39/00*
U.S. Cl. 250—83 **5 Claims**



A class of materials exemplified by mixed crystals of barium niobate and strontium niobate acts as a radiation detector by reason of the change in polarization resulting from the heating produced by an incident beam. This pyroelectric response is sufficiently rapid for infrared radiation that a pulse train well in excess of a megabit per second may be followed for incident beam power well below 1 watt.

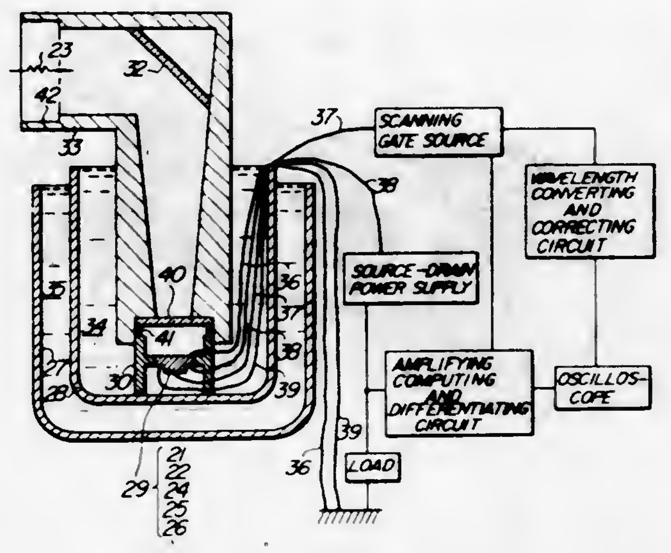
ERRATUM

For Class 250—83.3 see:
Patent No. 3,571,572

3,571,593
INFRARED AND FAR INFRARED DETECTOR OR AMPLIFIER USING MOS STRUCTURE ELEMENT

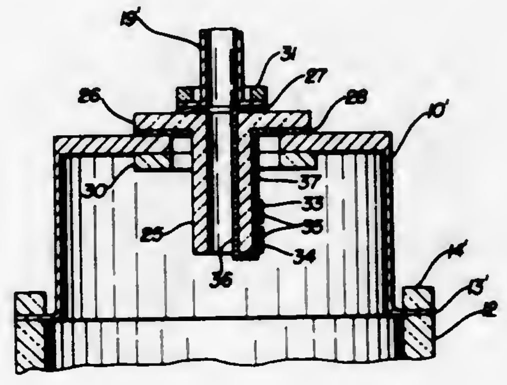
Kiichi Komatsubara, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 18, 1969, Ser. No. 800,068
Claims priority, application Japan, Feb. 19, 1968, Sept. 6, 1968, 43/10070;43/63732
Int. Cl. G01j *5/20*
U.S. Cl. 250—83.3 **10 Claims**

A device using a MOS structure element, in which the element is cooled to such a low temperature that substantially all of the carriers in the inversion layer populate in the ground level of the quantized energy levels formed in that layer in order that the energization of the electric field or the radiation causes the resonance transition, and in which an infrared or far infrared radiation beam directed to that layer is spectrally detected or amplified by the variation in the channel current or the stimulated emission both of which are caused by the change in the carrier population due to the resonance transition.


SCANNING GATE SOURCE
WAVELENGTH CONVERTING AND CORRECTING CIRCUIT
SOURCE-DRAIN POWER SUPPLY
AMPLIFYING COMPUTING AND DIFFERENTIATING CIRCUIT
OSCILLOSCOPE
LOAD

3,571,594
ELECTRONIC TUBE CONTAINING ACTIVE METAL

Lowell A. Nobel, Hillsborough, Calif., assignor to Varian Associates
Filed June 21, 1960, Ser. No. 37,803
Int. Cl. G21g *3/04;* **H01j** *9/38*
U.S. Cl. 250—84.5 **8 Claims**

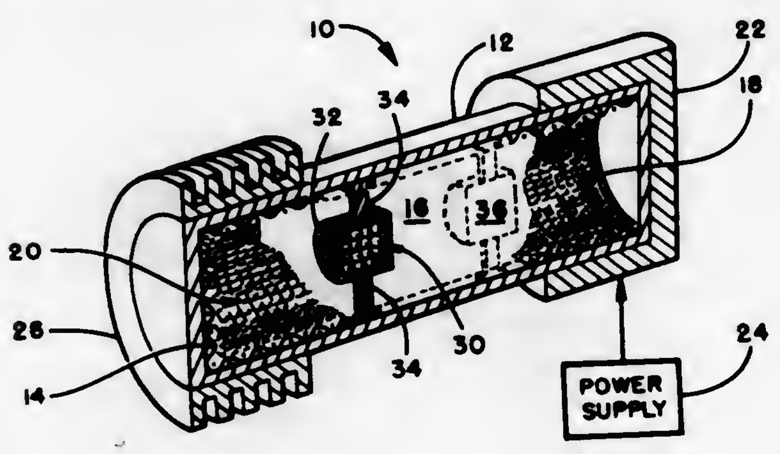


A neutron source tube comprising an evacuated envelope, a target of active metal in the tube, a hydrogen isotope sorbed in said target, a second member of active metal in said tube, a hydrogen isotope sorbed in said second member of active metal, spaced terminals on the outside of said envelope electrically connected respectively to said target and said second member of active metal whereby said target and said member become electrodes, a third electrode in said tube for establishing an arc between itself and said second member of active metal, a coating on said target preventing desorption of the hydrogen isotope in the target and being penetrable by hydrogen isotope ions, and a coating on said second member of active metal preventing desorption of the hydrogen isotope in the target and being destructible by said arc.

3,571,595
VARIABLE RATE NEUTRON SOURCE

Gary L. Silver, Centerville, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Apr. 15, 1969, Ser. No. 816,237
Int. Cl. G21g *3/04*
U.S. Cl. 250—84.5 **6 Claims**

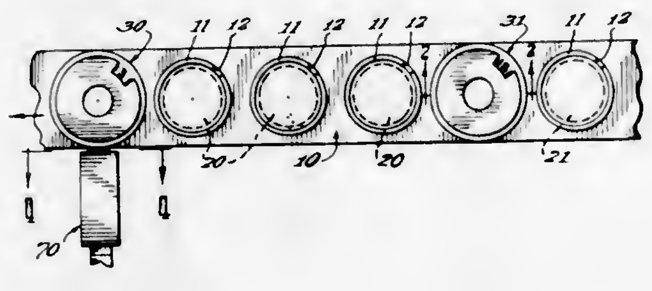
The present application comprises a variable rate neutron source including an alpha radiation source, a neutron emitting target material normally separated from said alpha source and means for cycling the target material between its separated location and contact with the alpha source.



3,571,596
PROGRAMMING APPARATUS FOR AN AUTOMATIC LIQUID SCINTILLATION COUNTING SYSTEM

Richard B. Frank, Deerfield, and George J. Hanz, Bloomingdale, Ill., assignors to Nuclear-Chicago Corporation, Des Plaines, Ill.

Filed Jan. 8, 1969, Ser. No. 789,907
Int. Cl. G21h *5/00;* **G01n** *21/30;* **G06m** *7/00*
U.S. Cl. 250—106 **5 Claims**



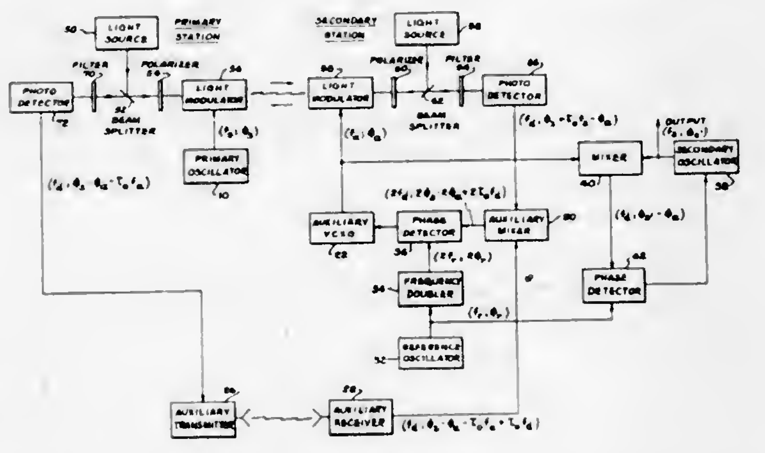
Sample group programming apparatus comprising a program indicating plug mounted on a sample conveyor and reading apparatus adjacent the conveyor. The program indicating plug includes a support member carrying a vertically disposed optical structure, and a code cylinder rotatably mounted thereon. Five circumferential rows of apertures exist on the code cylinder, one for admitting light to the optical structure and four for providing 16 separate binary coded vertical arrays. The reading apparatus comprises a light source and four light responsive elements appropriately mounted on a support structure adjacent the conveyor to read the operative array of apertures on a plug in a reading position.

3,571,597
SYSTEM FOR PHASE STABILIZING WIDELY SEPARATED OSCILLATORS

Lockett E. Wood; Moody C. Thompson, Jr, Boulder; William B. Grant, Longmont, and Dean Smith, Boulder, Colo., assignors to the United States of America as represented by the Secretary of Commerce

Filed Oct. 14, 1969, Ser. No. 866,181
Int. Cl. H04b *9/00, 1/00*
U.S. Cl. 250—199 **5 Claims**

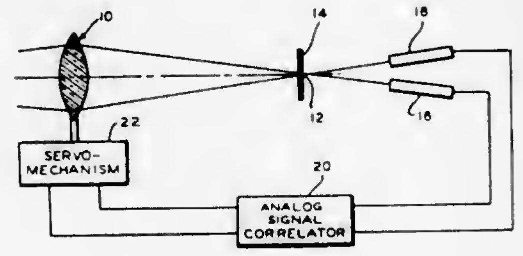
A primary station and a remote secondary station generate a primary signal and an auxiliary signal, respectively, at slightly different frequencies. The primary signal is transmitted to the secondary station and mixed with the auxiliary signal, to give a first IF signal. The auxiliary signal is transmitted to the primary station and mixed with the primary signal to obtain a second IF signal, which is returned to the secondary station via an auxiliary FM link. The two IF signals are then mixed to give a signal at twice the IF frequency. A locally generated reference signal of frequency equal to the IF frequency is doubled and compared with the signal from the last mixer, to give an error signal that is applied to the voltage-tuned auxiliary signal oscillator. This established a closed feedback loop that maintains the phase of the auxiliary signal equal to the phase of the primary signal and the phase delay of the path between the stations. A secondary oscillator at the frequency of the primary signal is then phase locked to the auxiliary signal to provide a signal that is coherent with the primary signal. The primary and auxiliary signals may be transmitted as modulations on light beams directed over the path between the stations.



3,571,598
AUTOMATIC FOCUSING MEANS USING AN ANALOG SIGNAL CORRELATOR

Albert E. Lombard, Jr, Village of Town and Country, Mo., assignor to McDonnell Douglas Corporation, St. Louis County, Mo.

Continuation-in-part of application Ser. No. 552,795, May 25, 1966. This application Dec. 8, 1969, Ser. No. 883,202
Int. Cl. G01j *1/36;* **G03b** *3/00*
U.S. Cl. 250—204 **6 Claims**



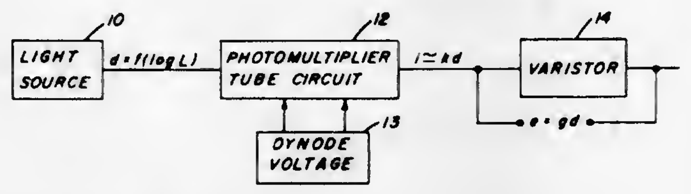
Apparatus for automatically focusing an optical device including means responsive to selected rays of an optical image being viewed, said means producing output responses representative of the selected rays being observed including variations therein, means for correlating the output signals to produce a correlation output, and means for focusing the optical device including means responsive to the correlation output.

3,571,599
PHOTOMULTIPLIER TUBE CIRCUIT EMPLOYING VARISTOR

Reginald W. Neale, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,393
Int. Cl. H01j *39/12*
U.S. Cl. 250—207 **8 Claims**

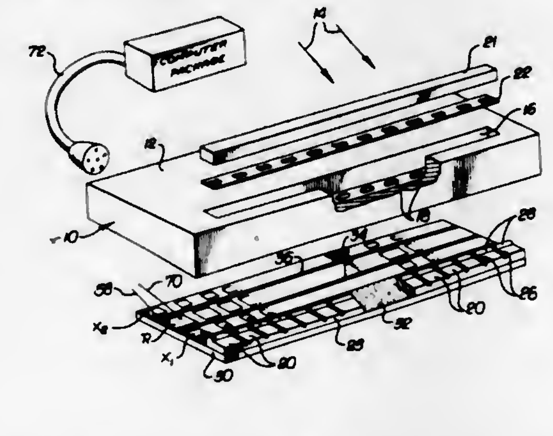
The output of a photomultiplier tube circuit is disclosed as being developed across a varistor, thereby to linearize such output as a function of a logarithmically variable input to the photomultiplier tube.



3,571,600
OPTICAL READER UNIT INCLUDING MULTIPLE LIGHT-SENSITIVE CELLS EACH WITH CONTIGUOUS AMPLIFIERS

Irwin Rubin, Van Nuys, Calif., assignor to Sensor Technology, Inc., Van Nuys, Calif.

Filed July 28, 1967, Ser. No. 656,830
Int. Cl. H01j *39/12*
U.S. Cl. 250—208 **9 Claims**

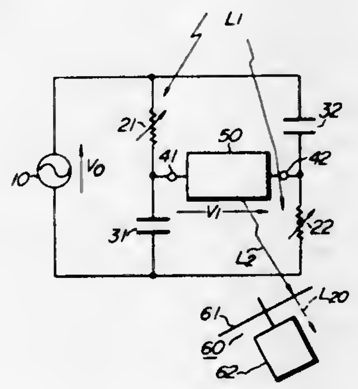


The optical reader comprises a number of light-sensitive cells 20 integrally formed on a silicon base. The cells are supported upon a contact layer 32 adhered to a glass substrate 30. Arrayed in adjacent columns in line with the respective cells are individual amplifier circuits. Each circuit comprises transistor chips X1 and X2 adhered to the substrate, a printed resistor chip R and suitable interconnecting conductors. The substrate and components carried thereby are fitted in a reader head or holder 10 incorporating suitable collimating and image-forming apparatus. The signals from the reader have sufficient strength for direct coupling to logic circuits.

3,571,601
PHASE-SHIFTING BRIDGE HAVING PHOTOCELLS AND ELECTROLUMINESCENT ELEMENTS

Tadao Kohashi, Yokohama, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Oct. 8, 1968, Ser. No. 765,891
Claims priority, application Japan, Oct. 13, 1967, Nov. 7, 1967, 42/66764;42/72331
Int. Cl. H01j *39/12*
U.S. Cl. 250—210 **4 Claims**

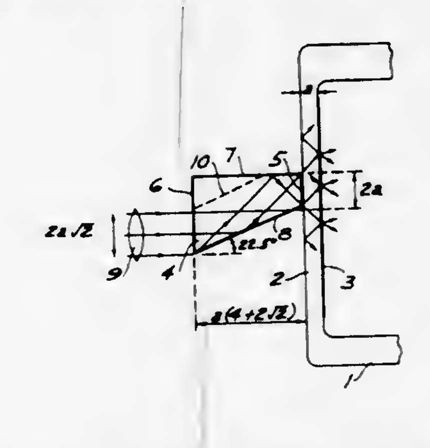


An energy-sensitive luminescent device having means including an energy-sensitive element whose impedance is variable depending on an energy signal applied thereto so that a variation in the impedance thereof can be utilized for shifting the phase of an AC voltage applied from an AC voltage supply to an electrically luminescent element, and means for detecting the variation in the phase of the waveform of the luminous output from the electrically luminescent element as a variation in the luminous intensity.

3,571,602
OPTICAL SYSTEM TO REDUCE REFLECTION LOSSES IN A PHOTOCELL

Axel Erik Ludvig Ohlsson, and Lars-Erik Skagerlud, Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Dec. 30, 1968, Ser. No. 787,953
Claims priority, application Sweden, Jan. 10, 1968, 321/68
Int. Cl. H01j *43/28*
U.S. Cl. 250—216 **7 Claims**

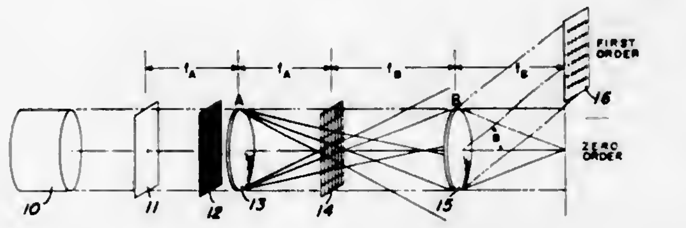


A photodetector system including a photocell of the type having a photosensitive coating on the internal surface of a plane transparent wall forming part of the envelope of the cell. At least one prism whose principal section has the form of a trapezoid is attached to the wall so that the shorter one of the two parallel sides of the prism is in contact with the exterior surface of the wall in front of a central portion of the coating. The lengths of the sides and the angles of the principal section of the prism are so chosen that a bundle of light entering the longer one of the parallel sides at right angles to that side, is in part reflected by a first one of the nonparallel sides towards the other one of the nonparallel sides and reflected towards the wall by the last-mentioned side, while another part of the light bundle is reflected by the first one of the nonparallel sides directly towards the wall, both parts entering the wall under an angle of about 45°

3,571,603
OPTICAL READER AND CHARACTER IDENTIFICATION SYSTEM UTILIZING A TWO-DIMENSIONAL DIFFRACTING MEANS

John F. Bryant, Lemon Grove, and Will T. Hyde, Jr., Chula Vista, Calif., assignors to the United States of America as represented by the Secretary of the Navy

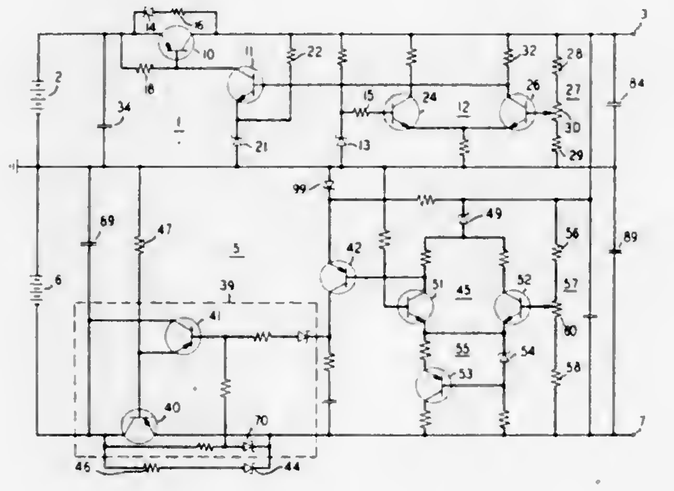
Filed Nov. 12, 1968, Ser. No. 774,737
Int. Cl. G01n *21/30;* **G06k** *9/00, 9/08*
U.S. Cl. 250—219 **6 Claims**



A source of collimated coherent light is arranged to impinge upon a character to be identified and a two-dimensional diffraction means is positioned in the path of the collimated light passing through the character to be identified, forming a plurality of spatially disposed diffraction patterns. Appropriate optical means of a determinable focal length is positioned one focal length from the position of the character to be identified, forming far-field images of the plurality diffraction patterns. A filter has a plurality of spaced discrete areas each defining the distinctive diffraction pattern of a known character by holographic techniques. Optical means integrates the light passing through the filter, diverting it to a first order, off-beam position. A plurality of light-responsive means, disposed in the first order off-beam position, and each related to a discrete area of the optical filter produces a signal in response to a predetermined amplitude of light passing through the filter, therefore identifying the character which was initially exposed to the source of collimated coherent light.

3,571,604
DUAL POLARITY VOLTAGE REGULATOR WITH TRACKING OUTPUTS

Brank C. La Porta, Livingston, and Paul W. Ussery, Middletown, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Mar. 14, 1969, Ser. No. 807,332
Int. Cl. G05f *1/56*
U.S. Cl. 307—24 **4 Claims**

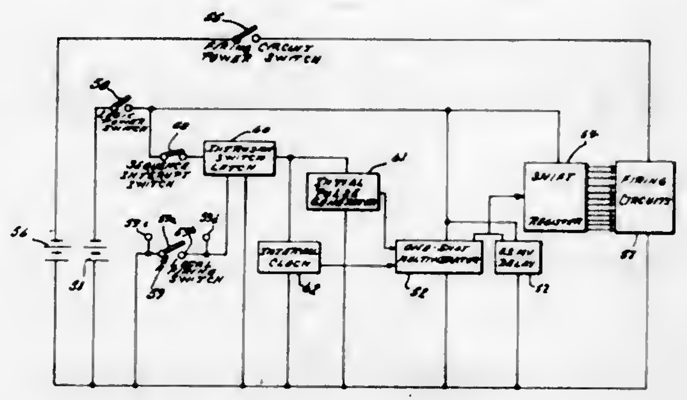


A dual output voltage regulator supplying regulated voltages of identical magnitude and opposite polarity regulates the voltage of one polarity by comparison to a fixed reference voltage. The regulated voltage of the opposite polarity is regulated by detecting the voltage difference between the two regulated output voltages of opposite polarities and utilizing the voltage balance of the difference as a reference in regulating the voltage of the opposite polarity. The sensitivity of the regulator regulating the voltage of the opposite polarity is increased by using a differential error detector circuit energized by a constant current source.

3,571,605
INTERVALOMETER FOR AN ILLUMINATION SYSTEM

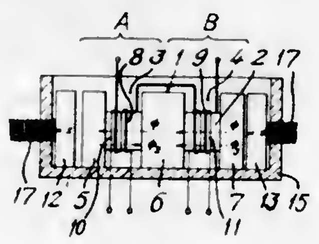
James J. Dobson; Michael J. Capparelli, Jr.; John R. Miller, Rome, and Dennis H. Majkowski, Griffiss AFB, N.Y., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 25, 1969, Ser. No. 852,815
Int. Cl. H02j *3/06*
U.S. Cl. 307—41 **3 Claims**

An electrical intervalometer for a battlefield illumination system wherein an electronic impulse fires a flare and also controls the time interval for the firing of subsequent flares with the further ability of interrupting the firing sequence and then resuming firing at the aforementioned time intervals.



3,571,606
SATURABLE REACTOR TYPE COMPENSATING CIRCUIT APPARATUS

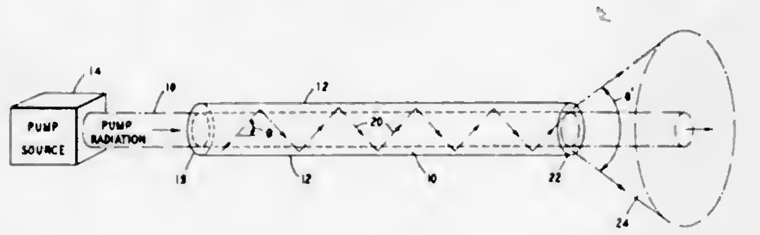
Masakazu Kikuchi, Takasaki-shi, Japan, assignor to Taiyo Yuden Kabushiki Kaisha, Chiyoda-ku, Tokyo, Japan
Filed Aug. 14, 1969, Ser. No. 850,105
Claims priority, application Japan, Aug. 15, 1968, Oct. 17, 1968, 43/69780; 43/90120
Int. Cl. H03k *17/80;* **H01j** *29/70;* **H01f** *21/08*
U.S. Cl. 307—88 **7 Claims**



Saturable reactor apparatus in which primary and secondary windings, respectively coupled to horizontal and vertical deflection current sources, are wound on the shaft of a ferrite core at the opposite ends of which are permanent magnets. Flux generated in the core is controlled either by adjustment of the permanent magnets or by the use of a further permanent magnet.

3,571,607
HIGHLY EFFICIENT RAMAN EMISSION DEVICE

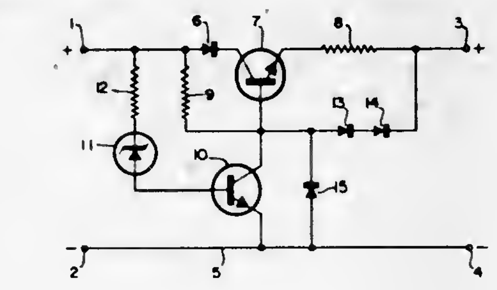
Joseph A. Giordmaine, and Stanley L. Shapiro, Summit, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkley Heights, N.J.
Filed Nov. 5, 1968, Ser. No. 773,446
Int. Cl. H03f *7/00*
U.S. Cl. 307—88.3 **6 Claims**



The invention includes an elongated Raman active medium having total internal reflection means along its longitudinal dimension. Optical pumping is by pulses of duration of the order of several picoseconds or less made incident upon one end of the medium and direction along the longitudinal axis thereof. The Raman emission inherently traverses a zigzag path within the medium at an angle such that the group velocity of the Raman and pump pulses is matched, i.e., differences in group velocity of the pump and Raman radiation due to the dispersion of the medium are compensated for.

3,571,608
PROTECTIVE CIRCUIT

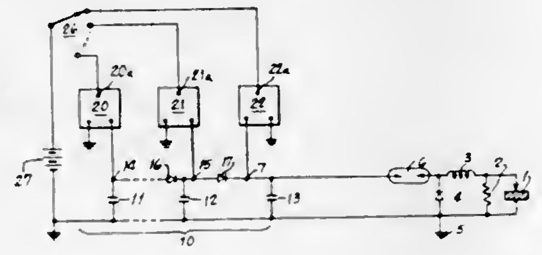
Edward T. E. III Hurd, Cinnaminson, N.J., assignor to Honeywell Inc.,, Minneapolis, Minn.
Filed Apr. 4, 1969, Ser. No. 813,550
Int. Cl. H02h *1/04*
U.S. Cl. 307—93 **7 Claims**



The collector and emitter of a first transistor, which is normally biased on by a collector-base resistor, are connected, respectively, to positive circuit input and output terminals. The transistor base is connected to joined negative circuit input and output terminals through the collector-emitter path of a second transistor having its base connected through a zener diode to the positive input terminal. This diode breaks down and turns on the second transistor, which turns off the first transistor, whenever the value of the voltage between the input terminals exceeds a value determined by the zener rating of the diode. A pair of diodes connected across the series combination of an emitter resistor and the base-emitter junction of the first transistor limits the output current to a predetermined maximum value. A diode connected between the collector and emitter of the second transistor clamps the output voltage substantially to zero in the event that the polarity of the voltage between the input terminals becomes reversed.

3,571,609
IGNITION APPARATUS SELECTIVELY OPERABLE AT DIFFERENT LEVELS OF DISCHARGE ENERGY

Louis I Knudson, Norwich, N.Y., assignor to General Laboratory Associates Incorporated, Norwich, N.Y.
Filed Aug. 20, 1969, Ser. No. 851,699
Int. Cl. H03k *3/00*
U.S. Cl. 307—106 **15 Claims**



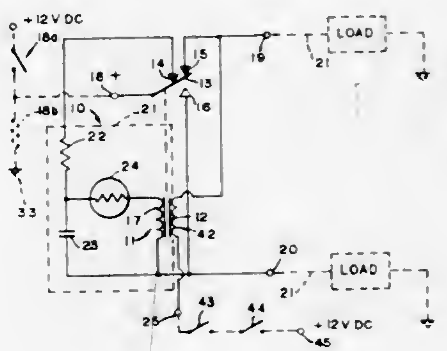
Ignition apparatus selectively operable to produce sparks at any of a plurality of energy levels. The apparatus includes a chargeable and dischargeable network having one common terminal, a plurality of other terminals, and a plurality of capacitors. The capacitors may have different capacitances and are connected to the terminals so as to provide substantially different effective capacitances between different pairs of terminals. A plurality of selectively actuatable energy supply sources are provided, each connected between different pairs of terminals of the networks. The means for discharging the network includes a potential responsive breakdown impedance means and an igniter.

Preferably, an inductive element is connected in series with the igniter and a diode is connected in parallel with the series branch circuit including the inductive element and the igniter. The diode is effective to maintain the discharge from the capacitive network through the igniter as a unidirectional flow, instead of allowing it to oscillate. Since the discharging currents in the capacitors flow only in one direction, the switching of the various capacitors may then be performed by diodes rather than by more complex switching devices. Combinations of capacitors in the network may be selected by selection of one or more of the energy sources, so as to supply the igniter with energy at any plurality of different levels.

In certain modifications all the capacitors in the network are utilized for every energy discharge, the energy level being determined by the selection of the pair of terminals at which the network is charged. Such a network may deliver energy to one or more igniters.

3,571,610
GENERAL PURPOSE FLASHER DEVICE FOR AUTOMOTIVE USE

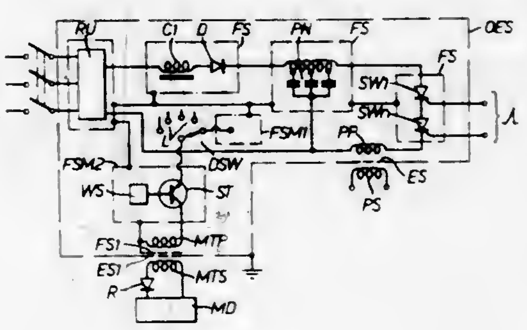
Rodney Hayden, Stoney Creek, Ontario, Canada, assignor to United-Carr Incorporated, Boston, Mass.
Filed July 10, 1969, Ser. No. 840,689
Int. Cl. B60g *1/46;* **H01h** *47/00*
U.S. Cl. 307—332 **2 Claims**



This is an RC coil circuit which can be used as an alternator, a hazard-warning flasher, a turn signal flasher and a buzzer depending on the switch activated.

3,571,611
TRIGGERABLE PULSE GENERATORS

Trevor Howard Robinson, Boreham, Chelmsford; Alan William Cameron, and Philip John Fitz, Great Baddow, Chelmsford, England, assignors to The Marconi Company Limited, London, England
Filed May 7, 1969, Ser. No. 822,402
Claims priority, application Great Britain, May 17, 1968, 23,551/68
Int. Cl. H03k *3/00*
U.S. Cl. 307—108 **10 Claims**

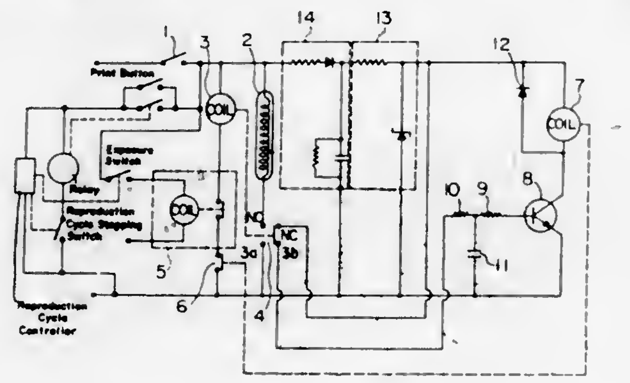


In a triggerable pulse generator for pulse modulating a VHF oscillator or amplifier a low AC voltage is rectified and fed to a charging circuit which feeds, via a pulse-forming circuit, a switching circuit. The switching circuit includes some voltage triggerable electronic switches in series and an output pulse transformer having its primary connected between the switching circuit and a capacitance in the pulse-forming circuit, the secondary being electrostatically screened from the primary. The rectifier unit, charging circuit, pulse-forming circuit and primary are in a circuit which is left "floating" in potential with respect to earth.

3,571,612

SAFETY DEVICE FOR AN EXPOSURE LAMP IN A REPRODUCTION APPARATUS

Takeshi Ukai, Tokyo, and Shoji Sakai, Sagamihara-shi, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Nov. 27, 1968, Ser. No. 779,446
Claims priority, application Japan, Dec. 20, 1967, 42/81183
Int. Cl. H01h *3/34*
U.S. Cl. 307—141.8 **7 Claims**

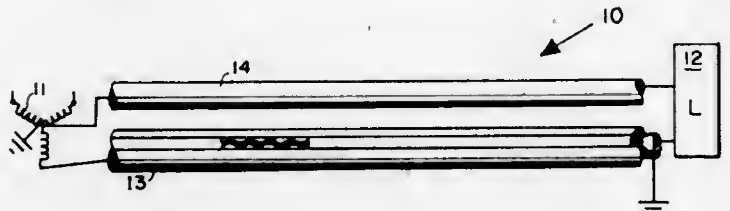


A safety device wherein an exposure lamp is put out without failure even in the case where the exposure lamp is kept on because of some trouble in the switching-off circuit after finishing an exposure.

3,571,613

CABLE SYSTEM

Walter J. Plate, Rye, N.Y., and Edwin H. Arnaudin, Jr., Marion, Ind., assignors to Anaconda Wire and Cable Company
Filed May 20, 1970, Ser. No. 39,674
Int. Cl. H01b *11/02;* **H02b** *5/00;* **H02j** *3/00*
U.S. Cl. 307—147 **9 Claims**

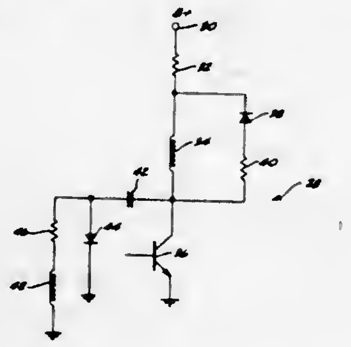


A two-cable underground electrical distribution system for single phase has an insulated power conductor with longitudinal bosses in the jacket into which are embedded no more than four undulatory drain wires, and a separate or duplexed return conductor.

3,571,614

TRANSISTOR SWITCH WITH MINIMIZED TRANSITION POWER ABSORPTION

Albert A. Rolstead, Torrance, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Aug. 5, 1968, Ser. No. 750,376
Int. Cl. H02h *7/20;* **H03k** *17/00*
U.S. Cl. 307—202 **4 Claims**

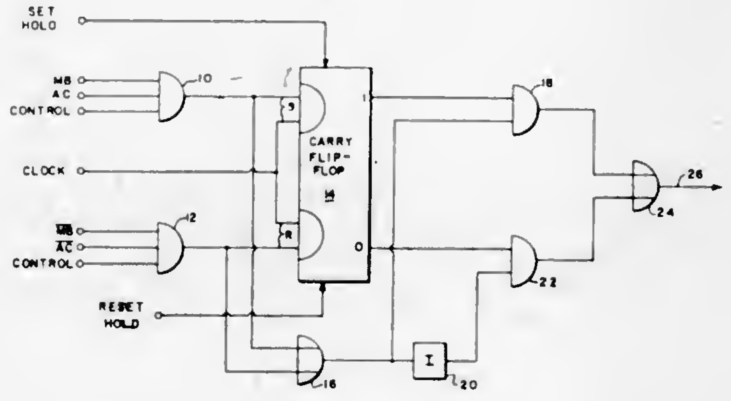


A transistor switch, an inductor and the load are serially connected so that during turn-on transition of the transistor, the inductor holds back current flow until the transistor is saturated. A capacitor paralleled around the transistor charges during turnoff transition so that current through the transistor during transition is minimized to minimize power absorption therein.

3,571,615

LOGIC CIRCUIT

James L. Kelly, Nashua, N.H., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed June 19, 1969, Ser. No. 834,685
Int. Cl. H03k *19/08;* **G06t** *5/04*
U.S. Cl. 307—207 **10 Claims**

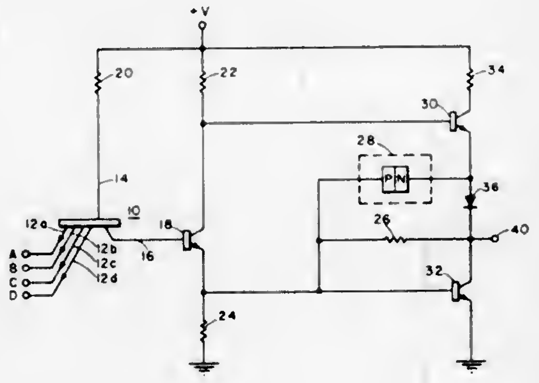


A logic circuit module includes a pair of input coincidence gates whose outputs are applied to a carry flip-flop. The outputs of the input coincidence gates are buffered together and applied to separate output coincidence gates together with the outputs of the carry flip-flop. The logic module performs serial binary addition by employing each pair of input bits for gating out as their sum either the bit in the carry flip-flop or its complement. Moreover, by supplying appropriate control inputs to the input gates and the carry flip-flop, the module is capable of executing a plurality of logic functions.

3,571,616

LOGIC CIRCUIT

John R. Andrews, Framingham, Mass., assignor to Honeywell Inc.,, Minneapolis, Minn.
Filed June 18, 1969, Ser. No. 834,360
Int. Cl. H03k *19/00, 5/12*
U.S. Cl. 307—215 **5 Claims**

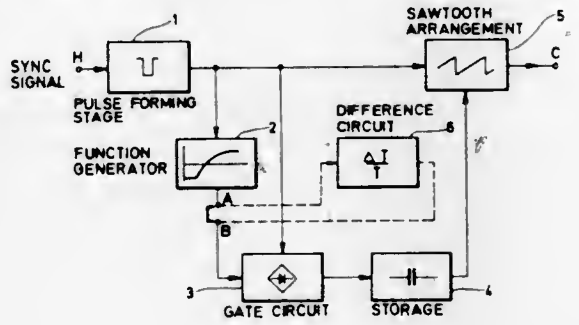


A semiconductor logic circuit adapted for fabrication as a monolithic circuit component. The circuit includes a multiemitter input transistor coupled to a phase splitter transistor which, in turn, connects to a pair of complementary operated output transistors. The circuit further includes slope control circuitry integrally fabricated therein.

3,571,617

EXTERNALLY CONTROLLED SAWTOOTH GENERATOR WITH VARIABLE PULSE DURATION AND CONSTANT AMPLITUDE

Josef Hainz, Ottobrunn, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Ottoburnn, near Munich, Germany
Filed Nov. 14, 1967, Ser. No. 682,815
Claims priority, application Germany, Nov. 19, 1966, B89909
Int. Cl. H03k *4/50*
U.S. Cl. 307—228 **9 Claims**



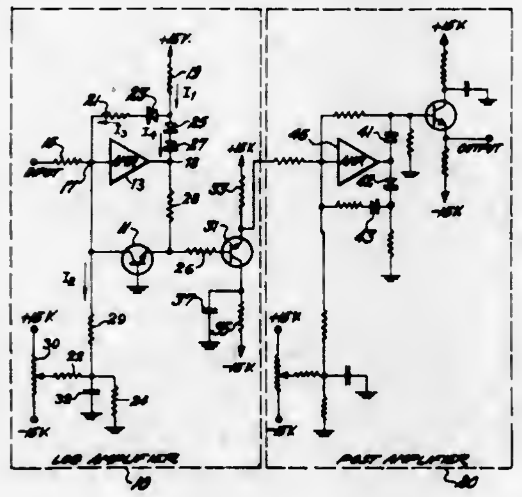
A circuit arrangement for producing a sawtooth voltage, of constant amplitude and a variable slope of the front flank by charging and discharging a condenser. To maintain the amplitude of the sawtooth voltage constant with a varying periodic time of a cycle determined by a synchronizing signal having a certain periodic time, first circuit means produce a voltage corresponding to the respective periodic time of the synchronizing signal, second circuit means store this voltage during a cycle, and additional circuit means control the charging current of the condenser as a function of this voltage. The charging current of each sawtooth voltage cycle or pulse is always controlled by the voltage derived from a preceding cycle or pulse of the synchronizing voltage.

In order to keep the error, appearing with relatively rapid frequency variations with corresponding rapid variations of the periodic time of the synchronizing voltage, in the instantaneous voltage course of the sawtooth signal, negligibly small, additional circuit means add, to a cycle of the synchronizing signal, a differential voltage derived from the aforementioned voltage and the voltage corresponding to a respective preceding cycle. This additional circuit means adds a certain "lead" to the variation of the slope of the sawtooth signal.

3,571,618

VIDEO LOGARITHMIC AMPLIFIER

Henry F. Inacker, Philadelphia, Pa., and Miles C. Johnson, Mount Holly, N.J., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 23, 1968, Ser. No. 746,955
Int. Cl. G06g *7/24*
U.S. Cl. 307—229 **3 Claims**

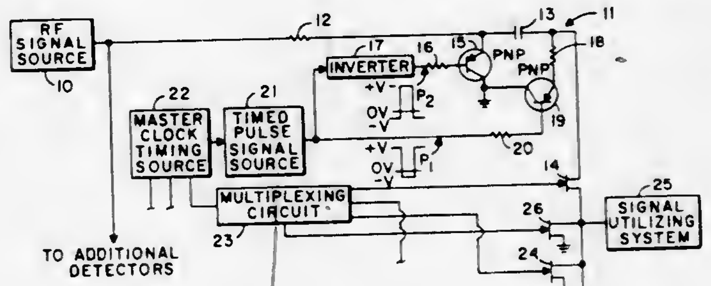


A logarithmic amplifier having a feedback transistor in which the amplifier's input is resistively connected to a DC amplifier and is biased with a power supply resistively connecting the output of the DC amplifier by a pair of diodes and connecting the input by a diode and resistor.

3,571,619

PHASE DETECTOR WITH IMPROVED DYNAMIC RANGE

Norman C. Dickerson, Jr., E. Northpark, N.Y., assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed June 27, 1969, Ser. No. 837,291
Int. Cl. H03k *7/00*
U.S. Cl. 307—232 **16 Claims**

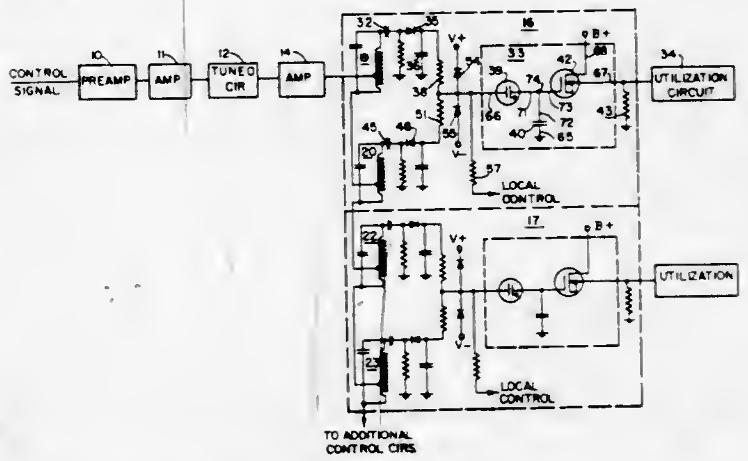


A combined phase detector and filter with improved dynamic range that may be paralleled without cross interference. Transistor switches are connected to opposite sides of a capacitor in the phase detector with a resistor in series with one of the transistors and with the transistor switches also connected to ground. Control circuitry pulse controls the transistors alternately on and off in mutually opposite relation and the resistor in series with one transistor minimizes capacitor discharge during any simultaneous transistor switched on overlap. An electronic gate is provided in the signal output path of each phase detector and an electronic gate is connected between the signal output circuit path and ground for phase detector discharge reset, and with both of these electronic gates time controlled by circuitry also controlling the switch on and off action of the transistor switches.

3,571,620

CHARGING CIRCUIT FOR ESTABLISHING A DC VOLTAGE LEVEL

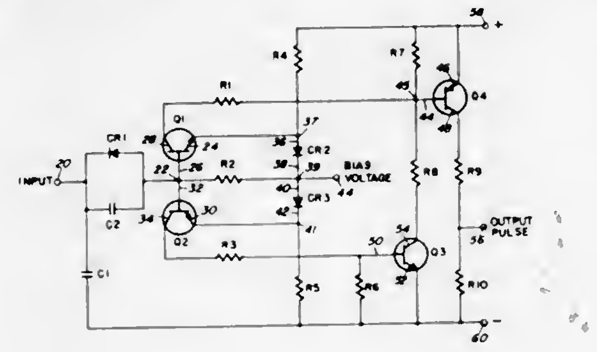
Robert B. Hansen, Arlington Heights, and Gordon E. Reichard, Franklin Park, Ill., assignors to Motorola Inc., Franklin Park, Ill.
Continuation-in-part of application Ser. No. 644,301, June 7, 1967, now abandoned. This application Oct. 3, 1968, Ser. No. 764,859
Int. Cl. H03k *5/20*
U.S. Cl. 307—233 **17 Claims**



A desired DC voltage level is developed across a capacitor by applying a signal of a particular frequency to the capacitor through a neon tube. The voltage level stored in the capacitor is coupled to other circuitry by a field effect transistor. The capacitor, neon tube and field effect transistor are packaged in an opaque epoxy to increase the resistance of leakage paths. Clamping circuits are used to limit the range of the voltage stored in the capacitor. The input to the charging circuit is balanced for noise and unbalanced for the signal frequency to provide noise immunity.

3,571,621
SIGNAL SELECTING CIRCUIT

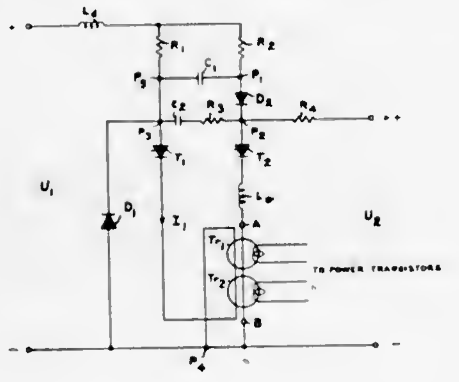
Clifton W. Hart, Diamond Bar, Calif., and Eugene E. Rosacker, Richfield, Minn., assignors to the United States of America as represented by the Secretary of the Air Force
Filed July 25, 1968, Ser. No. 747,713
Int. Cl. H03k *5/20, 5/00*
U.S. Cl. 307—235 **3 Claims**



A circuit detects and produces an output whenever a signal of either positive or negative polarity exceeds a predetermined value. The determinative characteristic of the selected (output producing) signal is the amplitude; the duration and shape have little influence upon the production of an output.

3,571,622
CURRENT PULSE GENERATOR FOR SIMULTANEOUS FIRING OF A PLURALITY OF THYRISTORS

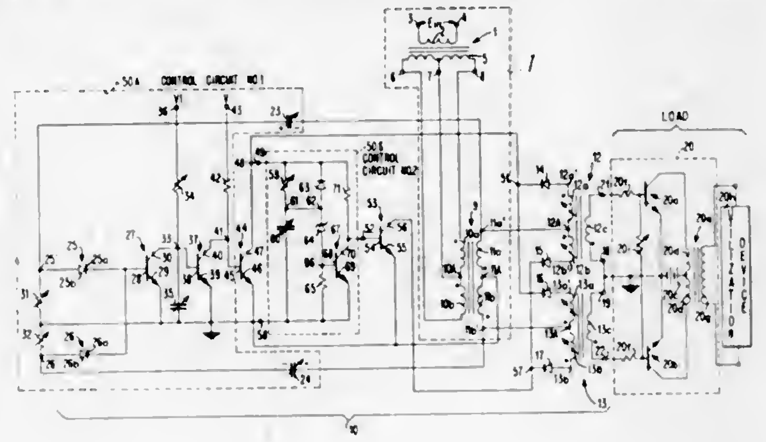
Dieter Wallstein, Waldshut, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed July 25, 1968, Ser. No. 747,573
Claims priority, application Switzerland, Sept. 8, 1967, 12627/67
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **2 Claims**



A pulse current generator for producing current pulses having the required shape for simultaneous firing of a plurality of power thyristors comprises two parallel connected branch circuits which are connected to a source of supply voltage, each branch circuit containing an ohmic resistance and a control thyristor arranged in series and the primary windings of the current pulse transformers being arranged in series in one of the branch circuits.

3,571,623
TRANSISTORIZED SWITCHING CIRCUIT AND DRIVER MEANS THEREFOR

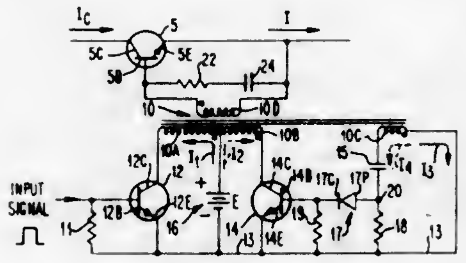
Richard D. Church, Candor, and Francis L. O'Malley, Apalachin, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 26, 1967, Ser. No. 693,674
Int. Cl. H03k *17/00*
U.S. Cl. 307—254 **11 Claims**



A transistorized switching circuit which employs a driver means that provides turn-on and turnoff driver signals to control input. The driver circuit provides a constant turnoff time period for the turnoff signals. In the preferred embodiment, a transformer-coupled driver circuit having controllable selective means for energizing the transformer windings is disclosed.

3,571,624
POWER TRANSISTOR SWITCH WITH AUTOMATIC SELF-FORCED-OFF DRIVING MEANS

Wing C. Leung, New York, N.Y., assignor to International Business Machines Corporations, Armonk, N.Y.
Filed Sept. 18, 1967, Ser. No. 668,557
Int. Cl. H03k *17/04, 17/80*
U.S. Cl. 307—254 **9 Claims**

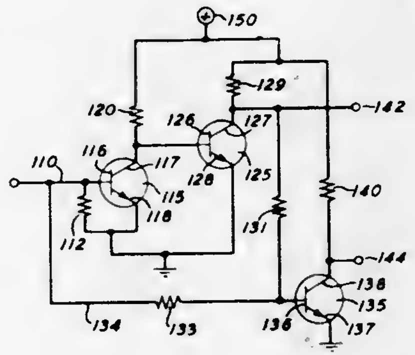


A self-forced-off transformer driving circuit for a power transistor switch which automatically provides for fast turnoff of the power transistor switch and automatic maintenance of the off condition until the next on period.

3,571,625
PULSE AMPLIFIER WITH POSITIVE FEEDBACK

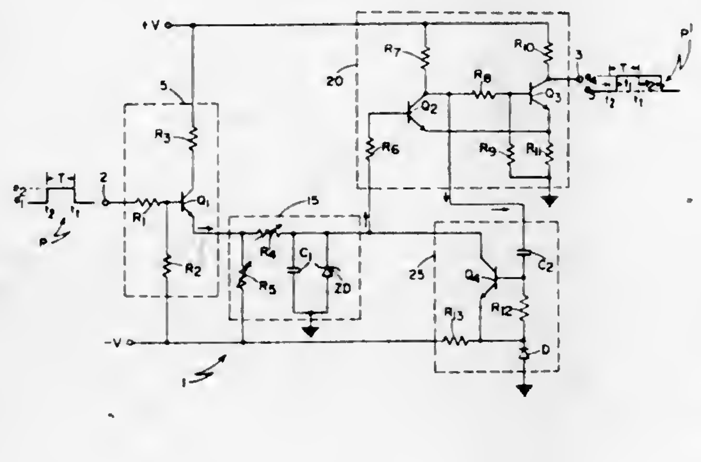
Edwin J. Braun, Middleton, and Stanley G. Student, Jr., Freehold, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkley Heights, N.J.
Filed July 25, 1968, Ser. No. 747,649
Int. Cl. H03k *6/04*
U.S. Cl. 307—263 **8 Claims**

A network connected between the output and the input of a two-transistor pulse amplifier provides regenerative feedback which improves the transient response of the amplifier. The feedback network includes a transistor so connected that the regenerative feedback is operative only during pulse transitions.



3,571,626
INTEGRATOR-SCHMITT TRIGGER CIRCUIT

Robert H. Reif, Groton, Mass., assignor to Sylvania Electric Products Inc.
Filed Dec. 30, 1968, Ser. No. 787,756
Int. Cl. H03k *5/12, 1/18*
U.S. Cl. 307—263 **9 Claims**

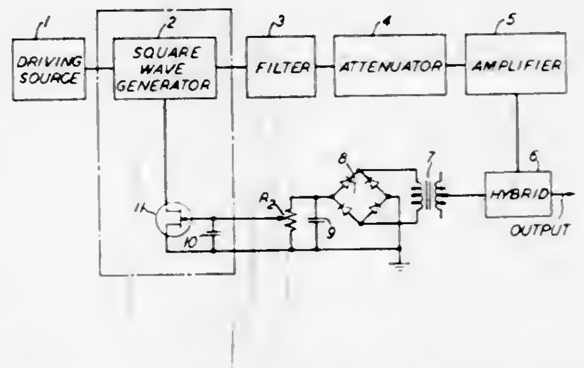


A transistorized integrator-Schmitt trigger circuit for delaying the leading edge of an input pulse for a first predetermined time duration and for delaying the trailing edge of the input pulse for a second predetermined time duration. An input transistor is rendered conducting on the leading edge of an input pulse whereby current flows through the transistor to charge a capacitor included in an integrator circuit connected to the input transistor. The charging rate of the capacitor is adjusted such that the upper threshold level of a conventional Schmitt trigger circuit connected to the capacitor is achieved at a first predetermined time duration after the occurrence of the leading edge of the input pulse. As a result, a transition in the output level of the Schmitt trigger circuit occurs at the first predetermined time duration after the leading edge of the input pulse.

On the trailing edge of the input pulse, the input transistor is rendered nonconducting and the capacitor discharges. The discharge rate of the capacitor is adjusted such that the lower threshold level of the Schmitt trigger circuit is achieved at a second predetermined time duration after the occurrence of the trailing edge of the input pulse. As a result, the output of the Schmitt trigger circuit returns to its original level at the second predetermined time duration after the trailing edge of the input pulse. A charge reduction circuit is also provided for reducing the charge in the capacitor to zero after the output of the Schmitt trigger circuit has returned to its original level thereby increasing the duty cycle of the integrator-Schmitt trigger circuit.

3,571,627
REGULATED HARMONIC GENERATOR

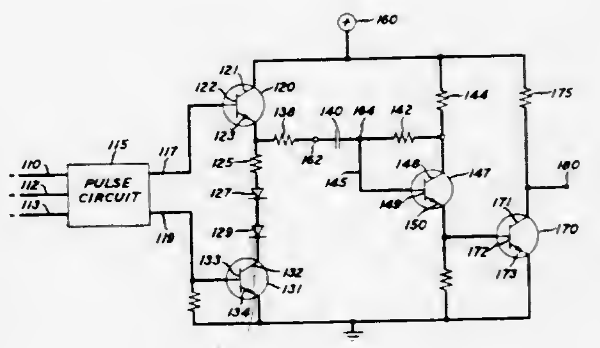
Carlos D. Cardon, Georgetown, and Don S. Williams, Andover, Mass., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkley Heights, N.J.
Filed July 29, 1968, Ser. No. 748,348
Int. Cl. H03k *1/18*
U.S. Cl. 307—271 **5 Claims**



A harmonic generator employing an emitter-coupled monostable multivibrator with a feedback loop including a field effect transistor responsive to variations in the amplitude of a selected harmonic output signal to vary the input bias to the multivibrator. Varying the input bias to an emitter-coupled monostable multivibrator modifies the duty cycle of its rectangular output waveform and thereby regulates the amplitude of the selected harmonic in response to variations in the output signal.

3,571,628
PULSE CIRCUIT

Edwin J Braun, Middletown, and Stanley G. Student, Jr., Freehold, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkley Heights, N.J.
Filed June 25, 1968, Ser. No. 739,874
Int. Cl. H03k *17/28*
U.S. Cl. 307—293 **12 Claims**

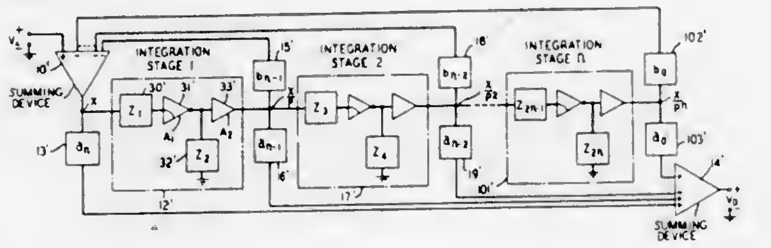


A pulse timing circuit having an input transistor, a resistor-capacitor timing network, and an output transistor employs an amplifier connected between the timing capacitor and the output transistor to increase the output pulse width. The amplifier current gain increases the allowable value of the timing resistor and the network timing period.

3,571,629
FREQUENCY-SHAPING NETWORK USING CONTROLLED SOURCES

Dan Hilberman, New Shrewsbury, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, NJ
Filed Aug. 12, 1968, Ser. No. 751,829
Int. Cl. H03b *1/04*
U.S. Cl. 307—295 **12 Claims**

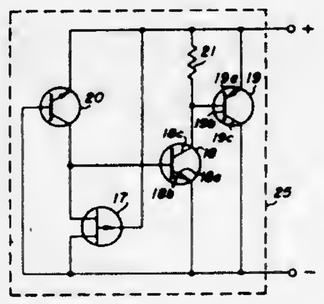
A frequency-shaping network is disclosed which combines voltage-controlled voltage sources and current-controlled current sources to provide a voltage integrator. By combining the controlled sources to form an integrator, advantageous



use may be made of this integrator in a frequency-shaping network in order to provide a transfer function which is relatively insensitive to the gain of the amplifiers used in the controlled sources. Further, the transfer function coefficients may be relatively independently and easily determined by merely choosing desired impedance values.

3,571,630
TWO-TERMINAL MONOLITHIC VOLTAGE REGULATOR AND REACH-THROUGH TRANSISTOR

Robert J. Widlar, Mountain View, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Nov. 4, 1968, Ser. No. 773,059
Int. Cl. H03k *23/08;* H01l *9/00*
U.S. Cl. 307—302 **9 Claims**

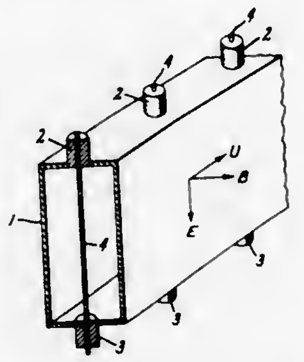


A double diffused transistor structure having a base region which is sufficiently thin so that the reverse breakdown voltage between the emitter and the collector (BV_{ceo} is less than the reverse breakdown voltage between the emitter and the base (BV_{ebo}. The transistor structure is connected in an upside-down fashion as a two-terminal network, the terminals being formed by the emitter and the collector in a manner similar to that heretofore employed with Zener diodes to provide a "reach-through" at a predetermined voltage thereacross.

A circuit utilizing such a "reach-through" transistor structure connected in the upside-down fashion in conjunction with other components to operate the transistor structure at a constant current to maintain the reverse breakdown voltage constant.

3,571,631
ELECTRICAL DISCHARGE STABILIZER

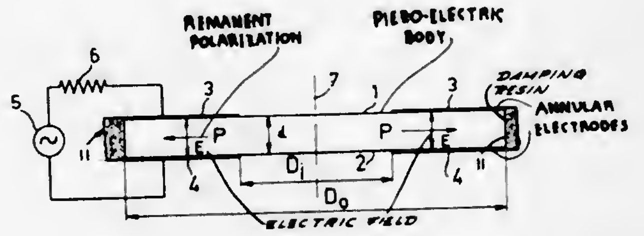
Norman A. Evans, Wayne, Pa., assignor to General Electric Company
Filed Oct. 30, 1967, Ser. No. 678,859
Int. Cl. H02n *4/02*
U.S. Cl. 310—11 **10 Claims**



An electrical discharge between electrodes on opposite sides of a high velocity gas stream tends, due primarily to gas dynamic effects, to be unstable and inefficient. An electrically nonconductive member, called a discharge holder, extended between the discharge electrodes tends to stabilize the discharge by allowing it to concentrate in the low velocity wake region downstream of said holder. Externally applied DC induced discharges, stabilized by such holders, in the entrance region of a nonequilibrium MHD generator have resulted in steady state power generation in such devices downstream of the entrance region.

3,571,632
ELECTROMECHANICAL FILTER

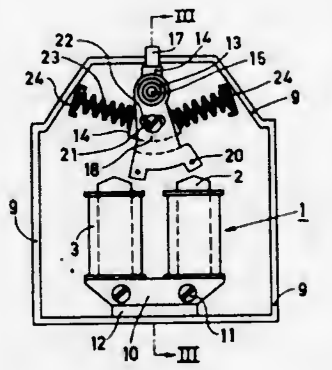
Martijn de Jong, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 30, 1967, Ser. No. 687,065
Claims priority, application Netherlands, Dec. 17, 1966, 6,617,756
Int. Cl. H01v *7/00;* H03h *7/10*
U.S. Cl. 310—9.5 **7 Claims**



An electromechanical filter comprises a disc or flat annular member of a polarized piezoelectric material, with an electrode on each face. The region of the member between the electrodes has remanent radial polarization. Thus, the polarization and the electric field are perpendicular to each other within the same volume.

3,571,633
VIBRATOR MOTORS

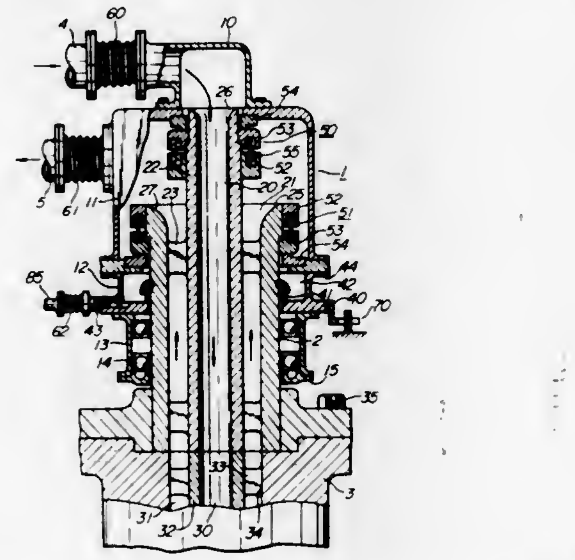
Jan Timmerman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 20, 1965, Ser. No. 488,616
Claims priority, application Netherlands, Sept. 23, 1964, 6411060
Int. Cl. H02k *33/00*
U.S. Cl. 310—29 **9 Claims**



A vibrator motor comprising a bipolar stator and a multipolar armature adapted to oscillate about a stationary shaft. The armature includes first and second parts independently adjustable relative to each other.

3,571,634
COOLING LIQUID ADMITTING AND EXHAUSTING DEVICE FOR USE WITH LIQUID-COOLED ELECTRICAL ROTARY MACHINES

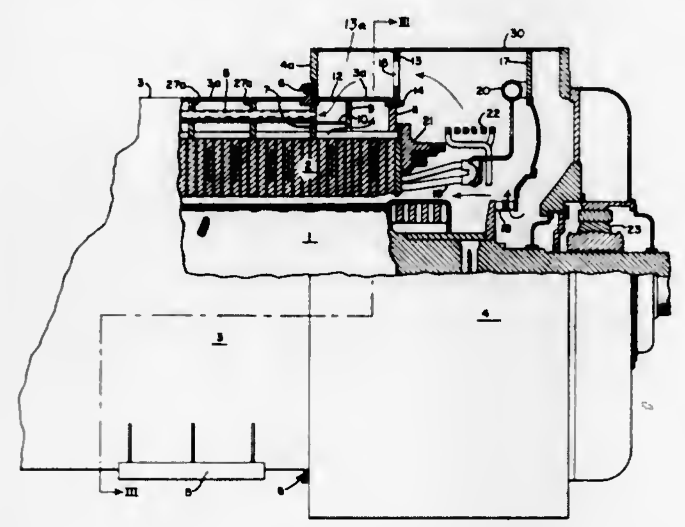
Hiroshi Sato, and Satoshi Suzuki, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Nov. 18, 1969, Ser. No. 877.795
Claims priority, application Japan, Nov. 25, 1968, 43/85595
Int. Cl. H02k *9/00*
U.S. Cl. 310—54 **6 Claims**



A cooling liquid admitting and exhausting device for liquid-cooled electrical rotary machines for admitting a cooling liquid from a stationary member into a rotary member and exhausting the liquid from the rotary member into the stationary member or vice versa, in which a cover assembly is so arranged as to enclose therein through sealing means a hollow rotary shaft having therein a cooling liquid admitting and exhausting passages, rotatably supported by said shaft through bearing means, and capable of following every movement of the shaft in the axial direction and vibrations thereby to positively prevent the leakage of the liquid.

3,571,635
TURBINE-GENERATOR STATOR FRAMES

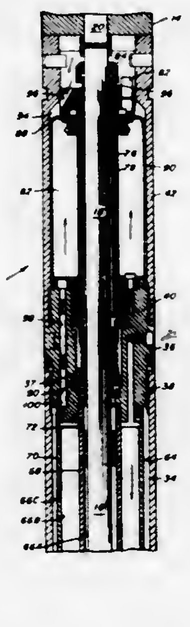
Russell J. Turner, Schenectady, N.Y., assignor to General Electric Company
Filed Apr. 7, 1969, Ser. No. 813,964
Int. Cl. H02k *9/08*
U.S. Cl. 310—59 **2 Claims**



A dynamoelectric machine frame in which end sections of greater diameter are telescoped over the central section wrapper plate and sealed thereto to form a gastight frame. The gas-cooling system ducting is disposed internally in both the central section and end sections.

3,571,636
PROTECTING UNIT FOR AN OIL FIELD SUBMERSIBLE MOTOR

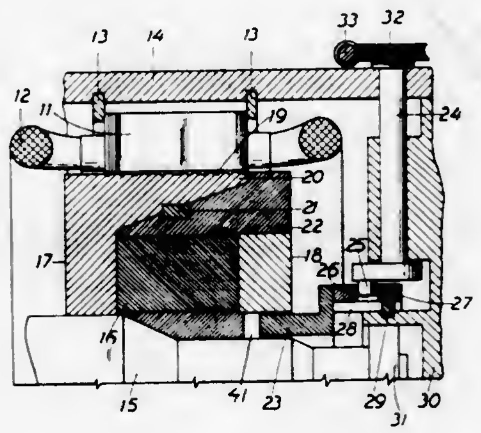
Joseph T. Carle, and Charles L. Choate, Tulsa, Okla., assignors to Oil Dynamics, Inc.,, Tulsa, Okla.
Filed Dec. 8, 1969, Ser. No. 882,902
Int. Cl. H02k *5/12*
U.S. Cl. 310—87 **2 Claims**



A protecting unit interposed between an oil filled submersible electrical motor and a pump includes upper and lower chambers. The lower chamber is subdivided into a plurality of reservoirs connected in series to form a unitary passageway for oil expanding upwardly incidental to a temperature rise therein caused by actuation of the motor. The upper chamber communicates with the outermost reservoir of the lower chamber and includes a collapsible membrane disposed between and sealed to the upper and lower extremities thereof to define two pressure zones whereby changes in the volume of oil in one pressure zone results in an inverse change in the volume of well fluid in the other pressure zone.

3,571,637
PERMANENT MAGNET EXCITED ELECTRIC MACHINES

Christian Johannes Henningsen, and Karl Axel Karlsson, Laxa, Sweden, assignors to Elektriska Svetsningsaktiebolaget, Goteborg, Sweden
Filed Dec. 9, 1969, Ser. No. 883,445
Int. Cl. H02k *1/22*
U.S. Cl. 310—156 **2 Claims**

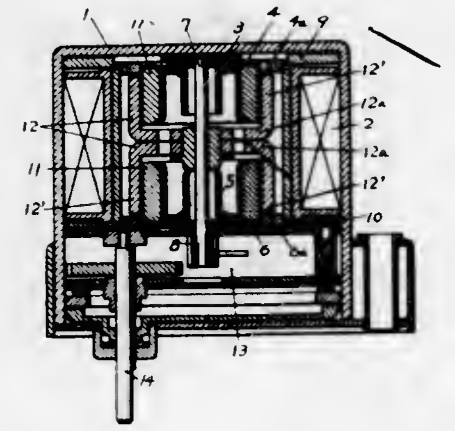


A dynamoelectric machine having a stator carrying the winding of the machine and a rotor comprising an annular, axially magnetized permanent magnet and a pair of pole units, each of which comprises a hub portion engaging one end face of the permanent magnet and a group of pole projections extending substantially towards the hub portion of the other pole unit, the pole projections of both pole units being equally spaced and interspaced with each other, said permanent magnet being surrounded by a sheath of nonmagnetic metallic material cast around the outer, cylindrical surface of the permanent magnet, said sheath filling the space between said pole projections and the permanent magnet as well as the spaces between the pole projections.

3,571,638
MINIATURE ELECTRIC SYNCHRONOUS MOTOR

Tokuzo Inariba, Katamachi, Japan, assignor to Kabushiki-Kaisha Tokai Rika Denki Seisakusho, Nishi-Kasugai-gun, Japan

Filed Jan. 21, 1970, Ser. No. 4,704
Claims priority, application Japan, Jan. 31, 1969, 44-6662
Int. Cl. H02k *21/38*
U.S. Cl. 310—155 **3 Claims**

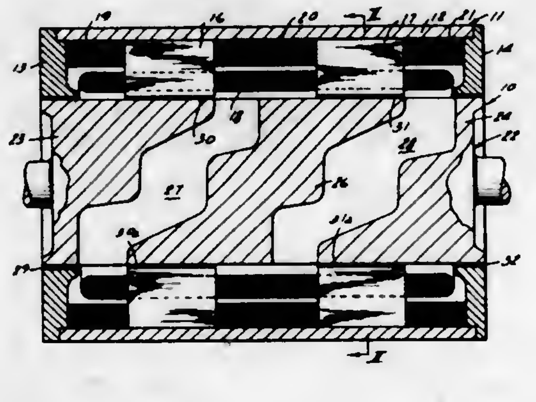


A synchronous electric motor which comprises a pair of cylindrical permanent magnets fixedly mounted at a desired spacing with their opening ends facing each other within a motor casing, an annular AC exciting coil arranged coaxially around these permanent magnets, and a rotor interposed between said pair of cylindrical permanent magnets and having upper pole teeth and lower pole teeth extending vertically at desired spacings around the circumference of a flat disc plate to a center of which the rotor shaft is fitted, said upper and lower pole teeth of rotor lying within a magnetic airgap which is formed by said pair of cylindrical permanent magnets and exciting coil, hence the upper pole teeth and the lower pole teeth are caused to efficiently interlink with the direct magnetic flux and the alternating magnetic flux, thereby improving the self-starting efficiency and producing a torque more than twice that of conventional motors of the kind.

3,571,639
DUAL-SECTION BRUSHLESS ALTERNATOR

Janis Tiltins, Cleveland, Ohio, assignor to TRW Inc,, Cleveland, Ohio

Filed Mar. 22, 1968, Ser. No. 715,355
Int. Cl. H02k *17/42*
U.S. Cl. 310—168 **6 Claims**

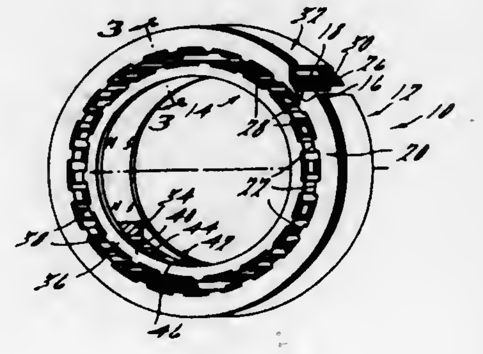


A dual-section brushless alternator having a cylindrical housing of magnetic material with two annular stators and with direct current excitation windings between the magnetic end sections of the housing and the stators and between the two stators. In one embodiment a common polyphase alternating current winding is wrapped about both stators, while in another embodiment, two separate polyphase windings are on the respective stators and energize respective diode networks whose outputs are added to provide a relatively high direct current output voltage.

3,571,640
FLUX REVERSING SENSOR

John A. Watt, Ann Arbor, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Apr. 25, 1969, Ser. No. 819,195
Int. Cl. H02k *17/42*
U.S. Cl. 310—168 **5 Claims**

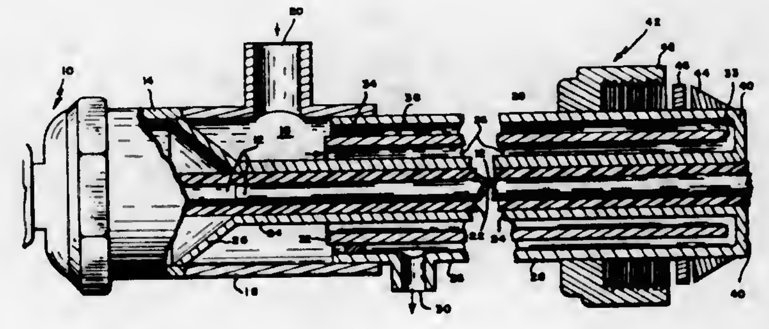


A flux reversing sensor using a single annular permanent magnet having a north and south pole and a pair of members, one of the members having a portion engaged with the north pole of the magnet and the other having a portion engaged with the south pole of the magnet, the members having fingers alternatively arranged such that the fingers of the one member has a north polarity and the fingers of the other member have a south polarity so as to establish an alternating flux field circumferentially along the magnet, the magnet is adapted to rotate relative to a stator with a coil so as to induce an alternating potential in the coil representative of the rotational speed of the magnet.

3,571,641
WATER COOLED SPARK PLUG

Carl G. Catalano, Manchester, Tenn. (226 Curtis Drive SE, Hintsville, Ala. 35803)

Filed Apr. 21, 1969, Ser. No. 817,941
Int. Cl. H01t *13/06, 13/16*
U.S. Cl. 313—11.5 **2 Claims**

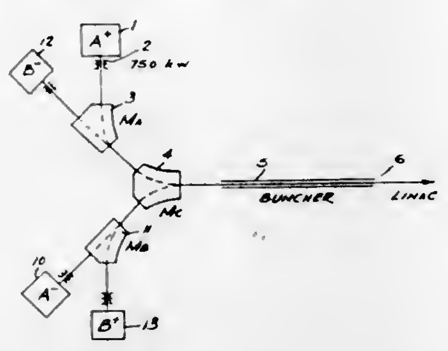


The electrode of the spark plug is extended beyond that of standard plug and is surrounded with insulation. The protruding portion of the electrode and its insulating jacket is also provided with spaced concentric copper jackets which provide ducts for running water. An inlet for one duct and an outlet for the other, together with termination of the inner jacket to provide space at each end for communication and allow continuous flow of water or other cooling fluid.

3,571,642
METHOD AND APPARATUS FOR INTERLEAVED CHARGED PARTICLE ACCELERATION

Carl H. Westcott, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Jan. 17, 1968, Ser. No. 698,644
Int. Cl. H05h *9/02*
U.S. Cl. 313—63 **9 Claims**

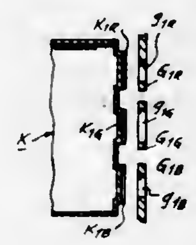


A method and apparatus for accelerating charged particles is described in which charged particles of opposite sign but of similar charge to mass ratio are accelerated through the same structure by means of an alternating electric field. The two sets of particles can be accommodated in the same apparatus by grouping particles of the same charge in bunches which are spaced by a phase difference of approximately π adians with respect to the accelerating field frequency from the bunches of the opposite charge sign.

3,571,643
PLURAL BEAM ELECTRON GUN FOR A COLOR PICTURE TUBE WITH DIFFERENT-SIZED CONTROL GRID APERTURES

Susumu Yoshida; Akio Ohgoshi, Tokyo, and Senri Miyaoka, Kanagawa-Ken, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sept. 18, 1968, Ser. No. 760,647
Claims priority, application Japan, Sept. 20, 1967, 42/60133;42/60136
Int. Cl. H01j *29/50, 31/20*
U.S. Cl. 313—70 **7 Claims**

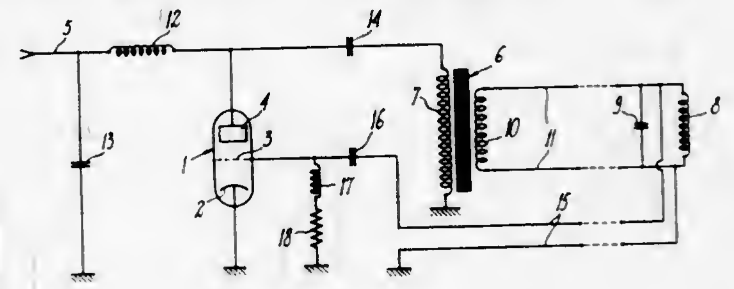


In a color picture tube having plural beams emitted from a cathode structure to pass through respective apertures of a control grid structure for intensity modulation and being focused to impinge on respective color phosphors, the relationship of beam currents required for good white balance is achieved by giving a relatively large area to the control grid aperture corresponding to the beam, particularly the green beam, which is to have a relatively high beam current. Preferably, the grid aperture of large area is divided into parts so as to achieve the necessary increased beam current without a corresponding change in the cutoff voltage.

3,571,644
HIGH FREQUENCY OSCILLATOR FOR INDUCTIVE HEATING

Albert Jakoubovitch, Buhl, France, assignor to Societe Anonyme Heurtey, Paris, France

Filed Jan. 27, 1969, Ser. No. 794,301
Int. Cl. H03b *5/10;* **H05b** *5/00*
U.S. Cl. 331—74 **3 Claims**

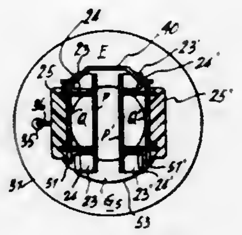


An electric current generator, notably high frequency generator, for supplying feed current to an inductor more particularly for heating purposes. Between the inductor and an oscillator tube is disposed an aperiodic impedance-matching transformer delivering low voltage current to an oscillating circuit consisting of said inductor and one or a plurality of capacitors. A line is disposed between the oscillating circuit and the oscillator tube. The function of this line is to convey the energy necessary for sustaining the oscillation.

3,571,645
COLOR PICTURE TUBE WITH MOUNTING MEANS FOR ELECTROSTATIC BEAM CONVERGENCE PLATES

Senri Miyaoka, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

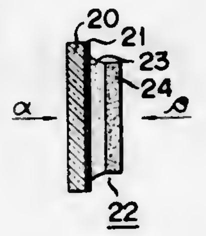
Filed Apr. 10, 1969, Ser. No. 815,051
Claims priority, application Japan, Apr. 14, 1968, 43/24593
Int. Cl. H01j *29/82, 29/74*
U.S. Cl. 313—78 2 Claims



In a color picture tube of the single-gun, plural-beam type in which all of the beams pass through the center of an electron lens for focusing the beams on the color phosphor screen with two of the beams emerging from the lens along paths divergent from the optical axis of the lens, and pairs of convergence deflecting plates are arranged along the divergent paths and have voltages applied thereacross to produce electric fields by which the divergent beams are deflected for converging all of the beams at a common point on the aperture grill associated with the screen; the outer plate of each pair of convergence deflecting plates is mounted with respect to the corresponding inner plate by means of conductive members extending outwardly from the latter past the sides of the outer plate to glass or insulating members extending across the outer surface of the outer plate, and hence disposed outside the electric field, and the ends of the outer plate are preferably bent outwardly to shield the electric field from the effect of the potential of the adjacent insulating members.

3,571,646
PHOTOCONDUCTIVE TARGET WITH N-TYPE LAYER OF CADMIUM SELENIDE INCLUDING CADMIUM CHLORIDE AND CUPROUS CHLORIDE

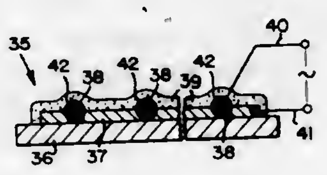
Yuji Kiuchi; Kazuo Shimizu, Yokohama-shi, and Okio Yoshida, Kawasaki-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed July 15, 1968, Ser. No. 744,743
Claims priority, application Japan, July 17, 1967, 42/45,640
Int. Cl. H01j *39/06, 39/18, 31/28*
U.S. Cl. 313—94 **1 Claim**



This photoconductive target comprises a photoconductive member consisting of two layers: a first layer 0.5 micron minimum thick formed on a transparent electrode and a second layer 0.6 micron maximum thick superposed on the first layer so as to be disposed on the side electron gun. The first layer is solely or mainly made of cadmium selenide, and the second layer is formed from a high resistance semiconductor material.

3,571,647
FLEXIBLE ELECTROLUMINESCENT STRUCTURES

Bessie A. Robinson, East Aurora, N.Y., assignor to Astronics Luminescent, Inc., Erie County, N.Y.
Filed Mar. 19, 1969, Ser. No. 808,627
Int. Cl. H05b *33/02*
U.S. Cl. 313—108 **17 Claims**

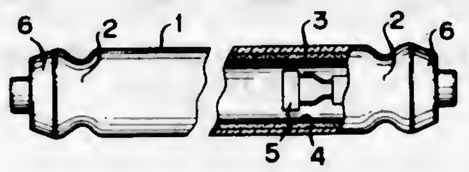


Each cell comprises a first electrode made of a deformable, electrically conductive material, and a second electrode in the form of one or more insulated, electrically conductive wires or meshes mounted on, secured to, or imbedded in, the surface of the deformable electrode. A layer of electroluminescent phosphor covers the conductors defining the second electrode, and the exposed portions of the deformable electrode. The deformable electrode is on a substrate which may be rigid or flexible, and electrically conductive or nonconductive. Fabric may be coated or impregnated with the deformable electrode; and the conductors defining the second electrode may be sewn on one or both sides of the fabric beneath a layer of electroluminescent material. When an AC voltage is applied across the electrodes, the phosphor layer luminesces with an intensity greatest in the vicinity of the second electrode.

3,571,648
EXTRA HIGH OUTPUT AND HIGH OUTPUT FLUORESCENT LAMPS

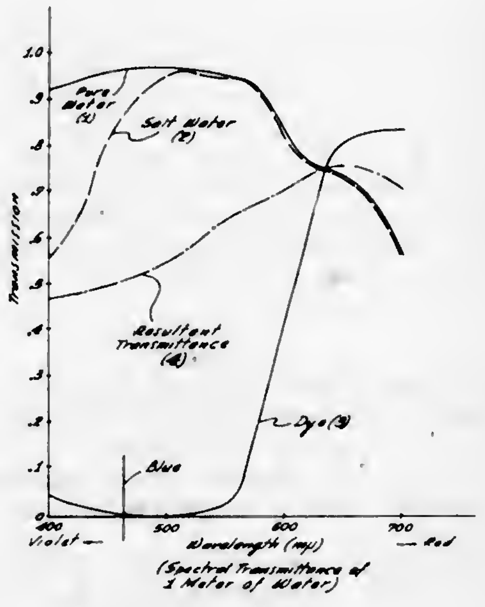
Teizo Hanada, Saitama-ken, and Akira Someya, Yokomaha-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd, Kawasaki-shi, Japan
Filed Dec. 26, 1968, Ser. No. 786,958
Claims priority, application Japan, Dec. 29, 1967, 42/84355
Int. Cl. H01j *61/44*
U.S. Cl. 313—109 **6 Claims**

An extra high output or high output fluorescent lamp comprises first and second fluorescent layers superposed on each other. The first fluorescent layer contains at least 10 percent by weight of manganese activated magnesium fluorogermanate on the basis of the entire first layer. The second fluorescent layer consists of calcium halophosphate activated by antimony and manganese. The aforementioned fluorescent lamp displays a reduced attenuation of luminous fluxes relative to operating duration.



3,571,649
OPTICAL FILTRATION FOR UNDERWATER VIEWING, PHOTOGRAPHY, AND THE LIKE

David N. Bush, Jr., 1137 23rd st., Santa Monica, Calif.
Filed Jan. 21, 1969, Ser. No. 792,286
Int. Cl. H01j *5/16, 61/40;* **H01k** *1/26*
U.S. Cl. 313—112 **2 Claims**



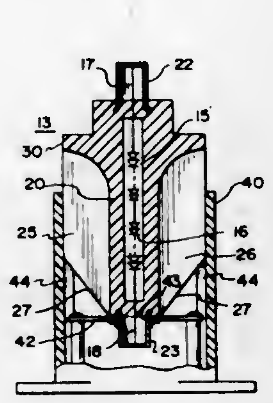
The present invention provides selective color filtration devices for underwater viewing or photography, including the provision of a predetermined color-selective light-filtering coating on a light source used for underwater viewing or photography designed, for example, to absorb light in the blue-green end of the visible spectrum and to pass the red, orange and yellow wavelengths, in accordance with a predetermined formula, so as to correct to some extent the filtering effect caused by the water and by the particles suspended in the water.

When the teachings of the present invention are followed, underwater objects may be photographed in colors more natural than those heretofore possible, and without the usual bluish-greenish tinge which such objects are normally photographed by present day equipment.

3,571,650
SEMICONDUCTOR RECTIFIER PACKAGE

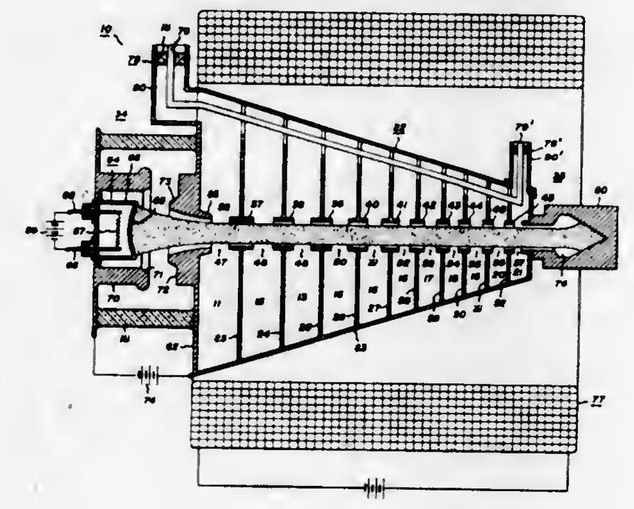
Richard J. Hofmeister, Arlington Heights, and Thomas R. Steele, Lombard, Ill., assignors to Motorola Inc, Franklin Park, Ill.
Filed Dec. 4, 1968, Ser. No. 781,064
Int. Cl. H01j *5/00*
U.S. Cl. 313—317 **7 Claims**

A solid-state high-voltage silicon rectifier assembly is placed in a dielectric package adapted to fit within the tube enclosure conventionally used in television receivers to enclose the high voltage rectifier tube. The generally cylindrical shape of the package surrounding the rectifier elements is flared outwardly at its upper end to form a disc surrounding the upper portion of the package. Above the disc, the package is widened so that it has approximately the same diameter as the diameter of a conventional high-voltage rectifier tube; and the terminal caps at both ends of the rectifier assembly are made the same size as the end cap used on the anode of conventional high voltage rectifier tubes. The diameter of the disc is chosen to be such that the assembly cannot be inserted upside down into the tube enclosure; and a pair of flanges are provided to permit the assembly to be guided by the socket guide channels on the inside of the tube enclosure. These flanges also wedge the rectifier assembly into the tube enclosure so that it cannot easily be shaken loose.



3,571,651
LOG PERIODIC ELECTRON DISCHARGE DEVICE

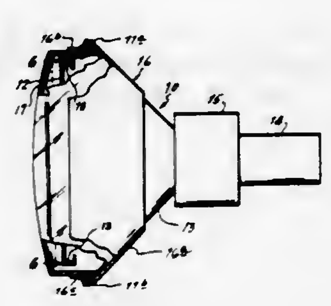
Donald A. Wilbur, Tierra Verde, Fla., assignor to General Electric Company
Filed Sept. 29, 1966, Ser. No. 582,879
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 **27 Claims**



A log periodic electron discharge device is disclosed which, in one form, is an RF amplifier including a conical slow-wave circuit defining an electron beam path therethrough. The slow-wave circuit tapers in a log periodic manner for interaction with an electron beam passing therethrough. An input signal is coupled into the circuit to selectively energize a region therein based on the input signal frequency, and the beam is modulated. This modulated beam passes into a further part of the circuit to selectively energize a predetermined region therein and amplified power is taken off the circuit.

3,571,652
DEGAUSSING DEVICE FOR COLOR PICTURE TUBE HAVING PARALLEL-SLITTED BEAM-SELECTING GRID

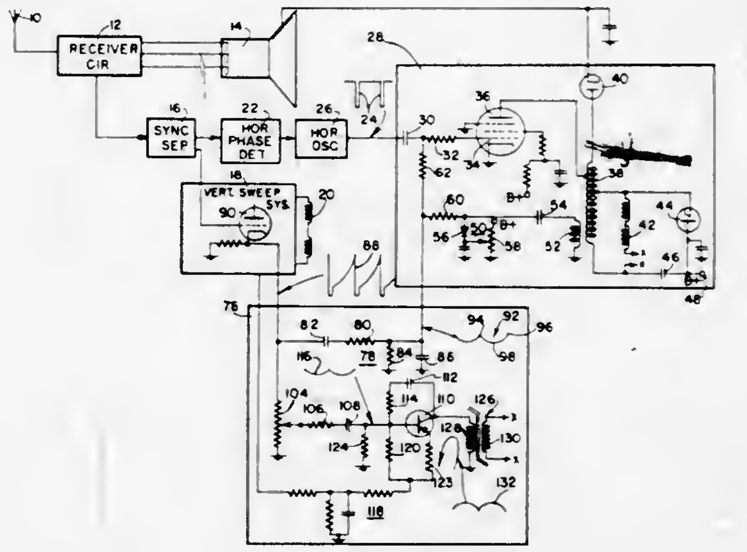
Kenjiro Shiobara, and Yuzo Fuse, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Apr. 14, 1969, Ser. No. 815,940
Claims priority, application Japan, Apr. 14, 1969, 43/24594
Int. Cl. H01j *29/06*
U.S. Cl. 315—8 **3 Claims**



A degaussing structure for a video tube which serves to demagnetize the tube and an apertured beam-selecting member in the tube. A shroud surrounds the forward portion of the tube and the apertured beam-selecting member. A pair of degaussing coils which are connected in series are wrapped around cutout areas in the shroud at the top and bottom thereof such that the magnetic flux produced by the current carrying coils is in a direction to degauss the apertured beam-selecting member.

3,571,653
HORIZONTAL PINCUSHION CORRECTION CIRCUIT

Robert B. Hansen, Arlington Heights, and James P. McShane, Jr., Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Aug. 18, 1967, Ser. No. 661,666
Int. Cl. H01j *29/76*
U.S. Cl. 315—24 **7 Claims**



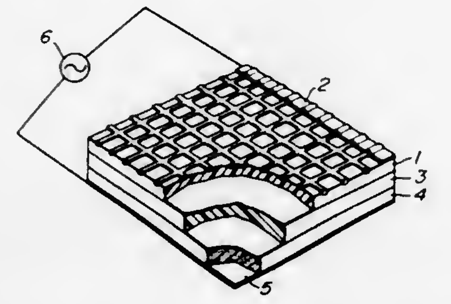
The circuit includes means to develop a parabolic signal at the vertical sweep frequency for controlling the bias on the output device in the horizontal sweep system. The polarity of the signal is such as to cause increasing conduction of the device towards the top and bottom of the raster and since the output device mainly controls scan on the right side of the raster, this serves to increase distortion on the right side in order to approach the greater distortion which normally appears on the left side. The circuit further includes means to simultaneously correct the distortion on both sides and straighten the raster.

ERRATUM

For Class 315—35 see:
Patent No. 3,571,952

3,571,654
ELECTROLUMINESCENT DISPLAY SYSTEM INCLUDING A PRESELECTABLY APPLIED LOW RESISTANCE MATERIAL MEANS

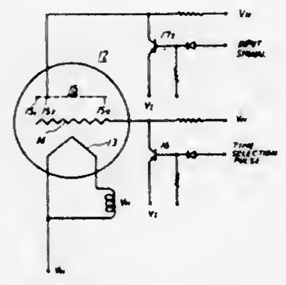
Norio Suzuki, Kawasaki-shi, and Tadao Kohashi, Yokohama, assignors to Matsushita Electric Industrial Co. Ltd, Osaka, Japan
Filed Dec. 23, 1968, Ser. No. 786,248
Claims priority, application Japan, Dec. 28, 1967, 43/127
Int. Cl. H05b *33/26*
U.S. Cl. 315—59 **12 Claims**



An electroluminescent display system comprising a laminated structure with an electroluminescent layer which is energized to emit light in a pattern by means of an applied electric field and a preselectably applied, low-resistance material means.

3,571,655
ELECTRONIC INDICIA DISPLAY SYSTEM

Akira Tanimoto, Yamatokoriyama-shi, Japan, assignor to Sharp Kubushiki Kaisha, Osaka, Japan
Filed Dec. 6, 1968, Ser. No. 781,876
Claims priority, application Japan, Dec. 12, 1967, Dec. 13, 1967 and Dec. 26, 1967, 42/79703; 42/79955; 42/83761
Int. Cl. H05b *37/00, 39/00*
U.S. Cl. 315—169 **10 Claims**

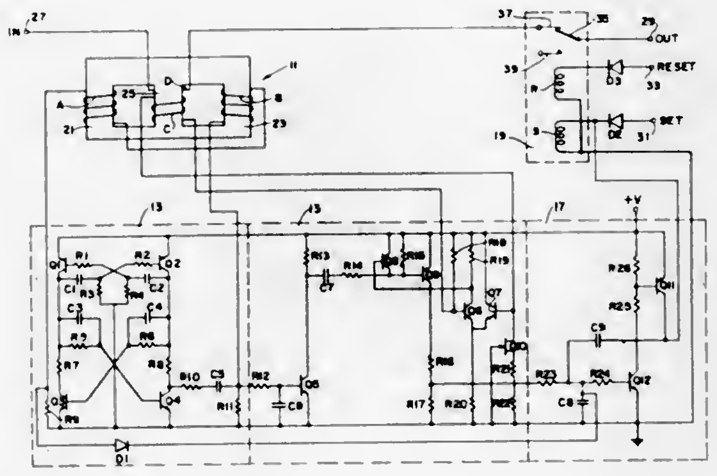


An indicia indicating system having an improved electrostatically shielded indicating tube of the luminescent type embodying single and multiple units, a filament circuit for a plurality of indicating tubes to enable the maintenance of proper interelectrode potentials and indicating tube driving circuitry to effect efficient dynamic numeral indicating and overcome abnormal luminescent functions heretofore encountered with such indicating tubes.

3,571,656
ELECTRONICALLY RESETTABLE FUSE

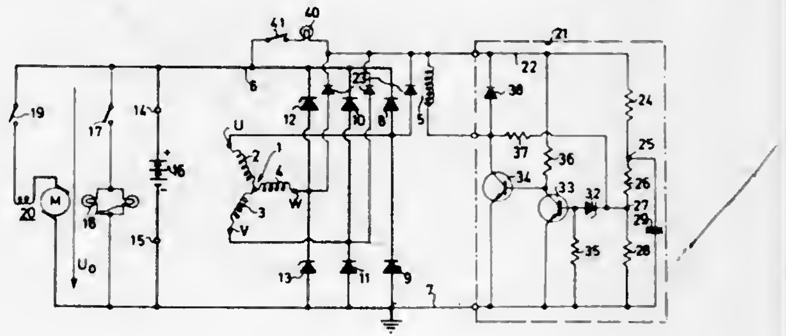
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of Roland E. Genter, Falls Church, Va.
Filed May 29, 1969, Ser. No. 828,921
Int. Cl. H02h *3/08, 7/26*
U.S. Cl. 317—9 **8 Claims**

An electronically resettable fuse includes a saturable core current sensing transformer having two outside legs and a center leg. An oscillator is connected to balanced oscillator windings wound about the outside legs so as to produce an AC flux which saturates the outside magnetic path at waveform peak points. A DC current whose magnitude is to be sensed is passed through a control winding wound about the center leg, and produces a DC flux in the center leg which completes its loop through the two outside legs, only during intervals when the outside path is unsaturated. This completion occurs twice per cycle and is sensed by a sense winding also wound about the center leg. When the current in the control winding surpasses a bias level, the induced DC flux direction reverses and a 180° hase shift across the sense winding occurs. This phase reversal is sensed by a phase detector and utilized to open relay contacts connected to the control winding. External means for resetting the relay from a remote location are also provided.



3,571,657
ELECTRICAL POWER SUPPLY SYSTEM FOR AUTOMOTIVE VEHICLES AND PARTICULARLY POLYPHASE BRIDGE-TYPE RECTIFIER THEREFOR

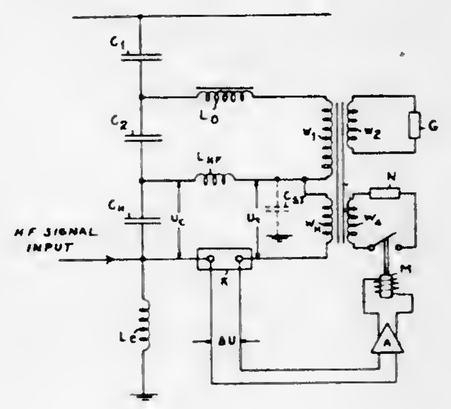
Helmut Domann, Stuttgart, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Jan. 14, 1969, Ser. No. 791,090
Claims priority, application Germany, Mar. 7, 1968, P 16 13 993.8
Int. Cl. H02p *7/06, 9/30*
U.S. Cl. 317—13 **7 Claims**



To prevent transient overvoltages in automotive-type power supply systems using three-phase alternators and full wave rectifiers connected thereto, at least one of the rectifier pairs connected to an output winding of the alternator uses breakdown-type power rectifier diodes having a breakdown voltage at least 5 percent above the nominal voltage set by the voltage regulator of the system. Connection of breakdown diodes to further, or preferably all phases provides still better protection at greater expense, however.

3,571,658
PROTECTIVE SYSTEM FOR CAPACITIVE VOLTAGE TRANSFORMERS INCLUDING A CIRCUIT FOR TfH-COUPLING

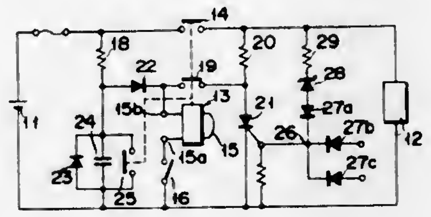
Walter Knoth, Oberengstringen, Switzerland, assignor to Micafil A. G., Zurich, Switzerland
Filed Nov. 10, 1969, Ser. No. 875,404
Claims priority, application Germany, Nov. 22, 1968, P 18 10 500.5
Int. Cl. H02h *7/04*
U.S. Cl. 317—14 **2 Claims**



A capacitive voltage transformer comprises a transformer having its primary winding connected across an intermediate section of a plurality of capacity sections connected in series between a high voltage line and ground to form a voltage divider. The transformer is provided with a protective circuit which serves to switch in a protective damping burden on the transformer in the presence of transient oscillation phenomena, and the circuit connections between the transformer primary and the intermediate capacity section include a choke coil and a low-ohmic blocking coil to improve the transformer for coupling high frequency signals to the line for carrier type communication.

3,571,659
SWITCHING DEVICE FOR POWER SUPPLY CIRCUIT

Hiroshi Anzai, and Masaaki Hayashi, Tokyo, Japan, assignors to Tokyo Keiki Seizosho Co., Ltd., Tokyo, Japan
Filed Nov. 5, 1969, Ser. No. 874,408
Claims priority, application Japan, Nov. 8, 1968, 43/96,918
Int. Cl. H02h *3/10*
U.S. Cl. 317—16 **9 Claims**

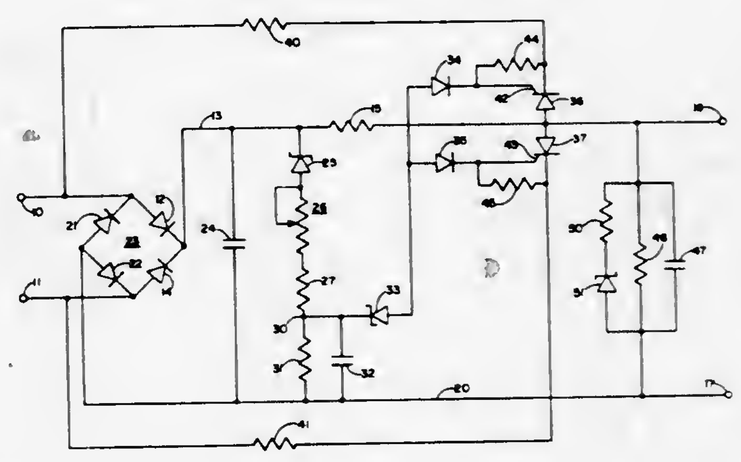


In a relay device provided with means for decreasing the exciting current to a value substantially less than the pickup current and adapted to connect a power supply to a load, a protective switching means responsive to faulty conditions of the power supply or load is provided to short circuit the exciting coil of the relay.

3,571,660
VOLTAGE REGULATING CIRCUIT

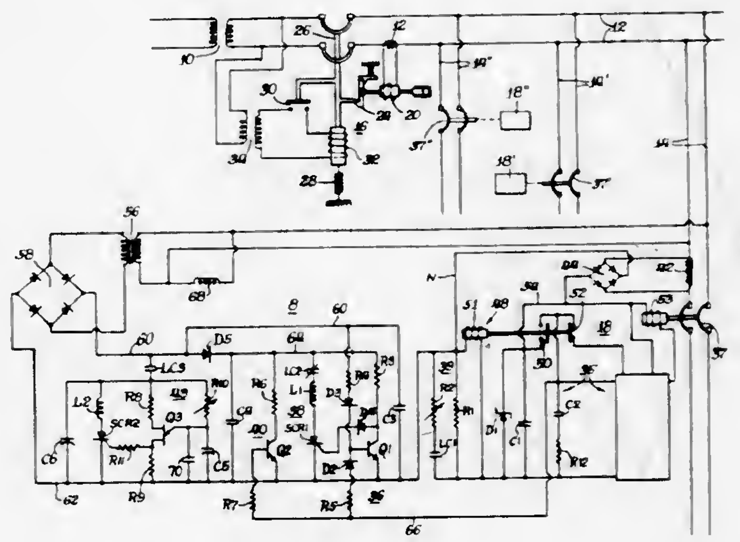
Harold J. Phillips, Clearwater, Fla., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 6, 1968, Ser. No. 781,858
Int. Cl. H02h *3/20*
U.S. Cl. 317—16 **8 Claims**

A circuit for providing protection against power line high voltage surges is described. A sensor such as a Zener diode is used to detect the high voltage surge and triggers one of two silicon controlled rectifiers. The silicon controlled rectifiers are connected from the output of the protection circuit to the opposite sides of the power line to connect the output of the circuit to the negative side of the power line input during the high voltage surge.



3,571,661
RESTRAINT CONTROL FOR SECTIONALIZING SWITCH

Blaine H. Schultz, and Oliver G. Attewell, South Milwaukee, Wis., assignors to McGraw-Edison Company, Elgin, Ill.
Filed Oct. 13, 1969, Ser. No. 865,862
Int. Cl. H02h *7/26, 3/24*
U.S. Cl. 317—22 **21 Claims**



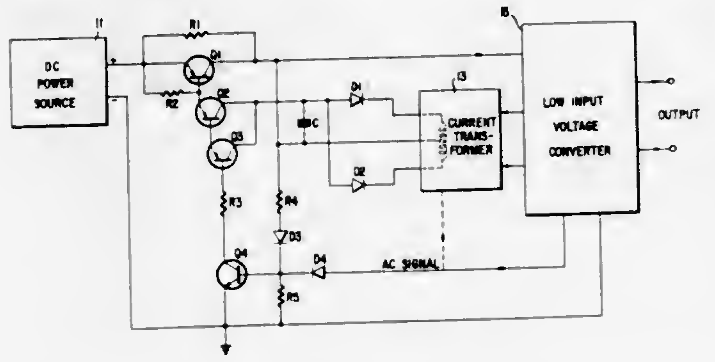
A restraint circuit for preventing operation of an automatic sectionalizing switch control which normally counts overcurrent occurrences and opens the switch after a predetermined number of overcurrent pulses occur. The restraint circuit utilizes switch control means for sensing overcurrent and includes means for sensing voltage loss. When a fault occurs in a system feeder line other than that in which the sectionalizing switch is connected and the circuit interrupter opens to deenergize the system, the restraint circuit is responsive to voltage loss unaccompanied by feeder line fault current as sensed by the switch control to prevent a counting operation by the switch control due to feeder line inrush current when the circuit interrupter recloses. The restraint circuit includes blocking means to prevent its operation when fault current is followed by voltage loss on the feeder line in which the sectionalizing switch is located.

3,571,662

FAILURE SENSING AND PROTECTION CIRCUIT FOR CONVERTER NETWORKS

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of Kenneth J. Jenson, Crystal, Minn.

Filed Feb. 4, 1969, Ser. No. 796,370
Int. Cl. H02h *7/10*
U.S. Cl. 317—33 **7 Claims**



This disclosure describes a failure sensing and protection circuit for use with converter networks. The collector-emitter terminals of a power switching transistor are connected in series between a source of power and a converter. A sensing transistor adapted to sense the AC operation of the converter is connected through a current amplifying circuit to the base of the power transistor. In addition, proportional current drive for the power transistor is provided by connecting the current amplifier circuit through a current transformer to sense a signal that is proportional to the current flow in the collector of the power transistor. The drive to the power transistor stops when converter failure occurs because the signal applied to the sensing transistor ends.

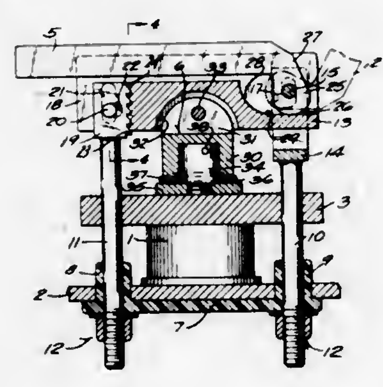
The invention described herein was made in the performance of work under a NASA contract and is subject to the provisions of Section 305 of the National Aeronautics and Space Act of 1958, Public Law 85-568 (72 Stat. 435; 42 U.S.C. 2457).

3,571,663

RELEASABLE CLAMP ASSEMBLY FOR A SOLID STATE CIRCUIT ELEMENT

Lloyd A. Hungate, Charlottesville, Va., assignor to Chemetron Corporation, Chicago, Ill.

Filed Jan. 8, 1969, Ser. No. 789,760
Int. Cl. H01l *1/12*
U.S. Cl. 317—100 **10 Claims**



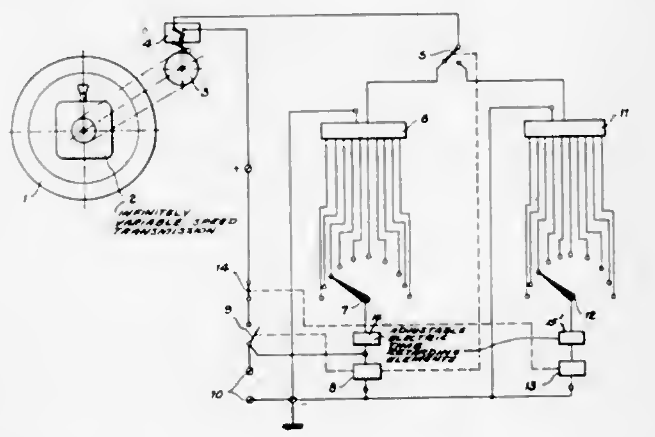
The present disclosure includes a releasable clamp holding a disclike solid state rectifier between a pair of heat sink plates. A pair of mounting bolts extends through openings in the heat sink plates to the diametrically opposite side of the rectifier. A saddle member is pivotally connected at one end to one of the support bolts and at the other end to the opposite support bolt by serrated mating surfaces. A pressure cup is pivotally interconnected to the central portion of the saddle member and telescoped over a guide toward a pressure plate which is aligned with and adapted to bear on the outer heat sink in alignment with the rectifier. A Belleville spring and a pressure control washer are interposed between the cup and the pressure plate. A lever cam is pivotally mounted to the saddle member and has a first position and a second position to compress and release the spring respectively to clamp and unclamp the rectifier.

3,571,664

TRAFFIC LINE LENGTH CONTROL APPARATUS

Ernst John, Grossauheim, and Rudi Zellmann, Frankfurt, Germany, assignors to Deutsche Gold-Und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, Germany

Filed Sept. 18, 1968, Ser. No. 760,438
Claims priority, application Germany, Sept. 20, 1967, D36,577
Int. Cl. H01h *47/00*
U.S. Cl. 317—140 **8 Claims**



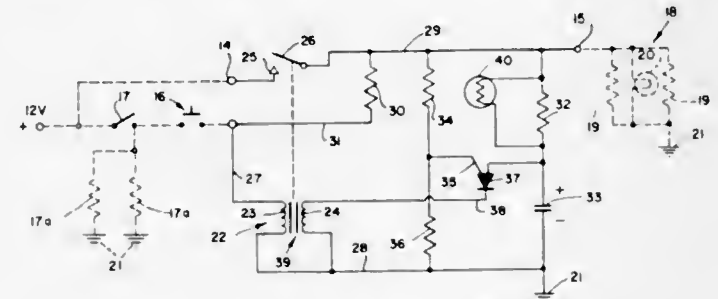
The length of continuous or dashed highway traffic lines being painted by a machine is automatically controlled by a vehicle driven cam switch selectively joined to a pair of storage relay counting devices which set the length of time the machine paints continuous lines or dashed lines on the highway.

3,571,665

LONG INTERVAL TIMING CIRCUIT

Rodney Hayden, Wentworth, Ontario, Canada, assignor to United-Carr Incorporated, Boston, Mass.

Filed May 7, 1969, Ser. No. 822,526
Int. Cl. H01h *47/32*
U.S. Cl. 317—142 **2 Claims**



This is a timing device having only electrical terminals and using a relay with a bucking coil. One of the coils of the relay activates the timing cycle while the bucking coil, after a predetermined time cancels the cycle.

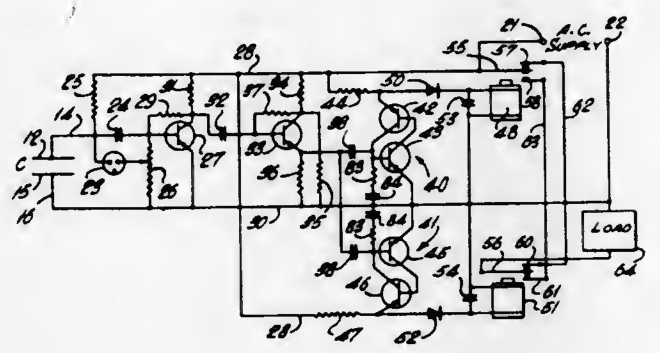
3,571,666

DOUBLE-ACTION CAPACITANCE-RESPONSIVE SWITCHING CIRCUIT

Francis A. McGuirk, Jr., Chatham, N.J., assignor to Wagner Electric Corporation

Filed Apr. 12, 1968, Ser. No. 720,889
Int. Cl. H01h *47/22*
U.S. Cl. 317—146 **9 Claims**

The variations in capacitance to ground of an antenna due to proximity or remoteness of a person or object causes variations in the output of an oscillator. In one embodiment, when antenna capacitance either increases or decreases with respect to a predetermined level, the oscillator output decreases or increases (respectively) and thereby causes switching circuitry to energize or deenergize (respectively) both of two relays, thus causing energization of a load. At the normal antenna capacitance, one relay is energized and the other is deenergized, and the load is deenergized. In a second embodiment, the same load-controlling functions are achieved with a circuit employing a single relay.

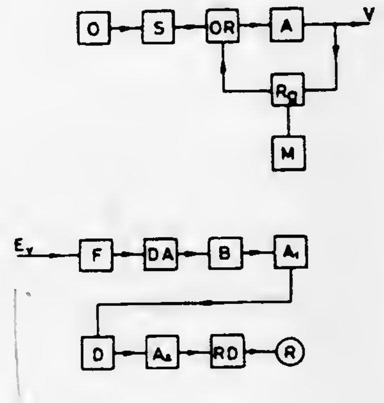


3,571,667

TRACK CIRCUIT OF GREAT LENGTH

Jean Demeur, Brussels, Belgium, assignor to Ateliers de Constructions Electriques de Charleroi (ACEC), Charleroi, Belgium

Filed Mar. 14, 1969, Ser. No. 807,237
Claims priority, application Belgium, Mar. 14, 1968, 55773
Int. Cl. B61l *1/02;* **H01h** *47/20*
U.S. Cl. 317—147 **7 Claims**



The disclosure relates to a track circuit for detecting the presence of a train on a long section of a railway track equipped with an AC traction power line, wherein the two rails of the section are insulated from the adjoining sections at each end thereof, comprising a generator connected to one end of the railway section for generating a voltage at a frequency which is approximately equidistant from the fundamental frequency of the power line and from the second harmonic thereof, the generated voltage comprising a series of pulse trains having a very low repetition rate. The track circuit also comprises a receiver for detecting the generated voltage at the opposite end of the railway section. The receiver includes an amplitude discriminator for eliminating the signals the amplitude of which is lower than a predetermined level and a selective demodulator which provides an output only when its input is energized by a signal at the above-mentioned repetition rate.

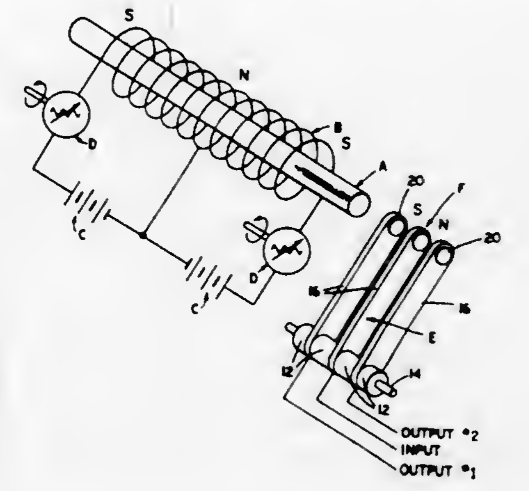
3,571,668

THREE-POSITION SOLENOID ACTUATED SWITCH

Frank E. Gray, 2070 Lathan St. 10, Mountain View, Calif.

Filed Nov. 13, 1969, Ser. No. 876,512
Int. Cl. H01h *51/22*
U.S. Cl. 317—150 **10 Claims**

A solenoid switch having first and second closed positions with an open position therebetween. A center-tapped coil is wound about a core capable of conducting a magnetic field. Direct current of one polarity is applied between the center tap and one coil end; direct current of the same polarity is applied between the center tap and opposite end. A three-position reed switch having a permanent magnet attached thereto is positioned adjacent the core. By the expedient of providing a reference impedance in series with the direct current between the center tap and one end of the coil and a comparison impedance between the center tap and the other end of the coil, the reed switch can be moved to any of its three positions.

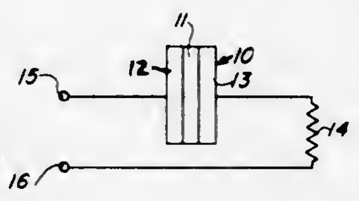


3,571,669

CURRENT CONTROLLING DEVICE UTILIZING SULPHUR AND A TRANSITION METAL

Gordon R. Fleming, Pontiac, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Mar. 4, 1968, Ser. No. 710,033
Int. Cl. H01l *9/00*
U.S. Cl. 317—234 **8 Claims**



A current-controlling device for an electrical circuit including a semiconductor material and electrodes in contact therewith, wherein the semiconductor material has a high electrical resistance, wherein the high electrical resistance is substantially instantaneously decreased to a low electrical resistance in response to a voltage above a threshold voltage value, wherein the low electrical resistance is immediately returned to the high electrical resistance in response to a decrease in current below a minimum current holding value, and wherein the semiconductor material consists essentially of sulfur and a transition metal, as for example, vanadium.

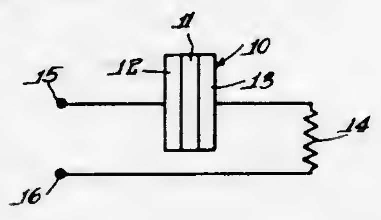
3,571,670

SWITCHING DEVICE INCLUDING BORON AND SILICON, CARBON OR THE LIKE

Stanford R. Ovshinsky, Bloomfield Hills, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

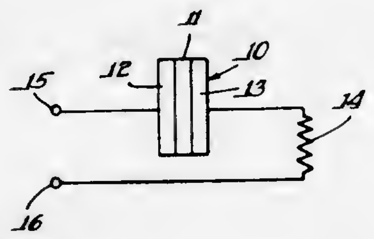
Filed Apr. 11, 1968, Ser. No. 720,572
Int. Cl. H01l *9/10*
U.S. Cl. 317—234 **6 Claims**

A current switching device for an electrical circuit including a semiconductor material and electrodes in contact therewith, wherein the semiconductor material has a high electrical resistance, wherein the high electrical resistance is substantially instantaneously decreased to a low electrical resistance in response to a voltage above a threshold voltage value, wherein the low electrical resistance is immediately returned to the high electrical resistance in response to a decrease in current below a minimum current-holding value, and wherein the semiconductor material consists essentially of boron and carbon, silicon, titanium, germanium, zirconium or hafnium.



3,571,671
SWITCHING DEVICE INCLUDING BORON AND RARE EARTH METAL

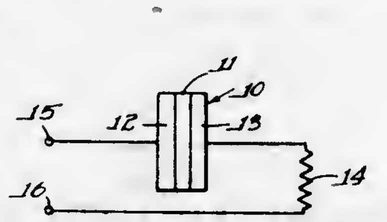
Stanford R. Ovshinsky, Bloomfield Hills, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.
Filed Apr. 11, 1968, Ser. No. 720,573
Int. Cl. H01l *9/10*
U.S. Cl. 317—234 **6 Claims**



A switching device for an electrical circuit including a semiconductor material and electrodes in contact therewith, wherein the semiconductor material has a high electrical resistance, wherein the high electrical resistance is substantially instantaneously decreased to a low electrical resistance in response to a voltage above a threshold voltage value, wherein the low electrical resistance is immediately returned to the high electrical resistance in response to a decrease in current below a minimum current holding value, and wherein the semiconductor material consists essentially of boron and a rare earth metal, as for example, yttrium.

3,571,672
SWITCHING DEVICE INCLUDING SILICON AND CARBON

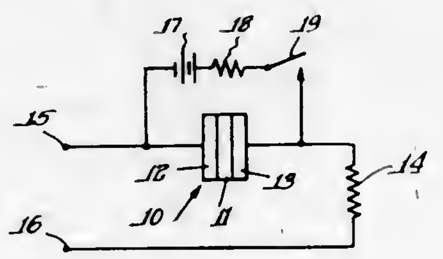
Stanford R. Ovshinsky, Bloomfield Hills, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.
Filed Apr. 11, 1968, Ser. No. 720,574
Int. Cl. H01l *9/00*
U.S. Cl. 317—234 **9 Claims**



A switching device for an electrical circuit including a semiconductor material and electrodes in contact therewith, wherein the semiconductor material has a high electrical resistance, wherein the high electrical resistance is substantially instantaneously decreased to a low electrical resistance in response to a voltage above a threshold voltage value, wherein the low electrical resistance is immediately returned to the high electrical resistance in response to a decrease in current below a minimum current holding value, and wherein the semiconductor material consists essentially of silicon and carbon.

3,571,673
CURRENT CONTROLLING DEVICE

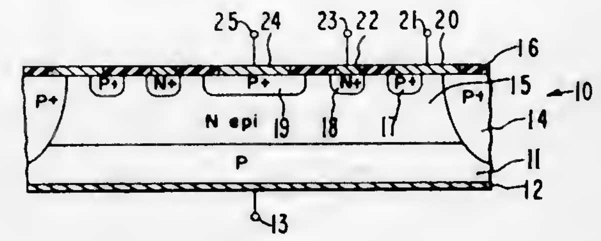
Stanford R. Ovshinsky, Bloomfield Hills, and Gordon R. Fleming, Pontiac, Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.
Filed Aug. 22, 1968, Ser. No. 754,533
Int. Cl. H01l *9/00*
U.S. Cl. 317—234 **14 Claims**



A current controlling device for an electrical circuit including a semiconductor material and electrodes in low electrical resistance contact therewith, wherein said semiconductor material has a high electrical resistance to provide a blocking condition for substantially blocking current therethrough, wherein the high electrical resistance is substantially instantaneously decreased to a low electrical resistance in response to a voltage above a threshold voltage value, wherein the semiconductor material in the low electrical resistance conducting condition has a voltage drop which is a fraction of the voltage drop in the high electrical resistance blocking condition near the threshold voltage value, and wherein the semiconductor material is a multielement nonchalcogenide material including as essential ingredients arsenic or phosphorous and silicon, germanium, gallium, boron or aluminum. The material may also include minor additions, such as, cadmium or zinc. Particularly good results have been obtained with a binary system of arsenic and silicon.

3,571,674
FAST SWITCHING PNP TRANSISTOR

Albert Y. C. Yu, Sunnyvale, and Edward H. Snow, Mt. View, Calif., assignors to Fairchild Camera and Instrument Corporation, Syosset, L. I., N.Y.
Filed Jan. 10, 1969, Ser. No. 790,317
Int. Cl. H01l *11/06*
U.S. Cl. 317—235 **5 Claims**

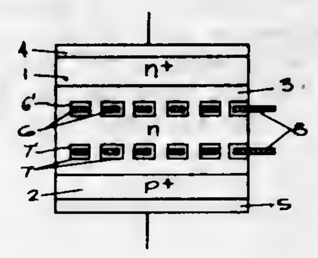


The on-off switching time of a PNP transistor is significantly decreased by placing a Schottky Barrier diode in parallel with the collector-base PN junction of the transistor.

3,571,675
CONTROLLED SEMI-CONDUCTOR WAFER HAVING ADJACENT LAYERS OF DIFFERENT DOPING CONCENTRATIONS AND CHARGED INSERT GRID

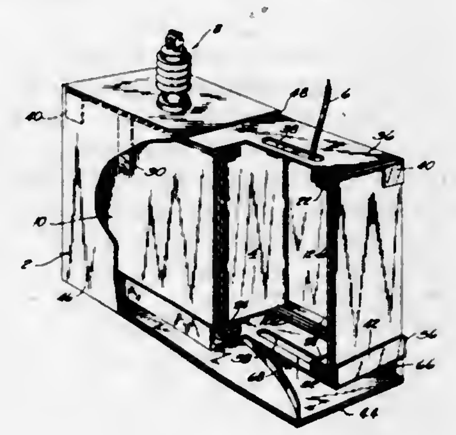
Werner Faust, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Sept. 24, 1969, Ser. No. 860,844
Claims priority, application Switzerland, Oct. 21, 1965, 14554
Int. Cl. H01l *11/14*
U.S. Cl. 317—235 **4 Claims**

A controlled semiconductor wafer includes at least one p-n junction and adjacently disposed layers of different doping concentration, there being a charged gridlike insert in the layer of lower doping concentration and located in the vicinity of the junction to the adjacent layer of higher doping concentration.



3,571,676
POWER CAPACITORS

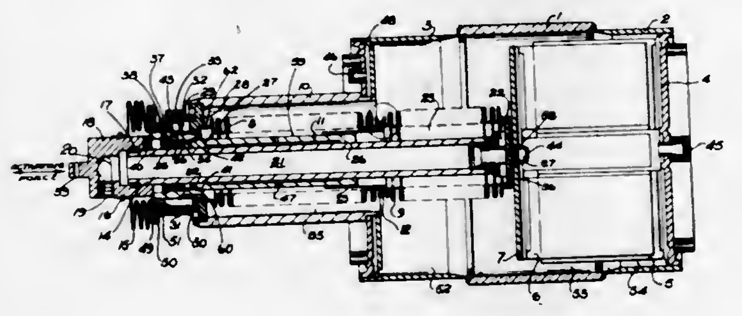
David D. Hottinger, South Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.
Filed June 16, 1969, Ser. No. 833,371
Int. Cl. H01g *1/08*
U.S. Cl. 317—242 **8 Claims**



An insulation arrangement for a high potential capacitor is provided in which insulation members are arranged and have shapes such that a high basic insulation level is maintained while at the same time flow of liquid dielectric coolant within the tank of the capacitor is not impeded by the insulation members. Also, the insulation members are such that additional liquid reservoir space is provided for cooling the capacitor.

3,571,677
SINGLE BELLOWS WATER-COOLED VEHICLE CAPACITORS

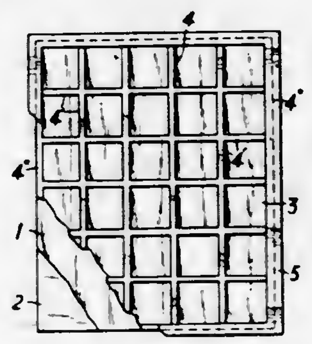
Joseph E. Oeschger, Palo Alto, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Dec. 31, 1969, Ser. No. 889,531
Int. Cl. H01g *1/08*
U.S. Cl. 317—243 **10 Claims**

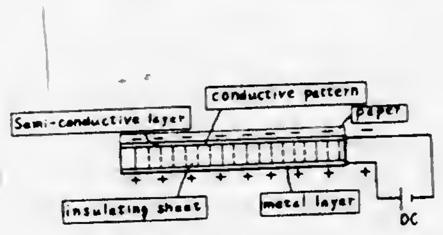


A fluid cooled vacuum capacitor in which only a single metal bellows is required. Coolant is directed down the hollow center of the main shaft to the device and returns in a counterflow direction in the space between the shaft-bearing sleeve subassembly and the internal surface of the bellows. A unique fluid sealing arrangement includes primary and secondary shaft seals of the chevron type with circumferential expander springs and a leakage relief path between seals. Shaft bearings are metal-to-metal type and are fluid lubricated.

3,571,678
ELECTROSTATIC RECORDING PAPER HOLDING DEVICE

Muneyoshi Sezako; Isao Nagayasu, and Haruo Sato, Tokyo, Japan, assignors to Watanabe Instruments Corp., Tokyo, Japan
Filed Sept. 3, 1968, Ser. No. 756,953
Claims priority, application Japan, Sept. 4, 1967, 42/75304
Int. Cl. H05
U.S. Cl. 317—262 **11 Claims**

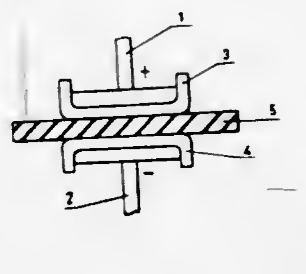




An electrostatic recording paper holding device adapted to be employed in connection with a recording instrument and comprising as its base a flexible insulating resin sheet or film having on one side a metallic layer vapor-deposited or in adhesion which forms one electrode and on the other side a semiconductor layer coated thereon which supports a conductive pattern provided with a plurality of openings therein which in turn supports a metallic frame at portion thereof, and an electric circuit connected to said metallic layer and conductive pattern and including a switch and DC power source.

3,571,679
DEVICE FOR FORMING ELECTRETS

Jan Van Turnhout, Delft, Netherlands, assignor to Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer, The Hague, Netherlands
Filed Oct. 8, 1969, Ser. No. 864,755
Claims priority, application Netherlands, Oct. 14, 1968, 6814644
Int. Cl. H01g *7/02*
U.S. Cl. 317—262 **1 Claim**

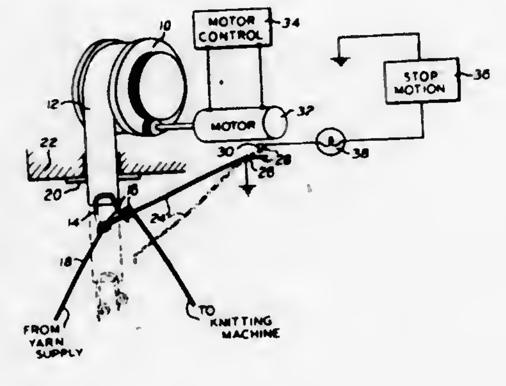


A device for forming electrets with an open structure, which is provided with electrodes which are covered with a material, the specific resistance of which is a factor of 10^4-10^8 maller than that of the electret material and the thickness of which is chosen such that it can stand the forming voltage applied without the occurrence of a dielectric breakdown.

3,571,680
YARN TENSION CONTROL DEVICE

Edward M. Tellerman, East Rockaway; Nathan J. Tellerman, Hewlett Harbor, and Robert L. Handelsman, Commack, N.Y., assignors to Stop-Motion Devices Corporation, Plainview, N.Y.

Filed June 5, 1968, Ser. No. 734,742
Int. Cl. B65h *59/38*
U.S. Cl. 318—6 **18 Claims**

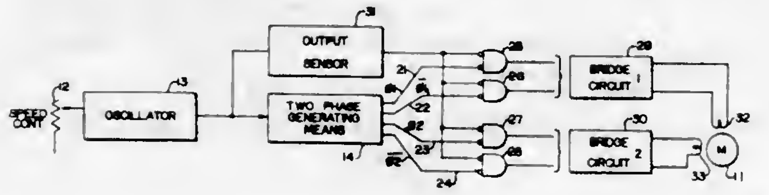


A yarn tension control device in which a tape is wound on a roller with the end of the tape being provided with yarn carrying loops. A fly wire is supported by the yarn between the loops during normal operation of the associated knitting machine. An increase in yarn tension beyond the permissible range causes downward movement of the yarn carrying loops, releasing the fly wire from its support by the yarn, and causing completion of an electrical circuit which activates the stop motion for the knitting machine. The tape carrying roller is driven by a motor which is controlled so that the tape can be unwound from the roller, wound onto the roller and, for purposes of adjusting the yarn tension, have a preselected static force applied to the tape.

3,571,681
CONTROLLABLE SPEED MULTIPLE PHASE MOTOR

Stephen K. Burns, Cambridge, Mass., assignor to Herbert Berman, Brookline, Mass.

Filed May 19, 1969, Ser. No. 825,597
Int. Cl. H02p *5/40*
U.S. Cl. 318—227 **2 Claims**

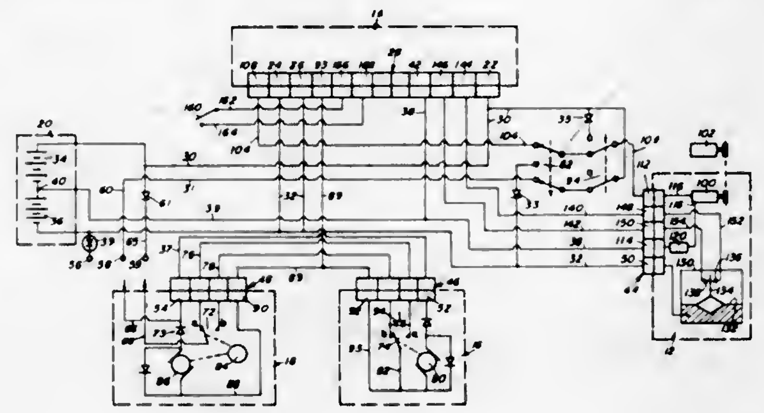


A variable frequency oscillator drives a two-phase generator to provide quadrature components at a quarter of the oscillator frequency. These signals in phase quadrature are applied to respective gate-pairs that are enabled in synchronism with the oscillator output. Each gate-pair drives a respective power amplifying bridge to which a respective motor winding is connected to apply a peak-to-peak drive to each winding that is about twice the DC voltage available from the power supply.

3,571,682
SERVOCONTROL WITH TIME DELAY AND RAMP MOTOR START

Duane M. Preble, Worthington, and Harold O. Wires, Columbus, Ohio, assignors to the United States of America as represented by the Secretary of the Interior

Filed Apr. 29, 1969, Ser. No. 820,177
Int. Cl. G05f *1/08*
U.S. Cl. 318—257 **7 Claims**

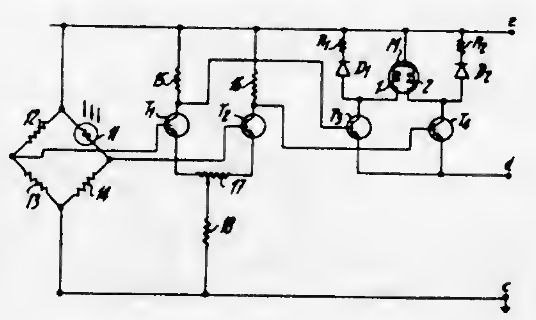


Motor control circuitry imparting time delay and ramp start characteristics to the bidirectional operation of a servomotor. Ramp start is determined by a constant current generated in a transistor circuit charging a capacitor. A further transistor in a circuit responsive to development of the ramp voltage sensed at its base-emitter junction directs growth of a motor voltage control signal to follow ramp form towards a maximum value. A motor energizing voltage feedback received in the emitter-collector circuit of the further transistor opposes the base-emitter junction voltage and effects a dampening of the motor control voltage buildup until consequent lessening of the motor control voltage lessens motor energizing voltage with the result that the further transistor acts to further develop the motor control voltage whereby the effect of the feedback loop thus made operative is progressively diminished as motor energizing voltage is permitted to follow a ramp form to its normal operational value.

3,571,683
SERVOMECHANISM WITH DRIVING ROTOR WINDING AND BRAKING ROTOR WINDING

Claudio Prezzi, Yverdon, and Giovanni Odone, LaRosiz Surlausane, Switzerland, assignors to Paillard S. A., Vaud, Switzerland

Filed Jan. 30, 1968, Ser. No. 701,694
Claims priority, application Switzerland, Feb. 17, 1967, 2338/67
Int. Cl. H02p *5/04*
U.S. Cl. 318—258 **11 Claims**

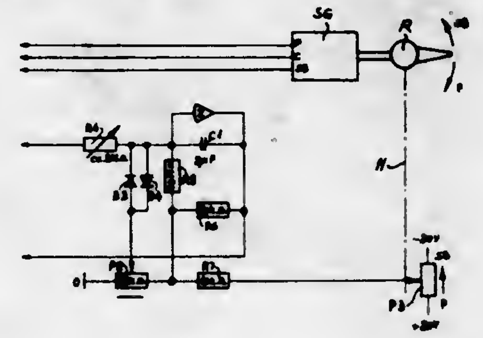


A commutator-type electric motor with two windings, one of which is energized by a control current, for driving the motor, and the other of which furnishes a braking torque, whereby the motor is stopped without overshooting.

3,571,684
RUDDER POSITIONING UNIT FOR THE STEERING SYSTEMS OF SHIPS

Mogens Ilsted Bech, Birkerd, Denmark, assignor to Decca Limited, London, England

Filed Aug. 12, 1969, Ser. No. 849,802
Int. Cl. G05d *1/00*; **B63h** *25/02*
U.S. Cl. 318—588 **5 Claims**

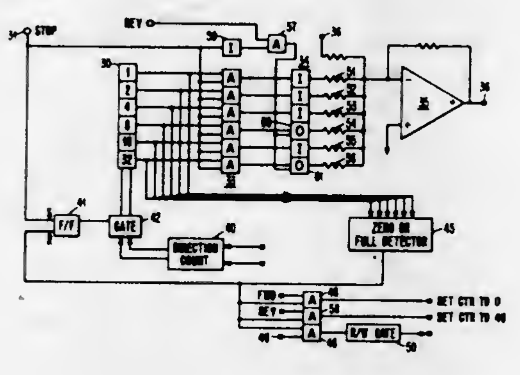


A rudder positioning unit for the steering systems of ships serves to position the rudder at an angle proportional to a rudder positioning signal received by the unit, and comprises a balance circuit having a balance signal output controlling start and stop of the steering gear of the ship, said balance circuit having inputs for the rudder positioning signal and for a feedback signal from a steering gear simulator, that is started and stopped simultaneously with the steering gear and is capable of simulating the movement of the steering gear, but at a smaller time lag than the latter or practically no time lag at all, preferably in the form of an electrical voltage. Means are provided for continuously effecting slow synchronization of the simulator with the steering gear, and for effecting quick synchronization on occurrence of a predetermined deviation between the simulator and the steering gear. A preferred form of a steering gear simulator is an electronic integrator circuit.

3,571,685
NUMERICAL SERVO DISPLACEMENT CONTROL SYSTEM

Vaughn E. Akins; John P. Harris, and Frederick H. Kost, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,853
Int. Cl. G05b *19/28*
U.S. Cl. 318—603 **4 Claims**

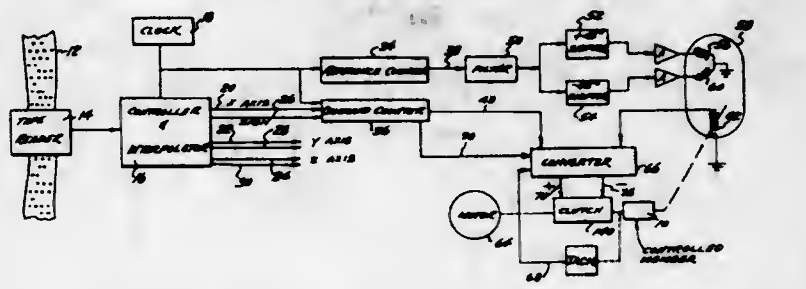


The physical displacement of a movable medium is indicated by the content of a bidirectional counter. The counter is incremented or decremented by direction-oriented pulses relating to movement of the medium, these pulses being selectively gated into the counter. The content of the counter can control an operational amplifier to provide an indication of the position of the medium relative to a null point represented by any selected count in the counter.

3,571,686
NUMERICALLY CONTROLLED PATH SYSTEM WITH ON-OFF SERVO

Hubert B. Henegar, Detroit, Mich., assignor to The Bendix Corporation

Filed June 2, 1967, Ser. No. 643,197
Int. Cl. G05b *5/01*
U.S. Cl. 318—624 **12 Claims**

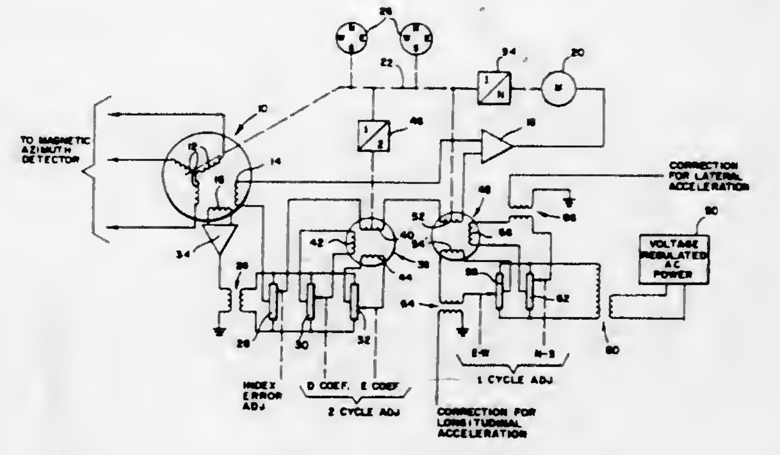


A converter is disclosed for operating on the proportional control signal output of a contouring-type numerical control system to make it suitable for use with an on-off servo of the type employed with tracer-controlled machines. The converter accepts the square wave outputs of the command counter of the numerical control system, the output of the feedback resolver rotor (the stator being energized by the output of the reference counter) and a voltage proportional to the rate of motion of the controlled machine member. When the first zero crossing occurs of the command or feedback wave a time delay is initiated which is proportional to the speed of the output member by adding the voltage proportional to the member speed to a ramp voltage initiated at the crossover of the appropriate wave, and detecting the zero crossing point of the sum. If the crossover point of the second input square wave occurs during the delay period no control signal is provided to the output servo. Therefore, a dead zone proportioned in width to the speed of the output member is created. If the square wave signal crossing occurs after the time delay an output signal to the servo is provided of a sign dependent upon which of the input square waves crossed zero first.

3,571,687
METHOD AND APPARATUS FOR PROVIDING ERROR COMPENSATION IN A DATA TRANSMISSION SYSTEM

Arthur F. Larwin, Grand Rapids, Mich., assignor to Lear Siegler, Inc.

Filed Sept. 20, 1968, Ser. No. 761,244
Int. Cl. G05b *13/02*
U.S. Cl. 318—632 **14 Claims**


TO MAGNETIC AZIMUTH DETECTOR
CORRECTION FOR LATERAL ACCELERATION
VOLTAGE REGULATED A.C. POWER
INDEX ERROR ADJ
2 CYCLE ADJ
1 CYCLE ADJ
CORRECTION FOR LONGITUDINAL ACCELERATION

In a magnetic azimuth detector system employing a servo transmission network between the input and a remote readout, error correction is provided by inserting correction signals into the servo transmission system. The servo transmission system employs a control transformer having null and 90° utput windings and error compensation is effected by summing index, one cycle and two cycle error correction signals with the signal across the null output winding.

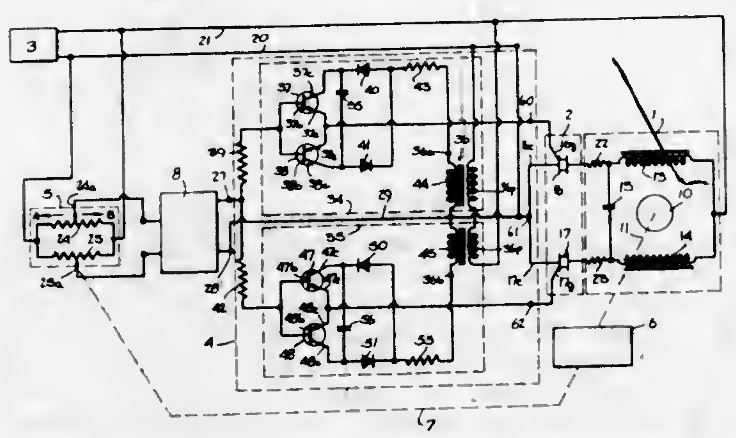
3,571,688
PHASE DISCRIMINATING CONTROL APPARATUS FOR A BIDIRECTIONAL SOLID-STATE AC POSITION SERVOMOTOR CONTROL

Walter Tomasulo, Jr., Wayne, and George R. Brown, Emerson, N.J., assignors to Hoke Incorporated, Cresskill, N.J.

Filed Oct. 24, 1968, Ser. No. 770,347

Int. Cl. G05b *11/12*

U.S. Cl. 318—683 **1 Claim**



A phase discriminating control apparatus which will provide one of two alternating current outputs depending upon which of two alternating current inputs to the apparatus is leading. Each of the two inputs is coupled to one of two coupled firing circuits where the phase relationship between the input signals is determined. Each of the firing circuits is coupled to a bidirectional silicon thyristor and each of the thyristors is coupled to an alternating current source. The leading input signal to the apparatus results in one firing circuit gating one of the thyristors "on" while the other firing circuit gates the other thyristor "off." The thyristor gated "on" supplies an alternating current to the output. If the input signals change their phase relationship so that the leading signal is the former lagging signal, then the operation of the circuit causes the output voltage to appear at the thyristor which was formerly "off" and the remaining output thyristor will be turned off.

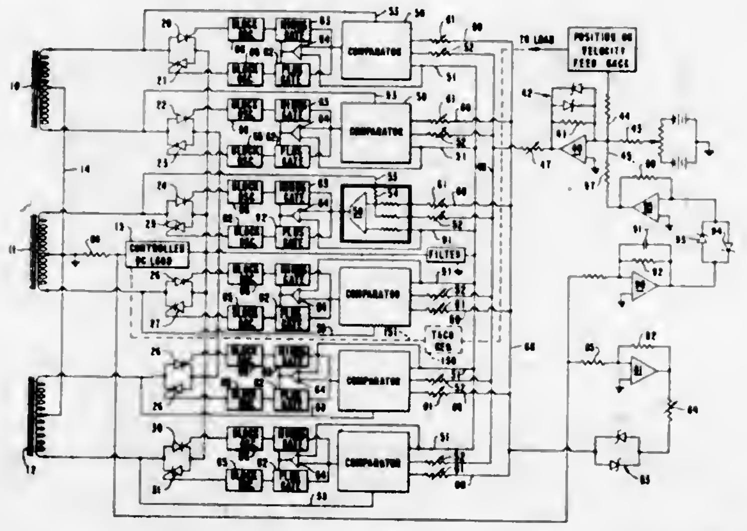
3,571,689
CIRCUIT FOR SUPPLYING CONTROLLED DC LOADS FROM POLYPHASE AC SOURCES

William L. Wise, Mountain View, Calif., assignor to Tydeman Machine Works, Inc., Redwood City, Calif.

Filed Feb. 13, 1969, Ser. No. 798,969

Int. Cl. H02m *7/00*

U.S. Cl. 321—5 **22 Claims**



A unique control circuit for supplying DC loads from polyphase alternating current sources incorporates rectifying switching means in a transformer output which are connected in series with a DC load wherein the reference voltage is the load voltage and associated trigger circuits control the firing angle of rectifying switching means relative to that reference voltage and a command signal, so that phase-to-load switching is accomplished as and only when the individual phase voltage approaches the reference voltage. Each phase of the source has two rectifying switching means associated therewith whereby current can be made to flow in both directions through the load from the source. When adjacent phases are 60 or less electrical degrees apart high average unidirectional currents in the load are possible since the load current can become continuous where the next adjacent phase turns on to assume load current under high-current switching conditions before the preceding phase switching element turns off. Therefore, current is then only limited essentially by load resistance (instead of the usual reactance) and source impedance which is a substantial power conversion advantage in the achieving of precise DC motor control. This is achievable with SCR-type switching devices, without input phase-to-phase sorting problems, because triggering can only occur when phase voltage magnitude is approaching E-load, either from above or below.

3,571,690
POWER GENERATING UNIT FOR RAILWAY COACHES

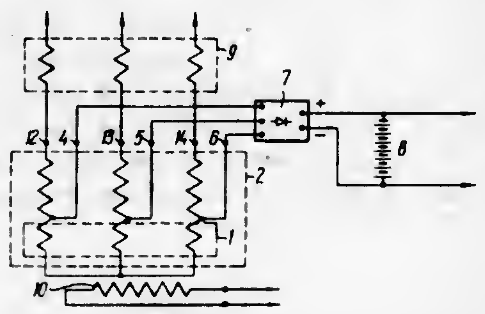
Voldemar Voldemarovich Apsit, ulista V. Latsisa, 2-a, Kv.21, Riga, U.S.S.R.

Filed Oct. 25, 1968, Ser. No. 770,547

Claims priority, application U.S.S.R., Oct. 30, 1967, 1193648

Int. Cl. H62m *7/00*

U.S. Cl. 321—8 **2 Claims**



A power-generating unit for railway coaches which comprises a synchronous electrical machine connected to the coach circuits through a rectifier.

3,571,691
REGULATED DC POWER SUPPLY

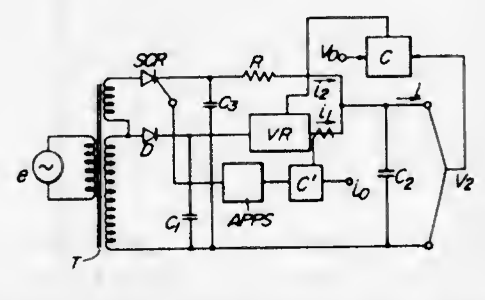
Koji Iwata, and Kenjiro Yokoyama, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 1, 1968, Ser. No. 764,235

Claims priority, application Japan, Oct. 2, 1967, Oct. 20, 1967, 42/63047; 42/67242

Int. Cl. H02m *7/20*

U.S. Cl. 321—18 **2 Claims**



A regulated DC power supply consisting of a voltage regulating circuit which supplies the load with a current just to compensate the variation in the load current and another circuit connected in parallel to said voltage regulating circuit which supplies the remaining and constant portion of the

load current, thereby making it possible to reduce the necessary current bearing capacity of the regulating components.

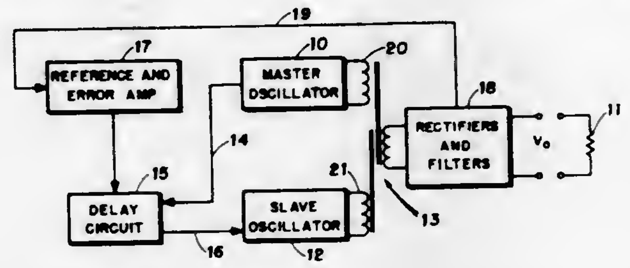
3,571,692
STEP WIDTH REGULATED DC/DC CONVERTER

Carl F. Andren, St. Petersburg, Fla., assignor to the United States of America as represented by the Secretary of the Navy

Filed July 1, 1969, Ser. No. 838,140

Int. Cl. H02m *7/48*

U.S. Cl. 321—18 **9 Claims**



A feedback regulated DC/DC converter is disclosed. More particularly, an unregulated master oscillator feeds square waves into one core of a dual-core transformer, and a slave oscillator (whose output amplitude is a predetermined fraction of the master oscillator's output amplitude) also feeds square waves into the other core of the transformer. A sample of the transformer output after it has been rectified and filtered is compared against a reference value and the difference between the output value and the reference value produces an error current which is fed into a delay circuit The delay circuit will then synchronously adjust the output phase of the slave oscillator. Thus, the average voltage appearing across the secondary of the dual-core transformer is varied by adjusting the relative phase between the master and the slave oscillator. Since the slave oscillator operates at only a small percent of the master oscillator's output, step-width modulation, rather than the standard pulse width modulation, results.

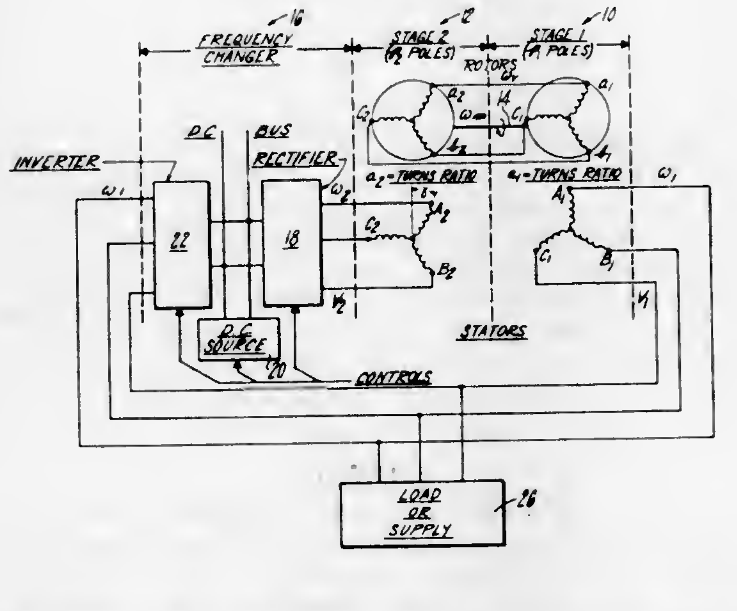
3,571,693
CONSTANT FREQUENCY OUTPUT TWO-STAGE INDUCTION MACHINE SYSTEMS

Mahmoud Riaz, Minneapolis, Minn., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Nov. 21, 1968, Ser. No. 777,818

Int. Cl. H02p *9/42*

U.S. Cl. 322—32 **12 Claims**



A system employing double-induction machines and being capable of providing constant-frequency electrical power from a variable speed drive or of operating as a controlled speed motor from a constant-frequency source. The disclosed system employs two polyphase, wound-rotor induction machines mounted on the same shaft and having their rotor windings connected in a reverse phase sequence and their stator windings interconnected by means of a direct-current link-type of static frequency changer.

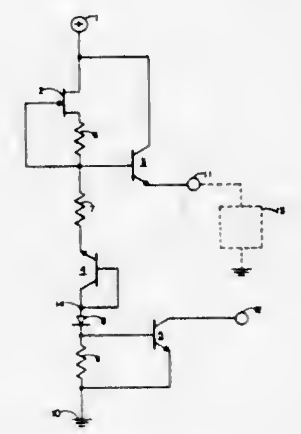
3,571,694
DC VOLTAGE REGULATOR EMPLOYING AN FET CONSTANT CURRENT SOURCE AND CURRENT FLOW INDICATOR

Jack W. Hunger, Hennepin, Minn., and David D. Kemp, Santa Clara, Calif., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 8, 1968, Ser. No. 751,077

Int. Cl. G05f *1/58*

U.S. Cl. 323—4 **7 Claims**



A DC voltage regulator employing a constant current source and a voltage reference source to control a variable impedance to regulate an input voltage. A low voltage sensing output is provided by using a sensing transistor as a switch and temperature compensation element. The sensing transistor functions as a voltage responsive switch to produce a signal indicative of the level of the input voltage relative to a predetermined level. The sensing transistor is normally saturated to connect the sensing output to the ground.

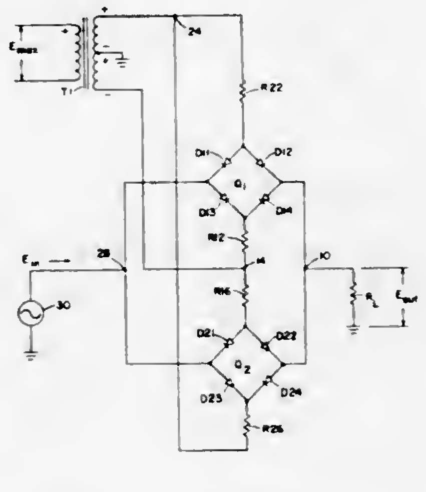
3,571,695
LOW DISTORTION AC LIMITER

Robert L. Straiton, Orlando, Fla., assignor to the United States of America

Filed May 27, 1969, Ser. No. 828,179

Int. Cl. G05f *1/12*

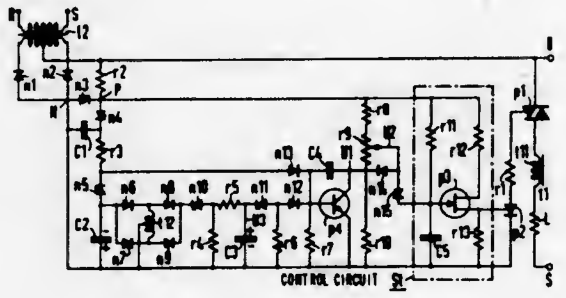
U.S. Cl. 323—9 **6 Claims**



An alternating current limiter that does not require a harmonic output filter. A reference signal is coupled through a step-up transformer with a center-tapped secondary and is applied across a quad of diodes. The reference signal is inverted and applied across a second quad of diodes. An input signal is applied to both diode quads adjacent to the reference signal input. An output from both quads is connected to a load. The quads conduct alternately and the output signal therefrom is a duplicate of the input signal or a function of the reference signal if the input signal magnitude exceeds a limiting value. The reference signal is either in phase or 180° ut of phase with the input signal.

3,571,696
ALTERNATING CURRENT CONTROLLER WITH START-UP DELAY

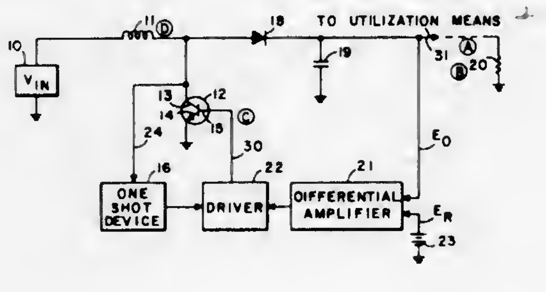
Manfred Liska, and Aubert Martin, Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
Filed Dec. 18, 1969, Ser. No. 877,660
Claims priority, application Germany, Dec. 25, 1968, P 18 10 760.3
Int. Cl. G05f *1/40, 1/52, 1/60*
U.S. Cl. 323—22 **3 Claims**



An AC controller connects a load to an AC voltage source and has a control unit for providing output control pulses in synchronism with the voltage of the source. An RC circuit connected to the control unit has a load capacitor and a load resistor for controlling the phase position of the control pulses in accordance with the time constant of the RC circuit.

3,571,697
VARIABLE IMPEDANCE SWITCHING REGULATOR

Donald E. Phillips, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.
Filed Dec. 16, 1968, Ser. No. 783,930
Int. Cl. G05f *1/56*
U.S. Cl. 323—17 **21 Claims**

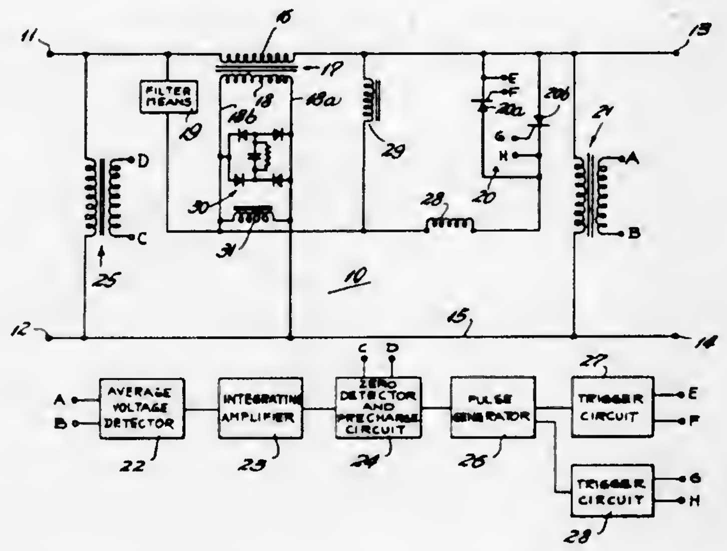


A DC step-up voltage regulator with a series arrangement of a raw DC source and an energy storing inductor which are alternately connected to a low impedance circuit to build up the inductor current and to an output circuit which includes a capacitor which is charged by the current flow from the inductor. A control circuit varies the amount of inductor current buildup needed to hold the output voltage constant and also provides periodic and constant time intervals of sufficient duration to discharge the inductor current into the capacitor.

3,571,698
LOW DISTORTION AUTOMATIC VOLTAGE REGULATOR HAVING CONTROLLED RECTIFIERS

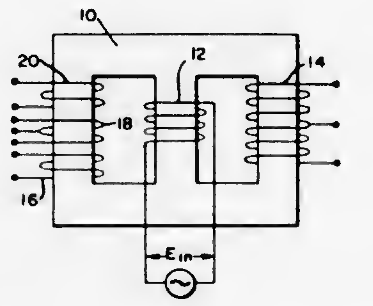
Owen J. McCabe, Bristol, Conn., assignor to The Superior Electric Company, Bristol, Conn.
Filed Feb. 17, 1969, Ser. No. 799,629
Int. Cl. H02p *13/04, 13/16;* **H02m** *5/12*
U.S. Cl. 323—24 **6 Claims**

An automatic voltage regulator for providing a substantially constant output voltage by regulating the input voltage with a transformer that has a secondary winding connected between the input and output of the regulator and a primary winding connected to controlled rectifiers so that control of the conduction of the rectifiers alters the voltage in the transformer to regulate the input voltage. A harmonic voltage filter is also connected to the primary winding in parallel with the controlled rectifiers to substantially minimize the percentage of distortion caused by the controlled rectifiers in the output of the regulator by shunting the harmonic voltages back to the controlled rectifiers. The filter also provides a voltage that is in opposition to the controlled rectifier voltage in the primary winding and is employed to regulate the input voltage at some operating conditions of the regulator.



3,571,699
VOLTAGE REGULATOR

Sherwood Thaler, Lexington, Mass. Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 13, 1969, Ser. No. 865,811
Int. Cl. H01f *19/00, 29/00*
U.S. Cl. 323—48 **3 Claims**



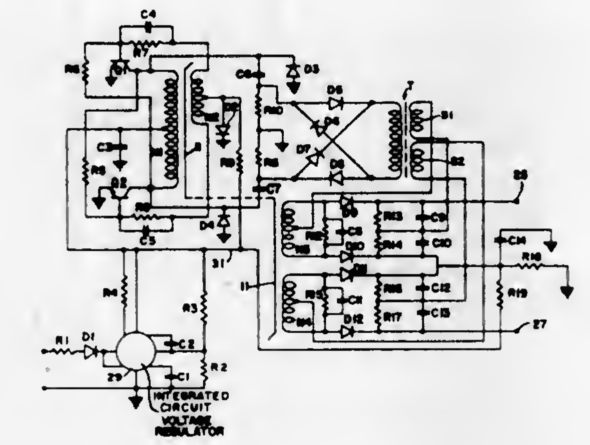
Voltage regulators designed for connection in series with an alternating current source and a load and employing a three-leg, two-window transformer are disclosed. Secondary windings on the two outer transformer core legs are interconnected to form a pair of secondary winding systems and the systems are interconnected via a variable resistance. Voltage regulation is achieved by varying the flux distribution in the transformer core by employing variable resistance to distribute the load current between the winding systems.

3,571,700
TWO-AXIS FLUXGATE MAGNETOMETER

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of Charles J. Pellerin, Jr., and Mario H. Acuna, Greenbelt, Md.
Filed Dec. 10, 1968, Ser. No. 782,544
Int. Cl. G01r *33/02*
U.S. Cl. 324—43 **2 Claims**

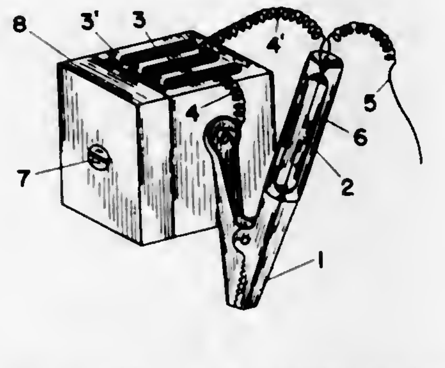
This disclosure describes a two-axis fluxgate magnetometer. A toroidal sensor that performs both a magnetic sensing

function along two axes in a common plane and a magnetic multivibrator function is connected to a pair of phase sensitive detectors. A frequency doubler is connected to the multivibrator to sense the frequency of the multivibrator and to double that frequency. The output from the frequency doubler is connnected to the phase detectors. The phase detectors sense an imbalance in the sense windings of the toroidal core at the second harmonic of the multivibrator frequency. The phase detectors generate DC output signals having a magnitude related to the magnitude of the magnetic field causing the imbalance and a polarity determined by the direction of the magnetic field.



3,571,701
APPARATUS HAVING AUDIBLE AND VISUAL INDICATOR MEANS FOR DETECTION OF LEAKAGE CURRENTS AND INCLUDING CROCODILE CLIP AND MAGNETIC SURFACE ATTACHMENT MEANS

Tin-Hwai Lai, 46, Kuang Jih Rd. Wu Jih, Taichung, China /Taiwan
Filed Dec. 18, 1967, Ser. No. 691,274
Int. Cl. G01r *31/02*
U.S. Cl. 324—51 **2 Claims**

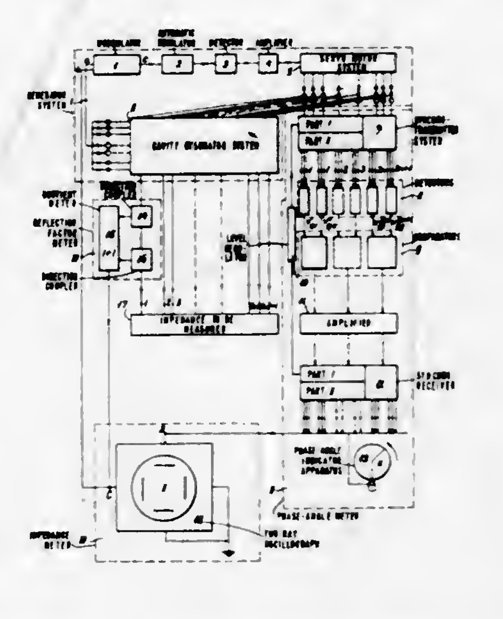


Apparatus for the detection of leadage currents consisting of a housing containing a buzzer for audible indication and having a magnetic surface for attachment to ferrous metal, the housing also having a clip which serves as an alternative attachment means, a gas discharge lamp for visual indication being provided connected in parallel with the buzzer, and an earth wire connecting with one side of the buzzer, the other side being connected to the housing which is conductive.

3,571,702
APPARATUS FOR THE WIDE-BAND IMPEDANCE MEASUREMENT OF MICRO-WAVE CIRCUITS IN MICRO-WAVE MULTIPLE-POLE ARRANGEMENTS

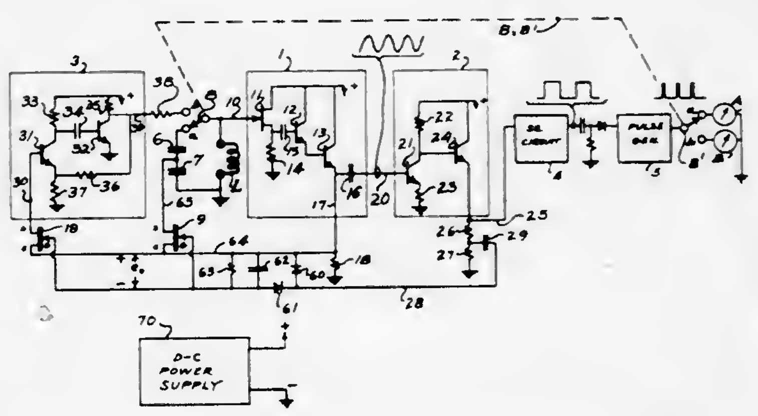
Laszlo Hartner, Budapest, Hungary, assignor to Tavkozlesi Kutato Intezet, Budapest, Hungary
Filed Oct. 30, 1967, Ser. No. 678,938
Int. Cl. G01n *27/04*
U.S. Cl. 324—58 **1 Claim**

A process for the wideband measurement of the impedance of microwave current circuits in microwave multiple pole arrangements, i.e., N ports. Into at least one cavity resonator comprised by the N port to be measured a signal is introduced which is so reflected by adjustable reference planes that, in the event of resonance, the signal reflected via the N-port to be measured from the corresponding reference planes is compared with signals introduced into the individual cavity resonators. In the cavity resonators the geometrical spacings (electrical lengths) existing between any desired reference planes are transmitted in the form of electrical signal differences to the indicator apparatus of a synchro receiver system. By means of the tuning elements of the cavity resonators, which are moved in synchronism with the wobbulators energizing the cavity resonators, there is a flow through the corresponding frequency band such that the signals reflected by the reference planes of the cavity resonators are transformed with the aid of the systems assembled therewith (microwave, low frequency, electromechanical systems). The impedances to be measured are continuously indicated in dependency on the frequency.



3,571,703
RESONANCE-TYPE INDUCTANCE OR CAPACITANCE METER

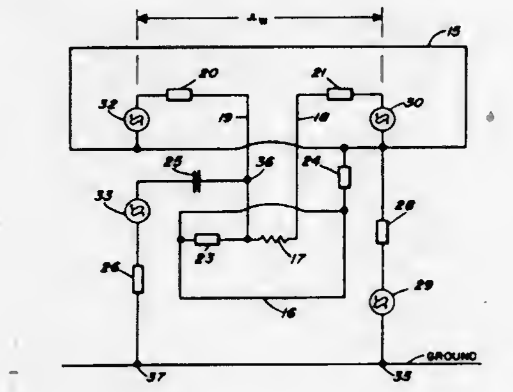
Alfred Wallace Russell, 3314 Rubio Crest Drive, Altadena, Calif.
Filed Oct. 11, 1968, Ser. No. 766,845
Int. Cl. G01r *27/00*
U.S. Cl. 324—59 **9 Claims**



An electronic instrument measures properties of inductors by connecting the unknown inductor in an oscillating feedback loop and measuring the frequency of oscillation by means of a pulse-averaging discriminator. Feedback amplifiers are switched to measure inductance and self-oscillation frequency separately. Readout is by means of analog indicating instruments. A unique control circuit maintains the amplitude of the AC oscillation voltage across the unknown inductor at a constant low value, independently of the inductor's parameters, and permits the use of large shunt capacitors to minimize errors due to the self-capacitance of the inductor.

3,571,704
METHOD FOR DETERMINING THE DEGREE OF HAZARD TO ELECTROEXPLOSIVE DEVICES FROM AN ELECTROMAGNETIC ENVIRONMENT

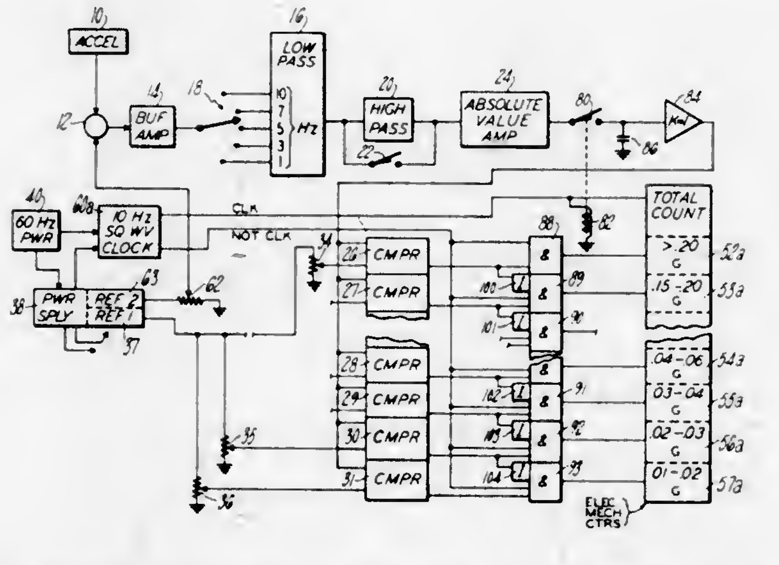
Roger W. Carson, Fredericksburg, and Helmut A. Schwab, Dahlgren, Va., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 26, 1969, Ser. No. 827,841
Int. Cl. G01r *31/02*
U.S. Cl. 324—72 **3 Claims**



Potential difference between a weapon system and ground when that system is placed in an electromagnetic environment is an indication of degree of hazard to an electroexplosive device carried by the weapon system. The voltage measurement from weapon system to ground was found to be proportionately related to the radio frequency induced currents in the firing circuit of the electroexplosive device within the frequency range of 0—26MHz. Since this induced current can be said to directly indicate hazard of premature detonation to an electroexplosive device, the voltage measurement is an indicator of degree of hazard. By measuring the potential difference of a weapon system against ground in a standard electromagnetic environment and comparing with a measurement made in a working environment, the degree of hazard to the electroexplosive device in the working environment is determined.

3,571,705
ANALOG SIGNAL AMPLITUDE DISTRIBUTION MEASURING APPARATUS

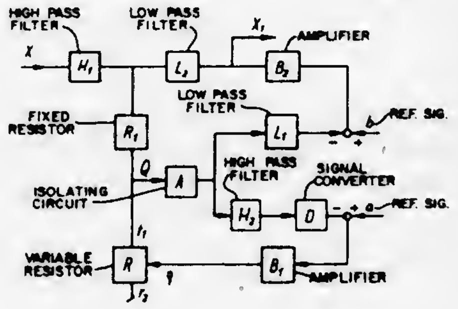
Bruce A. Crane, Wethersfield, and William H. Walter, Granby, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Dec. 9, 1968, Ser. No. 782,198
Int. Cl. G01r *19/04*
U.S. Cl. 324—77 **2 Claims**



The time distribution of amplitudes of analogue signals, as well as the number of signals in excess of a given amplitude, are recorded in a plurality of electromechanical counters, each one corresponding to a range of amplitudes or a lower limit of amplitude. The amplitudes are determined by periodically comparing the analogue voltage wave form with a plurality of standard voltages, each corresponding to a boundary between the ranges of the various counters. Selectively engageable filtering is provided, and DC offset means is provided (such as for gravity compensation in an accelerometer embodiment).

3,571,706
VOLTAGE MEASURING APPARATUS EMPLOYING FEEDBACK GAIN CONTROL TO OBTAIN A PREDETERMINED OUTPUT AND A FEEDBACK LOOP TO READOUT THE GAIN VALUE

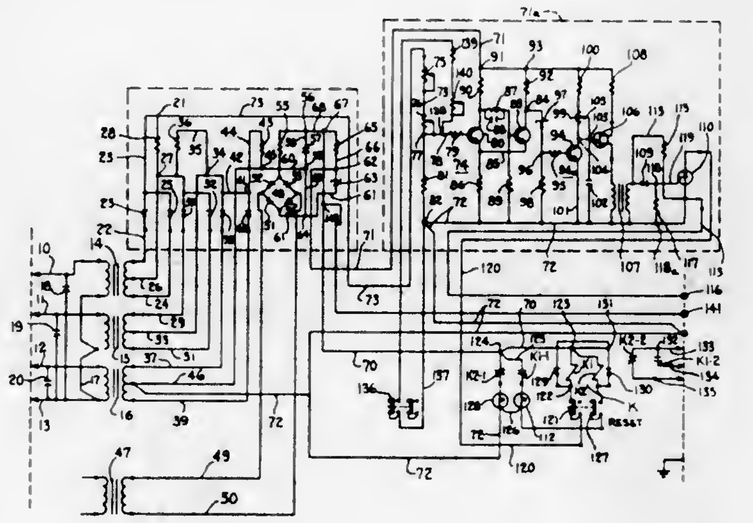
Hakon Bjor, Oslo, Norway, assignor to Sentralinstitutt For Industriell Forskning, Oslo, Norway, Continuation-in-part of Ser. No. 610,928, Jan. 23, 1967, abandoned
Filed July 15, 1969, Ser. No. 841,734
Int. Cl. G01r *17/06, 15/10*
U.S. Cl. 324—99 **6 Claims**



An unknown signal is directly measured by means of an electronic circuit having no mechanical moving parts. The root means square values of unknown AC signals over large ranges are readily determined by measuring the amplification of a compressor in the circuit with a DC voltage signal separated from the measured signal by means of simple filters.

3,571,707
VOLTAGE DROPOUT SENSOR

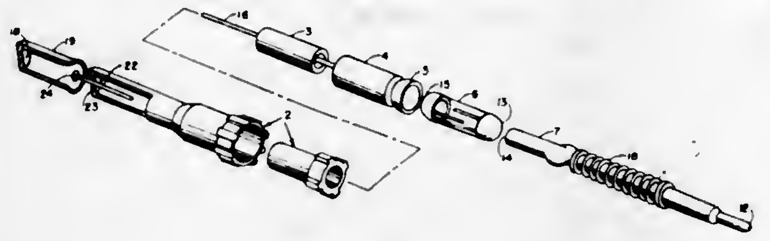
Walter H. Houck, Titusville, Fla. Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 18, 1969, Ser. No. 817,482
Int. Cl. G01r *19/00, 19/16;* **G08b** *21/00*
U.S. Cl. 324—107 **6 Claims**



A system for monitoring the output voltage of a power source for generating a signal indicating when the amplitude level of the voltage drops below a predetermined value. The system is provided with a summing circuit so that multiphase voltages can be monitored.

3,571,708
VOLTAGE INDICATOR AND WRITING INSTRUMENT

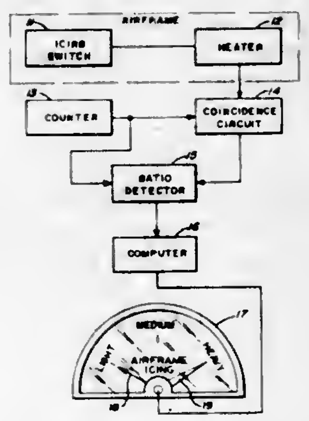
Bobby L. Hurt, Rte. 3, Concord, Tenn.
Filed Feb. 10, 1969, Ser. No. 797,853
Int. Cl. G01r *19/16*
U.S. Cl. 324—133 **6 Claims**



A voltage indicating circuit integrated into a retractable-tip writing instrument.

3,571,709
DETECTOR FOR MEASURING ICING RATES OVER A PLURALITY OF PERIODS OF TIME

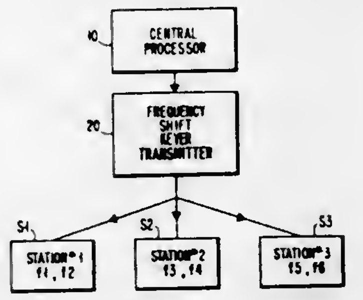
Robert M. Gaertner, 9315 Queens Lane, Oxen Hill, Md.
Filed May 21, 1969, Ser. No. 826,548
Int. Cl. G01r *7/00;* **G01n** *27/00*
U.S. Cl. 324—142 **6 Claims**



This invention is directed to an icing rate detector. The invention utilizes an icing switch and a heater which are mounted on the outside of an aircraft. When ice forms on the switch, it closes and energizes a heater which then melts the ice and causes the switch to open. The heater thus is cycled on and off when the aircraft is subjected to icing conditions. A rate detecting circuit measures the rate at which power is consumed over a fifteen second period and over a two minute period. These rates are directly proportional to the rate at which ice is formed on the aircraft.

3,571,710
FSK COMMUNICATION SYSTEM UTILIZING CLAMPED DEMODULATOR OUTPUT

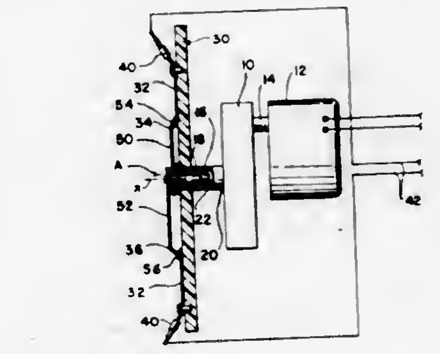
Lynn P. West, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 14, 1969, Ser. No. 790,961
Int. Cl. H04l *27/10*
U.S. Cl. 325—30 **3 Claims**



A communication system which transmits binary data by a frequency shift keyer to a plurality of receiving stations while the receiving stations are on a common channel with the transmitter. Each receiving station utilizes an FM demodulator wherein normally the output voltage is directly proportional to the frequency received by the demodulator. In each receiving station, a maximum and a minumum output voltage for the demodulator is established. Between each of these voltage levels, information can be received; whereas, outside the voltage level, there are no transitions but a constant signal output. Thus, by adjusting different level ranges for each receiver, the transmitter can transmit to one desired station without effecting or passing information to the other stations.

3,571,711
SPRING-DRIVEN TIMER

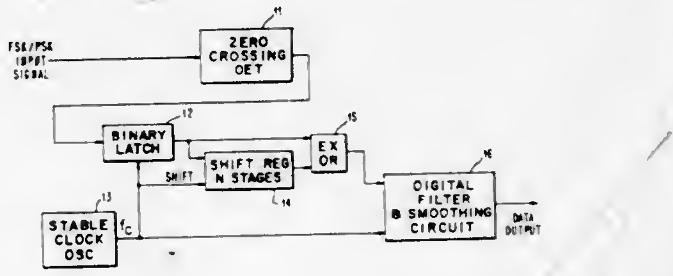
Wilhelm A. Nemetz, Bridgeton, N.J., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.
Filed May 12, 1969, Ser. No. 823,577
Int. Cl. H04b *1/04*
U.S. Cl. 325—166 **6 Claims**



A precision timer for energizing an external load at a preselected point in time, comprising: a spring-driven motor; an electric motor in winding engagement with the spring-driven motor; an electric circuit having contacts; and rotatable contact arms driven by the spring-driven motor for sequential engagement with the contacts.

3,571,712
DIGITAL FSK/PSK DETECTOR

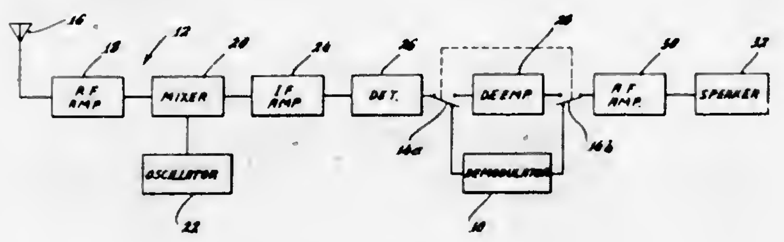
George A. Hellwarth, Deerfield Beach, Fla., and Gardner D. Jones, Jr., Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 30, 1969, Ser. No. 846,082
Int. Cl. H04b *1/16*
U.S. Cl. 325—320 **6 Claims**



The digital FSK/PSK detector demodulates digital data from a frequency shift keyed modulation signal (FSK) or a phase shift keyed modulation signal (PSK) for moderate data rates including at least 1200 bits per second and is capable of operating over switching networks. The digital FSK/PSK detector comprises a binary amplitude quantizer, a clock, a digital time quantizer, a digital delay coacting with an Exclusive-OR circuit for detecting the digital data signal from the FSK/PSK modulated signal and a digital filter and smoothing circuit for eliminating undesirable noise from the digital data signal.

3,571,713
LOW FREQUENCY WIDE BAND FM DEMODULATORS

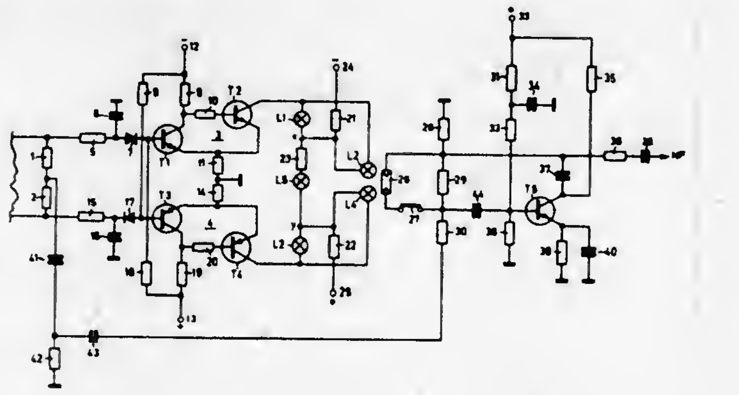
James D. Zachary, 49 Hillcrest Ave, Stamford, Conn.
Filed May 27, 1968, Ser. No. 732,463
Int. Cl. H04b *1/28*
U.S. Cl. 325—349 **10 Claims**



The disclosure concerns a demodulator for demodulating frequency modulated subcarriers. The demodulator is used in combination with a conventional FM receiver detector and is designed to demodulate SCA broadcasts. The SCA intelligence is introduced as FM signals to the modulator of an FM transmitter along with normal audiofrequency intelligence. The demodulator, connected to the output of the FM receiver detector, converts the FM intelligence of the SCA broadcast to audiofrequency intelligence using a two-stage active band-pass filter network and a ratio detector. The components of the demodulator are mounted on a printed circuit board in a manner to achieve compact size and a low profile.

3,571,714
LAMP ARRANGEMENT FOR COMBINED TUNING INDICATION AND SILENT TUNING IN HIGH-FREQUENCY RECEIVERS

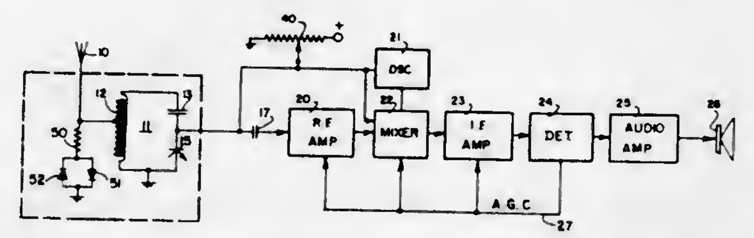
Karl Traub, Fuerth, Germany, assignor to Grundig E.M.V. Elektro-Mechanische Versuchsanstatt, Inh. Max Grundig, Fuerth, (Bayern), Germany
Filed Sept. 12, 1968, Ser. No. 759,369
Int. Cl. H04b *1/00;* **H03f 17/00; H03i 1/04**
U.S. Cl. 325—364 **10 Claims**



Three sets of lamps are used for indicating the tuning conditions by being interconnected at the outputs of two threshold switching circuits. The inputs to the threshold circuits are, in turn, connected to DC voltages of opposite polarity provided by a symmetrical ratio detector or discriminator. Each threshold circuit has a complementary transistor, and the output of the circuit has a pair of lamps connected in parallel, as the output impedance of the circuit. A third single lamp is connected between the two sets of parallel-connected lamps. When the single lamp is turned on the parallel-connected lamps are turned off and vice versa. An indicator board with three viewing areas is associated with the lamps.

3,571,715
OVERLOAD COMPENSATION FOR ANTENNA-TUNING SYSTEM

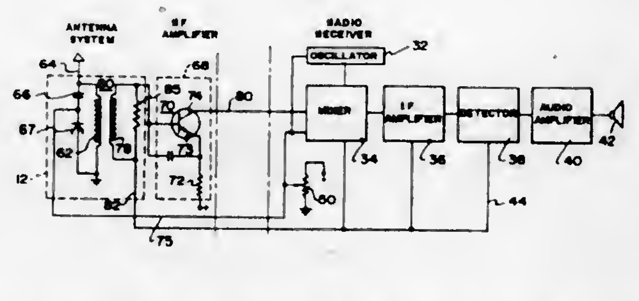
Gene Beary, Franklin Park; Anthony T. Heagney, Elmwood Park, and Ole K. Nilssen, Bensenville, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Dec. 16, 1968, Ser. No. 784,097
Int. Cl. H04b *1/18*
U.S. Cl. 325—362 **6 Claims**



A tank circuit for tuning the antenna of a radio receiver includes a voltage variable diode capacitor as the variable tuning element therein. In order to prevent strong RF input signals from appearing across and being rectified by the voltage variable capacitor, an attenuating circuit in the form of a shunt resistor or a capacitive voltage divider is connected across the antenna input to the tank circuit whenever the level of the RF signal exceeds a predetermined amount. This connection of the attenuating circuit across the antenna may be effected directly in response to the RF signal level itself or in response to a switch operated by the AGC signal of the receiver of which the antenna-tuning circuit is a part.

3,571,716
ELECTRONICALLY TUNED ANTENNA SYSTEM

Fred P. Hill, Elgin, and Richard T. Race, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Apr. 16, 1968, Ser. No. 721,716
Int. Cl. H04b *1/18*
U.S. Cl. 325—383 **4 Claims**

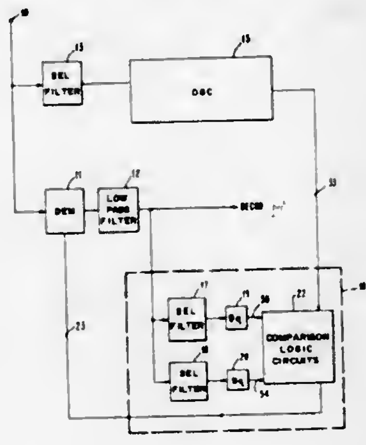


A tank circuit for the aerial of a radio receiver includes a transformer located in a housing positioned at the bottom of the aerial with the primary winding electrically connected to the aerial. A voltage variable capacitor is connected across the primary winding. The secondary winding of the transformer is connected by a coaxial cable to the radio receiver which is remotely positioned from the aerial. A direct current potential from a potentiometer in the radio receiver is coupled through the coaxial cable to the voltage variable capacitor for tuning the antenna tank circuit over a predetermined frequency band. The selected RF signal in turn is coupled from the secondary winding of the transformer through the coaxial cable to the radio receiver.

3,571,717
DUAL PILOT CONTROL FOR RE-PHASING A SIGNAL CARRIER

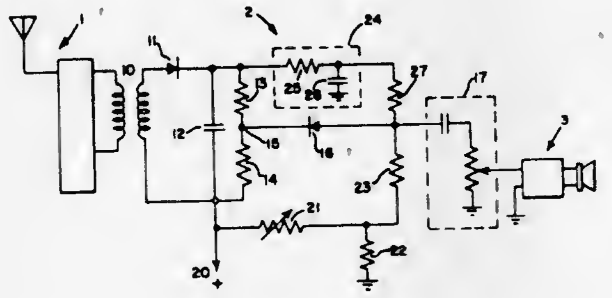
Jean L. Monrolin, Les-Hauts-De-Camassade, France, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 1, 1968, Ser. No. 764,253
Claims priority, application France, Oct. 6, 1967, 8733(AM)
Int. Cl. H04b *1/68*
U.S. Cl. 325—329 **3 Claims**

In a communication system transmitting both the lower sideband of a modulated signal and the carrier, the phase shift of the recovered carrier relative to the signal spectrum can be adjusted to improve signal demodulation. Two pilot frequencies, one higher than and one lower than the signal frequencies to be transmitted and having a known phase relationship are mixed with the signal for modulation by the carrier and transmission. In the receiver, the signal is demodulated with a recovered carrier signal and the pilot frequencies are phase compared to determine the magnitude and direction of their relative phase shift. The recovered carrier signal is then phase shifted to reduce the relative phase shift of the pilot frequencies to within a limited range.



3,571,718
SQUELCH CIRCUIT

Joseph A. Worcester, Frankfort, N.Y., assignor to General Electric Company
Filed Feb. 29, 1968, Ser. No. 709,307
Int. Cl. H04b *1/10*
U.S. Cl. 325—478 **6 Claims**

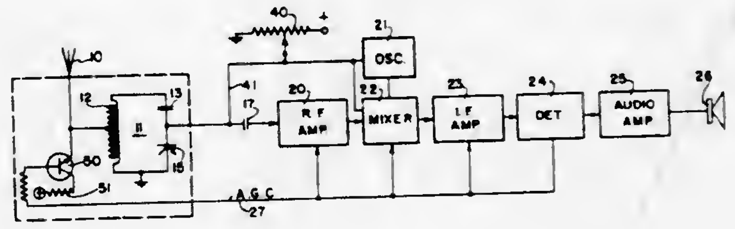


A radio receiver including a squelch circuit having a unilateral conducting element normally biased for nonconduction connected between the detector and audio amplifier stages. An integrating circuit is connected between the detector output and an output terminal of the unilateral conducting element. Upon appearance of a detected audio signal at the detector output, the integrating circuit develops a biasing potential at the output terminal of the element. When the magnitude of the bias produced by the integrating circuit exceeds the level necessary to maintain the unilateral conducting element in a nonconducting state, the element conducts, and the audio signal is coupled to the audio amplifier input.

3,571,719
OVERLOAD COMPENSATION CIRCUIT FOR ANTENNA TUNING SYSTEM

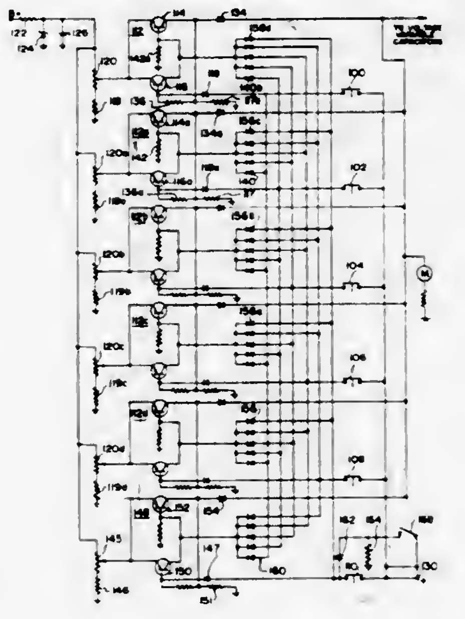
Gene Beary, Franklin Park, and Kamil Y. Jabbar, River Grove, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Dec. 13, 1968, Ser. No. 784,046
Int. Cl. H04b *1/18*
U.S. Cl. 325—383 **6 Claims**

In an antenna tuning system using a voltage variable capacitor diode in the tank circuit for tuning, the antenna is provided with an overload compensation circuit for the capacitor diode in the form of a variable shunt impedance connected between the antenna and ground. The variable impedance is in the form of a transistor or a field effect transistor, the conduction of which is controlled by the AGC voltage in the radio receiver supplied with signals from the antenna tuning circuit. As the AGC signal increases, the impedance of the transistor decreases to shunt increasing amounts of the signal supplied by the antenna to ground. This limits the signal level across the voltage variable capacitor to prevent rectification of high level signals thereby.



3,571,720
SYSTEM FOR SELECTING ONE OF A PLURALITY OF CONTROL UNITS FOR TUNING A WAVE SIGNAL RECEIVER

Anthony T. Heagney, Elmwood Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed July 10, 1968, Ser. No. 743,729
Int. Cl. H04b *1/06, 1/16, 1/32*
U.S. Cl. 325—390 **10 Claims**



A system for establishing priority in one of a plurality of remote control units used for tuning a radio by varying the bias on voltage variable capacitors in the antenna, RF and local oscillator stages. Each remote control unit includes a semiconductor switching circuit connected between a momentary pushbutton switch and a potentiometer calibrated to the radiofrequency band. Actuating the pushbutton switch of one unit energizes the switching circuit of that unit to couple a potential through the potentiometer to the control unit. The pushbutton also connects a potential to the switching circuits of the remaining control units to deenergize them.

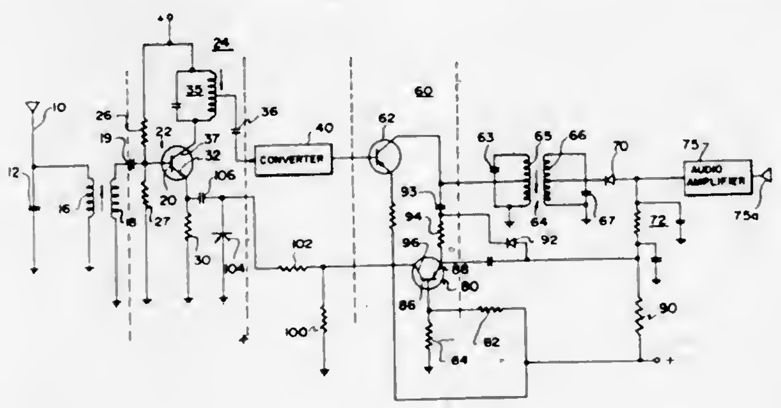
3,571,721
AGC WITH VARIABLE CAPACITY TO BYPASS RF STAGE DEGENERATIVE FEEDBACK

Kamil Y. Jabbar, River Grove, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 1, 1968, Ser. No. 725,856

Int. Cl. H04b *1/16;* **H03g** *3/30*

U.S. Cl. 325—408 **5 Claims**



A voltage variable capacitor is coupled across a degenerative feedback resistor which is connected to the common electrode of a transistor forming the radio frequency amplifier stage of a radio receiver. A rectifier circuit connected to the intermediate frequency stage of the receiver rectifies the modulated signal and provides an automatic gain control voltage that is coupled by an amplifier to a voltage variable capacitor to vary the reactance in accordance with the level of the modulated signal. A portion of the degenerative feedback signal is bypassed by the variable capacitor proportional to the direct current bias applied thereto to control the gain of the radio amplifier stage.

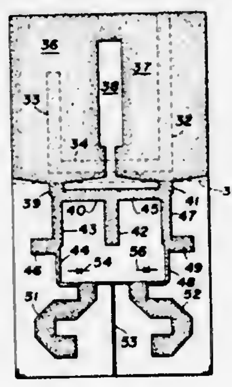
3,571,722
STRIP LINE COMPENSATED BALUN AND CIRCUITS FORMED THEREWITH

George D. Vendelin, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sept. 8, 1967, Ser. No. 666,418

Int. Cl. H04b *1/26*

U.S. Cl. 325—445 **13 Claims**



A strip line compensated unbalanced-to-balanced converter having an inherently wide bandwidth for impedance matching or filtering in strip line applications. A two-sided printed circuit board contains the unbalanced input circuit on one side and the balanced output circuit on the opposite side in the area of the strip line circuit. By analogy, the "-balun" acts like a push-pull transformer having two output signals 180 electrical degrees out-of-phase from each other. Balun circuits find application as the coupling device for connecting the local oscillator signal to a mixer circuit. Another application of a strip line balun is in a harmonic generator wherein two baluns are used, one at the input and the other at the output.

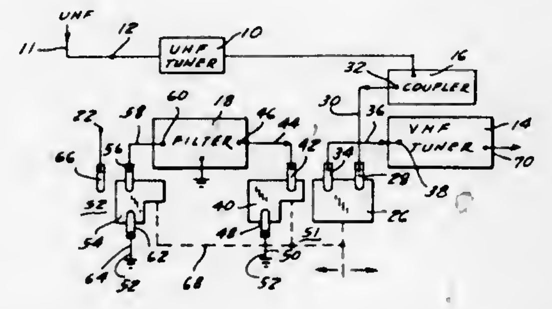
3,571,723
UHF-VHF TUNER HAVING MEANS FOR REDUCING STRAY COUPLING BETWEEN A FILTER AND THE VHF TUNER DURING UHF BAND RECEPTION

Hironobu Ogusu, Tokyo, Japan, assignor to Alps Electric Company, Limited, Tokyo, Japan

Filed Feb. 12, 1969, Ser. No. 798,626

Int. Cl. H03d *7/16;* **H04b** *1/26*

U.S. Cl. 325—461 **14 Claims**



A communications receiver having the capability of receiving signals in the UHF and VHF bands comprises a UHF tuner, a VHF tuner and a filter connected between the VHF antenna port and the VHF tuner during VHF reception. For UHF reception the UHF tuner is operatively connected to the input of the VHF tuner and the output of the filter is disconnected therefrom. A switch is provided to do one or more of the following during UHF reception: (a) disconnect the input of the filter from the VHF antenna port; (b) connect the filter input to ground; and (c) connect the output of the filter to ground, all to reduce the stray coupling of spurious signals from the VHF antenna to the VHF tuner during UHF reception.

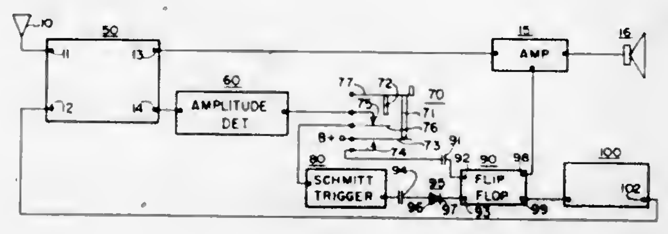
3,571,724
ELECTRICALLY TUNABLE SIGNAL SEEKING TUNER

Arthur N. Borg, Fort Wayne, Ind., assignor to Admiral Corporation, Chicago, Ill.

Filed May 31, 1968, Ser. No. 733,339

Int. Cl. H03j *3/00, 3/18;* **H04b** *1/32*

U.S. Cl. 325—470 **15 Claims**



An all-electronic signal seeking receiver in which a binary counter and a transistorized resistor matrix is utilized to produce an incremental step voltage for reverse biasing a varactor diode included in the tunable circuit of the receiver. The binary counter is started by a flip-flop being driven to its "set" position. Upon receipt of a proper signal, a detector drives the flip-flop to its reset position which stops the binary counter. The transistorized resistor matrix; however, maintains its output voltage at the particular level corresponding to receipt of the signal to maintain the receiver in tune.

3,571,725
MULTILEVEL SIGNAL TRANSMISSION SYSTEM

Hisashi Kaneko, and Tatsuo Ishiguro, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Shiba Gochome Minato-ku, Tokyo, Japan

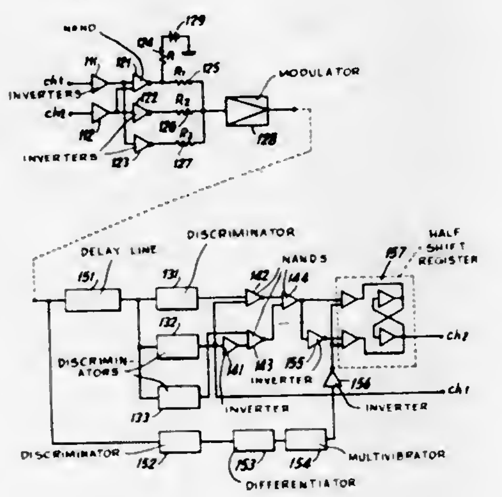
Filed May 22, 1968, Ser. No. 731,197

Claims priority, application Japan, May 25, 1967, 42/33798

Int. Cl. H03k *5/00*

U.S. Cl. 328—14 **5 Claims**

A transmission system is described for transmitting a plurality of two-level pulse trains of arbitrary synchronization over a common signal path. A pair of pulse trains of varying pulse lengths are applied to a digital network which produces a binary equivalent of the condition of the input pulse trains at any time. The binary count from one pulse train occupies a different order, by a multiple of two, from that of the other pulse train. An analogue equivalent of the binary output is generated to provide a composite signal. After suitable modulation and demodulation, the original pulse trains are reconstructed by passing the composite waveform through several amplitude discriminators which with further digital circuitry accurately reconstruct the waveforms. General approaches are disclosed.



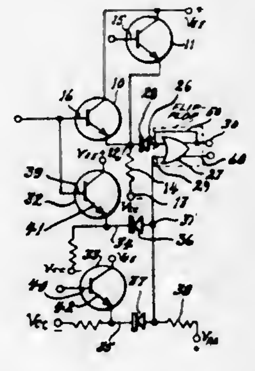
3,571,726
HIGH SPEED DOUBLE RANK SHIFT RIGISTER

Elmer L. Henderson, Philadelphia, Pa., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Feb. 12, 1968, Ser. No. 704,740

Int. Cl. G11c *19/00*

U.S. Cl. 328—37 **8 Claims**



A double rank shift register having a coupling stage on the input side periodically pulsed by a control signal to enable or inhibit the first register element to accept input data. The control signal to the coupling stage of the second register element is 180° out of phase with control signal to the first register element to enable or inhibit the second register element. Since the coupling stages used between the register elements are identical, the phase of the control signal determines whether the coupling stage is enabled or inhibited.

3,571,727
ASYNCHRONOUS SEQUENTIAL DIVIDE BY THREE LOGIC CIRCUIT

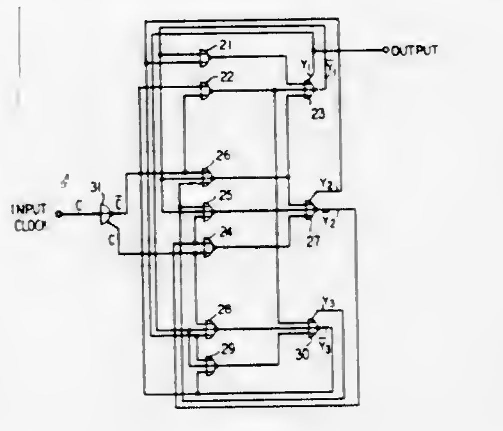
John A. Lombardi, Bradford, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 12, 1968, Ser. No. 783,348

Int. Cl. H03k *21/00*

U.S. Cl. 328—41 **9 Claims**

The particular state assignments used result in a two-level realization that can be economically implemented with integrated logic gates. With successive level changes of the input clock signal the circuit produces a succession of states of the internal state variable which are fed back to control, along with the clock, these internal variables. Each variable has a period three times the period of the clock and may be monitored as the output but the duty cycle and phase of each differ.



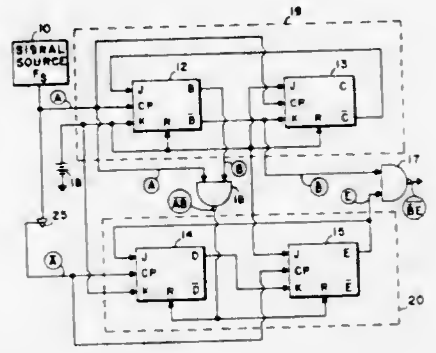
3,571,728
FRACTIONAL FREQUENCY DIVIDER

John J. Andrea, Marion, and Charles M. Dennison, Hiawatha, Iowa, assignors to Collins Radio Company, Cedar Rapids, Iowa

Filed June 19, 1969, Ser. No. 834,723

Int. Cl. H03k *21/00*

U.S. Cl. 328—41 **4 Claims**



A fractional frequency divider circuit comprising a pair of frequency dividers arranged in parallel and each of which divides the input signal frequency F_s y an odd integer N to produce a two level output signal with an unbalanced ratio of upper to lower level time intervals. Synchronizing means control the phases of the output signals of the two frequency dividers so that during each complete cycle of output signals there are two time intervals wherein coincidence of level of the two signals occurs. Appropriate detecting means responds to such coincidence to produce an output signal of $2F_s$N.

3,571,729
PREDICTIVE GATE CIRCUIT FOR THE RECEPTION OF A PULSE-POSITION-MODULATED PULSE TRAIN

Takamichi Honma, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Minato-Ku, Tokyo, Japan

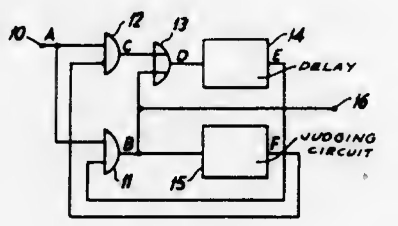
Filed July 10, 1968, Ser. No. 743,779

Claims priority, application Japan, July 12, 1967, 42/44853

Int. Cl. H03k *5/20*

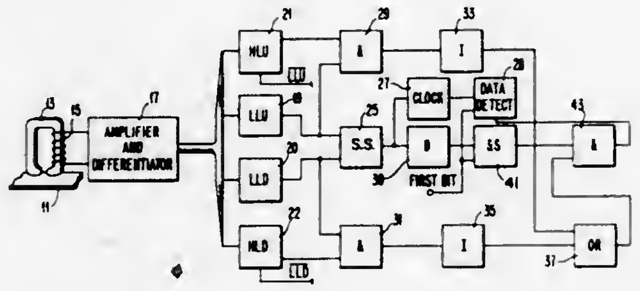
U.S. Cl. 328—109 **8 Claims**

A predictive gate circuit is described for screening out random error pulses occuring in a communication system utilizing pulse position modulated pulse trains. A gate is in synchronization with the incoming pulses opened at a known time corresponding to the basic interval rate of the pulse train and is held open for a duration corresponding to the position modulation range used in the pulse train. A judging circuit is employed which determines when the predictive gate is to be reset for resynchronization with the pulse train when synch is lost due to random error pulses. Several embodiments are shown with one adapted for use with a pulse position modulation communication system wherein pulse positions representative of zero modulation are suppressed at the transmitter end and regenerated in the disclosed predictive circuit.



3,571,730
SELF-CLOCKED BINARY DATA DETECTION SYSTEM WITH NOISE REJECTION

George T. Webb, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 15, 1968, Ser. No. 744,753
Int. Cl. H03k *5/20*
U.S. Cl. 328—117 **5 Claims**

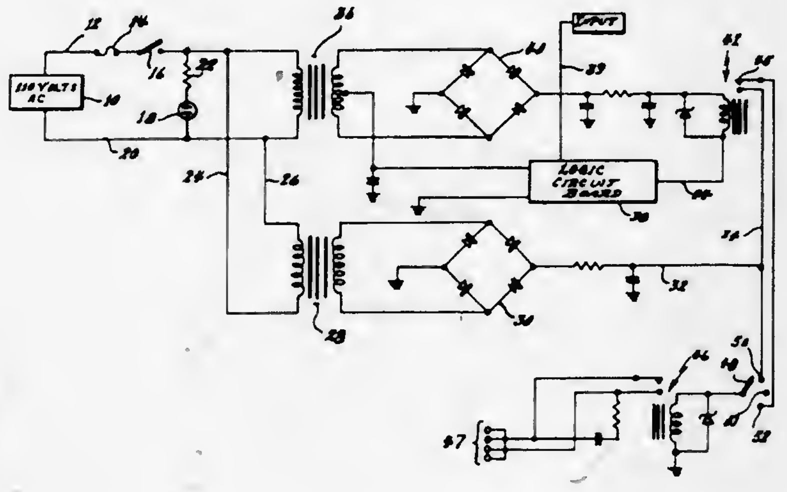


A self-clocked binary data detection system employing multiple threshold level detection of the differentiated read-back signal. A first threshold level detector detects the zero crossovers of the differentiated read-back signal which correspond to the peaks of the read-back signal to provide the self-clocking and data information. A second threshold level detector determines when the signal amplitude of the differentiated read-back signal is above a certain threshold level. An error is indicated if the second threshold detector fails to indicate that the signal amplitude has reached the second threshold level within a predetermined time after the first threshold detector provides an output signal. The output signal of the second threshold detector is latched on and is reset by the next subsequent zero crossover detection by the first detector. This enables the predetermined time interval to be relatively large with respect to the period of the wave form, therefor insuring low and high frequency detection compatibility with weak input signals.

3,571,731
HIGH-SPEED SYNCHRONOUS SAMPLER CONTROL TIMER

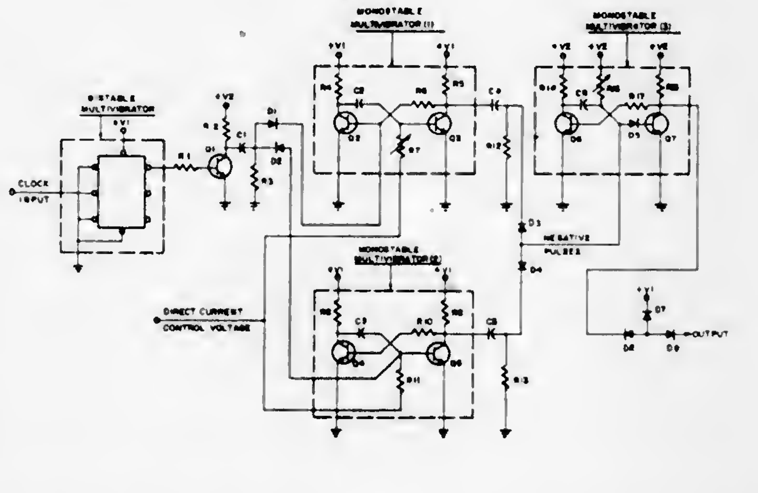
Richard E. Rabe, Rte. #3, Rome, and Ronald J. Covello, 2411A Snark St., Griffiss AFB, N.Y.
Filed Feb. 25, 1969, Ser. No. 802,077
Int. Cl. G01r *29/02;* **H03k** *5/00*
U.S. Cl. 328—131 **2 Claims**

A synchronous timer that counts input pulses and operates a connected device when a preselected count is reached. The timer contains voltage control circuitry, a binary logic circuit, a coincident gate and switch for preselecting the number of pulses, a multivibrator connected to the coincident gate, a reset circuit for automatically returning the count to zero after the preselected count is reached and a relay circuit connected to the coincident gate to operate the connected device.



3,571,732
VOLTAGE CONTROLLED PHASE SHIFTER

Jack T. Richardson, Seattle, Wash., assignor to the United States of America as represented by the Secretary of the Air Force
Filed July 3, 1968, Ser. No. 742,450
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **1 Claim**

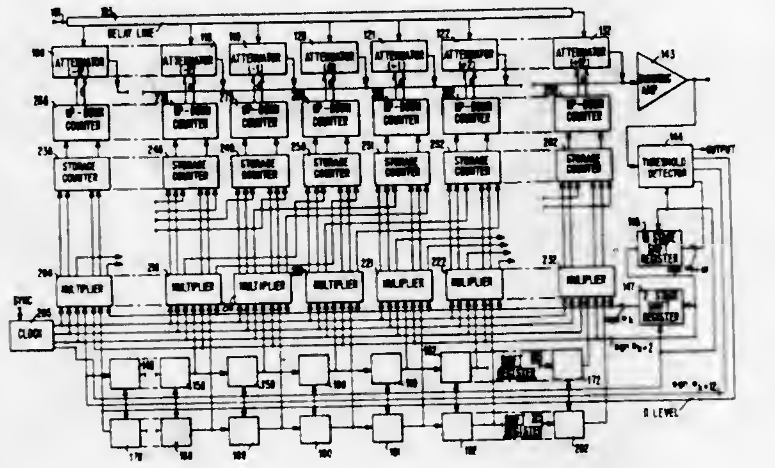

BI-STABLE MULTIVIBRATOR
CLOCK INPUT
MONOSTABLE MULTIVIBRATOR (1)
MONOSTABLE MULTIVIBRATOR (2)
MONOSTABLE MULTIVIBRATOR (3)
DIRECT CURRENT CONTROL VOLTAGE
NEGATIVE PULSES
OUTPUT

A circuit to vary the phase of a square wave clock as a function of a DC input voltage by dividing and differentiating the clock input signal to produce positive and negative pulses, gating these pulses to trigger two monostable multivibrators, the pulse widths of which are functions of the DC input voltage. The multivibrator outputs are differentiated, combined, and the frequency is doubled to obtain the phase shifted signal.

3,571,733
ADAPTIVE DELAY LINE EQUALIZER FOR WAVEFORMS WITH CORRELATION BETWEEN SUBSEQUENT DATA BITS

Yang Fang, Clarksburg, Md., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 13, 1968, Ser. No. 759,644
Int. Cl. H03b *1/00;* **H04b** *1/10;* **H03k** *5/00*
U.S. Cl. 328—162 **5 Claims**

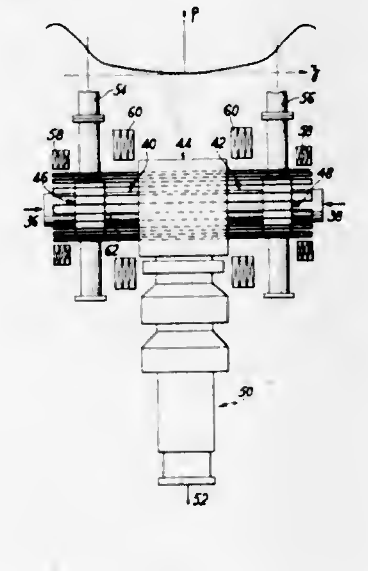
An adaptive delay line equalizer for correcting distortions superimposed upon a digital pulse train wherein there is a correlation between various bits of information. The equalizer automatically adapts itself to changing channel conditions by examining the composite output of the equalizer and feeding back this information simultaneously to at least two stages of the equalizer. This feedback is accomplished in accordance with the following formula:



$$h_j=\frac{1}{6KA^2}\sum_{k=1}^{K}\Big[(\operatorname{sgn} e_k)(\operatorname{sgn} a_{k-j})+\frac{1}{2}(\operatorname{sgn} e_k)(\operatorname{sgn} a_{k+2-j})+\frac{1}{2}(\operatorname{sgn} e_{k+2})(\operatorname{sgn} a_{k-j})\Big]$$

3,571,734
METHOD OF PRODUCTION, ACCELERATION AND INTERACTION OF CHARGED-PARTICLE BEAMS AND DEVICE FOR THE EXECUTION OF SAID METHOD

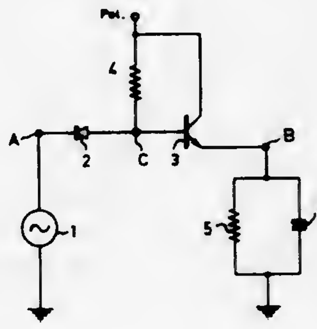
Terenzio Consoli, LaCelle Saint-Cloud; Rene Bardet, Clamart; Richard Geller, Antony, and Bernard Jacquot, Massy, France, assignors to Commissariat AL Energie Atomique, Paris, France
Continuation of application Ser. No. 621,946, Apr. 9, 1969, now abandoned. This application Nov. 21, 1969, Ser. No. 872,455
Int. Cl. G21b *1/22;* **H01j** *1/50;* **H05h** *1/02*
U.S. Cl. 328—233 **13 Claims**



A method of accelerating particles of a nonionized or preionized ionizable gas parallel to an axis which consists in applying to said gas at least one high-frequency electromagnetic field having a frequency greater than 10^9 /s, a so-called axial magnetic field having symmetry of revolution, a so-called radial magnetic field, said high frequency of the electromagnetic field being determined as a function of the amplitude of the axial magnetic field so that said electromagnetic field should yield energy to the ionized gas by cyclotron resonance, the ionized gas being then directed into a discharge space after having been subjected to the high-frequency field, and a device for the application of said method.

3,571,735
DETECTION CIRCUIT INCLUDING COMPENSATION FOR THE THRESHOLD OF THE FORWARD CHARACTERISTIC OF A SEMICONDUCTOR JUNCTION

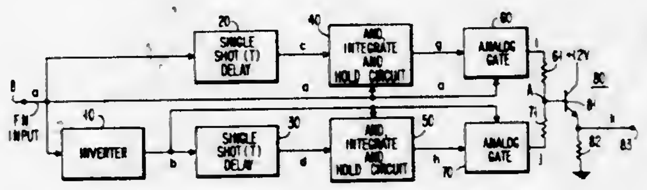
Jean Martial Ducamus, Paris, France, and Jacques Andrieu, Chevilly-larue, France, assignors to Telecommunications Radioelectriques et Telephoniques T. R. T., Paris, France
Filed Aug. 26, 1968, Ser. No. 755,294
Claims priority, application France, Aug. 25, 1967, 119,027
Int. Cl. H03d *1/18*
U.S. Cl. 329—101 **5 Claims**



A transistor detector circuit features a diode coupled in series with the base of the transistor to temperature compensate the circuit against temperature shifts in the base-emitter threshold voltage. A second transistor and a second diode can also be used for detecting signals of greater amplitude.

3,571,736
DEMODULATOR FOR PULSE WIDTH MODULATED SIGNALS

Lynn P. West, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 14, 1969, Ser. No. 790,950
Int. Cl. H03k *9/08*
U.S. Cl. 329—104 **5 Claims**

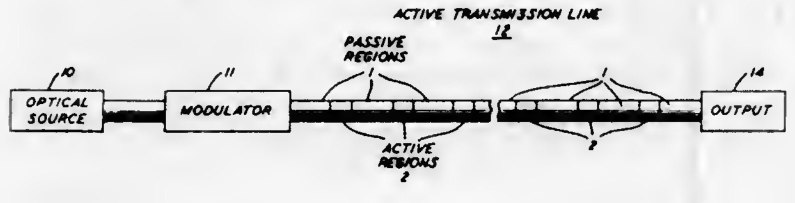


The subject disclosure relates to a frequency demodulator. The demodulator produces two pulse trains from the transitions which are square wave trains with one train being inverted with respect to the other. These transitions define "-transition periods." During the first transition period, a capacitor is discharged so that at the end of that period, it provides a signal that is a function of the time width of the first odd transition period of the first train of square waves. During the second even transition period, another capacitor is discharged so that at the end of this period the capacitor provides a signal which is a function of the time length of the second transition period. Thus, the two trains provide alternately a voltage level that is a function of alternate transition periods. These signals are then added to produce a quantitized version of the frequency modulation.

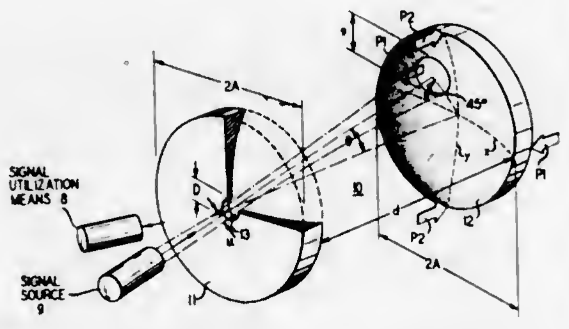
3,571,737
TRANSMISSION LINE

Stewart E. Miller, Middletown Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 7, 1968, Ser. No. 735,445
Int. Cl. H01s *3/05, 3/09*
U.S. Cl. 330—4.3 **9 Claims**

Losses inherent in a dielectric optical transmission line are overcome by including regions of active laser material along the line which, when suitably excited, function as laser amplifiers for the guided wave energy. A variety of pumping arrangements are described including injection diodes and electroluminescent materials.

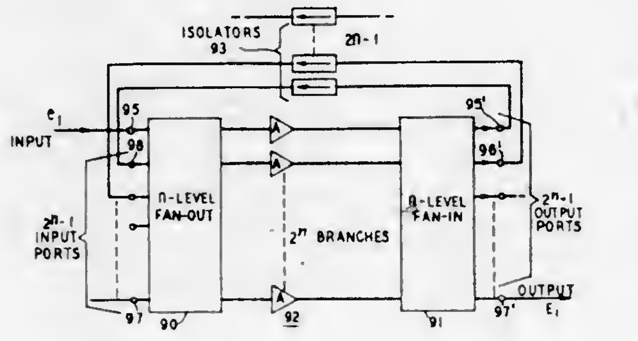


3,571,738
FOLDED OPTICAL DELAY LINE
Detlef C. Gloge, Matawan, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Sept. 18, 1968, Ser. No. 760,410
Int. Cl. H03f *1/00;* **H01s** *3/00*
U.S. Cl. 330—4.3 **3 Claims**



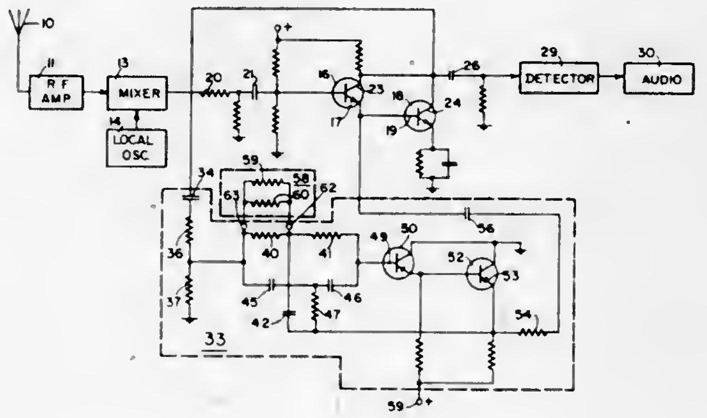
By operating a folded (cavity) delay line in a mismatched mode, it is found that the delay time can be increased by decreasing the distance between the cavity mirrors. The cavity parameters are given for optimum delay. To compensate for the mirror losses produced by each reflection, some means for producing gain is advantageously associated with the delay line.

3,571,739
MULTIMODE HYBRID-COUPLED FAN-OUT AND FAN-IN ARRAY
Harold Seidel, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 18, 1968, Ser. No. 768,708
Int. Cl. H03f *7/04, 3/68*
U.S. Cl. 330—4.5 **13 Claims**



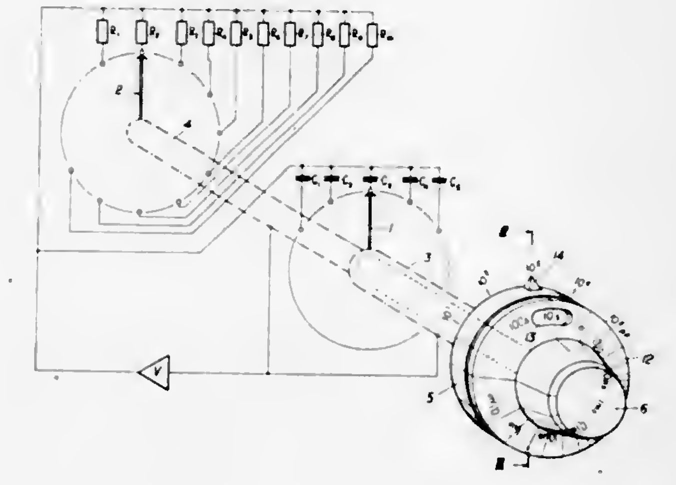
In a typical hybrid-coupled fan-out, fan-in array, one port of each hybrid junction is resistively terminated and the array is restricted to one mode of operation. By removing some or all of these terminations and utilizing the previously unavailable ports, the array can be operated in additional modes. Various arrangements are disclosed for simultaneously handling a plurality of different signals; for utilizing the array in a self-cascaded manner; and for operating in a manner which combines features of both arrangements.

3,571,740
INDUCTORLESS IF AMPLIFIER AND FILTER CIRCUIT
Nikolai Goncharoff, Roselle, Ill., assignor to Motorola Inc., Franklin Park, Ill.
Filed Oct. 16, 1968, Ser. No. 768,121
Int. Cl. H03f *1/34*
U.S. Cl. 330—28 **3 Claims**



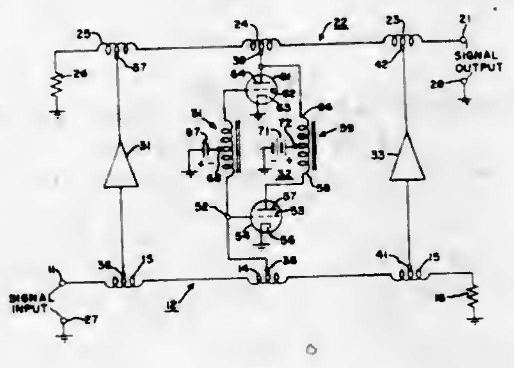
An IF amplifier circuit for a radio receiver includes a tuned feedback circuit to provide the desired frequency response for the IF amplifier. The tuned feedback circuit includes a twin T filter and is connected to the input and output of the IF amplifier through isolation networks. No inductors are required in this circuit so that it can be manufactured in an integrated circuit form. Provision is made for the connection of external resistors to the twin T filter in order to tune the integrated circuit to give the proper IF frequency response.

3,571,741
ELECTRIC AMPLIFIER
Jurge Leo Von Ruti, Villars-sur-Glane, Switzerland, assignor to Vibro-Meter AG, Fribourg, Moncoe, Switzerland
Filed Oct. 31, 1968, Ser. No. 772,193
Claims priority, application Austria, Nov. 2, 1967, A9865/67
Int. Cl. H05f *1/14;* **H03f** *3/52*
U.S. Cl. 330—51 **5 Claims**



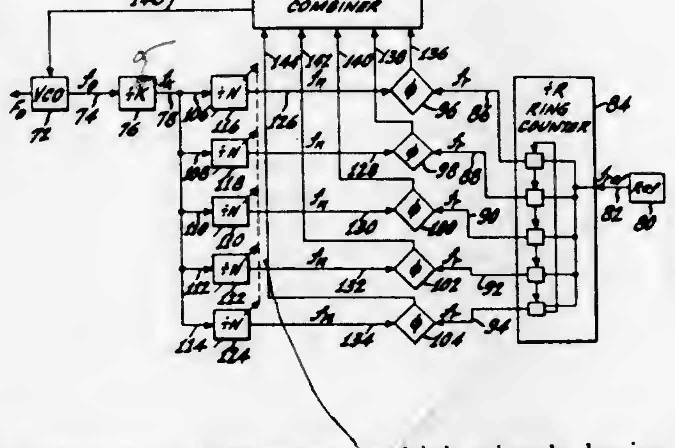
Electric amplifier, particularly for piezoelectric transducers, having a feedback of a plurality of capacitances and resistances coupled in parallel with the capacitances, both the capacitances and the resistances being graduated each in a progression and selectively engageable by means of switches.

3,571,742
PUSH-PULL DISTRIBUTED AMPLIFIER
Robert D. Wengenroth, Liverpool, N.Y., assignor to General Electric Company
Filed May 28, 1968, Ser. No. 732,719
Int. Cl. H03f *3/60*
U.S. Cl. 330—54 **5 Claims**



A broadband, push-pull distributed amplifier is disclosed, the amplifier stages being individually connected for push-pull operation. The amplifier is capable of Class B or AB operation with high efficiency and low distortion.

3,571,743
PHASE LOCK LOOP
Elchanan Dove Menkes, Westmont, N.J., assignor to RCA Corporation
Filed Oct. 30, 1968, Ser. No. 771,884
Int. Cl. H03b *3/06*
U.S. Cl. 331—11 **14 Claims**



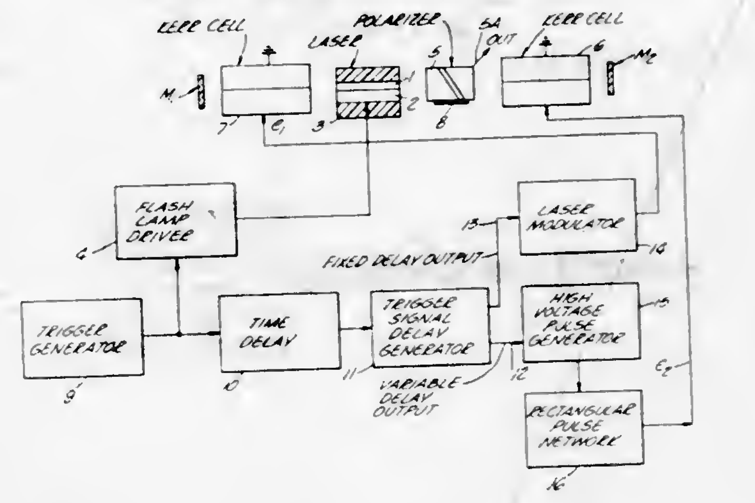
In a frequency synthesizer, multiple signals having the same reference frequency, but a different phase, are provided. Each one of the reference signals is used to correct the frequency of the VCO at a different time during the time interval necessary for one cycle of the reference signal to occur, thereby increasing the number of corrections without increasing the reference frequency of correction.

ERRATUM

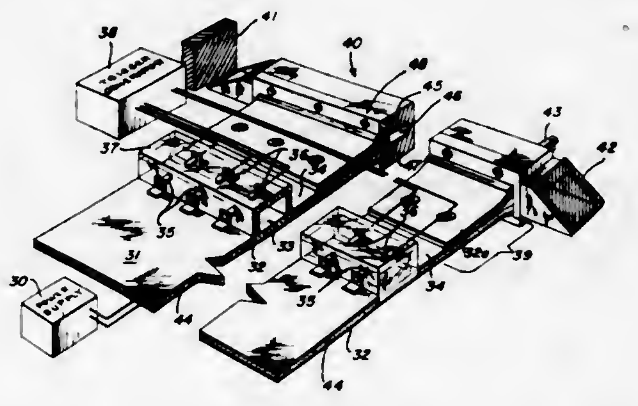
For Class 331—74 see:
Patent No. 3,571,644

3,571,744
LASERS INCORPORATING TIME VARIABLE REFLECTIVITY
William R. Hook, Los Angeles, and Roland H. Dishington, Pacific Palisades, Calif., assignors to TRW Inc., Redando Beach, Calif.
Filed Mar. 23, 1967, Ser. No. 625,549
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **8 Claims**

Lasers in which there is time variable reflectivity of the laser cavity during the lasing process. The time variable reflectivity relates to the variation of the reflectivity in the cavity during the power buildup prior to lasering and during the lasering by varying the voltage at predetermined times to a polarity rotating means within the cavity and which acts to partially or totally effectively remove the reflectivity of one of the substantially 100 percent mirrors at the ends of the cavity.



3,571,745
PULSE-CHARGING COUPLING LASER APPARATUS
Daniel E. Altman; Myer Geller, and Thomas A. DeTemple, San Diego, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 10, 1968, Ser. No. 696,732
Int. Cl. H01s *3/09, 3/22*
U.S. Cl. 331—94.5 **9 Claims**



An improved laser apparatus is disclosed which employs a pulse-charging coupling connected in circuit between a pulse generator means and an excitation medium which is employed to excite a laser material to a lasing level. The laser disclosed preferably comprises a source of electrical power, a pulse generator which may take the form of a pulse-forming network together with a switch means, and an appropriate form of pulse-charging coupling connected between the pulse generator and the medium which is to be excited to raise the lasing material to a lasing level.

The pulse-charging coupling performs the function of impressing pulsed electrical energy upon a medium such as gas, for example, with significantly improved efficiency to optimize the lasing phenomenon. The concept of the disclosure which teaches the use of a pulse-charging coupling is readily adapted to, and ideally suited for employment in producing the most favorable impedance matching relationships of the laser apparatus which in itself contributes significantly to the efficiency of the transfer of energy from an electrical power source to produce optimized laser power output.

Several forms of pulse-charging couplings are disclosed and described including a flat, parallel plate type which may comprise a dual ground plane and transmission line portion; a multiple conductor coaxial form of pulse-charging coupling is also described and illustrated in the disclosure.

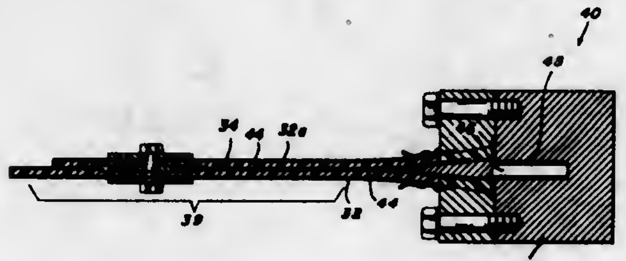
3,571,746
PULSED LASER APPARATUS

Thomas A. DeTemple; Daniel E. Altman, and Myer Geller, San Diego, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Jan. 10, 1968, Ser. No. 696,733

Int. Cl. H01s *3/09*

U.S. Cl. 331—94.5 **9 Claims**



This improved pulsed gas laser apparatus is preferably employed together with a gas laser cell adapted to be excited to a lasing level by the conduction of pulsed electrical current through the gas contained therein. A number of such gas laser cells in different configurations have been devised and are known in the art. The present invention, however, is not limited by the particular configuration of gas laser cell and may be employed advantageously with a variety of different forms and configurations of gas discharge devices.

A source of electrical power, a pulse-forming network, and switch means are connected in circuit to transmit pulsed electrical current flow from the source of electrical power to the gas laser material. A transmission line of the coaxial, flat parallel plate, or other suitable type may be employed as a pulse-forming network; the pulse-forming network, together with switch means, constitutes a pulse generator assembly for developing pulses of electric current which flow through a gas laser material causing it to produce optimum laser power output relative to the power available from the electrical source. As will appear more fully from the complete disclosure, the apparatus employed within the teaching of the present invention may include a pulse generator having a pulse-forming network which presents an instantaneous dynamic electrical impedance substantially equal to the electrical impedance of the gas medium at the instant of maximum laser power output during pulsed conduction of electrical current therethrough.

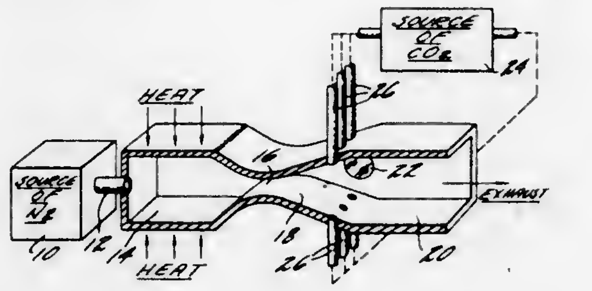
3,571,747
GAS INJECTION LASER

Barry R. Bronfin; Wayne G. Burwell, Wethersfield; Russell G. Meyerand, Jr., Glastonbury, and Edward N. Hall, Bloomfield, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 23, 1968, Ser. No. 710,699

Int. Cl. H01s *3/09*

U.S. Cl. 331—94.5 **4 Claims**



A relatively cool lasing gas such as CO_2 is injected into a gas such as N_2 which is energized sufficiently to raise the energy of the lasing gas to an upper lasing level. The lasing substance injection occurs within an optical cavity which is oriented transversely to the flow of energizing gas, thus insuring maximum utilization of stimulated photon emission which arises from collisions of the lasing substance with the energized gas within the cavity. Energy may be imparted into the energizing gas through the application of heat from an external source. Collisional depopulation of the lower laser level of the lasing gas is optimized by maintaining the lasing area cool, where the mix occurs, such as by expansion of the energizing gas just before it enters the optical cavity.

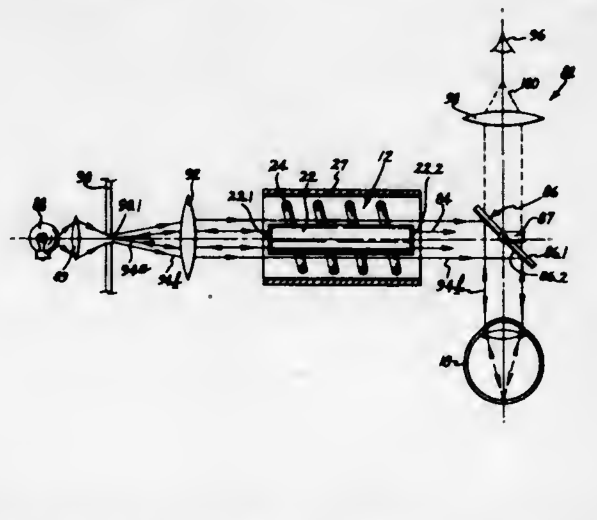
3,571,748
METHOD AND APPARATUS FOR DIRECTING OUTPUT OF OPTICAL MASERS

Charles J. Koester, Firecrest Lane, Sudbury, Mass., and Elias Snitzer, 177 Hampshire Road, Wellesley, Mass.

Continuation of application Ser. No. 256,033, Feb. 4, 1963, now abandoned , Original application May 5, 1961, Ser. No. 108,020, now abandoned. Divided and this application Apr. 4, 1968, Ser. No. 718,822

Int. Cl. H01s *3/00;* **G01b** *11/26;* **G01c** *1/00*

U.S. Cl. 331—94.5 **18 Claims**



Aiming apparatus for an optical maser. Low-intensity light is projected toward the optical maser and its direction is adjusted so that the light is perpendicular to the end face of the optical maser form which the radiant energy is emitted, i.e., the low-intensity light is transmitted along the optical axis subsequently followed by the beam of radiant energy from the optical maser. The low-intensity light is then aimed at a target as desired by adjustment of an optical system. The subsequently emitted beam of radiant energy follows the same path toward the target. The high-intensity beam of radiant energy is thus properly aimed before firing.

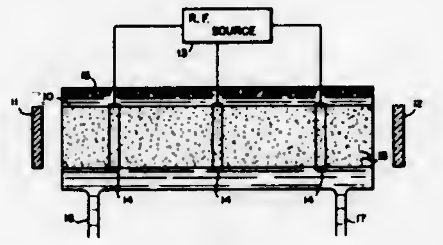
3,571,749
DUST COOLED GAS LASER

Jack A. Soules, Cleveland, Ohio, assignor to the United States of America as represented by the Secretary of the Navy

Filed Nov. 5, 1968, Ser. No. 773,453

Int. Cl. H01s *3/22, 3/09, 3/04*

U.S. Cl. 331—94.5 **4 Claims**



A gas laser in which microscopic particles are circulated within the laser tube in order to cool the laser by conducting the heat to the walls of the laser element.

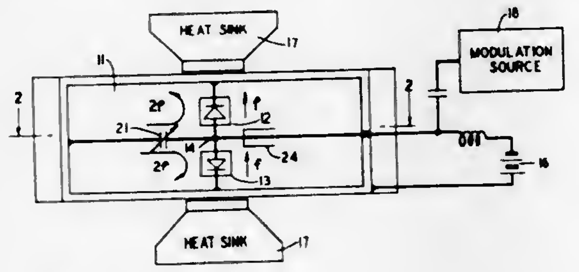
3,571,750
NEGATIVE RESISTANCE AVALANCHE DIODE OSCILLATOR CIRCUITS

Herbert N. Carlson, Berkeley Heights, and James W. Gewartowski, Chatham, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 1, 1969, Ser. No. 811,950

Int. Cl. H03b *7/14*

U.S. Cl. 331—107 **22 Claims**



An oscillator circuit comprises a cavity resonator and two avalanche diodes having interconnected anode contacts. The diodes extend across the resonator and a tuning plunger extends toward the diode interconnection. With appropriate diode and circuit parameters, the resonator supports oscillatory modes at frequencies *f* and 2*f*. Energy is derived at frequency *f*, which is below the inherent resonant frequency of the individual diode packages.

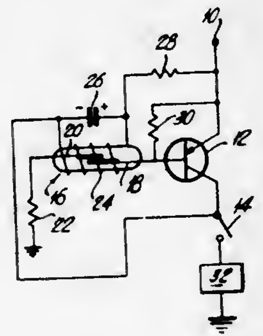
3,571,751
TRANSISTOR-REED SWITCH FLASHER

Harry Kratochvil, Fords, N.J., assignor to Wagner Electric Corporation

Filed July 9, 1968, Ser. No. 743,550

Int. Cl. H03k *3/26*

U.S. Cl. 331—111 **10 Claims**



Flashing of a lamp load is effected by a transistor, the emitter and collector of which are connected in series in the load current path. The bias on the base of the transistor is caused to fluctuate by a reed relay, the contacts of which are intermittently opened and closed upon charging and discharging of a capacitor connected in parallel with the reed relay coil.

3,571,752
TRANSFORMER COUPLED MULTI VIBRATOR PULSE GENERATOR FOR FAULT DETECTION

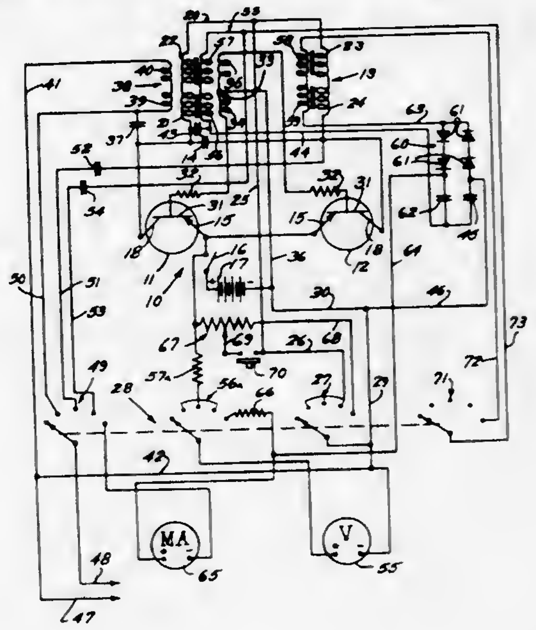
Rudolph J. Sturm, Jr., St. Paul, Minn. (306 E. Sumner St., Northfield, Mass. 55057)

Original application Oct. 8, 1963, Ser. No. 314,727, now Patent No. 3,441,842. Divided and this application Sept. 17, 1968, Ser. No. 760,281

Int. Cl. H03k *3/30*

U.S. Cl. 331—113 **7 Claims**

An AC pulse generator for use in line fault detection is constructed as a manually portable transistorized multivibrator for producing a distinctive signal having a pip, which is applied to the circuit under test. Doing so produces un-



balanced currents which produce a net magnetic field along the current path, which can then be detected.

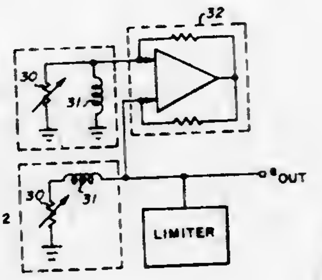
3,571,753
PHASE COHERENT AND AMPLITUDE STABLE FREQUENCY SHIFT OSCILLATOR APPARATUS

Teddy G. Saunders, Atherton, Calif., assignor to Moore Associates, Inc., San Carlos, Calif.

Filed Sept. 5, 1969, Ser. No. 855,487

Int. Cl. H03b *7/00*

U.S. Cl. 331—115 **12 Claims**



A phase coherent and amplitude stable frequency shift oscillator apparatus comprising a negative impedance converter, biased into an unstable oscillatory condition, in combination with a pair of impedances respectively coupled to the input terminals thereof for determining the frequency of oscillation. One of the impedances includes a series resistive-reactive impedance circuit and the other includes a parallel resistive-reactive impedance circuit. Means are provided for changing the value of the resistive components of the impedances in order to alter the output frequency of the oscillator apparatus and a level limiting and buffering means is provided for stabilizing the oscillatory operation and buffering the output obtained from the apparatus.

3,571,754
WIDE DEVIATION VOLTAGE CONTROLLED CRYSTAL OSCILLATOR

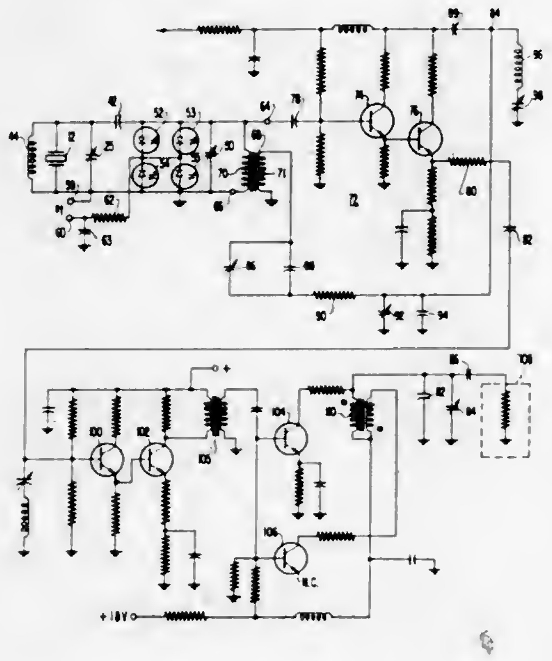
Daniel J. Healey, III, and Michael M. Driscoll, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 24, 1968, Ser. No. 786,609

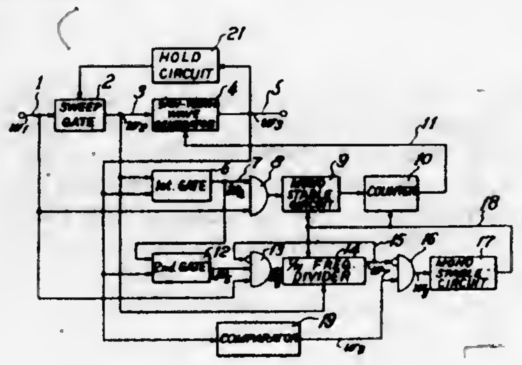
Int. Cl. H03b *5/36*

U.S. Cl. 331—116 **12 Claims**

A variable frequency harmonic oscillator including a voltage tunable crystal controlled resonator incorporating a quartz crystal unit with precisely antiresonated (neutralized) static capacitance operating substantially at the series resonant frequency of the quartz crystal as opposed to the antiresonant frequency thereof and a voltage variable reactance network coupled thereto having a linear reactance vs. voltage characteristic, the coupling being by means of a reactive transformer, two elements of which are absorbed in combination with elements of the neutralized crystal and variable reactance networks. Additionally a maintaining circuit is coupled to the resonator forming an oscillator thereby and including a circuit providing a means for suppressing spurious oscillations at undesired frequencies below the desired frequency band of operation.

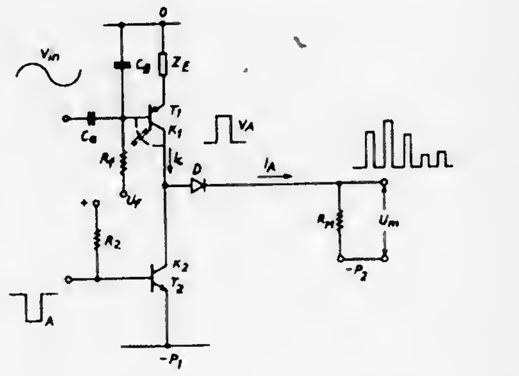


3,571,755
SWEEP OSCILLATOR
Mitsuhiro Ejiri, Tokyo-To, Japan, assignor to Iwasaki Tsushinki Kabreshiki Kaisha, Tokyo-To, Japan
Filed Apr. 15, 1969, Ser. No. 816,250
Claims priority, application Japan, Apr. 18, 1968, Feb. 14, 1969, 43/25500; 44/10915
Int. Cl. H03k *4/08*
U.S. Cl. 331—143 **3 Claims**



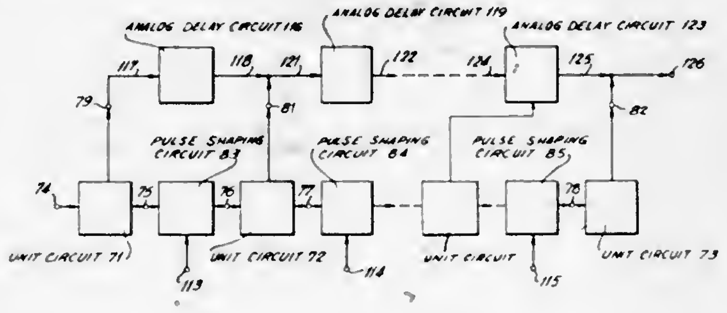
A sweep oscillator used to generate a sawtooth wave that can be amplified to serve for deflecting the electron beam of a cathode-ray tube in synchronism with any of input pulses, where the different slopes of the sawtooth wave are successively switched automatically until any of the input pulses is not received within a predetermined first interval starting in synchronism with the start of the sawtooth wave and, when the number of the input pulses received within a predetermined second interval included within the duration of the sawtooth wave and longer than the first interval is less than the predetermined number, a sawtooth wave having the gentlest slope is generated.

3,571,756
MODULATOR DEVICE
Karl Ivan Lennart Skoog, Farsta; Gunnar Lennart Kjellander, Bollmora, and Britt Ingegard Lunden, Jakobsberg, Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
Filed May 14, 1968, Ser. No. 729,085
Claims priority, application Sweden, June 1, 1967, 7667/67
Int. Cl. H03k *13/02*
U.S. Cl. 332—9 **2 Claims**



A pulse current modulator utilizes a pair of complem[illegible]tary transistors having interconnected collectors connected via a diode to an output load. The transistors are energized by an operating voltage connected across their emitters. The base of one of the transistors receives the amplitude modulated signal which is to be pulse control modulated while the base of the other transistor receives constant amplitude pulses to provide the pulse times of modulation.

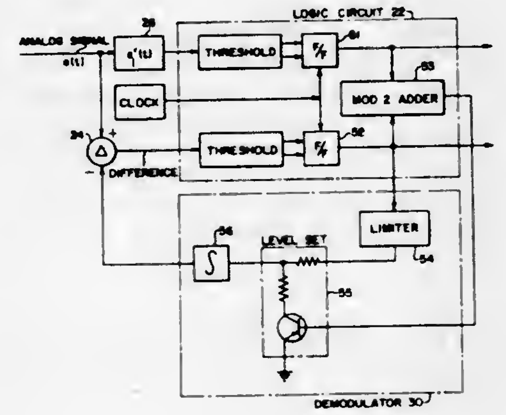
3,571,757
CASCADED CODER FOR A PULSE MODULATION SYSTEM
Zeniti Kiyasu, and Tetsuya Miki, Sendai-shi, Japan, assignors to Fiyitsu Limited, Kawasaki, Japan
Filed May 24, 1968, Ser. No. 731,781
Claims priority, application Japan, May 27, 1967, Aug. 21, 1967, Tokugansho;42—33842;42—53653
Int. Cl. H03k *7/10, 5/159, 13/74*
U.S. Cl. 332—9 **9 Claims**



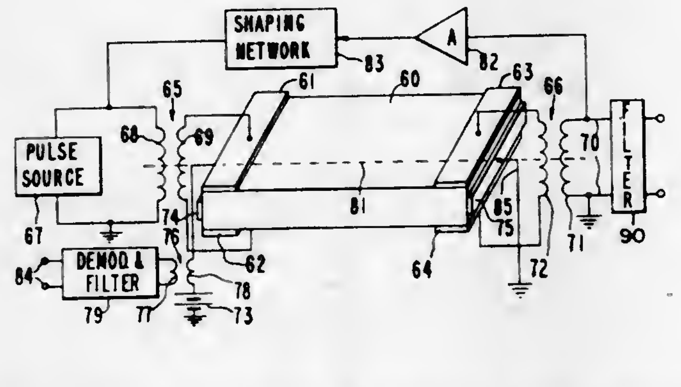
A pulse-shaping circuit is interposed between each adjacent pair of pulse-modulating circuits of a pulse modulation system. Each pulse-shaping circuit comprises a sampling circuit and a storing or holding circuit to prevent a waveform transferred from one pulse-modulating circuit to the next from being adversely affected by the preceding circuit, and to thereby decrease the operating time of the modulating circuits to that of the first modulating circuit and thereby provide high speed coder operation.

3,571,758
METHOD AND APPARATUS FOR ADAPTIVE DELTA MODULATION
Henry F. DeFrancesco, McLean, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed May 12, 1967, Ser. No. 638,149
Int. Cl. H03k *13/22*
U.S. Cl. 332—11 **12 Claims**

Method and apparatus to improve delta modulation wherein the direction of the analogue input signal to be approximated in digital form for transmission is compared with the difference between the analogue input signal and an integrated copy of the digital approximation to adaptively select the amplitude of the transmitted pulses to better follow high frequency excursions in the analogue input signal.



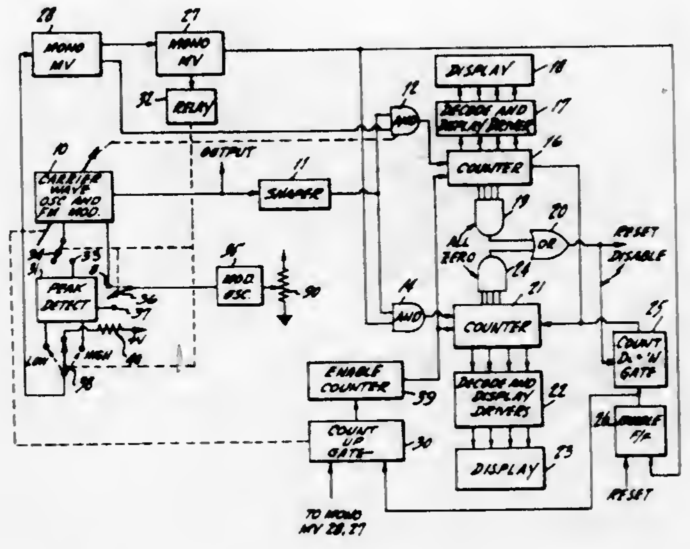
3,571,759
TRANSVERSE NEGATIVE MOBILITY DEVICES
Herbert Kroemer, Menlo Park, Calif.; Alan H. Mac Pherson, New Providence, N.J., and Megha Shyam, Los Altos, Calif., assignors to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.
Filed Sept. 6, 1968, Ser. No. 757,878
Int. Cl. H03c *3/22;* **H03b** *7/06*
U.S. Cl. 332—16 **10 Claims**



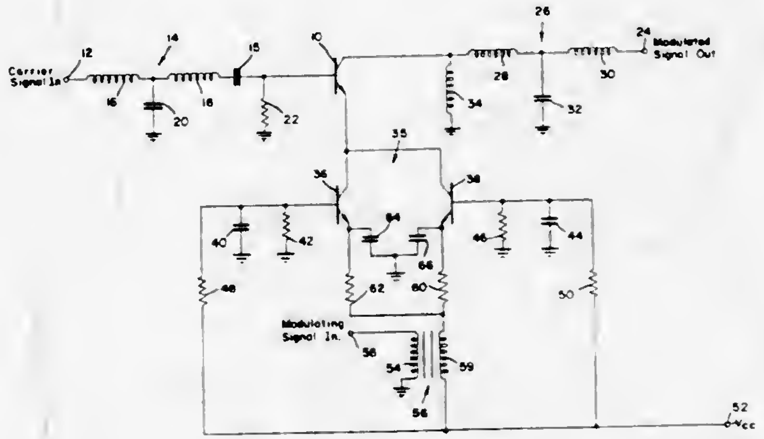
In a properly cut sample of selectively doped semiconductor material, such as germanium, with a selected bias voltage applied along the longitudinal axis, a small transverse voltage applied across one end of the sample produces a transversely polarized domain, which, under the influence of the bias voltage, drifts along the longitudinal axis of the sample. Because the drift velocity is a function of the strength of the bias voltage, and because a pulse injected into the sample can be continuously recirculated at a frequency proportional to the drift velocity, an amplitude modulated signal can be used to vary the bias voltage thereby varying the recirculation frequency of the pulse. As a result, the device can be made to act as either a frequency or a phase modulator.

3,571,760
DIRECT READING DISPLAYS FOR INDICATING FREQUENCY SHIFT OF A MODULATABLE CARRIER OSCILLATOR
Edmund I. Schwartz, Fair Lawn, N.J., and Philip Basse, Freeport, N.Y., assignors to Slant Fin Corporation
Filed Sept. 10, 1968, Ser. No. 758,875
Int. Cl. H03c *3/00;* **G01r** *23/10*
U.S. Cl. 332—20 **10 Claims**

A frequency deviation monitor utilizes a reversible or up-down counter for determining the amount of frequency shift of a carrier oscillator signal. A modulating signal is peak detected and thence applied to the carrier oscillator to shift the output frequency. This shifted frequency is used to count down a reversible counter having the unshifted frequency stored therein. The difference between the counts during a predetermined time interval is determinative of the frequency deviation.



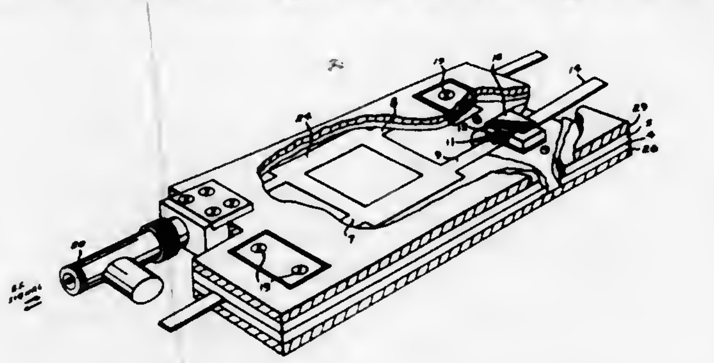
3,571,761
TRANSISTORIZED AMPLITUDE MODULATION CIRCUIT WITH CURRENT CONTROL
Samuel Mason Meek, Long Beach, and Frederick Bluemel, Belmont, Calif., assignors to Hughues Aircraft Company, Culver City, Calif.
Filed May 1, 1969, Ser. No. 820,824
Int. Cl. H03c *1/44*
U.S. Cl. 332—31 **6 Claims**



In the disclosed amplitude modulation circuit an RF carrier signal is applied via a filter to the base electrode of a linearly amplifying transistor, the modulated output signal passing through a filter coupled to the transistor collector electrode. A pair of current control transistors coupled in parallel and connected to the emitter electrode of the amplifying transistor are employed to vary the level of current flow through the amplifying transistor in accordance with an audio frequency modulating signal applied via a transformer between the base and emitter electrodes of each current control transistor.

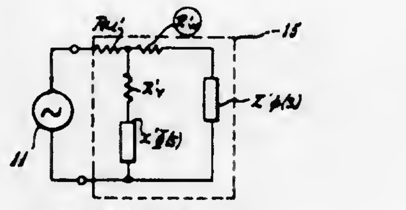
3,571,762
HIGH FREQUENCY DIGITAL DIODE PHASE SHIFTER
Lowell I. Smilen, Great Neck, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Oct. 6, 1969, Ser. No. 863,864
Int. Cl. H01p *5/14*
U.S. Cl. 333—10 **4 Claims**

A stripline four-port directional coupler having a common input and output port with the other three ports having stripline transmission lines terminated respectively in separate diodes, each of which may be switched independently from a conducting to a nonconducting state by a



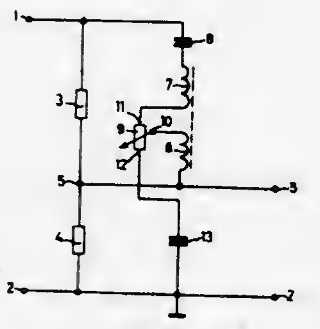
direct current bias voltage, provides a reflective phase shifter in which the phase of the reflected wave may be made to have eight different values of phase shift. in 45° increments.

3,571,763
IMMITTANCE NETWORK INCORPORATING ONE NEGATIVE RESISTANCE
Kurt H. Haase, Watertown, Mass., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Feb. 5, 1968, Ser. No. 702,890
Int. Cl. H03h *5/12, 7/14*
U.S. Cl. 333—24 **6 Claims**



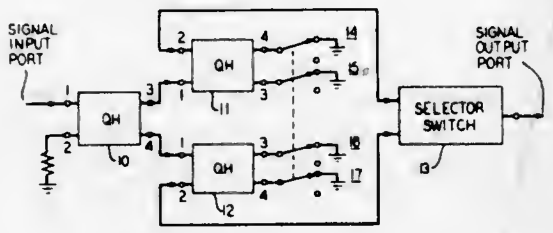
Circuits realizing decomposable bi-order-*n* impedance and admittance functions in which the impedance function is realized by a single tee section terminated in a positive impedance and has a series positive and negative branch resistance and a shunt positive resistance and positive impedance interposed between the series branch elements. The admittance function is realized by a pi section terminated in a positive admittance having a series branch composed of the parallel combination of a positive conductance and a positive admittance and having two shunt branches, one being a positive resistance and the other a negative resistance.

3,571,764
TONE CONTROL ARRANGEMENT WITH VOLTAGE DIVIDER, POTENTIOMETER AND TWO SERIES RESONANT CIRCUITS
Werner Koenigk, Neuhaus, Schloss, Germany, assignor to Grundig Elektro - Mechansiche Versuchsanstalt, Furth Bayern, Germany
Filed Mar. 10, 1969, Ser. No. 805,759
Claims priority, application Germany, Mar. 13, 1968, P 12 90 595.2-31
Int. Cl. H03h *5/00*
U.S. Cl. 333—28 **6 Claims**



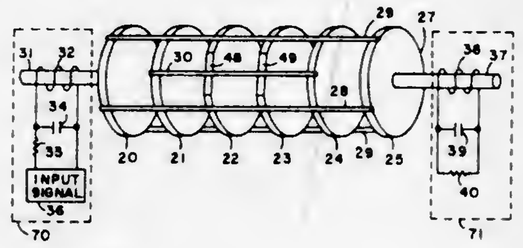
A tone control arrangement in which the input signal is applied to a voltage divider consisting of two resistors connected in series. The junction of the resistors forms the signal output terminal. The series combination of a first capacitor and a first inductor is connected between one terminal of the voltage divider and the resistance winding of the potentiometer. A second capacitor is connected between the other terminal of the resistance winding and the voltage divider. A second inductor magnetically linked with the first inductor by being wound upon the same core is connected between the sliding contact of the potentiometer and the junction of the resistors of the voltage divider. The arrangement is such that in both extreme positions of the sliding contact of the potentiometer, a series resonance circuit is in parallel with one of the resistors of the voltage divider.

3,571,765
QUANTIZED PHASE SHIFTER UTILIZING OPEN-CIRCUITED OR SHORT-CIRCUITED 3DB QUADRATURE COUPLERS
Allen N. Friedman, Fair Lawn, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 15, 1969, Ser. No. 857,909
Int. Cl. H01p *1/10, 1/18, 5/14*
U.S. Cl. 333—31 **3 Claims**



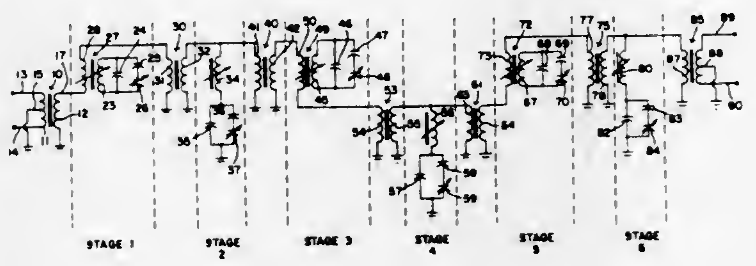
A phase shift selector which utilizes a two-stage binary fan out circuit configuration to establish phase states. The four branches of the fan out are terminated by means of either an open circuit or a short circuit to produce two reflected signals having relative phases of either 90 degrees or 180 degrees when the terminations are open-circuited, or 270 degrees or 360 degrees when the terminations are short-circuited. A selector switch then selects one of these four signals as the output signal.

3,571,766
DISK-WIRE MECHANICAL FILTER USING BRIDGING WIRE TO ACHIEVE ATTENUATION POLE
Roger J. Teske, Santa Ana, Calif., assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed June 20, 1969, Ser. No. 834,978
Int. Cl. H03h *9/26*
U.S. Cl. 333—71 **10 Claims**



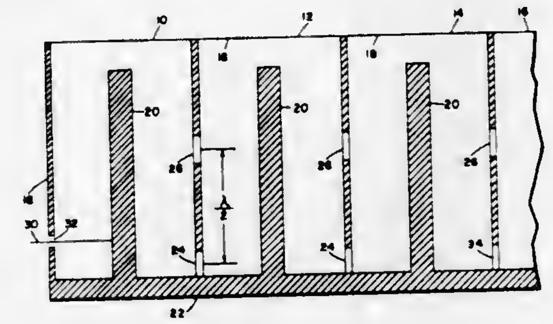
A general stopband disc-wire type mechanical filter having at least four circle mode vibration-type discs therein with a first coupling wire means connected to the perimeters of all four discs and a second coupling wire means connected only to the first and the fourth disc and bridging the two discs therebetween. The second bridging coupling wire means has a length such that it produces a 180° hase shift of energy transferred therethrough with in the passband. Circle mode-type discs resonate in phase with each other at the lower end of the passband and out of phase (with the adjacent discs) at the upper end of the passband. Consequently, the energy transfer through the bridging coupling wires is out of phase with the energy transfer through the first coupling wire means both at the lower and upper ends of the passband, thereby producing the general stopband characteristic.

3,571,767
ELECTRICAL FILTER ARRANGEMENT
Garret Thayer Bush, III, North Cape May, N.J., assignor to the United States of America as represented by the Commandant of the Coast Guard
Filed July 10, 1968, Ser. No. 743,706
Int. Cl. H03h *7/10*
U.S. Cl. 333—76 **11 Claims**



This invention relates to a highly selective electrical filter network composed of passive circuit elements and capable of attenuating or "notching" only selected frequencies from a band while freely passing without substantial attenuation the remaining frequencies in the band. Such a filter network comprises a plurality of series and parallel LC resonant networks or stages alternately disposed in circuit relationship with one another and designed to resonate at the "notching" frequency. The stages are interconnected by means of suitable matching transformers to permit the optimum use of the inherent *Q* of each inductor.

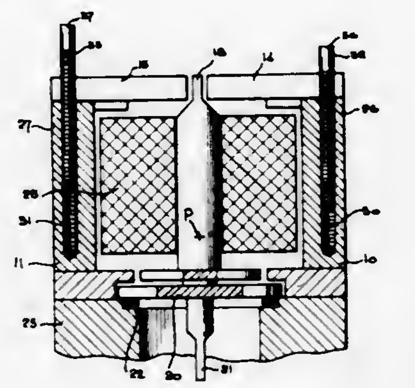
3,571,768
MICROWAVE RESONATOR COUPLING HAVING TWO COUPLING APERTURES SPACED A HALF WAVELENGTH APART
Joseph C. Gundry, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Sept. 25, 1969, Ser. No. 860,982
Int. Cl. H01p *7/06, 1/00;* **H03b** *13/00*
U.S. Cl. 333—83 **2 Claims**



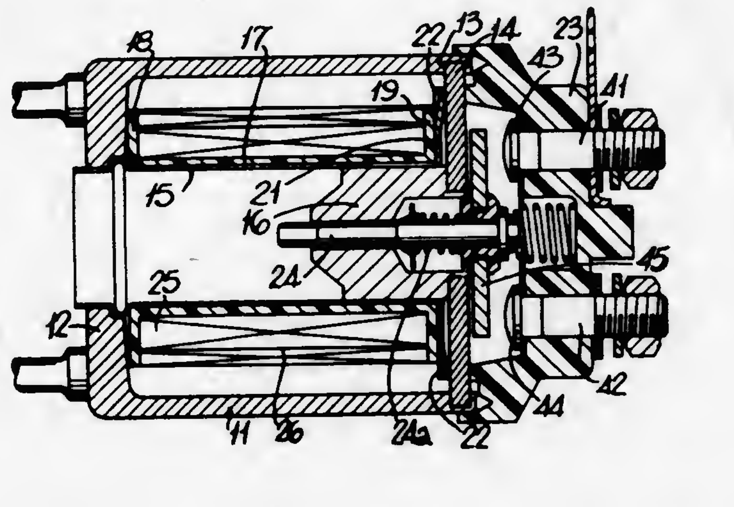
Coupling is increased between microwave resonators by providing a plurality of holes in a common wall thereof, the holes being spaced one-half wavelength of the resonant frequency of the resonator.

3,571,769
ELECTROMAGNETIC FORCE MOTOR HAVING ADJUSTABLE MAGNETIC SATURATION
John B. Pegram, Los Angeles, Calif., assignor to Bell Aerospace Corporation
Filed May 8, 1969, Ser. No. 822,908
Int. Cl. H01f *7/13*
U.S. Cl. 335—230 **8 Claims**

An improvement in electromagnetic force motors in which the force versus input signal characteristic is adjustable by providing in the flux path regions of magnetically saturable material defining magnetic saturation paths and members of magnetically permeable material insertable in the regions to decrease the lengths or cross-sectional areas of the saturation paths.



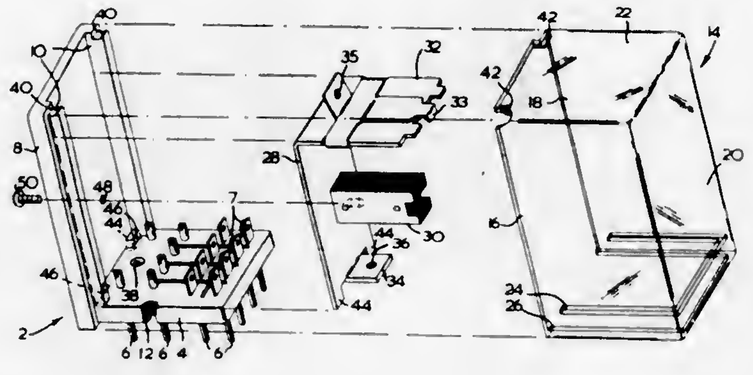
3,571,770
IMPROVED SOLENOID HAVING PIN AND SOCKET CONNECTIONS TO THE SOLENOID WINDING
Frank Phillip Dew, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed May 21, 1969, Ser. No. 826,643
Claims priority, application Great Britain, May 27, 1968, 25192
Int. Cl. H01f *7/08*
U.S. Cl. 335—256 **1 Claim**



A solenoid including a housing having a cap which constitutes a closure at one end of the housing, a winding within the housing, and a terminal member on the exterior of the cap, the terminal member being electrically connected to the winding. The terminal member is electrically connected to the winding by way of a conductive pin which is carried by the cap and which extends within the housing, and a conductive socket which is connected to one end of the winding. The pin engages in the conductive socket when the solenoid is assembled, and thereby electrically interconnects the terminal member and one end of the winding.

3,571,771
ENCLOSURE FOR PLUG IN RELAY
Edward L. Stephanson, Belleville, Ontario, Canada, assignor to Stegg Electric Limited, Belleville, Ontario, Canada
Filed Mar. 14, 1969, Ser. No. 807,370
Claims priority, application Canada, Feb. 3, 1969, 41,795
Int. Cl. H01f *7/00*
U.S. Cl. 335—278 **13 Claims**

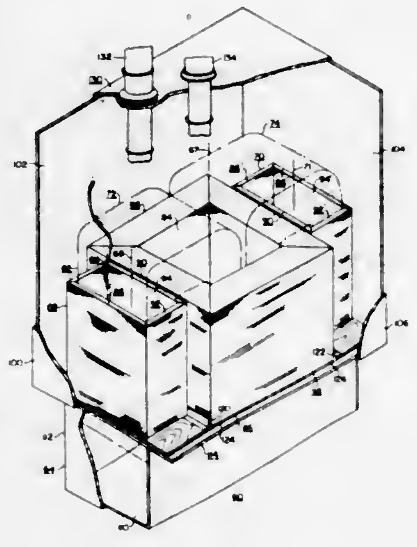
An enclosure for electrical components is provided having an L-shaped base and integral sidewall and a preferably transparent cover; connecting pins are moulded through the base in a conventional manner and the cover has lips so that it can be slid onto the base in a direction at right angles to the axis of the pins; thus the cover cannot become detached during engagement or extraction of the pins in their socket components, such as relays may be mounted on the integral sidewall; a snap action lock remote from the base indicates closure positively.



3,571,772
ELECTRICAL INDUCTIVE APPARATUS HAVING MAGNETIC SHIELDING LOOPS

Saul Bennon, and William D. Albright, Muncie, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 18, 1969, Ser. No. 877,649
Int. Cl. H01f *15/04, 27/24*
U.S. Cl. 336—84 **5 Claims**

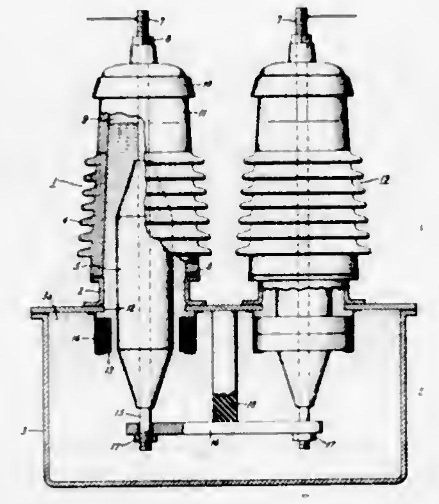


Single-phase electrical inductive apparatus including a magnetic core structure having a main core loop and first and second shielding loops, with the first and second shielding loops being disposed on opposite sides of the main core loop. The main core loop is formed of stacked magnetic laminations having a width dimension *A*, and the first and second shielding loops are formed of stacked magnetic laminations having a width dimension less than *A*/3. Electrical winding means are disposed to encircle the main core loop and first shielding loop, and the main core loop and the second shielding loop. The magnetic core structures and winding means are disposed in a tank having bottom and sidewall portions, with the magnetic core structure being oriented in the tank to magnetically shield the sidewall portions of the tank from the electrical winding means.

3,571,773
CENTER CLAMPED BUSHING TRANSFORMER

Donald J. Johnston, Pittsfield, Mass., assignor to General Electric Company

Filed Nov. 4, 1969, Ser. No. 873,937
Int. Cl. H01f *27/02, 27/28*
U.S. Cl. 336—92 **5 Claims**

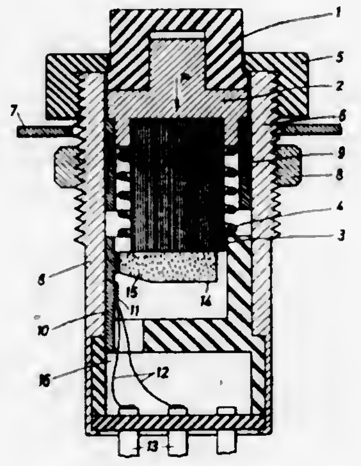


A bushing current transformer is formed by mounting a pair of terminal bushings upon a tank with their axial conducting rods in laterally spaced side-by-side relation and extending into the tank, the proximate internal ends of the rods being bridged by a conductor to form a primary loop. A compression member between the tank wall and the bridging conductor applies a tensile stress to both bushing rods thereby to clamp each bushing assembly in position without the use of insulating sleeves internally of the tank.

3,571,774
NON-CONTACTING ELECTRONIC SWITCH GEAR

Rudolf Hubrich, Ravensburg, Germany, assignor to Raimund Finsterholzl Elektrotechnische Spezialfabrik, Ravensburg, Germany

Filed Apr. 10, 1968, Ser. No. 720,289
Claims priority, application Germany, Apr. 10, 1967, R45,726
Int. Cl. H01c *7/16*
U.S. Cl. 338—32 **9 Claims**

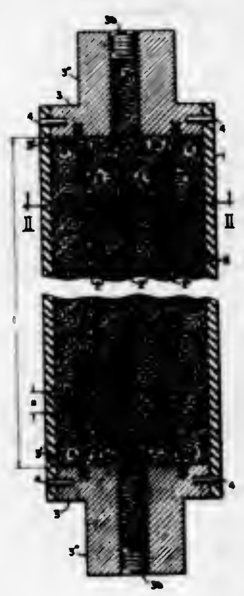


Noncontacting, electronic switch gear particularly for pushbuttons which comprises at least one current carrying field plate connected to starting terminals and forming either a resting contact and/or a working contact, and a permanent magnet having pole shoes. The position of the permanent magnet with respect to the field plate is variable in order to actuate the field plate, by means of a movable part of the switch gear.

3,571,775
HIGH-VOLTAGE FUSE HAVING A PLURALITY OF HELICALLY WOUND RIBBON FUSE LINKS

Frederick J. Kozacka, South Hampton, and Richard A. Belcher, Hampton Falls, N.H., assignors to The Chase-Shawmut Company, Newburyport, Mass.

Continuation-in-part of application Ser. No. 879,090, Nov. 24, 1969. This application Mar. 3, 1970, Ser. No. 016,116
Int. Cl. H01h *85/08, 85/12*
U.S. Cl. 337—161 **24 Claims**

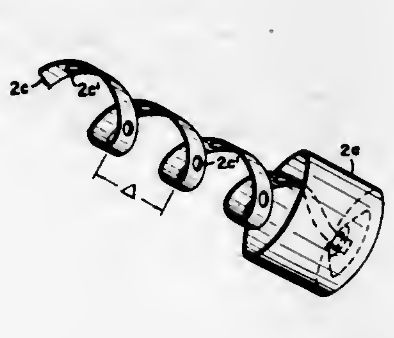


A high-voltage fuse having a plurality of helically wound ribbon fuse links forming extension-springlike structures arranged in a cylindrical pattern. The ribbon fuse links are entirely self-supporting, not requiring any support between the ends thereof other than a pulverulent arc-quenching filler.

3,571,776
HIGH VOLTAGE FUSE HAVING HELICALLY WOUND RIBBON FUSE LINK

Frederick J. Kozacka, South Hampton, and Richard A. Belcher, Hampton Falls, N.H., assignors to The Chase-Shawmut Company, Newburyport, Mass.

Filed Nov. 24, 1969, Ser. No. 879,090
Int. Cl. H01h *85/08, 85/12*
U.S. Cl. 337—161 **7 Claims**

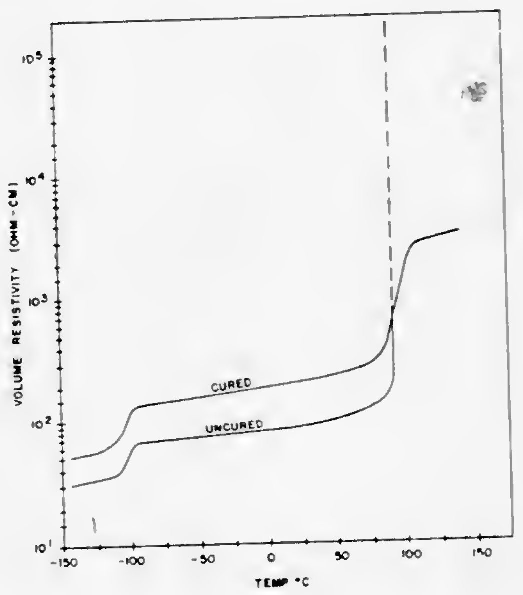


A high-voltage fuse having a helically wound ribbon fuse link forming an extension-springlike structure. The ribbon fuse link is entirely self-supporting, not requiring any support between the ends thereof other than a pulverulent arc-quenching filler.

3,571,777
THERMALLY RESPONSIVE CURRENT REGULATING DEVICES

Paul R. Tully, Lowell, Mass., assignor to Cabot Corporation, Boston, Mass.

Continuation-in-part of application Ser. No. 751,382, Aug. 9, 1968, now abandoned. This application July 7, 1969, Ser. No. 839,555
Int. Cl. H01c *7/12*
U.S. Cl. 338—20 **8 Claims**



The present invention concerns thermally responsive current regulating devices comprising conductive polymeric compositions. Broadly, the devices of the invention comprise electrodes attached to a current controlling polymeric composition comprising a polymer and having dispersed therein the quantity of submicron sized particulate conductive filler. The electrical resistance of such devices varies substantially and reproducibly with variation in temperature through the glass transition temperature range of the polymeric constituent.

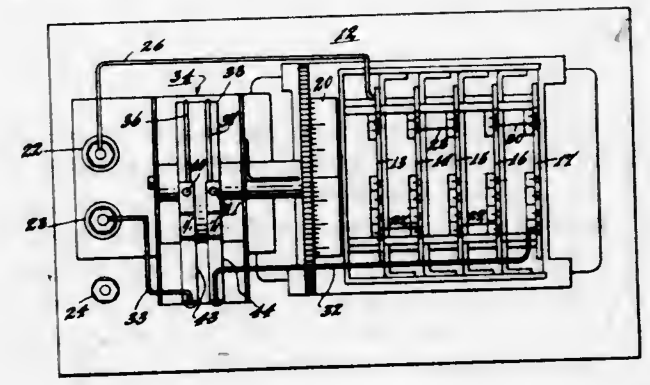
ERRATUM

For Class 338—32 see:
Patent No. 3,571,774

3,571,778
OHMIC STANDARD APPARATUS

John P. Smith, Jr., Elton, Pa., assignor to Vishay Intertechnology, Inc., Malvern, Pa.

Filed July 1, 1968, Ser. No. 741,410
Int. Cl. H01c *1/16*
U.S. Cl. 338—200 **6 Claims**

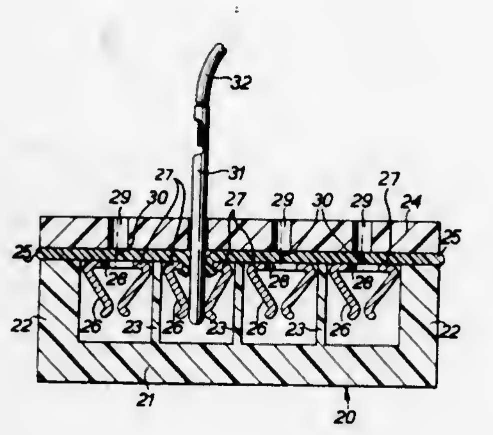


An ohmic standard apparatus having five rocker arm type switches and four resistors associated with each switch. The switches provide a digital readout of the total resistance for resistance settings from 0 to 99,999 ohms. A slide wire type resistor is interconnected with the resistors to provide resistance settings up to 100,000 ohms.

3,571,779

SELF-SEALING PINBOARD

John Covell Collier, Farnworth, England, assignor to AMP Incorporated, Harrisburg, Pa.
Filed Nov. 7, 1968, Ser. No. 774,149
Claims priority, application Great Britain, Nov. 18, 1967, 52543/67
Int. Cl. H01r *7/04, 13/52*
U.S. Cl. 339—18 1 Claim

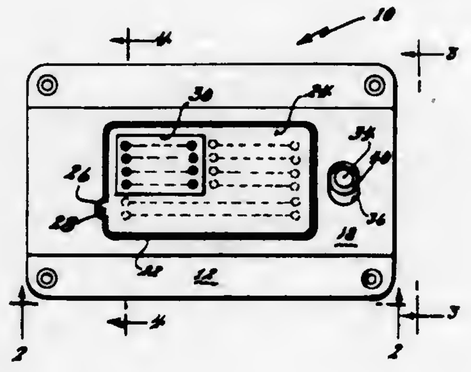


The contacts of a pinboard are sealed against moisture or corrosive atmospheres by a layer of rubber which is punctured when a pin is inserted. The edges of the hole formed in the rubber form a seal around the pin.

3,571,780

UNIVERSAL ELECTRICAL CONNECTOR FOR MINIATURE ELECTRONIC MODULES

Robert A. Boenning, Timonium, and Donald K. Mac Kenzie, Jr., Lutherville, Md., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 12, 1969, Ser. No. 849,471
Int. Cl. H01r *13/54, 33/44, 33/66*
U.S. Cl. 339—36 9 Claims

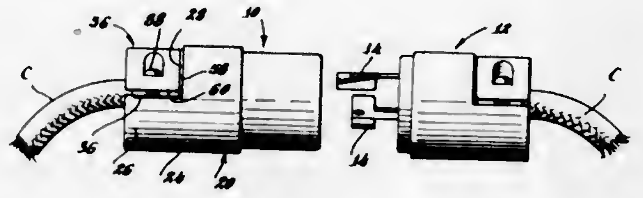


A universal electrical connector for mounting miniature electronic modules having a plurality of pins thereon. The connector has a case containing a plurality of sockets therein. A slip plate is located on said case and has a plurality of holes therein substantially aligned with said sockets. A locking shaft mounted on said case is capable of moving said slip plate and thereby the holes of said slip plate into and slightly out of alignment with said sockets. The module is located within said slip plate and the pins are inserted in said holes and said sockets. Since said holes and said sockets are of a greater diameter than said pins, in one position of the slip plate the pins are in the center of the sockets and out of contact therewith and in another position of the slip plate the pins engage a wall of said sockets in order to make electrical contact therewith.

3,571,781

PLASTIC CABLE CLAMP

Albert J. Gartland, Jr., Trumbull; Vincent F. Lipinski, Stratford, and George A. Riley, Bridgeport, Conn., assignors to Harvey Hubbell, Incorporated, Bridgeport, Conn.
Filed Dec. 6, 1968, Ser. No. 781,846
Int. Cl. H01r *13/56, 13/58*
U.S. Cl. 339—105 5 Claims

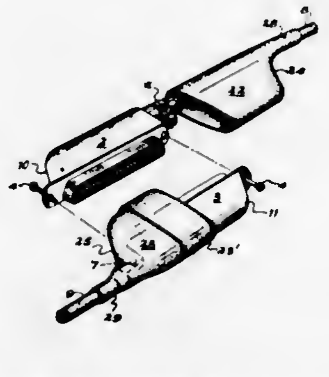


A cable clamp for an electrical connector device including a fixed and rigid clamping member and a flexible and resilient movable clamping member. The movable clamping member is made of a long term strain relieving material which will follow the cable as the cable creeps under the applied load.

3,571,782

MOISTURE AND DUST PROOF COVER FOR AN ELECTRICAL CONNECTOR AND TOOL FOR APPLYING SAME

Lee J. Colbert, Deceased, late of town of Clarence; Dolores B. Colbert, Executrix, Williamsville, N.Y., assignors to Pulse Communications, Inc., Falls Church, Va.
Filed Feb. 25, 1969, Ser. No. 802,762
Int. Cl. H01r *3/02*
U.S. Cl. 339—116 3 Claims

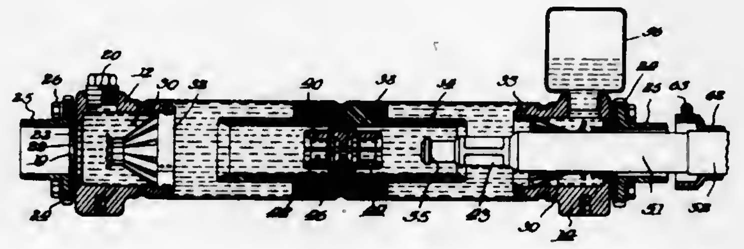


A cover for a two part electrical connector including a pair of open ended elastic film sleeves each adapted to be stretch drawn over one of the connector parts, such that when the connector parts are assembled the sleeves may be overlapped to form a moisture and dustproof sealing cover.

3,571,783

CABLE JOINING DEVICE FOR PLASTIC AND ELASTOMERIC INSULATED CABLES

George E. Lusk, Downers Grove, Ill., assignor to G & W Electric Specialty Company, Blue Island, Ill.
Filed June 5, 1969, Ser. No. 830,690
Int. Cl. H01r *3/04, 17/18*
U.S. Cl. 339—117 10 Claims

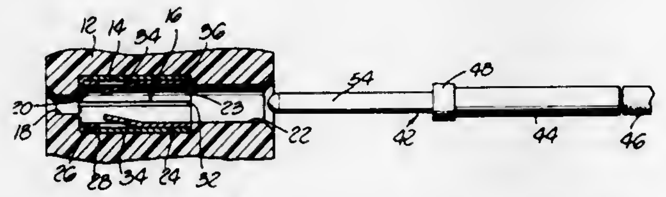


The cable joining device has utility for electrically connecting the prepared ends of two opposed power cables. A female connector nest formed of metal segments which are expandable is located within a plastic housing open at respective ends. The bare copper end of the cables to be joined are each fitted with a male connector and which are respectively inserted in the connector nest for mechanically and electrically connecting the opposed power cables.

3,571,784

CONTACT ASSEMBLY FOR ELECTRICAL CONNECTOR

Hubert W. Naus, Monrovia; Robert N. Summers, Banning, and Joe J. Sonyi, Yucaipa, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 14, 1969, Ser. No. 799,194
Int. Cl. H01r *9/12*
U.S. Cl. 339—217 2 Claims

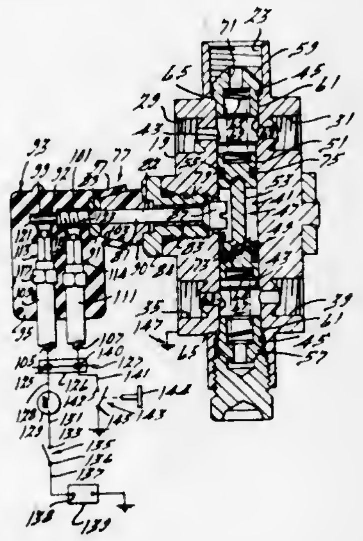


The disclosure relates to a contact assembly formed of a clip mounted in an insulator block. The clip, which is a hollow tube, contains inwardly extending tangs. In order to prevent the insulator plastic material from flowing around and locking the tang during the molding process, and to prevent a rearward force on a terminal member from moving the clip, a sleeve is placed around the clip before it is inserted in the mold. The edge of the forward end of the sleeve abuts the end portion of a lip formed on the forward end of the clip. Upon insertion of a contact terminal into the clip, a collar on the terminal is locked by the tang. Should the terminal be subjected to a rearward force, the force is translated to the sleeve, thus effectively retaining the clip in position.

3,571,785

ELECTRICAL TERMINAL CONNECTION

James A. Kozicki, Warren, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Original application May 2, 1967, Ser. No. 635,518, now Patent No. 3,517,381, dated June 23, 1970. Divided and this application Sept. 29, 1969, Ser. No. 870,886
Int. Cl. H01r *9/08*
U.S. Cl. 339—218 5 Claims

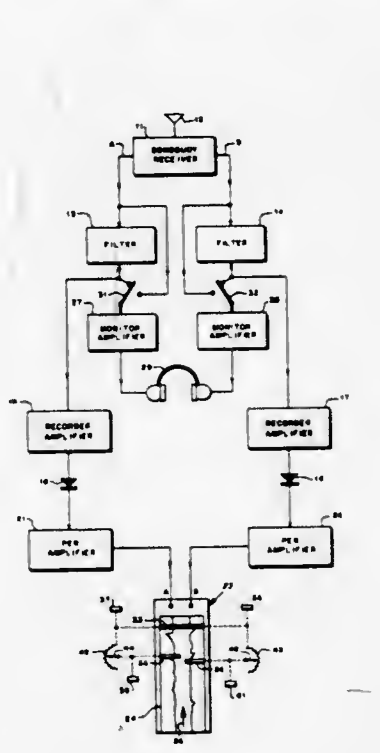


Electrical circuitry for checking the operability of electrical connections and components of an electrical circuit and switch device adapted to energize a warning lamp in event of leakage in one fluid circuit of a two fluid circuit hydraulic brake circuit of a vehicle. Switch includes a housing having a piston movable to close switch in response to a predetermined pressure differential on opposite sides of piston. Electrical checking circuit passes through a molded electrical terminal connected at one end of one of the terminals of switch.

3,571,786

GRAPHIC RECORDING SYSTEM

Donald Mureay Saling, and Edward L. Benson, Poughkeepsie, N.Y., assignors to the United States of America as represented by the Secretary of the Navy
Filed Nov. 29, 1961, Ser. No. 155,867
Int. Cl. G01s *9/66*; G01d *9/00*
U.S. Cl. 340—2 10 Claims



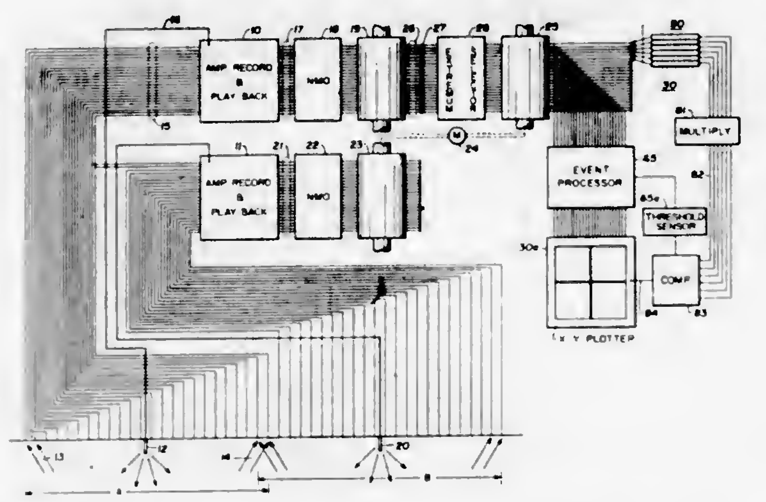
In a sonobuoy data processing system including a two stylus moving strip chart recorder having the stylus actuating mechanisms thereof coupled to the output circuits of a two channel sonobuoy receiving system, readout and computing apparatus comprising: a first mechanical cursor mounted on said recorder to span said strip chart for sliding movement therealong, second and third mechanical cursors each mounted on said recorder to span a portion of said chart for sliding movement therealong with respect to said first cursor, first and second electromechanical transducing means, means applying energizing voltages proportional to the velocity of sound in water to said transducing means, means mechanically coupling said first transducing means to said first and second cursors whereby said first transducing means provides an output voltage which varies in accordance with the displacement between said first and second cursors, means mechanically coupling said second transducing means to said first and third cursors whereby said second transducing means provides an output voltage which varies in accordance with the displacement between said first and third cursors, first and second output terminal means, and circuit means respectively coupling the output voltages of said first and second transducing means to said first and second output terminal means.

3,571,787

METHOD AND SYSTEM FOR AUTOMATIC SEISMIC REFLECTION PICKING

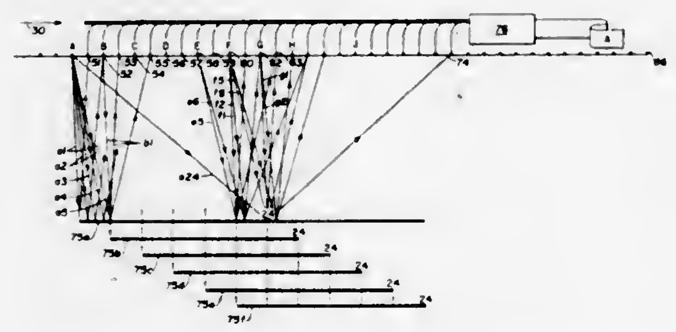
Milo M. Backus, Dallas, and Stephen C. Merdler, Dallas, Tex., assignors to Texas Instruments Inc., Dallas, Texas
Filed June 13, 1967, Ser. No. 645,766
Int. Cl. G01v *1/28, 1/34*
U.S. Cl. 340—15.5 10 Claims

A search aperture of length dependent upon the average period of seismic waves in a time gate of interest is centered at a record time having a predetermined relation with respect to the record time of a peak in a first trace and the peak is sensed for coincidence with a similar peak on an adjacent trace at any point within said time gate. Only upon coincidence preferably between three or more such peaks are the peaks retained as a confirmed seismic event. In a further aspect, a control function is generated which is dependent upon the amplitudes of such peaks. The control function is then compared against a threshold level and events exceeding such threshold are given significant emphasis relative to other events not exceeding the threshold.



3,571,788
METHOD AND APPARATUS FOR PRODUCING SPACE AVERAGED SEISMIC DATA

Milo M. Backus, and William A. Schneider, Dallas, Tex., assignors to Texas Instrument Incorporated, Dallas, Tex.
Continuation of application Ser. No. 714,751, Mar. 20, 1968, now abandoned, which is a Continuation of application Ser. No. 550,314, May 16, 1966, now abandoned. This application Sept. 22, 1969, Ser. No. 860,113
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **24 Claims**

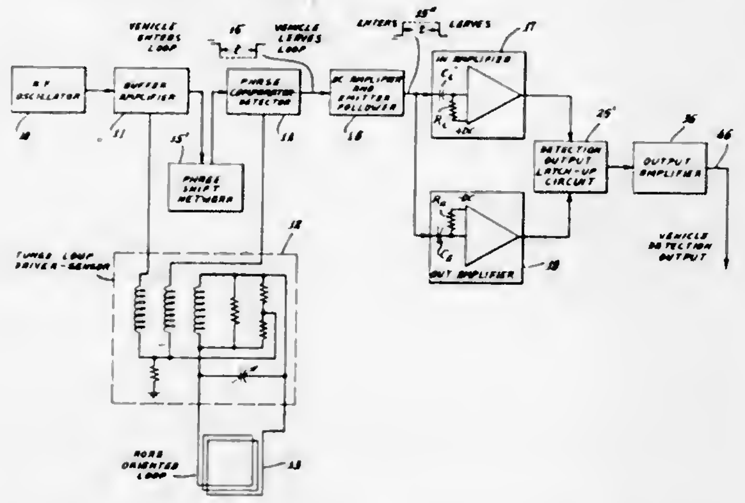


A method and system for producing time- and space-averaged displays of seismic signals from a suite of common depth point seismic records. Primary crosscorrelation signals are generated by selectively crosscorrelating the same limited time gate of a plurality of sets of pairs of traces from all the seismic records. The pairs of traces in each of the sets each include energy thereon which travels to and from subsurface reflecting points over corresponding pairs of paths of first and second geometries, respectively. Primary correlation signals for each of the sets are summed to produce a set of output correlation signals which are displayed on a common correlation scale in the order of increasing space lag.

3,571,789
VEHICLE PRESENCE LOOP DETECTOR

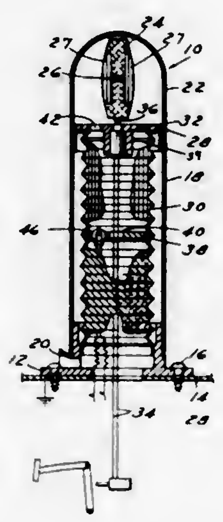
Bernard J. Midlock, Norwalk, Conn., assignor to LFE Corporation, Waltham, MA
Filed Nov. 21, 1968, Ser. No. 777,854
Int. Cl. G08g *1/01*
U.S. Cl. 340—38 **11 Claims**

A vehicle presence detection system comprising an electrical signal generating system including a tuned circuit having a large magnetic field producing induction loop for receiving a vehicle in proximity thereto to change the field configuration and corresponding signal phase resulting therefrom, a phase comparator-detector for receiving said generated signals including the phase variations resulting from such field changes to produce a variable DC signal voltage which changes from a resting level to a second level in one direction of change in response to entrance of a vehicle into proximity to the loop and which changes in the opposite direction from the second level substantially to the resting level upon departure of the vehicle from such proximity to the loop, an in-amplifier for receiving said variable DC signal voltage to produce an output electrical signal responsive to said DC signal change of relatively rapid rate in the one direction of change, an out-amplifier for also receiving the variable DC signal voltage to produce a second output electrical signal responsive to said DC signal change in such opposite direction at a relatively rapid rate of change, a gating or latchup circuit for receiving the in-amplifier and out-amplifier output signals to produce a further output signal substantially throughout the period between the first and second output electrical signals, and indicator means for receiving the gated further output signal for producing an indication of the presence of the vehicle in proximity to the inductive loop. The in-amplifier includes a time delay circuit to maintain its output electrical signal for a brief time period while a vehicle is maneuvering in proximity to the loop without departing.



3,571,790
VEHICLE EXTERNAL SPEED INDICATOR

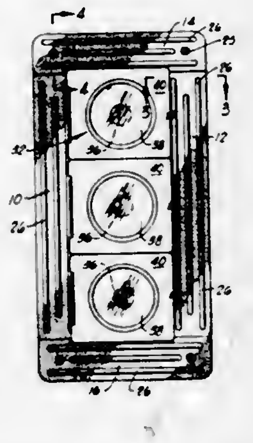
Walter D. Lusebrink, 20024 Edmunton Drive, St. Clair Shores, Mich.
Filed Nov. 1, 1967, Ser. No. 679,765
Int. Cl. B60q *1/54*
U.S. Cl. 340—62 **7 Claims**



This patent discloses a vehicle speed and direction of travel visual indicator adapted for mounting on an external surface of the vehicle. The device employs a signal element the displacement of which indicates the speed, acceleration and deceleration of the vehicle and a rotating signal ball which indicates in all directions when the brakes of the vehicle are applied. The direction of travel of the vehicle is indicated by suitable color coding of the signal element.

3,571,791
ADJUSTABLE SIGNAL BACK PLATE

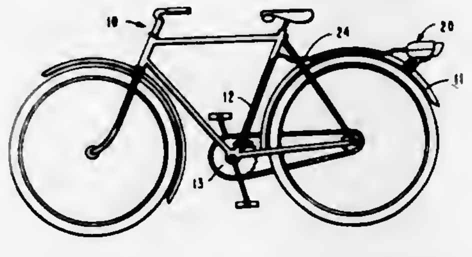
Alfred P. Parduhn, Rte 2, Box 33, Oklahoma City, Okla.
Filed Feb. 3, 1969, Ser. No. 795,854
Int. Cl. B60g *1/26*
U.S. Cl. 340—87 **13 Claims**



A backplate structure for use with traffic signal light devices for framing the signal device to improve its visibility. The backplate is generally rectangular in configuration and includes two relatively long, substantially parallel side panels and two shorter substantially parallel end panels. The side panels are joined to the end panels by adjustable connections which permit the total area enclosed by the backplate to be enlarged or diminished to accommodate various sizes of traffic signal light structures. The side panels have inturned flanges for mounting the backplate to the housing of traffic signal light devices, and the side and end panels each have longitudinally extending reinforcement ribs formed therein for strengthening the backplate which is preferably made from a lightweight thermoplastic material.

3,571,792
BICYCLE STOPLIGHT CONTROLLED BY SPROCKET WHEEL

Francis Sullivan, Canoga Park, Calif., assignor to Walter G. Mortensen; Donald R Mauran; Francis Sullivan and James B. Davidson, Sherman Oaks, Calif.
Filed Dec. 5, 1968, Ser. No. 781,467
Int. Cl. G08b *5/36*
U.S. Cl. 340—134 **7 Claims**

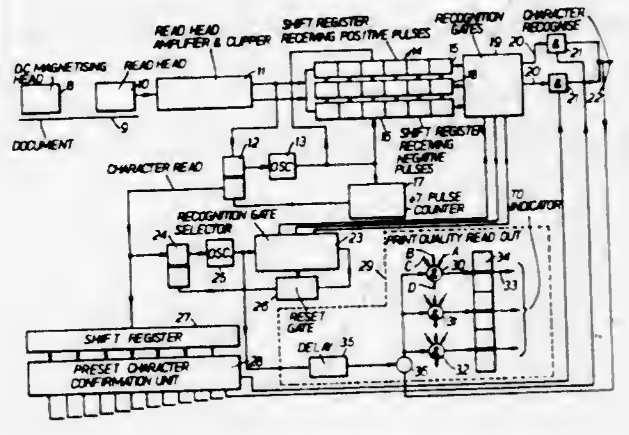


A bicycle stoplight that includes a small wheel having a frictional surface and positioned generally perpendicular to the bicycle sprocket wheel and disposed in frictional engagement with one side surface of the sprocket wheel, and switch means associated with the wheel which operates to keep the lamp circuit open when the sprocket is rotating in a forward direction but to close the lamp circuit when the sprocket rotates in a reverse direction.

3,571,793
CHARACTER RECOGNITION SYSTEMS

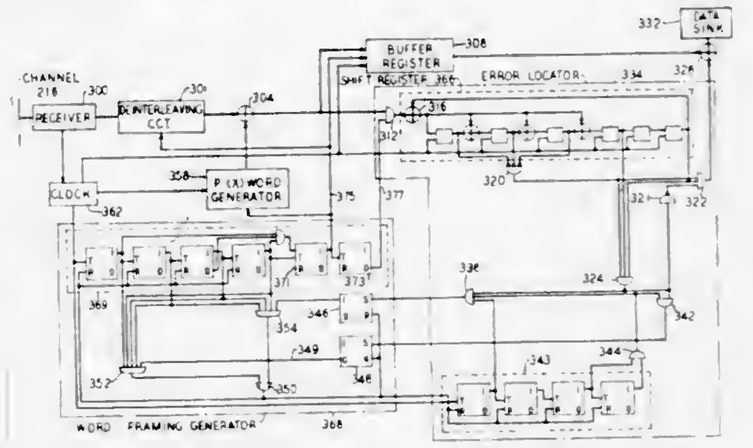
Ronald H. Britt, Ilford, England, assignor to The Plessey Company Limited, Ilford, England
Filed Aug. 15, 1968, Ser. No. 752,837
Claims priority, application Great Britain, Aug. 16, 1967, 37757/67
Int. Cl. G06k *9/13*
U.S. Cl. 340—146.3 **3 Claims**

An E13B character recognition system comprising a read head beneath which a character to be recognized is passed to produce a digital signal which is stored in a shift register the content of which is compared in recognition gates for correspondence with a particular character in dependence upon which the gates are set, and in the presence of such correspondence a recognition signal is delivered, sufficient information being available in the shift register also to provide an indication of the print quality of any character to be recognized.


DC MAGNETISING HEAD
READ HEAD
READ HEAD AMPLIFIER & CLIPPER
SHIFT REGISTER RECEIVING POSITIVE PULSES
RECOGNITION GATES
CHARACTER RECOGNISE
DOCUMENT
CHARACTER READ
SHIFT REGISTER RECEIVING NEGATIVE PULSES
PULSE COUNTER
RECOGNITION GATE SELECTOR
PRINT QUALITY READ OUT
INDICATOR
SHIFT REGISTER
PRESET CHARACTER CONFIRMATION UNIT
RESET GATE
DELAY

3,571,794
AUTOMATIC SYNCHRONIZATION RECOVERY FOR DATA SYSTEMS UTILIZING BURST-ERROR-CORRECTING CYCLIC CODES

Shih Y. Tong, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 27, 1967, Ser. No. 670,942
Int. Cl. G06f *11/12*; **G08c** *25/00*
U.S. Cl. 340—146.1 **18 Claims**

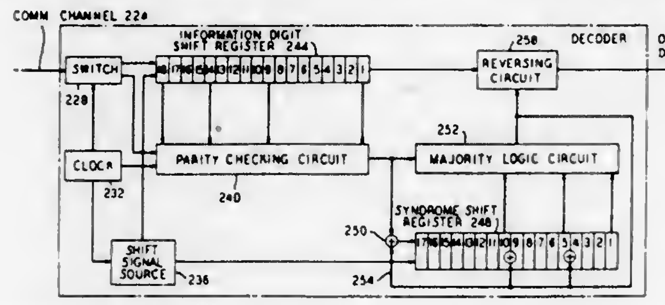


A method of providing automatic synchronization recovery in data transmission systems utilizing *b*-burst-error-correcting cyclic codes is disclosed. Synchronization recovery is accomplished by utilizing error patterns which, although not likely to occur in a transmission channel subject to burst error are nevertheless correctable by burst-error-correcting cyclic codes. In particular, the patterns utilized are those indicating that errors have occurred (simultaneously) at each end, but not the middle of the data word. By adding a specific preselected data sequence to each data word to be transmitted, subtracting the same fixed sequence from the received data sequences, and then decoding each resulting data word, such unlikely error patterns are obtained. These patterns indicate whether or not a synchronization gain or loss of up to $b-2$ symbols has occurred.

3,571,795
RANDOM AND BURST ERROR-CORRECTING SYSTEMS UTILIZING SELF-ORTHOGONAL CONVOLUTION CODES

Shih Y. Tong, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 9, 1969, Ser. No. 831,603
Int. Cl. G08c *25/00*; **H04l** *1/10*
U.S. Cl. 340—146.1 **23 Claims**

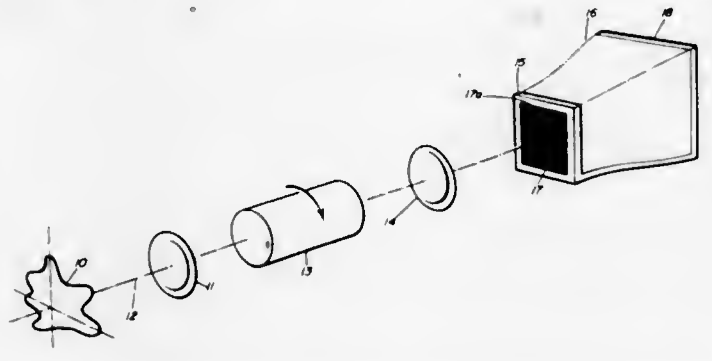
Sequences of information, encoded in a self-orthogonal convolution code of rate $(b-1)/b$ and transmitted via a communication channel, are decoded to correct t random errors and bursts of B blocks where each block is b bits in length. The interconnections of the information digit shift registers of the encoder and decoder and their respective parity check digit generating circuits are determined by deriving a difference triangle of order $\lambda=(b-1)t$ and of size $(b-1)$ $(t+1)$, partitioning the rows of the triangle into $b-1$ groups of $t+1$ rows each such that no more than t repetitions of any entry appear in each group, deriving a new difference triangle from each of the $b-1$ groups by inserting $t-2$ zeros at the top of the first column of each group and expanding the column into a difference triangle, and reconstructing each new triangle by multiplying each entry by B, and incrementing various entries until each entry of all triangles is different from all other entries of all triangles. The diagonal entries of the resulting triangles determine the interconnections.



3,571,796
ROTATION TRANSLATION INDEPENDENT FEATURE EXTRACTION MEANS

Richard D. Brugger, Erie, Pa., assignor to The Bendix Corporation

Filed May 28, 1968, Ser. No. 732,603
Int. Cl. G06k *9/00*
U.S. Cl. 340—146.3 **9 Claims**



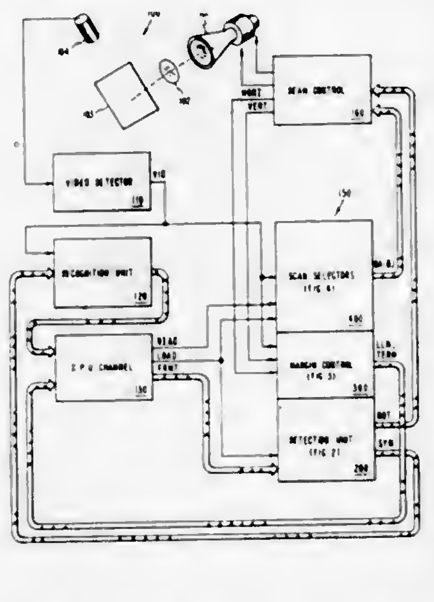
A means of electrically extracting optical information from an optically recognizable pattern regardless of the orientation of the pattern within the field of view and comparing the information extracted against electrical criteria so as to classify the pattern wherein the pattern image is projected onto an image slicer which utilizes fiber optics to divide the image into a plurality of slices. Electrical processing is used to assign a number to each slice which is proportional to the light flux incident upon the slice and to square the assigned number. All the squared numbers are added to generate a voltage which is memorized. The image is then rotated with respect to the slicer and subsequent voltages are generated and memorized. The memorized voltages are then compared to an electrical template to determine the classification of the pattern and its orientation within the field of view.

3,571,797
AREA-FORMAT CONTROL IN A CHARACTER-RECOGNITON SYSTEM

William W. Hardin, and Patrick J. Traglia, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 2, 1969, Ser. No. 829,409
Int. Cl. G06r *9/04*
U.S. Cl. 340—146.3 **15 Claims**

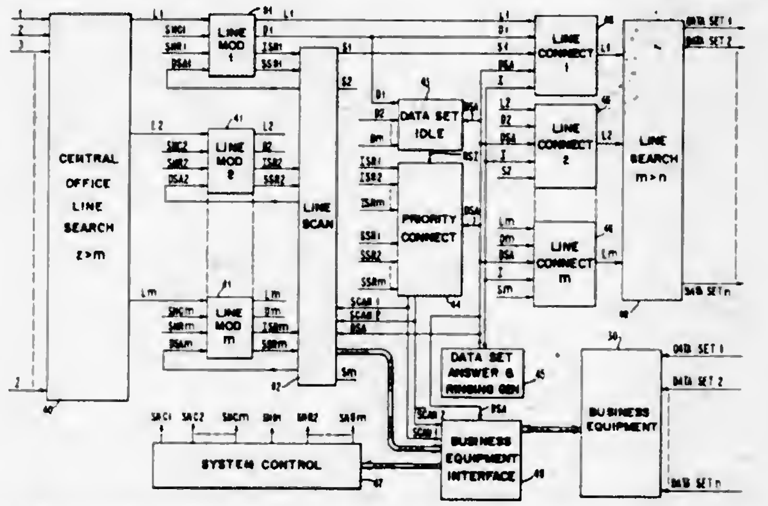
Scan-control apparatus responsive to a format word specifying an outline of a document field to be scanned generates a series of search patterns for characters within the field. A "read" command causes a scanning beam to move in a line-search scan downwardly from one corner of the field. When black video is detected by this scan, a character-search scan moves the beam horizontally to establish the beginning of a character line. The first character found is normalized and a recognition scan is initiated. Reaching a selected format end-of-line boundary terminates the "read" command. Further "load-format" and "read" commands cause the beam to continue to search for and read character lines within the boundary. The field is terminated when the scanning beam attains a selected vertical boundary of the format word. A single field may contain a number of rectangular sections.



3,571,798
TWO LEVEL SWITCHING SYSTEM

Glenn E. Dawson, Cherry Hill, N.J., and Michael Teig, Yonkers, N.Y., assignors to International Business Machines Corporation, Armonk, N.J.

Filed Nov. 13, 1968, Ser. No. 775,364
Int. Cl. H04q *3/64*
U.S. Cl. 340—147 **8 Claims**



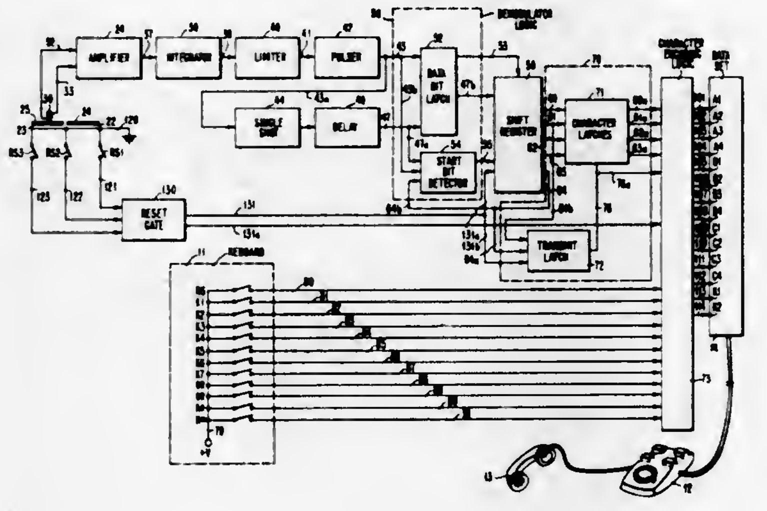
A two level switching system to be used in communications systems, comprising a first means for placing a plurality of input lines in a Hold Mode of operation, a second means for maintaining a plurality of input lines in an Operating Mode of operation, and means for connecting and disconnecting input lines in an Operating Mode of operation into a Hold Mode of operation at the initiation of the user or of the system itself.

3,571,799
DATA TRANSMISSION TERMINAL

Charles W. Coker, Jr; Harry W. Johnson; Robert A. Peterson, Los Gatos, and John N. Stallard, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 21, 1969, Ser. No. 851,976
Int. Cl. G11b *5/00;* **H04m** *11/00;* **H04a** *9/00*
U.S. Cl. 340—152 **11 Claims**

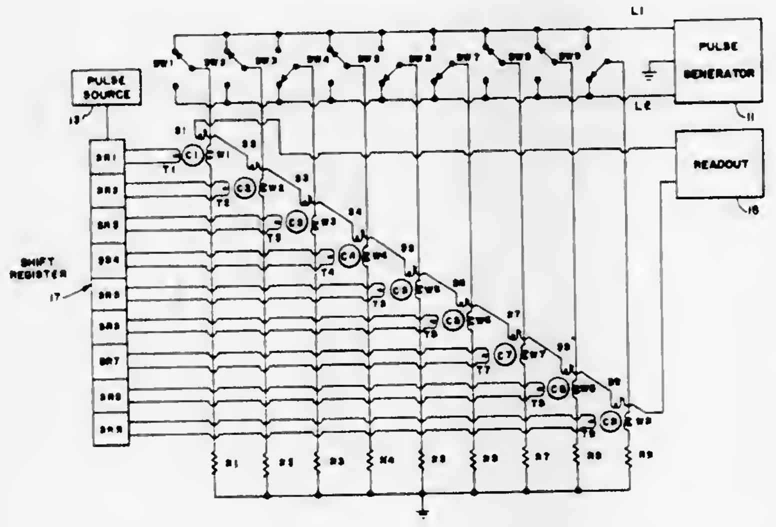
A credit authorization terminal for sensing identification data from a magnetic credit card and transmitting the same to a central processor over telephone lines. Also, a keyboard for transmitting variable transaction data. Magnetic data is recorded on the credit card in two modes, only one of said modes being intelligible to the terminal read head. Also, a terminal identification magnetic card. Credit verification or authorization is by voice answerback.



3,571,800
PLURAL POSITION SWITCH STATUS AND OPERATIVENESS CHECKER

Leon V. Taylor, and Thomas B. Ballard, Hampton, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Sept. 15, 1967, Ser. No. 668,242
Int. Cl. H04g *1/00, 3/00, 5/00*
U.S. Cl. 340—166 **4 Claims**

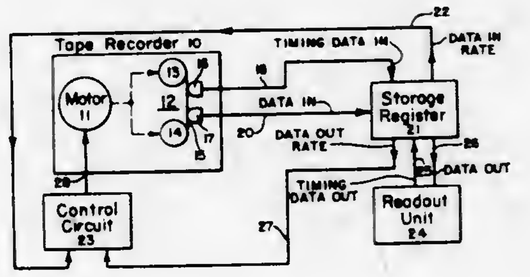


This invention is an apparatus for checking the status of a plurality of switches. In one embodiment, a matrix of magnetic cores are connected to the common terminals of a plurality of double-throw switches. A pulse is then applied to the normally closed side of the switches. This pulse energizes any of the cores that are connected to switches that are in the normally closed position. The matrix of magnetic cores is then read out. Following this, a pulse is applied to the normally open side of the switches. This second pulse energizes any of the cores that are connected to switches that are in the normally open position and the matrix is again read out. The readouts are then compared. If the readouts for any particular switch are complements, the status of the switch can be identified. If the readouts for any particular switch are the same, a defective switch condition or a defective switch wiring condition is indicated. Hence, the status and operativeness of the switches are both determined by the invention.

3,571,801
DATA TRANSFER SYSTEM

John E. Coolidge, Anaheim, and John F. Kinkel, Newport Beach, Calif., assignors to Granted to National Aeronautics & Space Administration under provisions of 42 USC 2457(d)

Filed June 3, 1966, Ser. No. 555,189
Int. Cl. G06f *3/00;* **G11b** *5/00*
U.S. Cl. 340—172.5 **5 Claims**

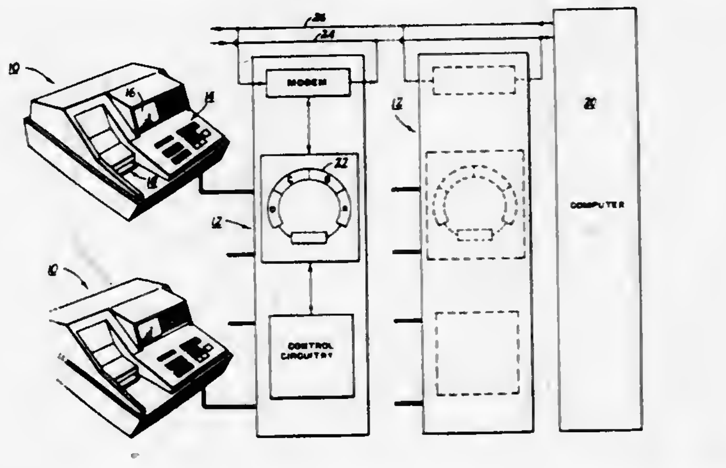


A data acquisition system effects readout by clocking data from a tape into a storage register under control of a tape shift register. Data is clocked out of the data storage register by a clock shift register. A system clock drives a shift register and divide by 10 circuit which both regulates the translation of the data clocked out of the storage register from a parallel to a precise serial format, and also drives the clock shift register. Output signals from the tape shift register and from the clock shift register drive a digital servocontrol circuit to regulate the speed of the motor which drives the tape transport, to insure the data storage register neither "overflows" nor "runs dry."

3,571,802
QUERY AND REPLY SYSTEM WITH ALPHA-NUMERIC READOUT

John J. Serra, Monroe, Conn., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif.

Filed May 31, 1968, Ser. No. 733,365
Int. Cl. G06f *15/40*
U.S. Cl. 340—172.5 **35 Claims**

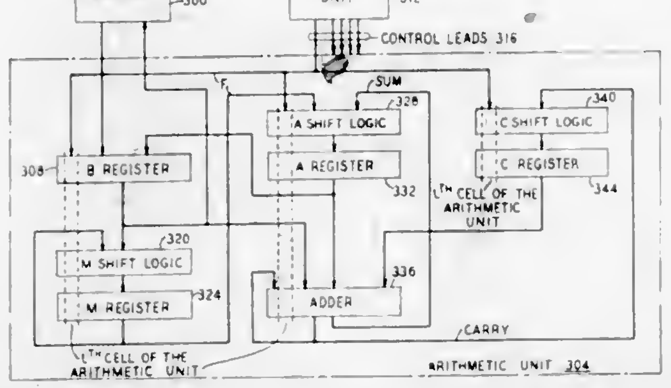


A query and reply system particularly for use in savings banks to aid in processing calls such as deposits and withdrawals, and including a number of remote teller machines each having (1) a data entry keyboard, (2) a CRT display device for presenting alphanumeric characters corresponding to data entered on the keyboard, and (3) a line printer for printing data in the customer's passbook. The remote station sends queries through a time-sharing multiplex arrangement to a central computer which produces corresponding answers for retransmittal to the querying teller machine. The answer signals are stored in a recirculating memory and are used to control the operation of the line printer so that the answer data can be placed directly in the customer's passbook. The system also includes an off-line option permitting certain computations to be made locally without the aid of the central computer.

3,571,803
ARITHMETIC UNIT FOR DATA PROCESSING SYSTEMS

John H. Huttenhoff, Succasunna, and Richard R. Shively, Convent Station, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 4, 1968, Ser. No. 734,428
Int. Cl. G06f *7/38;* **G11c** *19/00*
U.S. Cl. 340—172.5 **12 Claims**

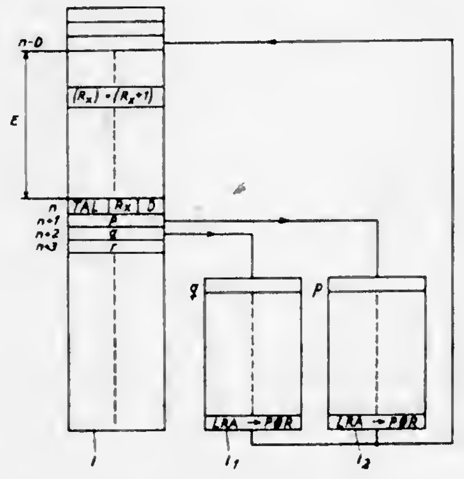


An arithmetic unit of a data processing system having the capability of designating any digit position of the data words being processed as the most significant digit position to thereby increase the efficiency of processing. More than one most significant digit position in a data word may be so designated. Designating a most significant digit position is realized by circuitry in the arithmetic unit which (1) inhibits data from being shifted from the most significant digit position to adjacent positions in one direction, (2) inhibits arithmetic carrys from propagating from the most significant digit position to said adjacent positions, and (3) causes the sign digit of a data word to be copied into the most significant digit position as well as being shifted to adjacent positions in the other direction on certain "arithmetic" shifts of the data word.

3,571,804
METHOD FOR EXECUTION OF JUMPS IN AN INSTRUCTION MEMORY OF A COMPUTER

Goran Anders Henrik Hemdal, Tyreso, and Ferenc Belina, Trangsund, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed July 24, 1968, Ser. No. 747,375
Claims priority, application Sweden, Aug. 31, 1967, 12071/67
Int. Cl. G08f *9/18*
U.S. Cl. 340—172.5 **3 Claims**

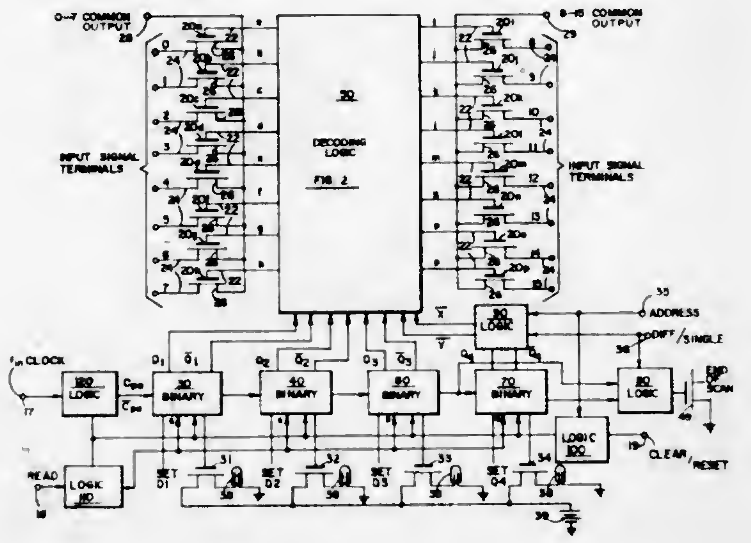


A computer system performs a jump instruction routine in a program of sequentially available addressed instructions. A jump instruction which includes an operator part and a variable part is stored in at a given address. When the jump instruction is performed the variable part is used to modify the present address of the jump instruction to establish a return address and also another address to indicate where a subroutine is stored.

3,571,805
RANDOM OR SEQUENTIAL ACCESS MULTICHANNEL MULTIPLEXER

Duane C. Fox, Fullerton, Calif., assignor to North American Rockwell Corporation

Filed Aug. 7, 1968, Ser. No. 750,840
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **3 Claims**

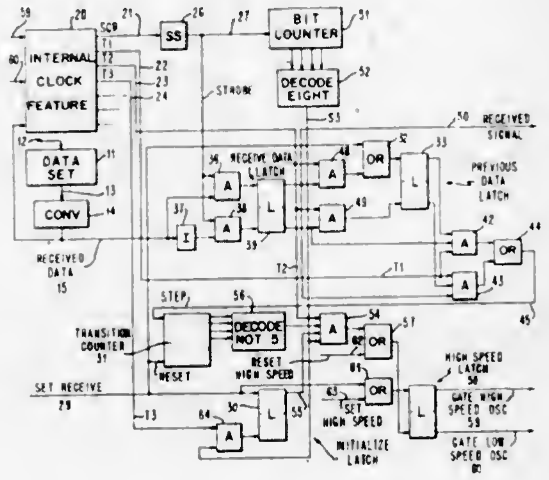


A multipurpose multiplexer comprised of a four-bit binary counter, the outputs of which are coupled to a means for logically decoding all of the counter states. A plurality of switch circuits are connected to respond to the decoded states, to open or close, and thereby complete circuit paths for a corresponding plurality of input terminals to one or more output terminals. Means are provided for controlling the switches in a single-ended or differential mode; one switch is activated for each state while in the single-ended mode, while two switches are simultaneously activated for each state in the differential mode.

3,571,806
VARIABLE-SPEED LINE ADAPTER FOR SYNCHRONOUS TRANSMISSIONS

David Makie; Eugene E. Mallar, Jr., and Robert F. Steen, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 14, 1969, Ser. No. 792,221
Int. Cl. H04l *25/50*
U.S. Cl. 340—172.5 **5 Claims**

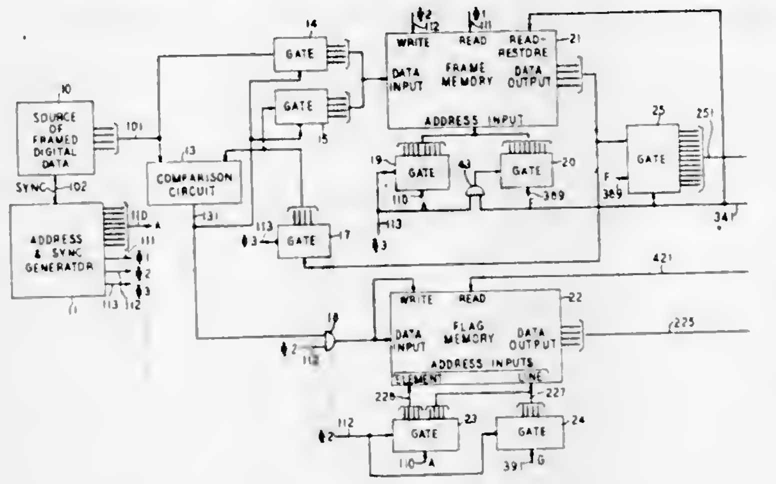


A line adapter for data transmission systems is provided with a pair of oscillators for enabling reception of signals at two different rates. An initial synchronizing character is analyzed to determine the number of voltage transitions during the period needed for transmission of the character at the higher transmission rate. If the number of transitions counted does not correspond with the number of voltage transitions in the character, a shift is made to a lower speed oscillator for data reception at the slower rate.

3,571,807
REDUNDANCY REDUCTION SYSTEM WITH DATA EDITING

James C. Candy, Convent Station, and Frank W. Mounts, Colts Neck, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 13, 1968, Ser. No. 775,458
Int. Cl. G06f *7/02*
U.S. Cl. 340—172.5 **7 Claims**

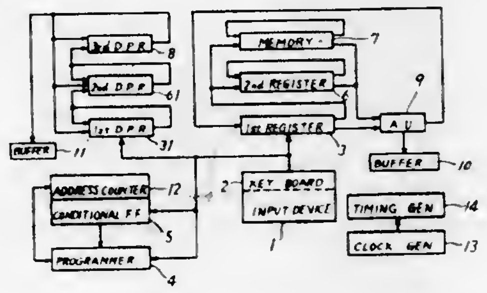


A redundancy reduction system is described for use with signals such as video signals which have frame-to-frame redundancy. An entire frame of samples from the signal is stored in a frame memory. Each new sample from the signal is compared with its corresponding stored sample having the same time position within the frame. If a significant difference is found to exist between the two samples, the new sample is placed into the frame memory replacing the old sample, and in addition an identification or flag signal is placed into a flag memory at a corresponding address. A searching circuit scans the flag memory and detects those address locations which have been marked by a flag or identification signal. In response to detecting a flag at a particular address location the sample stored in the frame memory at that address location is read out of the frame memory and coupled to a digital transmitter for transmission to a receiving location.

3,571,808
DECIMAL POINT PROCESSING APPARATUS

Isamu Washizuka, Osaka; Satoshi Teramura, Nara-shi, and Hitoshi Hanahara, Yamatokoriyamia-shi, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 6, 1968, Ser. No. 781,849
Claims priority, application Japan, Dec. 12, 1967, 42/79702
Int. Cl. G11b *13/00*
U.S. Cl. 340—172.5 **6 Claims**

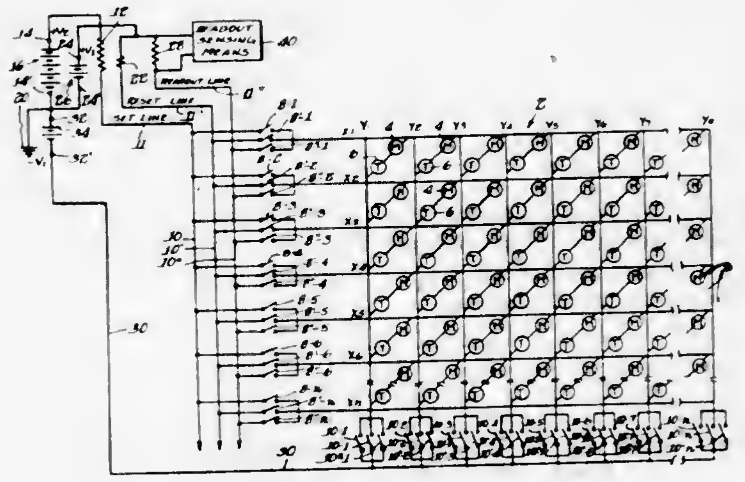


A computer having registers in which a plurality of memory cells are connected in cascade in correspondence with the desired number of bits, only one of said memory cells is arranged to have an operational state different from those of all of the other memory cells and the bit location of said memory cell having the operational state (memory state) different from the others is caused to correspond to a numerical value to be stored, means of shifting said bit location of said memory cell having the operational state different from the others to another bit location, and shift control means for determining said bit location to which said bit location of said memory cell having the operational state different from the others is to be shifted in correspondence with a numerical value to be arithmetically operated as one operand with respect to said numerical value already stored in the register.

3,571,809
MEMORY MATRIX HAVING SERIALLY CONNECTED THRESHOLD AND MEMORY SWITCH DEVICES AT EACH CROSS-OVER POINT

David L. Nelson, Milford, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Nov. 4, 1968, Ser. No. 773,001
Int. Cl. G11c *11/36;* **H03k** *19/12*
U.S. Cl. 340—173 **5 Claims**

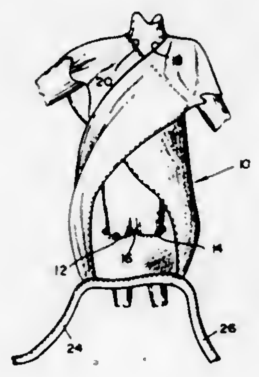


A memory matrix of X and Y axes conductors forming rows and columns of conductors to be addressed, first and second series connected switch devices coupled between each active crossover point of the X and Y conductors, each first switch device being a threshold switch device which has a relatively high resistance condition when the value of the voltage applied thereto is below a first voltage threshold level, and is switched to a relatively low resistance condition when the value of the voltage applied thereto reaches said first voltage threshold level which low resistance condition remains until the current therethrough drops below a given holding value, and each second switch device being a memory switch device which is triggered into a relatively low resistance condition when the value of the voltage applied thereto exceeds a second voltage threshold level substantially greater than said first threshold level and which condition remains in such low resistance condition independently of the presence or absence of an applied voltage until reset to a high resistance condition with the feeding of a reset current pulse therethrough, the resistance of said high resistance condition of the threshold switch device at each crossover point most advantageously being at least 10 and preferably 1000 times greater than the resistance of the high resistance condition of the memory switch device thereat.

GENERAL AND MECHANICAL

3,571,810
WRAPAROUND GARMENT

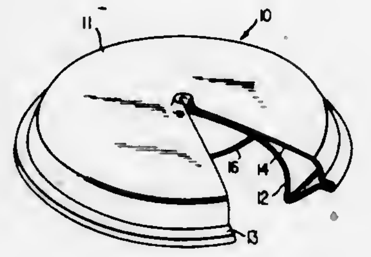
Zwi Swett, Aflka, Israel, assignor to Benjamin D. Kaufman, New York, N.Y.
Filed Dec. 18, 1969, Ser. No. 886,065
Int. Cl. A41d *7/00, 15/04*
U.S. Cl. 2—69 **5 Claims**



A wraparound garment formed of a strip of sheet material having spaced center openings for receiving a wearer's thighs and an opening at each end for insertion of the wearer's head and one arm therethrough.

3,571,811
TOY HAT

Henry Allen Wilson, 81 Atherton Ave, Atherton, Calif.
Filed May 19, 1969, Ser. No. 825,734
Int. Cl. A42b *1/02*
U.S. Cl. 2—195 **3 Claims**

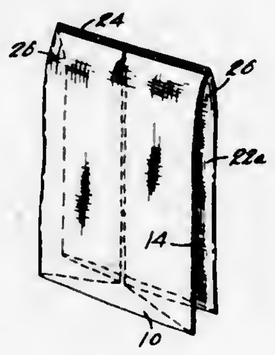


The sailor type hat is constructed for dual uses due to its unitary structure having differently contoured surfaces on opposite sides thereof whereby said unitary surfaces of the device cooperate to provide a cool lightweight head cover as well as an improved discus-shaped throwing game piece. The contoured surfaces on opposite sides of the unitary head cover cooperating when twirled in throwing produces therein improved lift and controlled flight through the air over long distances.

3,571,812
CAP CONSTRUCTION AND THE METHOD OF MAKING SAME

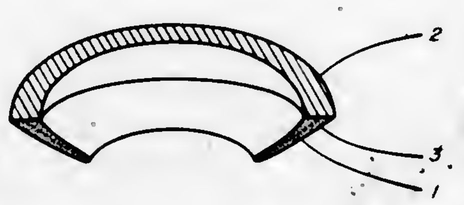
Robert Norman Speevak, Montreal, Quebec, and Joseph George Robert Paquin, Roxboro, Quebec, Canada, assignors to Johnson & Johnson
Filed Mar. 6, 1969, Ser. No. 804,807
Claims priority, application Canada, Mar. 7, 1968, 014,308
Int. Cl. A42b *1/22*
U.S. Cl. 2—197 **2 Claims**

The hat or cap disclosed is made of a sleeve of flexible material which is formed into four panels and two opposing panels are then folded inwardly. All of the panels are joined together at one end of the sleeve to form the cap.



3,571,813
ACOUSTICAL EAR MUFF WITH CONE-TYPE CUSHIONS

Clayton H. Allen, Wellesley, Mass., assignor to Bolt Beranek and Newman Inc., Cambridge, Mass.
Filed May 21, 1969, Ser. No. 826,319
Int. Cl. A41d *21/00*
U.S. Cl. 2—209 **2 Claims**

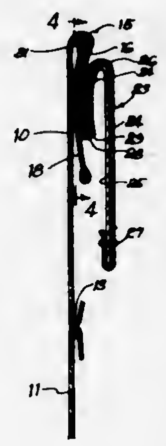


This disclosure deals with a novel acoustical ear muff and the like employing a novel cushion that provides a soft and compliant seal, conforming readily to the irregular contour of the head even when that contour varies with time, as when the wearer is talking or chewing; but, when firmly sealed to the head around the entire periphery of the cushion, the cushion then presents a high stiffness against alternating forces induced by an incident sound field, thus minimizing any resulting change in enclosed volume of the ear muff and consequently minimizing the sound pressure developed at the ear.

3,571,814
WAISTBAND CONSTRUCTION

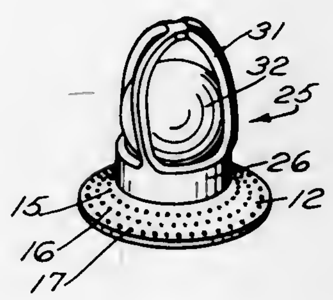
Samuel E. Miller, Wilmette, Ill., assignor to Quick Service Textiles, Inc., Chicago, Ill.
Filed Apr. 25, 1969, Ser. No. 819,131
Int. Cl. A41d *1/06*
U.S. Cl. 2—236 **2 Claims**

A waistband for wearing apparel, e.g. trousers, which includes a woven strip to preclude rolling over of the outer edge portion of the waistband. In order to perform its function the strip has a degree of inherent rigidity but is flexible in the sense that its presence does not discommode the wearer. These characteristics are obtained by using a comparatively stiff thread in the weft, usually a monofilament of nylon or the equivalent. Since the strip is usually slit from wider goods the edges are rough or erose. Furthermore, since the weft threads are short and comparativel[illegible]gid the warp threads are inadequate to anchor them, so that they are free to slide and thereby present this rough or erose edge configuration which can puncture and/or abrade the adjacent shell fabric. The disclosure relates to an edge construction for the strip to avoid this undesirable behavior.



3,571,815
SUTURE RING FOR HEART VALVE

John V. Somyk, 10 View St., Lincoln, R.I.
Continuation-in-part of application Ser. No. 541,789, Apr. 11, 1966, now abandoned. This application Sept. 19, 1968, Ser. No. 760,814
Int. Cl. A61f *1/22*
U.S. Cl. 3—1 **8 Claims**

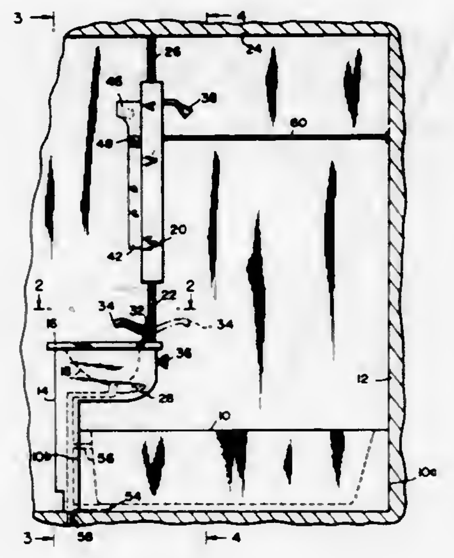


A seamless suturing ring of textile material for a heart valve which has a cylindrical collar with a portion extending radially outwardly therefrom provided with formed openings for suturing to the heart tissue and a peripheral selvage edge.

3,571,816
COMPOSITE BATHROOM FIXTURE

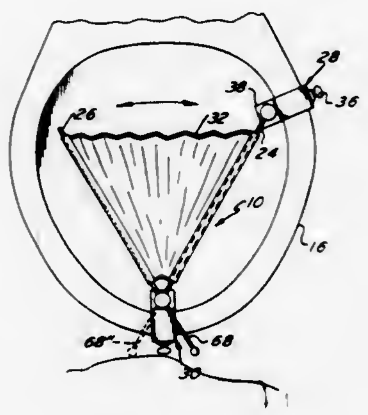
Lee W. Mc Cullough, 53 Normandy Road, Yonkers, N.Y.
Filed Aug. 29, 1969, Ser. No. 854,075
Int. Cl. A47k *3/18*
U.S. Cl. 4—4 **8 Claims**

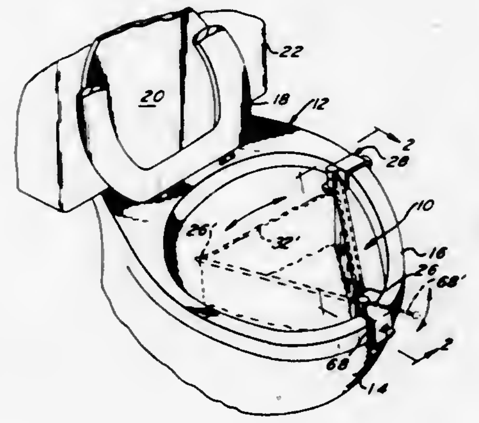
A composite bathroom fixture with a lavatory overhanging one end of a bathtub, a barrier panel extending upwardly over the rear side of the lavatory, a shower head on the bathtub side of the panel, single hot and cold water valve means accessible from both the lavatory and bathtub, and with director means for selectively controlling the flow of water from the valve means into the lavatory, bathtub or shower head, and a pair of vertical pipes spacing the lower end of the barrier panel from the lavatory respectively enclosing the supply pipe to the shower head and the electrical conduit to a lamp and electrical outlet adjacent a mirrored medicine cabinet on the lavatory side of the barrier panel.



3,571,817
URINE SPECIMEN COLLECTOR

Kermit B. Gosnell, 311 N. 34th St., Philadelphia, Pa.
Filed Aug. 28, 1968, Ser. No. 755,879
Int. Cl. E03d *13/00*
U.S. Cl. 4—110 **5 Claims**

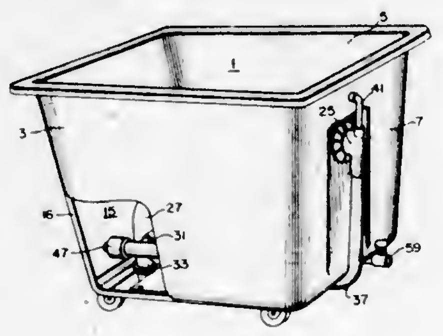




A urine specimen collector comprising a pair of rods which may be rotated toward and away from each other. A flexible specimen bag is secured to the two rods. One rod is rigidly mounted on a toilet bowl and the other rod is rotatably mounted with respect to the rigidly mounted rod. The pivoting of the rotatably mounted rod will open the flexible bag and position the bag beneath the urine stream of a patient sitting on the toilet whereby a urine specimen can be collected in the bag. When a sufficient specimen is collected, the rotatable rod is pivoted toward the fixed rod and subsequently the bag containing the specimen is removed from the rods.

3,571,818
HYDROTHERAPY TANK ASSEMBLY

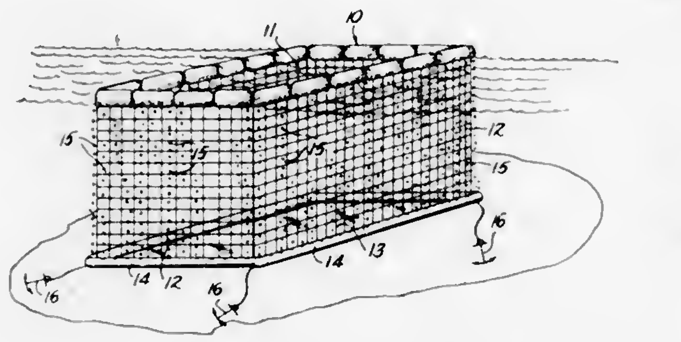
Roy A. Jacuzzi, Oakland, Calif., assignor to Jacuzzi Research, Inc.
Filed Nov. 27, 1968, Ser. No. 779,491
Int. Cl. A47k *3/02;* **A61h** *33/02*
U.S. Cl. 4—180 **4 Claims**



A self-contained hydrotherapy tank assembly of the hip tank type having an interior seat forming an exterior chamber, and a built in hydromassage system including a hydroair jet head assembly mounted in a wall of the tank, a pump installed in the exterior chamber, the pump having its suction end flow connected with the interior of the tank, and its discharge end connected to the hydroair jet head assembly. An adjustable heater is provided in the system to maintain the temperature of water within a desired temperature range.

3,571,819
BATHING DEVICE

Joseph F. Puncochar, 205 Commonwealth Ave., Alexandria, Va.
Filed Nov. 12, 1969, Ser. No. 875,709
Int. Cl. A47k *3/00*
U.S. Cl. 4—171 **7 Claims**

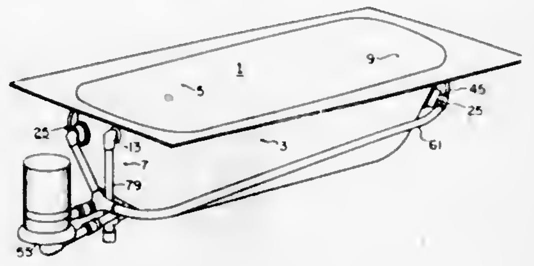


A water-permeable bathing device is provided for separating a section of water from a main body thereof in which floats are used to mark off the section of water to be protected and a vertical openwork barrier is secured to the floats and extends downwardly therefrom to the desired depth, and means are provided to release bubbles of gas at the bottom of the barrier to provide a curtain of rising bubbles in the immediate vicinity of the barrier to cooperate with the barrier and exclude undesirable sea organisms.

3,571,820
HYDROMASSAGE BATH INSTALLATION

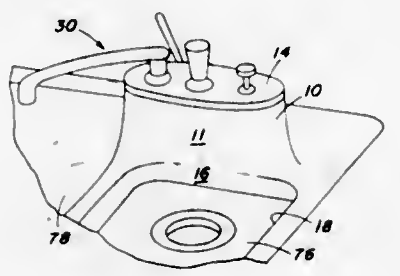
Roy A. Jacuzzi, Oakland, Calif., assignor to Jacuzzi Research, Inc.
Filed June 6, 1968, Ser. No. 734,960
Int. Cl. A47k *3/00*
U.S. Cl. 4—180 **8 Claims**

A hydromassage bath installation wherein a jet assembly is mounted in a vertical wall of a bath tank in spaced relationship to the drain opening, with all flow passages in the circulatory system being above a drain line valve to assure a sanitary isolation of the drain line from the circulatory system during use, and further assure complete emptying of the bath water to the drain line upon opening of the drain valve.



3,571,821
PLUMBING FIXTURES

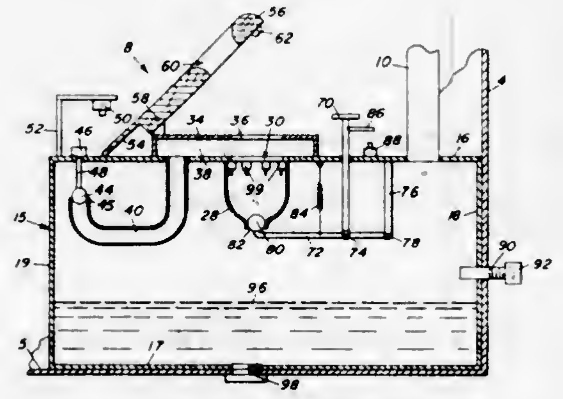
Jack N. Kaiser, Louisville, Ky., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y.
Continuation of application Ser. No. 538,810, Mar. 30, 1966, now abandoned. This application July 18, 1969, Ser. No. 847,514
Int. Cl. E03c *1/04*
U.S. Cl. 4—192 **9 Claims**



A plumbing fixture, in particular, a kitchen sink is provided with a raised section which houses a variable number of accessories. A removable escutcheon closes the open top. A support member is positioned within the raised section for carrying and supporting the water faucet.

3,571,822
TOILET FACILITY VENTILATION SYSTEM

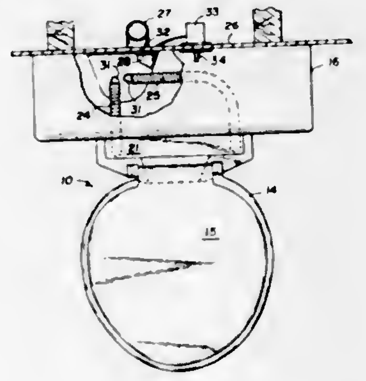
Hugh E. Shaw, Jr, 2639 Russell Drive, Lower Burrell, Pa.
Filed Jan. 10, 1969, Ser. No. 790,202
Int. Cl. E03d *9/05*
U.S. Cl. 4—213 **18 Claims**



A toilet facility ventilating system for preventing objectionable odors from escaping into the room in which the facility is located by introducing a negative pressure into the system while the facility is in use and during the flushing operation. The facility includes a bowl for receiving the waste mounted in a holding tank housing which stores the waste after the flushing operation and a ventilating system which will keep a negative pressure in the facility during use and the flushing operation. The ventilating system is activated by a seat switch for ventilation during use, and a flushing handle switch for ventilation during the flushing operation.

3,571,823
TOILET VENTILATION SYSTEM

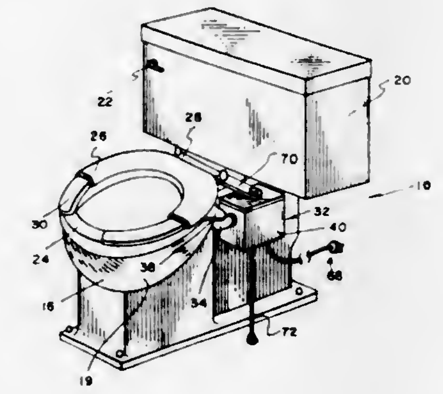
John S. Lundberg, 30 Laburum Crescent, Rochester, N.Y.
Filed Apr. 1, 1969, Ser. No. 811,949
Int. Cl. E03d *9/05*
U.S. Cl. 4—213 **9 Claims**



A toilet ventilation system uses a simple, plastic intake secured under the toilet seat bolts and carrying plastic hose connectors so flexible hose can connect the intake with a cover plate mounted over a support plate over a hole in the wall behind the toilet to lead to a flexible exhaust hose. A fan motor is arranged somewhere in the exhaust line, and a switch above the toilet in the wall behind the toilet is arranged for operating the fan motor. The particular arrangement of parts allows simple and convenient installation on a variety of toilets.

3,571,824
TOILET STOOL VENTILATING MEANS

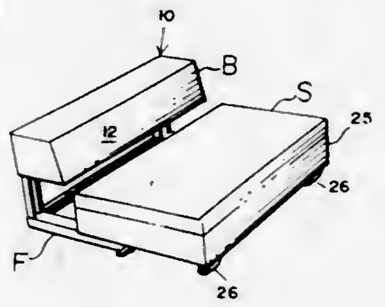
Clarence E. Poister, P.O. Box 68, Fairview, Kans.
Continuation-in-part of application Ser. No. 634,969, May 1, 1967, now Patent No. 3,491,382. This application Dec. 8, 1969, Ser. No. 883,104
Int. Cl. E03d *9/05*
U.S. Cl. 4—213 **10 Claims**



The invention has a generally annular air chamber mountable below the seat and above the rim of a toilet bowl, and has openings thereto for receiving normally contaminated air from the toilet bowl, and an outlet to transmit the air to a filter element where it is deodorized and passed into the atmosphere. The filter element has a housing, an outlet, an inlet, an easily removable closure, and a blower therein adapted to move the normally contaminated air through the filter element and an easily replaceable filter cartridge therein. The filter element cartridge is easily replaced by removal of the filter element closure and is placed in the airstream through the filter element. The cartridge has baffles to direct the air back and forth transversely through the filtering material deodorizing same. The air chamber outlet and the filter element are operably connected by a conduit means. A switch, operably connected to the blower in the filter element is activated by pressure exerted on the seat as in normal use.

3,571,825
AUTOMATIC SOFA BED

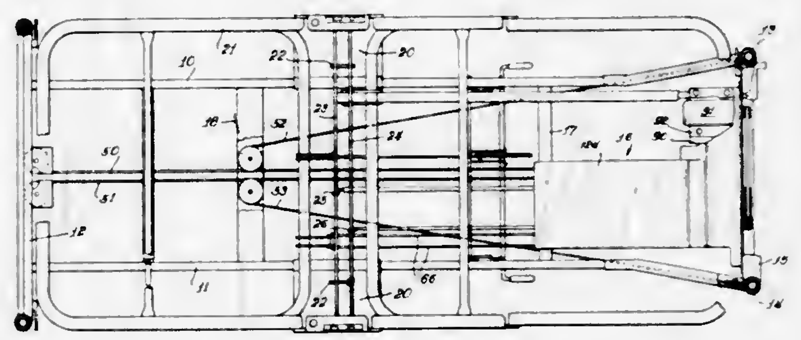
David Bendell, 7240 S.W. 125th St., Miami, Fla.
Filed July 7, 1969, Ser. No. 839,602
Int. Cl. A47c *17/14, 17/22*
U.S. Cl. 5—17 **4 Claims**



An automatic sofa bed having a pair of rectangular frame members, one slidably mounted on the other. The upper frame member having floor-engaging rollers at its forward edge portion with further rollers at its rear edge portion engaging tracks formed on the lower frame member. The lower frame member having a bolster support along its rear portion and a latch at its forward edge for securing the upper frame member at its retracted position for use as a sofa with a pair of adjustable spring members yieldingly urging the upper frame member to slide to its extended position for use as a bed and which requires a minimal of force to return the upper frame member to its retracted position for use as a sofa.

3,571,826
POWER UNIT FOR FRICTION DRIVE HOSPITAL BED

Francis J. Burst, Batesville, Ind., assignor to Hill-Rom Company, Inc., Batesville, Ind.
Filed Dec. 5, 1968, Ser. No. 781,564
Int. Cl. A61g *7/06, 7/00;* **F16h** *15/00*
U.S. Cl. 5—67 **8 Claims**

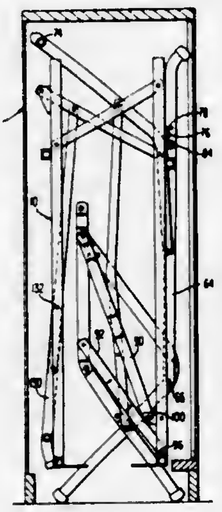


A friction drive power unit for an electric hi-low hospital bed which unit includes control means accessible to and operable by a patient in the bed to operate the bed in a desired manner. The unit includes an interlock which prevents simultaneous operation of the hi-low and spring moving mechanisms of the unit, and includes limit position control of these devices.

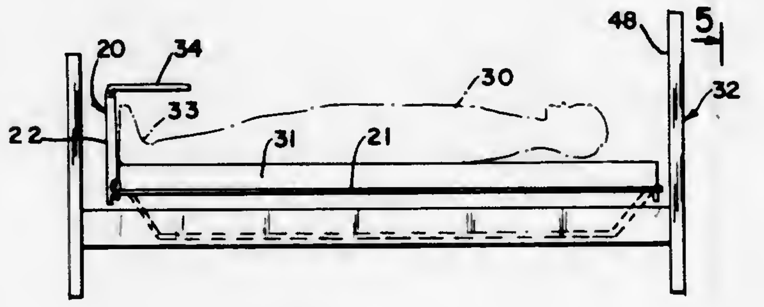
3,571,827
FOLDING BED LINKAGE

Walter Clark Rogers, Jr., High Point, N.C., assignor to Royal Development Company Inc., High Point, N.C.
Filed Jan. 15, 1969, Ser. No. 791,475
Int. Cl. A47c *13/36, 17/40*
U.S. Cl. 5—149 **16 Claims**

A folding bedframe including front and rear frame sections movable between a retracted vertical position wherein the bed frames are in generally parallel relationship, and an extended horizontal position wherein the bedframe sections are in generally coplanar relationship with the front bedframe section projected forwardly from the rear bedframe section. A first linkage mounts the rear frame section to an anchor means for swinging movement between a retracted vertical position and an extended horizontal position. Support for the rear frame section while in the horizontal position is provided by a second linkage pivotally connected to the anchor means for movement independently of the first linkage between a retracted position, and an extended position resting on the floor with the rear frame section engaged thereon. The front frame section is supported on the floor by means of a link which pivots into engagement on the floor when the front frame section is fully extended.



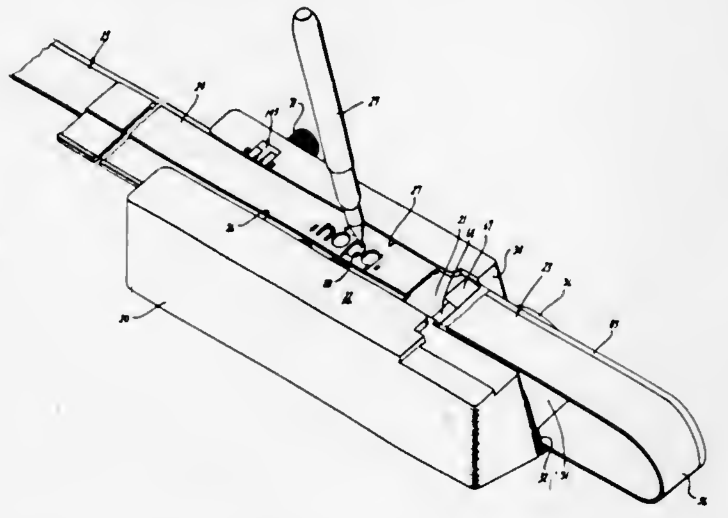
3,571,828
FOOT REST DEVICE
Delton E. Bergsgaard, 423 Euclid Ave, and Palmer E. Berger, 1716 12th Ave, North, Grand Forks, N. Dak.
Filed Sept. 13, 1968, Ser. No. 759,726
Int. Cl. A47c *21/00*
U.S. Cl. 5—327 **2 Claims**



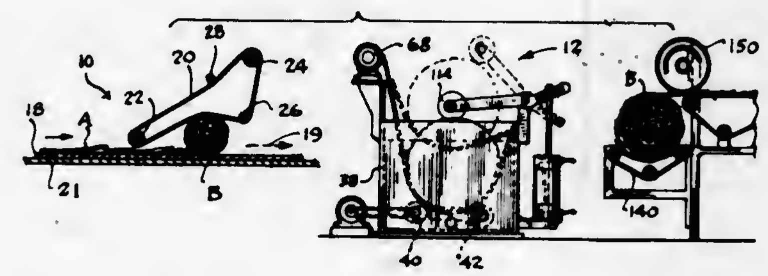
The invention comprises a foot rest having a rectangular plate serving as a foot support mounted upright to the edge of a hospital bed spring frame, a U-shaped rope slideably mounted in said plate and adapted to be slid upwardly and forwardly to serve as a blanket support, an adjustable foot support member adapted to be collapsed against said rectangular plate when not in use and adapted to be expanded to serve as a foot support spaced forward from said rectangular plate.

3,571,829
TAPE LETTERING APPARATUS
David W. Souza, Fremont, Calif., assignor to Uniline Corporation
Filed Mar. 27, 1969, Ser. No. 810,985
Int. Cl. B25f *1/00*
U.S. Cl. 7—14.1 **14 Claims**

An assembly for printing label tape including a body having tape guideways formed therein, a tape dispenser detachably mounted to the body adjacent one end of the bed and having a roll of tape disposed therein for withdrawal of a continuous length of tape therefrom into aligned registration with the guideways, a manually operable drive wheel carried by the body and having a portion engageable with and for driving the strip of tape in the guideways to a desired longitudinal position relative thereto, and a lettering template slidably carried by the body in overlying relation with the tape and having symbol openings therein selectively registrable with and for printing a surface of the tape in cooperation with a writing implement.



3,571,830
LIQUID PROCESSING OF DISCRETE ARTICLES WITHOUT JOINING SAME
Justin J. Wetzler, Evanston, Ill., assignor to F. W. Means & Co., Chicago, Ill.
Filed May 20, 1969, Ser. No. 826,138
Int. Cl. D96f *35/00*
U.S. Cl. 8—150 **14 Claims**



A process and apparatus for liquid processing of a bundle of discrete articles where the articles first are placed in a defined bundle; the bundle then being placed in a liquid bath and moved with respect to the bath while pressure is alternatively applied and released to cause liquid to move into contact with all articles of the bundle and to flow through the bundle as a result of the pumping action; withdrawing the bundle from the bath and passing the articles through a rinse section to flush out soil and then through a dryer to remove moisture and return the articles to a substantially dry condition and ironing the articles to finished form.

3,571,831
FLOAT
Elmer W. Conklin, St. Joseph, Mich. (600 N. Erie St., P.O. Box 406, Three Rivers, Mich. 49093)
Filed Oct. 4, 1968, Ser. No. 765,054
Int. Cl. B63c *9/04*
U.S. Cl. 9—11 **11 Claims**

A float comprising one or more vessels of sheet material having a flat top and substantially vertical sides, with transversely placed brackets secured to the top for supporting stringers and a deck, the stringers bearing down upon the

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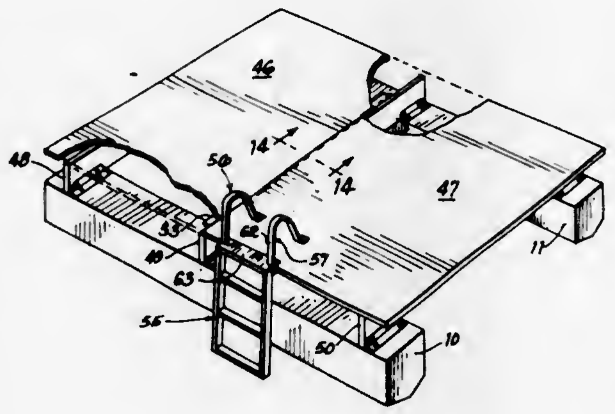
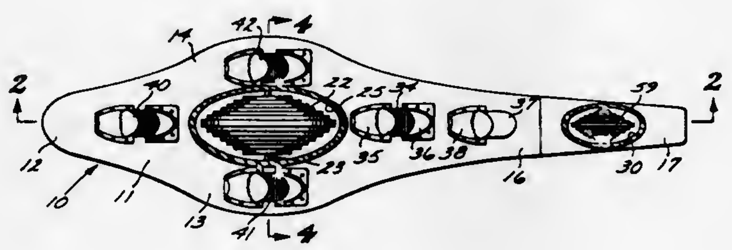
sides of the vessel under downward load, but bearing upward only upon the top thereof. The float may be completely disassembled when stored, or it may be constructed of two parts which may be transported and stored in side-by-side relation to occupy a minimum of space.



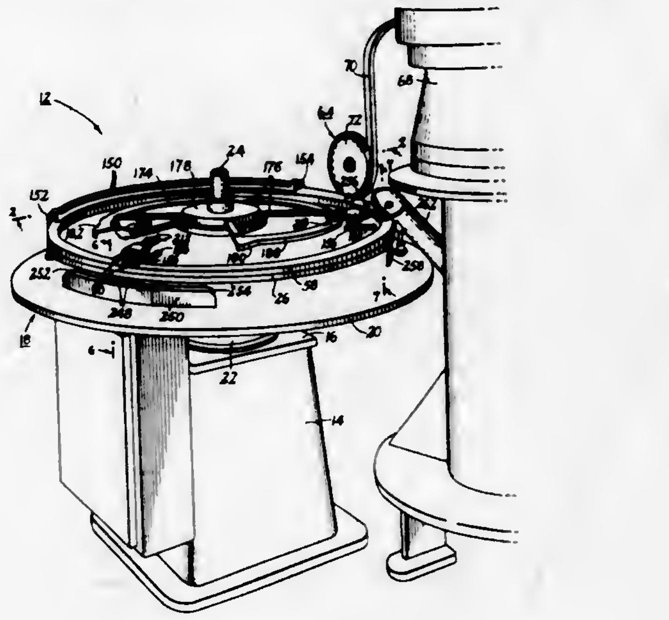
3,571,832
AQUATIC AMUSEMENT DEVICE
Russell E. Rauch, Garden Grove, Calif.
Filed Jan. 22, 1969, Ser. No. 793,080
Int. Cl. A63c *15/02*
U.S. Cl. 9—310 **12 Claims**



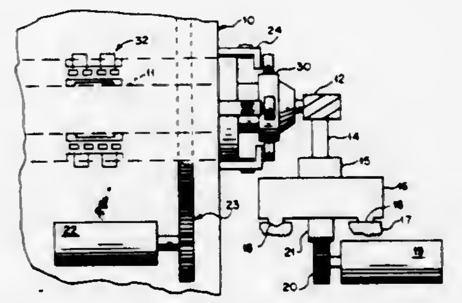
An aquatic amusement device having an elongated, generally planar body and including a forward rotatably mounted buoyant float near the front of said body and a smaller rear rotatably mounted buoyant float in a detachable rear section of the body, each of which floats has its plane of rotation parallel to the longitudinal axis of the body; said floats being defined by an operating surface having a center cylinder section of predetermined diameter and a plurality of side cylinder sections on each side of said center cylinder section of smaller diameter than said center cylinder section with annular circular planar sections joining each cylinder section, and there being further provided foot stirrups on said body to permit a person to stand on the device and be pulled by some means.

3,571,833
APPARATUS FOR APPLYING NYLON TAB IN A NUT
James W. Cadwallader, 1042 Pine Grove Ave., Lansdale, Pa., and Francis R. Kull, 800 Blue Bell Road, Warminster, Pa.
Filed July 22, 1968, Ser. No. 746,637
Int. Cl. B21d *53/24*
U.S. Cl. 10—72 **11 Claims**

A continuously moving support is provided to receive threaded female fastener elements from a continuous-feed mechanism. The fastener elements are moved by the support through a heating zone to a thermoplastic patch insert station where patches of thermoplastic material are inserted into the hot threaded fasteners. The elevated temperature of the threaded fasteners causes the thermoplastic patches to fuse and bond to the threads of the fastener elements and the fastener elements are then moved to an ejection station where they are collected.



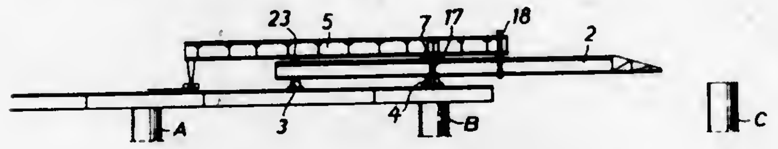
3,571,834
MACHINE TOOL ADAPTIVE CONTROL
Richard A. Mathias, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed Apr. 15, 1968, Ser. No. 721,508
Int. Cl. B23g *1/00, 11/00;* **B23b** *39/10, 47/18, 47/24*
U.S. Cl. 10—139 **29 Claims**



A mechanism controls both the speed of rotation of a cutting tool for performing machine tool operations on a workpiece and the relative feedrate between the cutting tool and the workpiece. The control mechanism includes means to indicate when the life of the cutting tool has ended. The control mechanism has means to provide a minimum relative feedrate between the workpiece and the cutting tool. The mechanism also includes means to permit a relatively rapid movement between the cutting tool and the workpiece when the cutting tool is not engaging the workpiece.

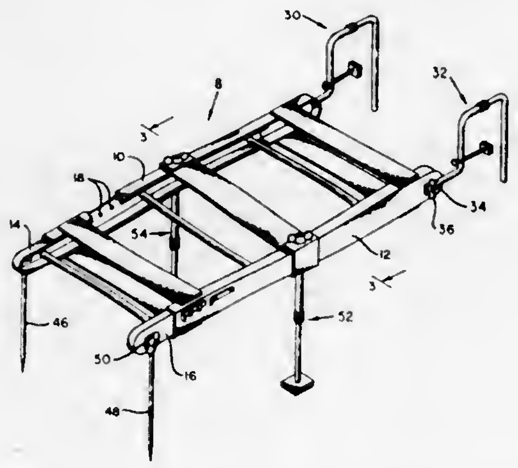
3,571,835
APPARATUS FOR CONCRETING MULTIPLE SECTION STRUCTURES, PARTICULARLY BRIDGE SUPPORTS OF REINFORCED OR PRESTRESSED CONCRETE
Wilhelm Buechler, Munich, Germany, assignor to Dyckerhoff & Widmann kommanditgesellschaft, Munich, Germany
Filed Oct. 29, 1968, Ser. No. 771,553
Claims priority, application Germany, Oct. 30, 1967, P 16 58 587.8
Int. Cl. E01d *1/00*
U.S. Cl. 14—1 **9 Claims**

Apparatus for concreting multiple section or multipanel structures such as elevated highway and bridge structures of reinforced or prestressed concrete, comprising two girders that are movable relative to one another, one of which is a scaffold girder and the other an advancing girder that supports the scaffold girder as it is advanced, which girders are generally of the same length and disposed across a section being concreted where they absorb the load together, and which after hardening of the concrete can be shifted to a new



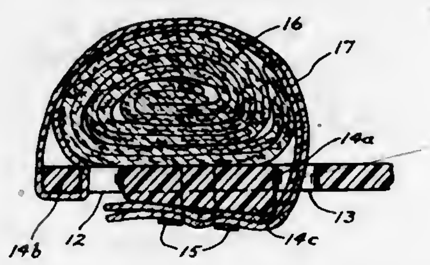
section to be concreted, with the advancing girder moving across the new section first while supported on the scaffold girder, whereupon the scaffold girder is moved into position above the advancing girder with its front end supported thereon and the rearward end supported on a frame having rollers.

3,571,836
BOAT DOCKING DEVICE
Donald A. Dunlap, 2937 Virginia Ave., Redding, Calif.
Filed Jan. 2, 1969, Ser. No. 788,558
Int. Cl. B65g *11/00*
U.S. Cl. 14—71 **2 Claims**



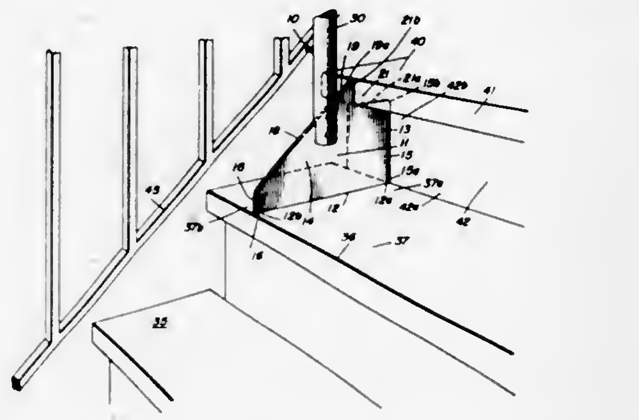
A combined boarding ladder and dock for a small boat is provided by means of a telescoping ladder structure having U-shaped clamps at one end and pivoted spikes at the opposite end. The telescoping ladder structure can be locked in any desired degree of extension and the ladder can be swung horizontally from the boat, using the spike structure to engage the ground, providing a portable dock or the ladder can be swung vertically, providing a boarding ladder for the boat. Auxiliary legs are provided which can be clamped to the ladder to steady the ladder against the boat or which can be used as an intermediate supporting member when the ladder is in a horizontal position.

3,571,837
BACK SCRUBBER
Alexander Earl Weaver, 2207 Snelling Ave. South, Minneapolis, Minn.
Filed May 12, 1969, Ser. No. 823,910
Int. Cl. A47k *7/02*
U.S. Cl. 15—231 **3 Claims**



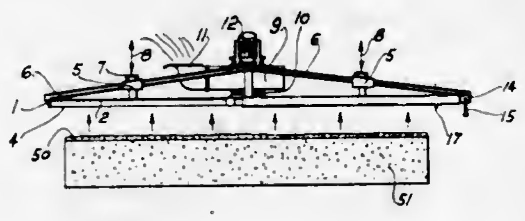
This invention relates to a back scrubber for bathing which is specifically constructed to facilitate quick and easy changing of the scrubbing cloth mounted thereon while providing highly effective means for positively holding the cloth in operative position.

3,571,838
SNOW REMOVAL IMPLEMENT
Melvin P. Staschke, 3630 S. Windchester Ave., Chicago, Ill.
Filed Nov. 19, 1968, Ser. No. 777,085
Int. Cl. E01h *5/02*
U.S. Cl. 15—236 **4 Claims**



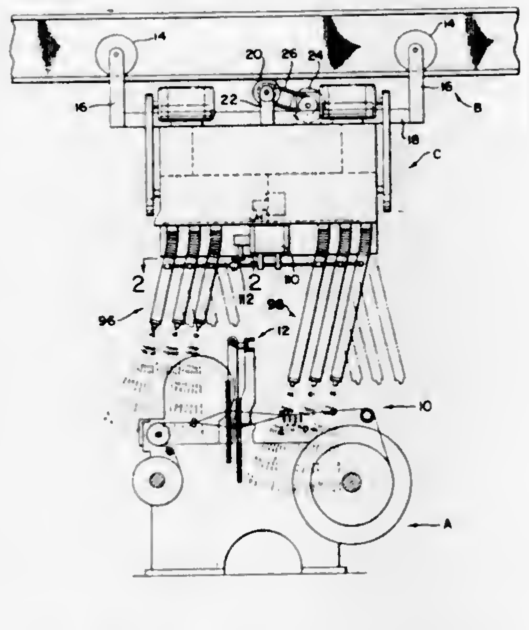
An implement for removing snow is arranged having a blade and a handle, the blade in profile presenting a first side portion and a laterally opposite toe second side portion extending for the upper edge of the toe second side portion in the blade profile to be lower than the bottom rail of a stairway when a bottom edge of the blade extending on the aforementioned first side portion and on the toe second side portion is brought extending contiguous to forward and backward ends of a stair step tread surface and a side edge afforded by the first side portion is brought extending contiguous to upper and lower ends of the rise surface of a next upper stair step with having the handle disposed for operating the blade relative to these tread and rise surfaces to remove snow laterally of a stairway and in this eventually bringing the upper edge of the toe second side portion in a raised position of the blade under the bottom rail of the stairway for the blade to remove snow from the latter zone.

3,571,839
APPARATUS FOR REMOVING THE EXCESS MATERIAL OBTAINED WHEN TRIMMING THE TOP SIDE OF PLASTIC FOAM CONCRETE BLOCKS
Wilfried Hartmann, Lindacherueg 15, Emmering near Furstenfeldbruck, Germany, and Josef Vogele, Albrecht-Durer-Strasse 3, Furstenfeldbruck, Germany
Filed Oct. 28, 1968, Ser. No. 770,940
Claims priority, application Germany, Nov. 15, 1967,
P 16 83 837.2
Int. Cl. A47l *5/38*
U.S. Cl. 15—303 **7 Claims**



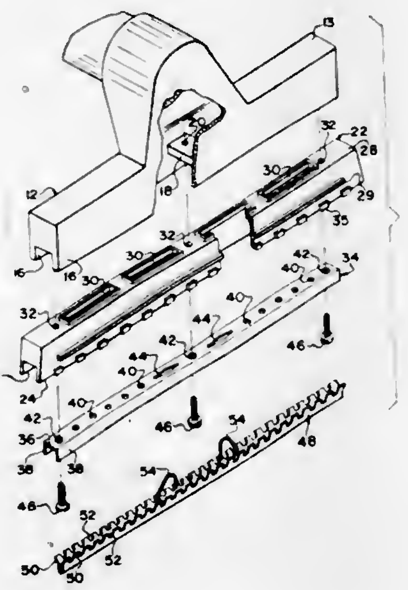
A device for removing the material trimmed from the top side of plastic foam concrete blocks in which a suction box is lowered onto and travels across the concrete block. The suction box has a grid with a plurality of fine openings therein all being connected to a suction fan which generates a negative pressure in the suction box.

3,571,840
CLEANING APPARATUS FOR LOOMS
Hamlin Joseph Gleaton, and Bobby Lee Johnson, Greenville, S.C., assignors to Eaton, Yale & Towne Inc.
Filed July 11, 1968, Ser. No. 744,060
Int. Cl. B08b *5/02*
U.S. Cl. 15—312 **4 Claims**



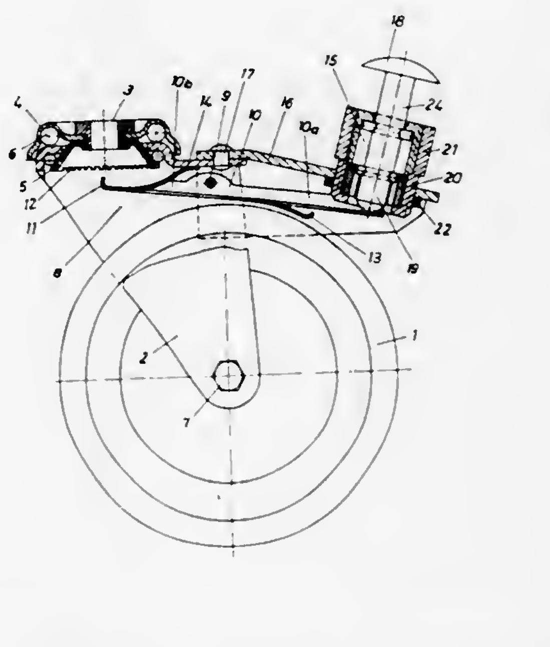
Apparatus for cleaning looms and other textile machinery by the use of rapidly pulsed, high velocity air jets.

3,571,841
WET PICK-UP SUCTION NOZZLE WITH FILTER MEANS
Darwin S. Crouser, North Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio
Filed Apr. 28, 1969, Ser. No. 819,698
Int. Cl. A47l *9/06*
U.S. Cl. 15—401 **10 Claims**



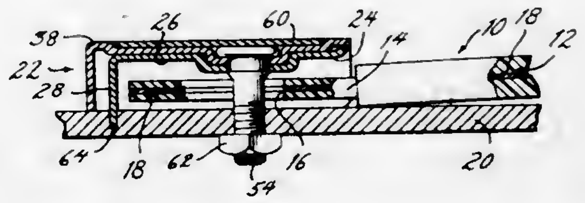
An ambulatory wet pickup suction nozzle has a one-piece elastomeric squeegee member including a pair of parallel lips connected by an apertured web. A rigid retainer bracket positioned between the squeegee lips is removably mounted in the inlet of the nozzle. The squeegee web is trapped between the retainer bracket and fixed mounting means within the mouth inlet. The retainer bracket is generally channel-shaped in cross section, having a planar central web with a plurality of spaced small perforations along its length so as to allow air therethrough to function as a secondary filter. A removable filter bar, functioning as a primary filter, is designed to be removably mounted on the face of the retainer bracket. The filter bar is generally V-shaped in cross section, the base of the V-masking the central web of the retainer bracket. The converging surfaces of the filter bar, forming the V, have castellated outer edges which act in conjunction with the retainer bracket, against which they abut, as perforations forming an easily cleanable primary filter.

3,571,842
RUNNERS PARTICULARLY CASTERS
Dietrich Fricke, Wermelskirchen,Rhineland, Germany, assignor to Tente-Rollen G.m.b.H. & Co., Wermelskirchen-Tente,Rhineland, Germany
Filed Jan. 5, 1968, Ser. No. 695,942
Claims priority, application Germany, Jan. 21, 1967, T33041
Int. Cl. B60b *33/00*
U.S. Cl. 16—35 **20 Claims**



A box runner or caster is provided with a locking device for locking the running and/or swiveling movements of the running wheel. The locking device consists of a pivoted two armed lever having one end shaped to engage in fixed teeth to prevent swiveling and the other end shaped to engage the tyre of the running wheel. The lever is spring biased into the unlocked position and can be moved into its locking position by means of a ball pen press mechanism so that alternate operation of the press mechanism causes locking and unlocking respectively.

3,571,843
HANDLE WITH CONCEALED ATTACHING SCREW
Marton J. Szabo, Broomall, Pa., assignor to Philadelphia Handle Company Inc., Camden, N.J.
Filed July 23, 1969, Ser. No. 844,043
Int. Cl. A47b *95/02*
U.S. Cl. 16—115 **5 Claims**



A flexible collapsible handle with hardware to attach the ends to a carrying case wall formed of brackets retained in caps by headed screws adapted to extend through the carrying-case wall and decorative means concealing the headed portions of the screws.

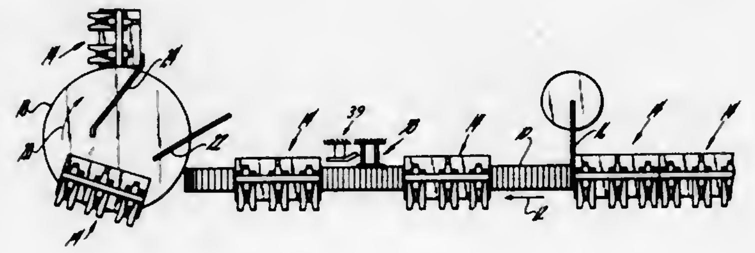
3,571,844
POULTRY CONVEYOR SYSTEM

Phillp G. Stiles, Davis, Calif., assignor to The University of Connecticut, Storrs, Conn.

Filed June 4, 1968, Ser. No. 734,455

Int. Cl. A22c *21/00*

U.S. Cl. 17—11 **7 Claims**



A continuous conveyor of linked steel plates has a plurality of shackles provided thereon for normally advancing with the conveyor, and each shackle has three gripping units for selectively holding either the two legs of a poultry carcass and/or the neck portion thereof. A gate at one side of the conveyor can be swung inwardly to restrain those shackles upstream thereof. Two shackle constructions are disclosed, the gripping unit of one construction having pivotally mounted jaws which are open or closed in response to lateral sliding movement of a control bar or camming trigger. The other gripping unit construction has spring fingers for gripping the extremities of the poultry carcass in response to lateral pivotal movement of a bellcrank. One leg of the bellcrank carries the spring fingers, and the other leg of the bellcrank comprises an upstanding control bar adapted to be pivoted laterally when engaged by an overhead guide bar provided for this purpose.

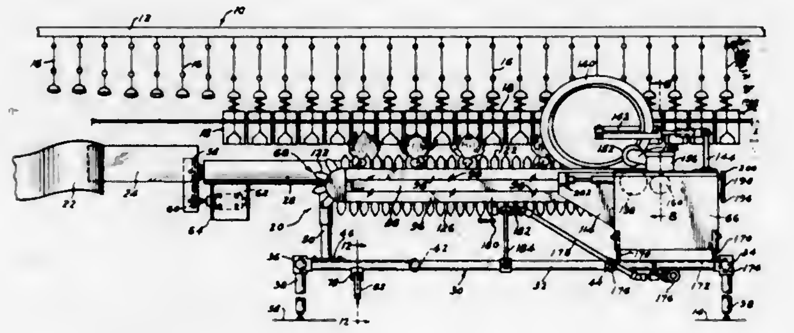
3,571,845
CHICKEN-SLAUGHTERING MECHANISM

Eugene G. Martin; Roland P. Gehman, Stevens, and Edgar H. Smith, New Holland, Pa., assignors to MGS, Inc., Denver, Pa.

Filed Dec. 4, 1968, Ser. No. 781,232

Int. Cl. A22c *21/00*

U.S. Cl. 17—11 **34 Claims**



Chicken-slaughtering mechanism having a conveyor to move chickens suspended by the feet into position for an operator to dispose the necks in slots formed in propelling means and opening upwardly to readily receive the necks and thereby positively move said chickens with their necks positioned substantially horizontally and twisted to position one side for the jugular vein to be incised to a limited controlled depth by a disc knife, and also including means to engage the opposite side of each neck from that penetrated by the knife to fully position the necks in said slots while a neck-stretching roller engages the necks of the chickens to stretch the same in opposition to the slotted propelling means and thereby dispose the skin of the neck in taut condition for efficient incising of the jugular vein close to the jaw as the neck is moved past the power-driven knife.

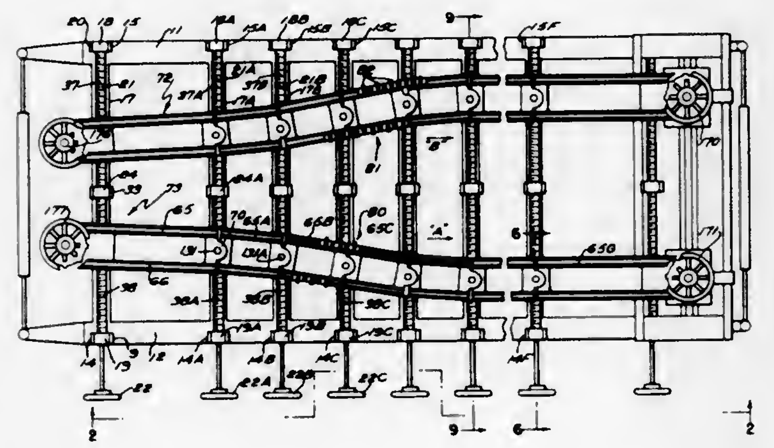
3,571,846
EXPANSION SUPPORT PLATFORM FOR TENTER MACHINE GUIDE RAIL SECTIONS

William Tomlinson, East Providence, R.I., assignor to Bevis Industries, Inc., Providence, R.I.

Filed Jan. 24, 1969, Ser. No. 793,817

Int. Cl. B29g *7/00*

U.S. Cl. 18—1 **6 Claims**



This disclosure relates to a platform for supporting adjacent pivotally connected guide rail section ends which expand and contract due to heating and cooling and also more toward and away from each other under the influence of saddle adjustment.

This invention relates to a platform for supporting the ends of pivotally connected tenter clip guide rail sections as adjustment of the saddle places the ends in angular relationship or as expansion and contraction of adjacent guide rail sections causes the opposite ends thereof to move toward or away from each other.

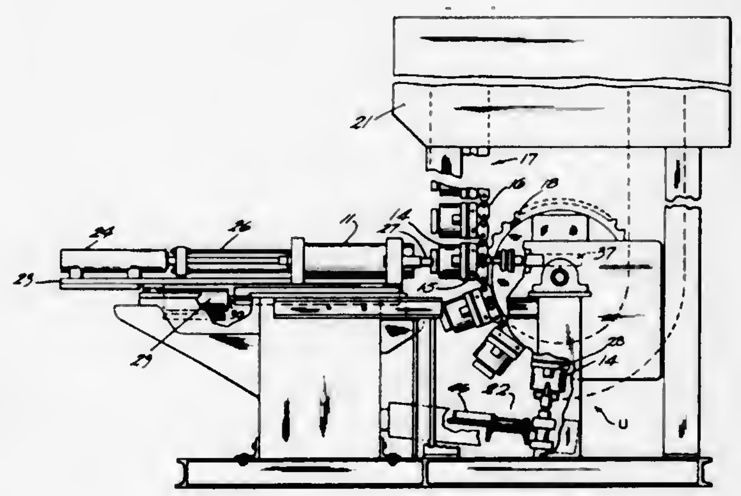
3,571,847
APPARATUS FOR FORMING PLASTIC FIBER FILTERS

Robert Palmai, Preston, Ontario, Canada

Filed Aug. 14, 1968, Ser. No. 752,611

Int. Cl. B29c *3/02*

U.S. Cl. 18—5 **6 Claims**



Apparatus for forming plastic fiber filters wherein a formed filter of a dried mat containing uncured resin is transferred to a heated mold and the heated mold is moved in an endless path through a heating chamber to an unloading station.

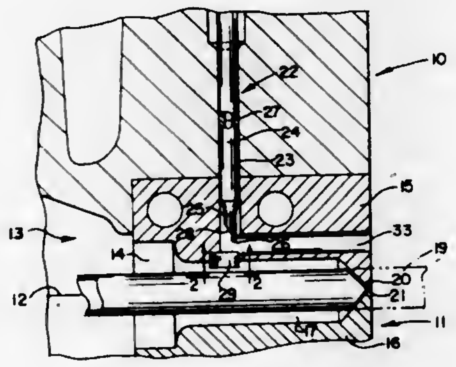
3,571,848
HIGH EXHAUST NEEDLE

John L. Szajna, Norridge, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Jan. 14, 1969, Ser. No. 791,034

Int. Cl. B29d *23/03*

U.S. Cl. 18—5 **5 Claims**



A blow mold is provided with a needle actuable to puncture a parison captured in the mold and to admit air into the parison for blowing a hollow article having the configuration of the mold. The needle is positioned to puncture the parison in a waste portion thereof. The barrel of the needle is substantially larger than the tip, beginning a short distance back of the point, the tip being sized to form a small initial puncture opening in the parison. The needle slides in a bore closely fitting the barrel. When the parison is blown, that portion surrounding the tip of the needle expands along the barrel, enlarging the puncture opening. After the parison is blown and the needle retracted, the air rapidly exhausts from the parison through the enlarged puncture opening, which communicates with atmosphere through a passage intersecting the needle bore.

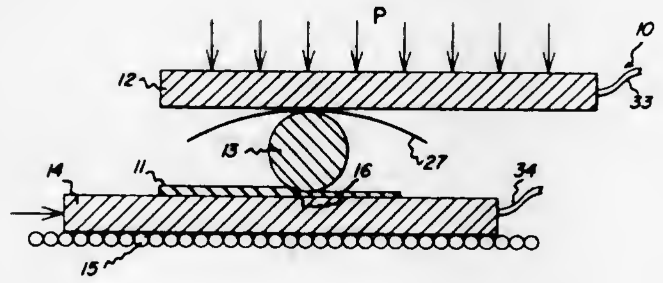
3,571,849
ROLLING MILL APPARATUS FOR HIGH PRESSURE GENERATION

Robert S. Kirk, Scotia, N.Y., assignor to General Electric Company

Filed May 21, 1969, Ser. No. 826,650

Int. Cl. B29c *6/00*

U.S. Cl. 18—5 **6 Claims**



A rolling mill/matrix combination capable of bringing about high pressure, high temperature conversions in a substantially continuous sequence is described. The material being subjected to high pressure is disposed within a series of separate sample containment pockets in a sheet of matrix material and the composite is compressed between a rolling metal element and a flat metal plate forcefully urged toward each other. Means are also set forth for direct heating of the sample material, while high pressure is applied thereto. The synthesis of cubic diamond is exemplary of the high pressures, high temperatures simultaneously attained with this apparatus.

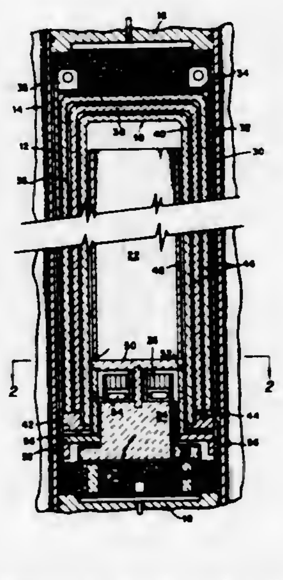
3,571,850
HOT-ISOSTATIC-PRESSING APPARATUS

Herbert A. Pohto, and Carl D. St. Onge, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 15, 1969, Ser. No. 816,362

Int. Cl. B29c *3/00;* **B22f** *3/14*

U.S. Cl. 18—5 **8 Claims**



An improved bell assembly is provided for use in a hot-isostatic-pressing apparatus wherein a gas provides the material pressing and heating medium. The thermal insulating and sealing properties of the bell assembly substantially enhance the efficiency of the natural-convection, closed-loop gas heating system by significantly decreasing heat losses and gas escape.

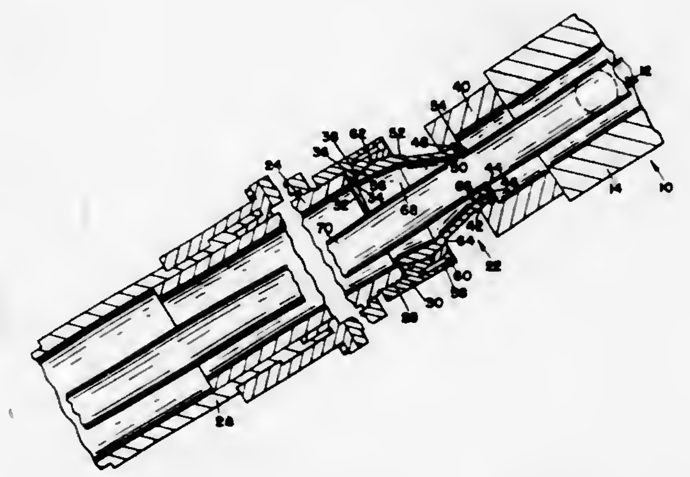
3,571,851
SELF-ALIGNING SEAL TIP FOR SPLICE BOX

Robert W. Ackley, and Edwin L. Jette, Jr., Stonington, Conn., assignors to Crompton & Knowles Corporation, Worcester, Mass.

Filed July 23, 1969, Ser. No. 844,039

Int. Cl. B27f *1/10*

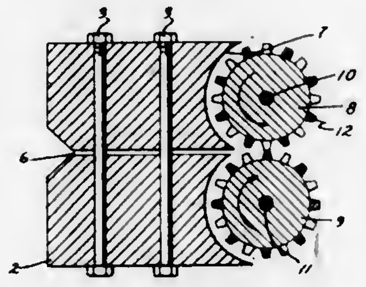
U.S. Cl. 18—6 **6 Claims**



A continuous vulcanizing apparatus in which a splice box forming the entering portion of the vulcanizing chamber has an entering chamber with an inwardly tapering annular wall for receiving one end of the ball joint connector; and an extruder head has an exit chamber formed by an inwardly tapering annular wall for receiving the other end of the ball joint connector. The outer portions of the connector which contact the walls of the exit and entering chambers are spherical to permit relative motion between the connector and extruder head and between the splice box and connector. There is a bore through the connector to permit vulcanizable material to flow through the connector from the exit chamber to the entrance chamber.

3,571,852
APPARATUS FOR FORMING CORRUGATED FOAMED THERMOPLASTIC MATERIALS

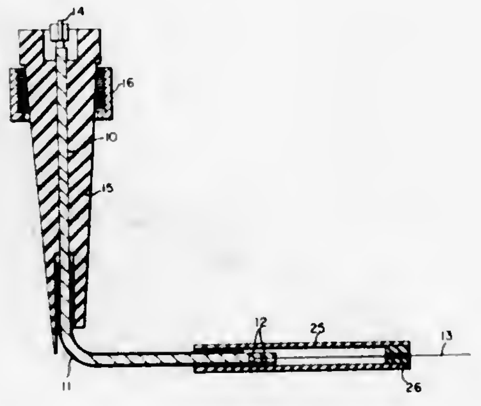
John Harold Gilbert, Ashlea, Mynydd Bach, Shire Newton, Chepstow, Monmouthshire, England
Filed Aug. 28, 1967, Ser. No. 663,761
Claims priority, application Great Britain, Aug. 30, 1966, 38556/66
Int. Cl. B29d *7/22*
U.S. Cl. 18—12 **3 Claims**



This application describes corrugated foam thermoplastic materials in which each corrugation is itself corrugated. In effect, the thermoplastic materials are corrugated in two directions and generally have a wafflelike appearance. Also described is a process for producing the double corrugated materials and suitable apparatus therefor. The corrugated materials find many uses, for instance, as a carpet underlay.

3,571,853
ELECTROSTATIC PINNING OF EXTRUDED POLYMERIC FILM

Melton Orlander Denton, Victoria, Tex., and Samuel Eddy Meggs, Florence, S.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed May 12, 1969, Ser. No. 823,811
Int. Cl. B29d *7/20, 7/02*
U.S. Cl. 18—15 **4 Claims**

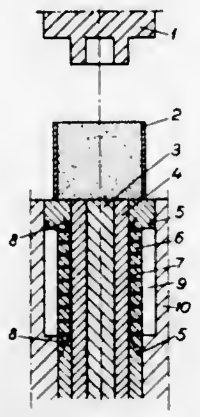


In apparatus for application of an electrostatic charge to cause a dielectric web to adhere to a grounded roll, the improvement comprising movable insulating tubes over the terminal supports and the electrode wire.

3,571,854
MEANS FOR MANUFACTURING PRESSED POWDER BODIES

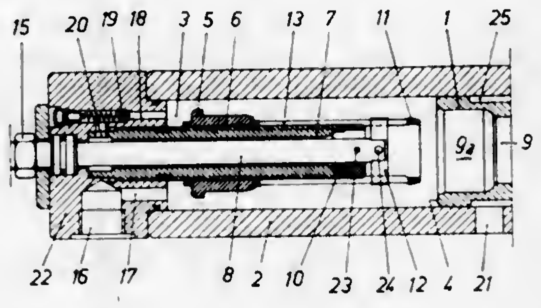
Hans Lundstrom, Robertsfors, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Dec. 26, 1967, Ser. No. 693,626
Claims priority, application Sweden, Dec. 27, 1966, 17731/66
Int. Cl. B29c *3/00;* **B30b** *11/00*
U.S. Cl. 18—16.5 **1 Claim**

A pressed powder body is formed by introducing powder into a space on the outside of a mandrel and inside a rubber sleeve to the outside of which fluid under pressure is supplied. Punches move downward from above and upward from below into the space between the mandrel and sleeve to precompact the powder.



3,571,855
DEVICE FOR STROKE LIMITATION ON HYDRAULICALLY DISPLACED MOLD CARRIER UNITS ON INJECTION MOLDS

Heinz Karl Hofer, Langenholzhausen, and Friedrich Rehmsmeier, Vlotho, Germany, assignors to Stubbe Maschinenfabrik GmbH, Vlotho, Germany
Filed July 3, 1968, Ser. No. 742,384
Int. Cl. B29f *1/00*
U.S. Cl. 18—30 **8 Claims**

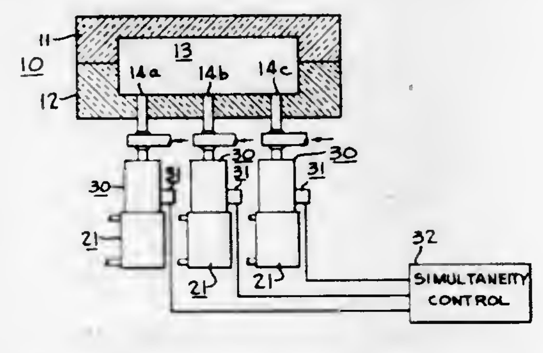


A device for limiting the stroke on hydraulically displaced mold-carrier units of injection molding machines, by means of an abutment element which is infinitely variably adjustable relative to a setting or adjusting device arranged in the axial direction of the actuating piston of the mold-carrying unit, and which by cooperation with the actuating piston, limits the stroke end position thereof.

3,571,856
APPARATUS FOR SIMULTANEOUSLY OPENING VALVES FOR PLURALITY OF INJECTION NOZZLES

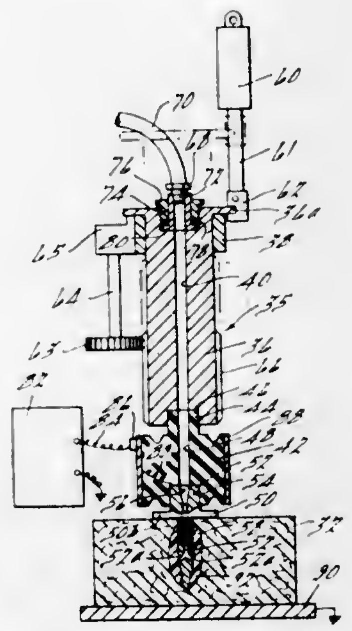
Walter D. Voelker, Philadelphia, Pa., assignor to Bischoff Chemical Corporation, Hicksville, N.Y.
Filed May 14, 1969, Ser. No. 824,617
Int. Cl. B23f *1/04*
U.S. Cl. 18—30 **3 Claims**

Giant articles of cellular plastic are molded in injection molding apparatus. Each of a plurality of injection nozzles comprises a bore in which an injection plunger reciprocates between a withdrawn position at which the tip of the injection plunger rests during the brief mold-filling step and an advanced position at which the tip rests during much of the prolonged step of cooling the molded article. As the plunger advances from its withdrawn position, it first acts as a valve to discontinue flow of the plastic into the nozzle bore and then during a principal portion of its advancing stroke, the injection plunger purges the residual cellular plastic between an inlet orifice and the nozzle tip and forces it into the mold. Only in the final stages of the withdrawing stroke does the tip of the injection plunger expose the inlet orifice to open the valve to renew the flow of cellular plastic to the mold. Power means such as a hydraulic cylinder for each injection plunger actuates the reciprocation. The improvement concerns means provided to each injection plunger as soon as it had completed a selected major amount of its withdrawing stroke so that it is temporarily braked at a position near the brink of valve-opening position. Sensors detect and provide signals while an injection plunger is thus braked at a brink of opening position. A simultaneity control system detects the signals and responds as soon as the signals establish that every injection plunger is at such brink of opening position, and then simultaneously releases the brake for each and all of the injection plungers, which then move to the fully withdrawn positions, thereby simultaneously opening all of the valves. More reproducible articles are molded when the plurality of nozzles are reliably opened with improved simultaneity than when the injection plungers withdrawn by the plurality of hydraulic cylinders by a single stage movement.



3,571,857
FASTENING APPARATUS

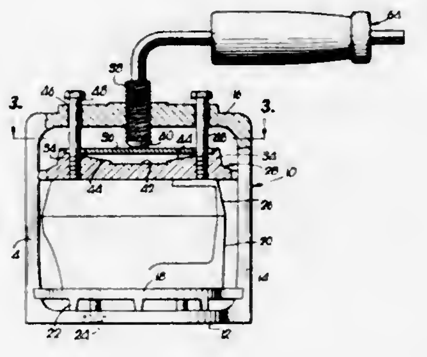
Jeff S. Rhyne, Box 640, Marianna, Fla., Division of Ser. No. 602,663, Dec. 19, 1966, Pat. No. 3,492,381.
Filed Aug. 14, 1969, Ser. No. 850,159
Int. Cl. B29d *1/00*
U.S. Cl. 18—30 **3 Claims**



An apparatus for attaching various objects to a board member formed of a loose, porous material incapable of retaining screws, bolts or the like, whereby an adhesive in liquid form is injected into the board member to locally displace the internal matrix of the board and form an island or mass of adhesive within the board which mass, after setting, will receive and retain screws, bolts etc. and thereby allow the same to be used to attach various objects to the board. The injector apparatus is simultaneously rotatable and axially movable and advances a hollow needle to provide a settable material into the matrix of the board.

3,571,858
FLAT SPRING DENTAL COMPRESS

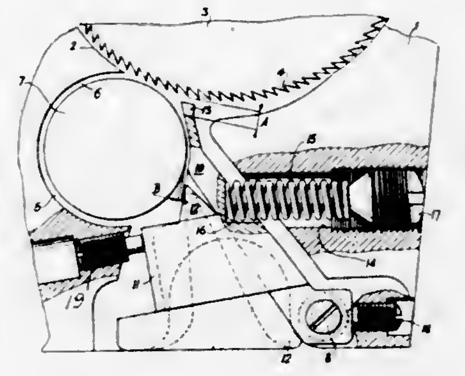
George F. McGowan, 4509 Forest, Kansas City, Mo.
Filed Oct. 2, 1968, Ser. No. 764,556
Int. Cl. A61c *13/00*
U.S. Cl. 18—33 **4 Claims**



A curing clamp for a dental flask employs a flask-engaging pressure plate provided with a pair of spaced pillars upon which a flat bar of spring steel rests. Force is applied to the plate by a center screw that engages the spring bar and is centered with respect to the pillars.

3,571,859
FIBER-PROCESSING APPARATUS

Ctibor Doudlebsky; Stanislav Kabele; Zdenek Svec; Marketa Reymanova, and Stanislav Didek, Usti nad Orlici, Czechoslovakia, assignors to Vyzkumny Ustav Barlnarsky, Usti nad Orlici, Czechoslovakia
Filed Apr. 11, 1969, Ser. No. 815,405
Claims priority, application Czechoslovakia, Apr. 16, 1968, PV2775-68
Int. Cl. D01g *15/40*
U.S. Cl. 19—105 **6 Claims**

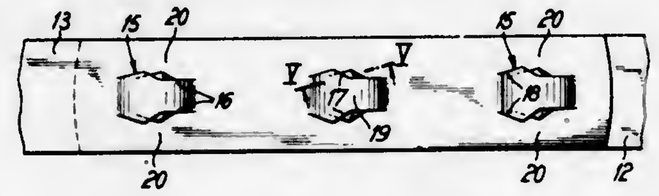


A carding roller is mounted in a support. A feed roller is mounted proximal to the carding roller for supplying fibrous material to the latter. The feed roller and support together define a supply channel for the fibrous material. Fiber supply means includes a carrier member a portion of which extends into the supply channel and defines with the feed roller a first gap and with the carding roller a second gap downstream of the first gap. Adjusting means mounts the carrier member for multidirectional movements so that its aforementioned portion will change position in a sense varying at least the dimensions of at least the second gap.

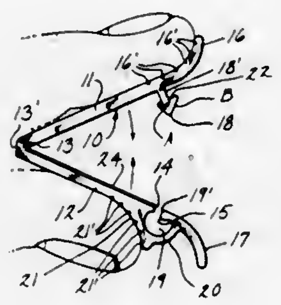
3,571,860
STRAPPING STRIP

Harald Timmerbeil, Schwelm, Germany, assignor to Titan Eisenwarenfabrik G.m.b.H., Schwelm, Germany
Filed Sept. 10, 1968, Ser. No. 758,803
Claims priority, application Germany, Sept. 7, 1967, P 15 86 961.1
Int. Cl. B65d *63/02*
U.S. Cl. 24—20 **2 Claims**

A strapping band for packages and the like is provided at overlapping end portions with lock means formed by at least two fastening catches each comprising webs bent out of the plane of the band from between pairs of longitudinally extending stepped slots. At least one of the lock means is constructed in such a manner to check, after engagement, longitudinal movement of said end portions of the band in either direction.

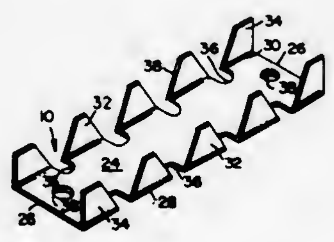


3,571,861
BAG CLOSURE MEANS
Earle L. Olson, Greendale, Wis., assignor to Famco Inc., Menomonee Falls, Wis.
Filed Nov. 26, 1968, Ser. No. 778,983
Int. Cl. B65d *63/00*
U.S. Cl. 24—30.5 **8 Claims**



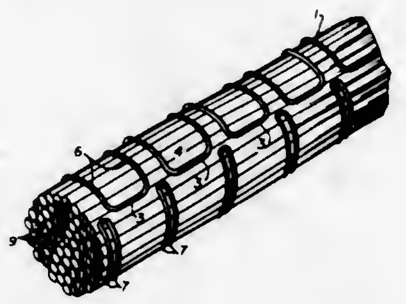
A one-piece molded resilient plastic clip for sealing food bags or the like having a first flat elongated leg with a snap element formed thereon adjacent one end and a second, hingedly attached leg having a complementary snap element, said hingedly connected legs being swingable over upon themselves and snap locked together to positively clampingly seal the open neck portion of a bag interposed therebetween, there being integral finger-positioning means formed on said clip to facilitate the manual opening and closing of the same.

3,571,862
BELTED AXIAL LEAD ELECTRONIC COMPONENT SPLICING CLIP
Albert W. Zemek, R.D. #6, Binghamton, N.Y.
Filed Dec. 20, 1968, Ser. No. 785,583
Int. Cl. F16q *3/00*
U.S. Cl. 24—36 **6 Claims**



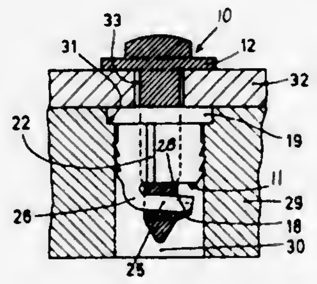
A splicing clip for attaching two ends of tape of belted equally spaced axial lead electronic components, the clip including a base with upstanding bendable slide clasp portions of generally triangular configuration in direct juxtaposition on two sides of said base and separated on the sides of the base by a distance substantially equal to the diameter of the axial lead. The ends of the tapes are placed on the base with at least the last two axial leads on each end of each tape resting in the separations between the clasps and thereafter the clasps are bent over the surface of the tape not in contact with the base.

3,571,863
WIRE FORM FOR BUNDLING WIRES
Maurus C. Logan, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Apr. 16, 1969, Ser. No. 816,672
Int. Cl. A44b *21/00;* **H02g** *3/00*
U.S. Cl. 24—123 **2 Claims**



A means and a method for bundling together a plurality of cylindrical members wherein a preformed continuous wire-supporting member of generally open trough shape is caused to embrace a bundle of cylindrical members by urging together the sides of the supporting member. A protective layer may also be included within or without the supporting member to provide environment protection for the cylindrical members within. Alternatively, a separate member may be employed to complete the enclosure of the cylindrical members without urging together the sides of the supporting member.

3,571,864
FASTENER
Rene Emile Henri Oger, St. Cloud, France, assignor to U. S. Philips Corporation, New York, N.Y.
Filed May 12, 1969, Ser. No. 823,690
Claims priority, application France, May 27, 1968, 153058
Int. Cl. A44b *17/00*
U.S. Cl. 24—221 **5 Claims**

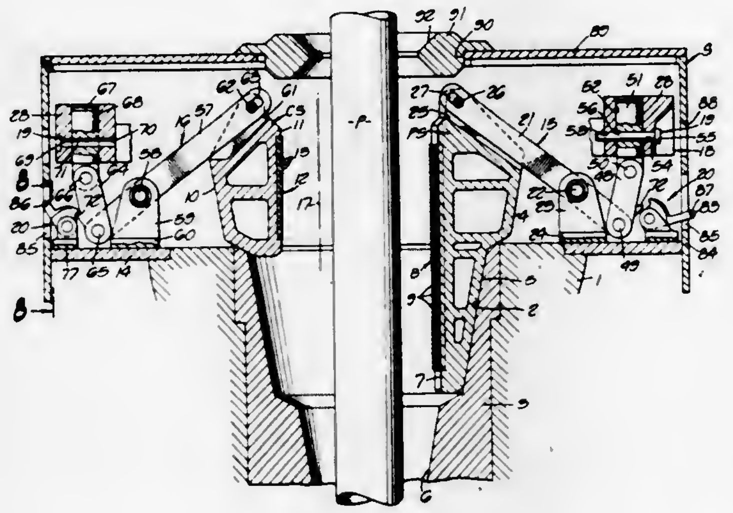


A device which is based on the bayonet principle for fastening an at least partially panel-shaped member to a fixed member by means of a key-shaped stud having a lateral projection or bit provided on the shank, which stud can be passed through subsequent holes in the panel and in the fixed member, which holes allow the passage of the shank and the projection, and subsequently after rotation of the shank the projection can engage in a recess in a resilient element of the fixed member so that withdrawal of the stud is prevented.

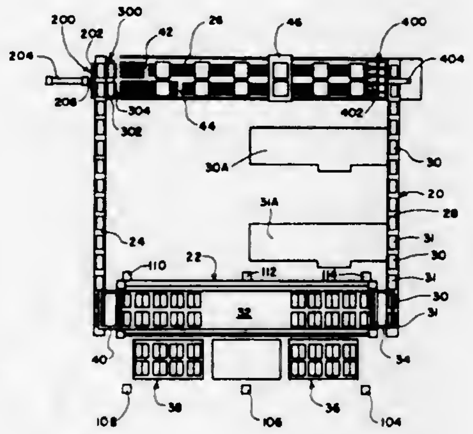
3,571,865
POWER DRILL PIPE AND DRILL COLLAR SPIDER
Noal E. Johnson, Humble, Tex., assignor to Byron Jackson Inc., Long Beach, Calif.
Filed Oct. 6, 1969, Ser. No. 863,777
Int. Cl. E21b *3/04*
U.S. Cl. 24—263 **12 Claims**

Power drill pipe and drill collar spider apparatus in which drill pipe slip elements and drill collar slip elements are selectively connectable to an actuator ring, the actuator ring being

movable between positions at which either the drill pipe slip elements or the drill collar slip elements are disposed in the slip bowl or are retracted from the slip bowl, while the other of the slip elements are latched in retracted positions.



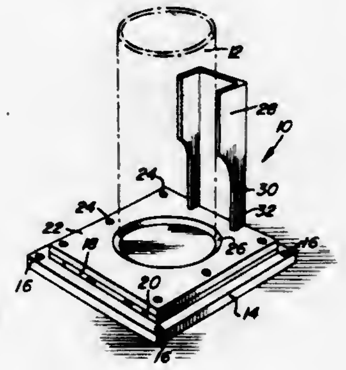
3,571,866
SYSTEM FOR AUTOMATICALLY HANDLING SETTERS FILLED WITH CERAMIC TILE
John J. Brown, Jr., Siler City, N.C., assignor to Forrest Paschal Machinery Company, Siler City, N.C.
Filed Apr. 15, 1969, Ser. No. 816,243
Int. Cl. B65g *47/52, 60/00*
U.S. Cl. 25—2 **15 Claims**



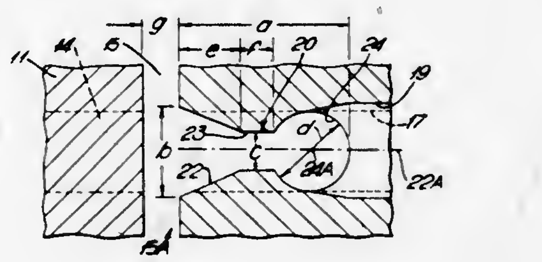
The present invention is directed to a system for continuously processing unfired, glazed or green ceramic tile during the curing thereof. More specifically, the system automatically handles setters containing the tiles and according to the present invention comprises a loading station where freshly painted ceramic tiles are loaded into setters or saggers, a loading conveyor upon which the loaded setters originally embark, a load/unload transfer carriage which simultaneously transfers a course of setters loaded with green tiles from the conveyor onto a first, empty kiln car for transportation to a kiln and a course of setters loaded with fired tiles from a second, loaded kiln car back onto said conveyor, a flipover device which tilts the setters to a horizontal position, whereupon the tiles slide out by gravity, and a setter-turning device which returns the setters to their original upright position on the conveyor belt. The aforementioned elements are integrated into a closed loop system operated by a series of limit switches and photoelectric cells.

3,571,867
CONCRETE CYLINDER CAPPER
John V. Cooke, New Orleans, La., assignor to Cecil M. Shilstone and Associates, Inc., a fractional part interest to each
Filed Jan. 28, 1969, Ser. No. 794,656
Int. Cl. B28b *7/00*
U.S. Cl. 25—118 **5 Claims**

A concrete capper used in preparing a concrete test sample comprising a jiglike device for insuring the formation of a substantially planar end on the prepared sample. The jig includes a removable glass plate which permits a user to simply replace the glass plate when necessary at a small expense.



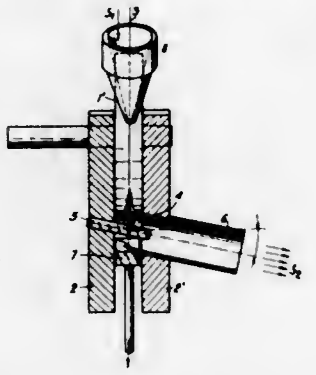
3,571,868
APPARATUS FOR INTERLACING CONTINUOUS FILAMENTS
Michel Buzano, Villeurbanne, (Rhone), France, assignor to Societe Rhodiaceta, Paris, France
Filed Nov. 29, 1968, Ser. No. 779,781
Claims priority, application France, Nov. 30, 1967, 130,393
Int. Cl. D02g *3/00*
U.S. Cl. 28—1.4 **7 Claims**



The specification discloses an apparatus for interlacing continuous filaments to form a yarn having a coherent structure, due to the action of at least one high velocity fluid jet. Extending through a main body member of the apparatus is a keyhole cross section passage having a cylindrical portion through which the filaments run, and an isosceles trapezoidal cross section prismatic portion into which the fluid jet is symmetrically projected.

3,571,869
STUFFING-BOX DEVICE FOR CRIMPING FILAMENTARY MATERIAL
Miloslav Pavek, and Miroslav Novacek, Liberec, Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi Generalni Reditelstvi, Liberec, Czechoslovakia
Filed Sept. 18, 1969, Ser. No. 860,166
Claims priority, application Czechoslovakia, Sept. 21, 1968, PV 6621—68
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **10 Claims**

A pair of nip rollers cooperate with one another for feeding filamentary material in a predetermined direction. They define with one another immediately downstream of the nip a free space having two opposite open sides. Wall means is arranged adjacent to and closing the opposite open sides but is out of contact with the nip rollers, defining with the same a crimping chamber. A skewed crimping member is mounted on the wall means extending across the chamber in the path of the filamentary material. A doctor blade is arranged downstream of the crimping member mounted for movement between an active and an inactive position in which it respec-



tively contacts and is withdrawn from contact with the circumference of the nip rollers.

3,571,870
PROCESS FOR THE PRODUCTION OF CRIMPED TOW FOR CIGARETTE FILTERS

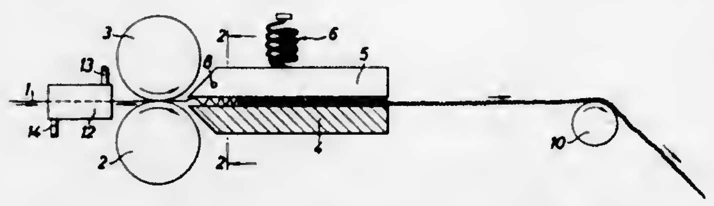
Olaf George Dixon, deceased, late of Leamington Spa, England; Margaret Patricia Dixon, Personal Representative, Leamington Spa, and John Fagge, Huberston, Cleepthorpes, England, assignors to Courtaulds Limited, London, England

Continuation-in-part of application Ser. No. 568,748, July 29, 1916. This application Mar. 14, 1969, Ser. No. 807,455

Claims priority, application Great Britain, Aug. 5, 1965, 33,496/65

Int. Cl. D02q *1/12*

U.S. Cl. 28—72.14 **6 Claims**



Vertically crimped cellulose acetate tow of 25,000—100,000 denier, suitable for cigarette filters, is made by feeding a band of cellulose acetate filaments in which the filaments have a denier of about 1.5 to about 10, are substantially parallel to one another and are adhered to one another, the band being not more than about 6 filament diameters thick, to a stuffing box crimper having an opening wide enough to accommodate the tow and not more than three-sixteenths inches high.

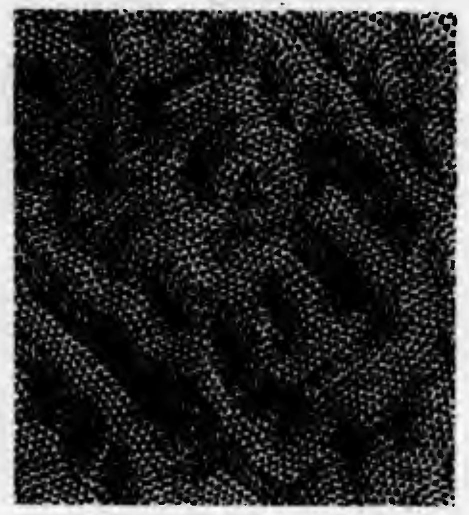
3,571,871
METHOD OF TREATING FIBROUS GLASS FABRICS

Remus F. Caroselli, Cumberland; James J. Dillon, Providence, and David E. Leary, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation

Filed Sept. 8, 1966, Ser. No. 578,430

Int. Cl. D06p *3/80*

U.S. Cl. 28—74 **11 Claims**



Methods for imparting decorative weave effects and designs to fibrous glass fabrics in post-weaving operations particularly comprising the transformation of stresses existing in a given weave design to yield a uniform weave pattern are provided.

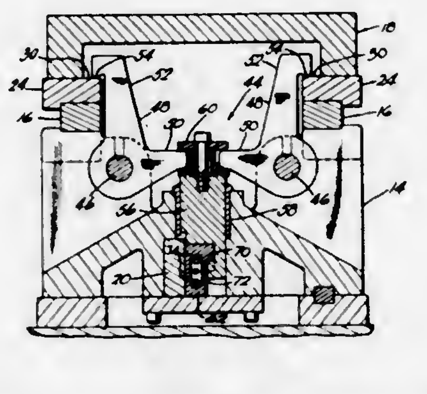
3,571,872
PALLET LOCATING AND CLAMPING APPARATUS

John L. Van Den Kieboom, St. Clair Shores, Mich., assignor to La Salle Machine Tool, Inc., Warren, Mich.

Filed July 30, 1968, Ser. No. 748,852

Int. Cl. B23g *3/00*

U.S. Cl. 29—1 **11 Claims**



Apparatus for supporting and transferring workpieces for successive machine operations, including rails on which a series of pallets adapted to support the workpieces can be positioned. A fixture adapted to be mounted adjacent to a machine tool is provided for locating a pallet and subsequently for clamping the pallet to their rails at such location. A single actuator bar is provided for actuating the locating and clamping elements of the fixture.

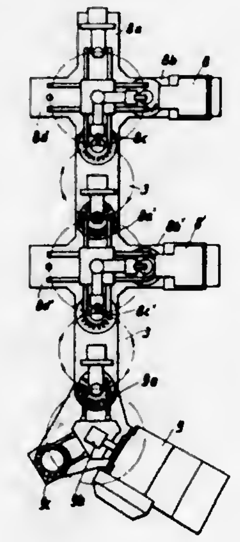
3,571,873
ARRANGEMENT OF TWO OR MORE AUTOMATICALLY OPERATING PUNCHING MACHINES IN FORM OF A COOPERATING MACHINE SET

Roger Muller, Neuilly, France, and Theodor Fenner, Neuilly, Germany, assignors to Etablissements D.F., Gentilly, France

Original application May 20, 1968, Ser. No. 730,277. Divided and this application Feb. 16, 1970, Ser. No. 011,666

Int. Cl. B23p *23/00*

U.S. Cl. 29—38 **1 Claim**



An arrangement of at least two automatically operated stamping machines in the style of a cooperating machine set, which comprises a plurality of stamping machines disposed in one line and spaced apart equally from each other. A plurality of sheet supporting tables is disposed at a unitary level and a rotatable table is releasably inserted between each pair of adjacent of the stamping machines. The transfer tables connect a workpiece depositing station of each of the machines with a feeding station of the next following of the machines. The stamping machines comprise notching presses for the production of dynamo sheets for electromachines and

disposed in series, and a separating press is disposed at the end of the row of the machines, the separating press dislocating said sheets combined during the passage of the preset notching presses into stator- and rotor-sheets and depositing the same separately.

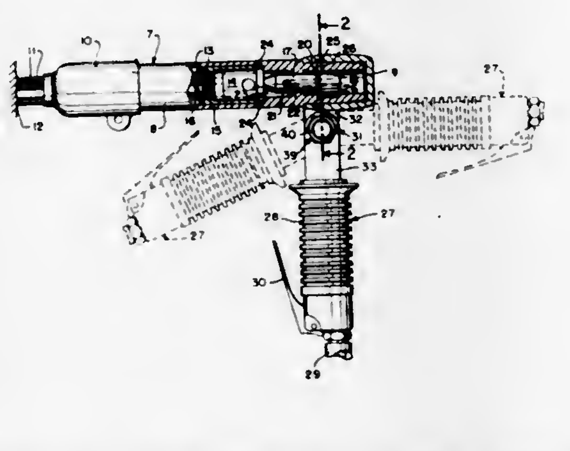
3,571,874
DESCALING DEVICE

Paul Von Arz, Sissach, Switzerland, assignor to Von Arz AG, Sissach, Switzerland

Filed May 28, 1969, Ser. No. 828,514

Int. Cl. B21c *43/00*

U.S. Cl. 29—81 **2 Claims**



A descaling, derusting, deslagging or metal cleaning device of the compressed air gun type which is supplied with compressed air through its handle and such handle is pivotally mounted on the device and capable of being swung not only into the usual positions but also into a position at a small angle to the barrel assembly of the device so as to enable the device to be used in confined and other places of difficult access.

3,571,875
WORK TOOL FOR PRECISION WORKING OF GEARS

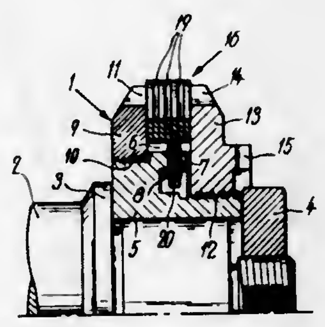
Gianfranco Grandi, and Herbert Loos, Munich, Germany, assignors to Carl Hurth Maschinen-Und Zahnradfabrik, Munich, Postfach, Germany

Filed Mar. 21, 1968, Ser. No. 714,925

Claims priority, application Germany, Mar. 23, 1967, H62239

Int. Cl. B26d *1/12*

U.S. Cl. 29—105 **7 Claims**



A spur or helical gearlike or racklike work tool for precision working of gears wherein the work tool has a plurality of cutter teeth adjustably and removably securable to a base member so that the cutter teeth can be exchanged and adjusted.

3,571,876
MEANS FOR MOUNTING BLADES IN A CUTTER

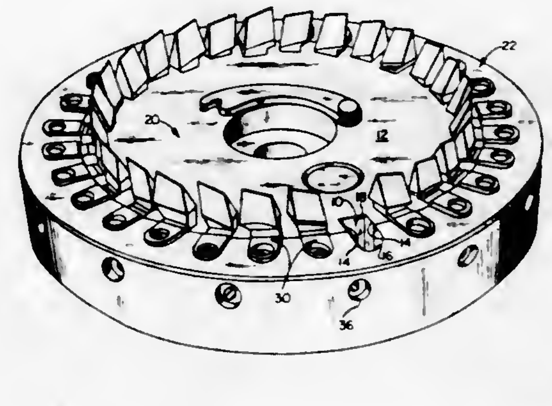
Richard C. Blakesley, Holcomb, N.Y., assignor to The Gleason Works, Rochester, N.Y.

Filed Oct. 21, 1968, Ser. No. 769,274

Int. Cl. B26d *1/00*

U.S. Cl. 29—105 **8 Claims**

A face mill cutter is provided with a plurality of completely enclosed slots formed into one face of the cutter to receive cutter blades and clamping means. Each slot has parallel sidewalls and a radially inward bottom wall which is perpendicular to the parallel sidewalls, and a wedge block and



clamping block are used in combination to apply radial forces to a cutter blade inserted in a slot. The radial forces are applied by moving the clamping means axially into the slot.

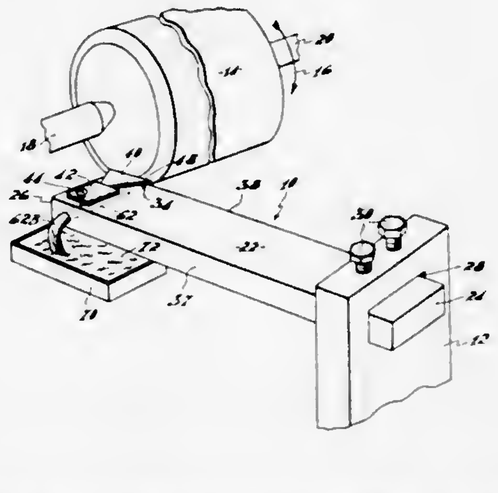
3,571,877
COOLING SYSTEM FOR CUTTING TOOL AND THE LIKE

Ronald D. Zerkle, Cincinnati, Ohio, assignor to Neal P. Jefferies, Cincinnati, Ohio, fractional part interest.

Filed Apr. 4, 1968, Ser. No. 718,772

Int. Cl. B26d *1/00*

U.S. Cl. 29—106 **8 Claims**



A cutting tool cooling system including a cutting tool having an external cutting edge and an internal cavity with a heat receiving surface in heat exchange and fluid sealed relationship to the cutting edge, and a coolant in the cavity vaporizable at the cavity heat receiving surface for extracting heat therefrom and thereby cooling the tool cutting edge.

3,571,878
INDUSTRIAL ROLLS

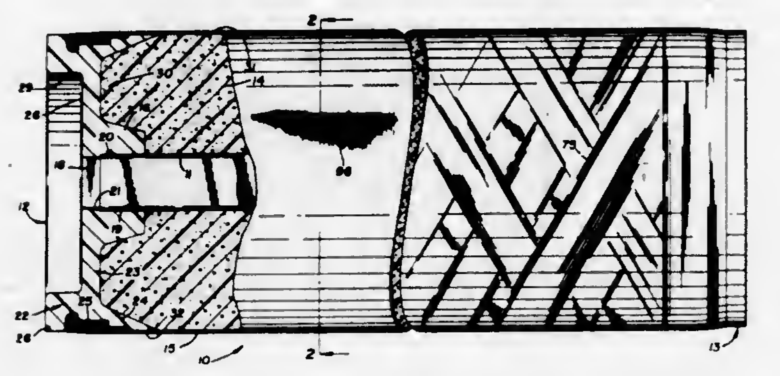
Sterling W. Alderfer, Akron, Ohio, assignor to Teledyne, Inc., Los Angeles, Calif.

Filed July 1, 1968, Ser. No. 741,727

Int. Cl. B21b *31/08;* **B75h** *75/02*

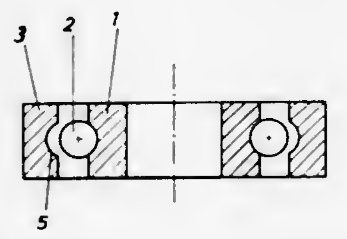
U.S. Cl. 29—132 **10 Claims**

The improved industrial roll has axially spaced, preferably elastomeric, cylindrical head members with a beam extending therebetween. A core, preferably of rigid urethane foam, extends cylindrically between the head members and encases the beam. The head members and core are, in turn, encased within a skin that is preferably a filled polyester resin, the skin being locked to the head members. A coupling may be utilized to assist with torsional load transfer between the beam and each head member, and blades may be used to transfer such loads between the beam and the core. To make such a roll, the head members are positioned at the ends of a beam and a core is molded around the beam and between the head members. The resulting skeletal roll is then provided with the skin that locks the head members to the core. The apparatus for applying the skin comprises a winder for wrapping a ribbonlike skin component helically about the skeletal roll. Sufficient wraps are made completely to encase the core, and a drive mechanism employing a lost motion connection wraps additional lengths of ribbon into a lock groove in each head member to join the components together in an integral roll.



3,571,879
METHOD FOR MANUFACTURING ROLLING TYPE BEARINGS

Josef Kleinhenz; Franz Muller; Hans Kober, and Burkhard Treutlein, Schweinfurt, Germany, assignors to Kugelfischer George Schafer & Company, Schweinfurt, Germany
Filed Sept. 18, 1968, Ser. No. 760,588
Claims priority, application Germany, Sept. 21, 1967, P 16 25 566.6
Int. Cl. B23p *11/00, 19/00*
U.S. Cl. 29—148.4 **7 Claims**

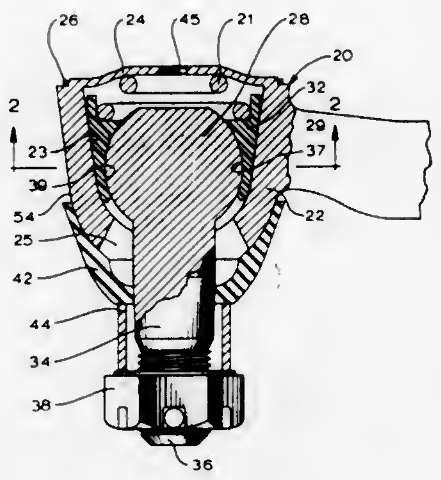


The invention is directed to a method for assembling the inner and outer races of ball or roller type bearings by plastic deformation whereby the maximum number of rolling elements may be mounted within the trackway between the races and whereby an exact and predetermined clearance is obtained in spite of the elastic recovery of the plastically deformed races and whereby either the rolling element size or the trackway shoulders may be increased to a maximum in order to increase the axial loading capacity of the bearing.

3,571,880
METHOD OF ASSEMBLING PIVOT JOINTS

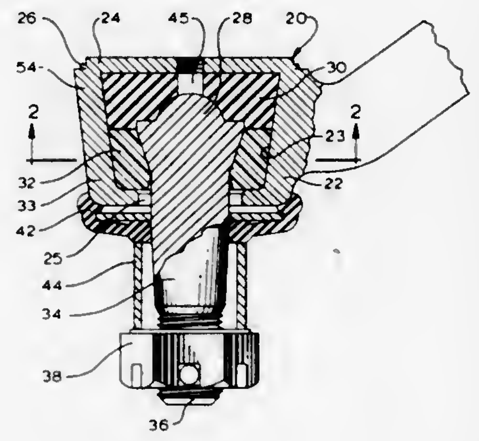
John R. Andrew, Columbus, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio
Filed Apr. 7, 1969, Ser. No. 814,081
Int. Cl. B23p *11/00*
U.S. Cl. 29—149.5 **8 Claims**

A method of fabricating flexible joints such as are used in automotive-steering linkages or the like wherein upper and lower electrically conductive housing portions are fused together at a junction to accurately preload internal seat means in a precisely controlled manner so as to exert a predetermined force upon a pivotal head member within the joint and thereby achieve uniform torque transmitting and vibration damping characteristics that are accurately maintained throughout the operational life of the flexible joint.



3,571,881
METHOD OF ASSEMBLING PIVOT JOINTS

John R. Andrew, Columbus, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio
Filed Apr. 7, 1969, Ser. No. 814,080
Int. Cl. B23p *11/00*
U.S. Cl. 29—149.5 **9 Claims**

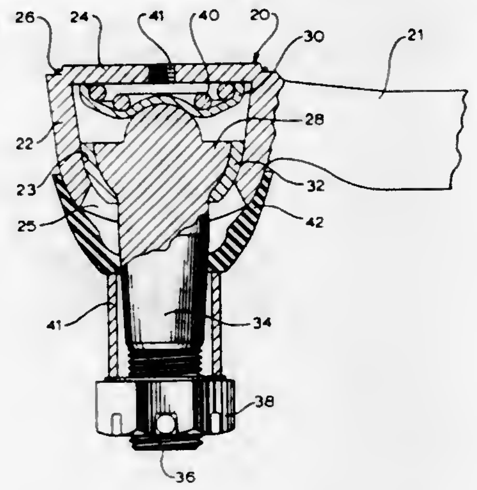


A method of fabricating flexible joints such as are used in automotive-steering linkages or the like wherein upper and lower electrically conductive housing portions are fused together at a junction to precisely preload deformable internal seat members so as to exert a predetermined force upon an internal pivotal head member within the joint and thereby achieve uniform torque transmitting and vibration damping characteristics that are accurately maintained throughout the operational life of the flexible joint.

3,571,882
METHOD OF ASSEMBLING PIVOT JOINTS

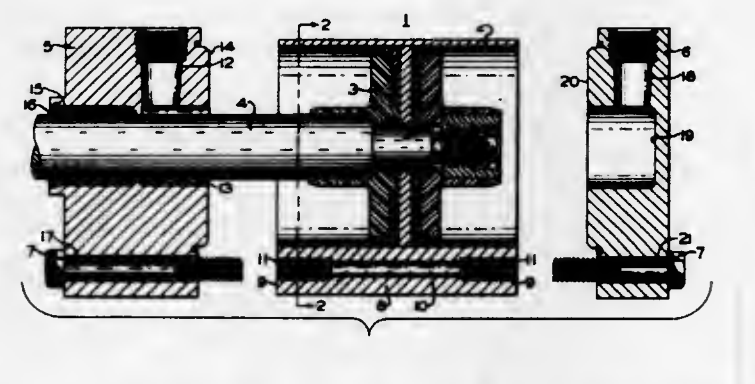
John R. Andrew, Columbus, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio
Filed Apr. 7, 1969, Ser. No. 814,079
Int. Cl. B23p *11/00*
U.S. Cl. 29—149.5 **7 Claims**

A method of fabricating flexible joints such as are used in automotive-steering linkages or the like wherein upper and lower electrically conductive housing portions are fused together at a junction such that the space between the inner housing surfaces is substantially equal to the stacked dimensions of the internal elements of the joints. The resulting swivel joints are characterized by precisely controlled swivel torque values and extended fatigue life during operational use.



3,571,883
METHOD OF MAKING A FLUID OPERATED CYLINDER DEVICE

Charles Doolittle, Lexington, Ky., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.
Original application Apr. 19, 1966, Ser. No. 543,618, now abandoned. Divided and this application Apr. 19, 1968, Ser. No. 729,867
Int. Cl. B23p *15/00*
U.S. Cl. 29—156.4 **5 Claims**

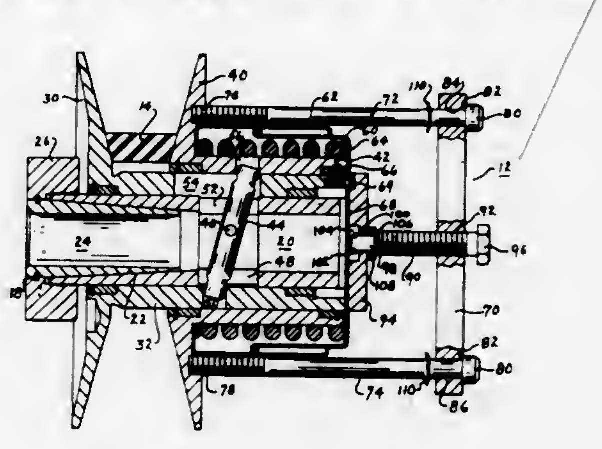


A method of making a cylinder body for a fluid operated cylinder device including the steps of forming a tubular body member of indefinite length having externally disposed thereon and integral therewith a plurality of ribs extending longitudinally of the body member, each of said ribs including a coaxially extending through bore, severing from the tubular member a segment thereof of desired length, and tapping the ends of each through bore in the tubular segment to adapt the tubular segment to receive therein head screws for attaching a cylinder head to each end of the tubular portion.

3,571,884
SHEAVE FLANGE OPENING DEVICE

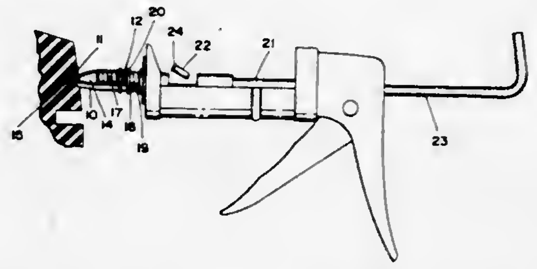
Jackson Chung, Mishawaka, Ind., assignor to Reliance Electric Company
Filed Oct. 3, 1968, Ser. No. 764,726
Int. Cl. B23p *19/00;* **B23b** *19/04*
U.S. Cl. 29—200 **12 Claims**

A device for opening the flanges of a variable pitch sheave having two axially movable flanges urged toward one another by a spring means. The device, consisting of a screw-operated mechanism, may be mounted on and removed from the sheave, and is operable to apply pressure to the opposing flanges in the direction to open the flanges and to hold the flanges in open position while the sheave is being assembled on a shaft and a belt is being mounted and positioned on the sheave. After the installation of the sheave has been completed, the device is removed from the sheave, which thereafter operates in the normal manner.



3,571,885
TRACTION STUD APPLICATOR

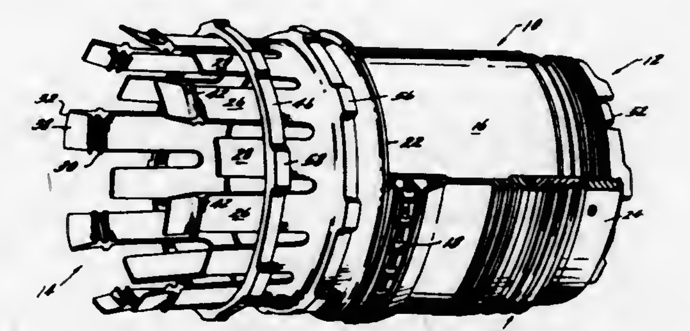
John L. McGrath, 2020 Braun Drive, Golden, Colo.
Filed Nov. 8, 1968, Ser. No. 774,357
Int. Cl. B23p *19/04*
U.S. Cl. 29—200 **15 Claims**



An applicator for manually inserting traction studs into molded holes in tire tread portions by distending the diameter of the stud hole with extending fingers and simultaneously forcing the stud down.

3,571,886
ATTACHMENT DEVICE AND COOPERATING TOOL MEANS

Robert J. Corsmeier, Cincinnati, Ohio, assignor to General Electric Company
Filed May 27, 1969, Ser. No. 828,272
Int. Cl. B23p *19/04;* **F16c** *43/00*
U.S. Cl. 29—200 **16 Claims**

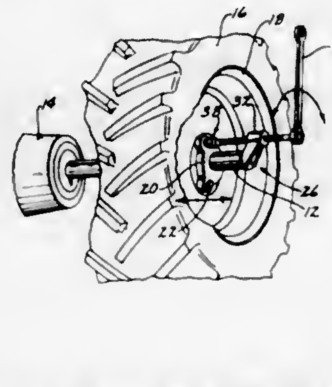


An attachment device, for removably securing shaft components to a shaft, is disclosed together with cooperating tool means for use in attaching and removing the device at and from an inaccessible, predetermined position along the shaft. The attachment device includes means for preventing rotation thereof when properly located along the shaft, means for automatically positioning the device at the predetermined position along the shaft and preventing axial movement from that position in a first axial direction, and means remotely movable between a first position, wherein the device is secured in its predetermined position against axial movement in the second axial direction, and a second position, wherein the device may be moved into and from its predetermined position.

The tool means is adapted to engage radially outwardly projecting teeth provided on he device and actuate the remotely movable locking means carried by the device.

3,571,887
WHEEL MOVING TOOL

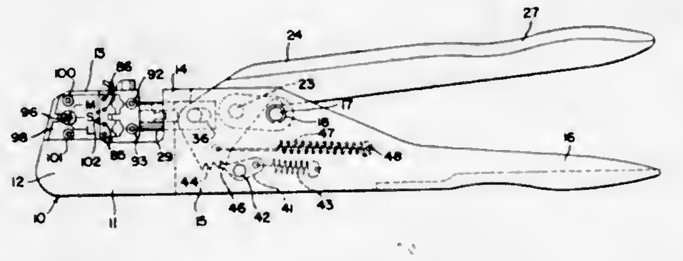
Daryl C. McIntire, Seymour, Iowa
Filed Mar. 28, 1969, Ser. No. 811,358
Int. Cl. B23p *19/00*
.S. Cl. 29—200 **7 Claims**



A device having a frame detachably connected to the outer end of a tractor axle and a rod extending threadably through a support portion wherein a threaded bolt is connected to the rod by a swivel coupling such that the rod may be threaded inwardly or outwardly and the wheel will be moved in the same respective directions upon the bolt being threadably engaged with the wheel. The bolt may include an exposed head for engaging and disengaging it with the wheel.

3,571,888
IN-LINE HAND CRIMPING TOOL

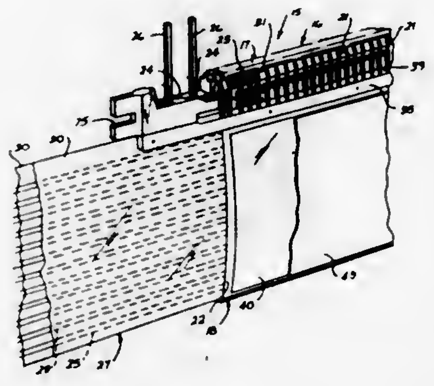
Vincent P. Di Filippo, Parma, Ohio, assignor to ETC Incorporated, Cleveland, Ohio
Filed May 8, 1968, Ser. No. 727,479
Int. Cl. H01r *43/04;* **B21d** *43/02*
U.S. Cl. 29—203 **1 Claim**



An in-line, hand-operated crimping tool having a movable die and a coacting stationary die for crimping the ferrule or barrel portion of electrical terminals and electrical connectors onto electrical wires. The crimping tool is provided with an axial locating assembly which properly positions the barrel axially within the die cavity. A recessed adjustment mechanism varies the distance between coacting insulation crimping dies to allow them to accommodate various thicknesses of wire insulation. A preadvancing mechanism biases the movable crimping die from a fully opened position to a preadvanced position. In the preadvanced position the distance between the faces of the movable and stationary dies is less than the outside diameter of the barrel in order to secure the barrel in the die cavity prior to the crimping operation. After crimping, the movable die may be fully opened against the bias of the preadvancing mechanism to permit removal of the connector or terminal from the die.

3,571,889
APPARATUS FOR ASSEMBLING A NON-DESTRUCTIVE READ-OUT MEMORY

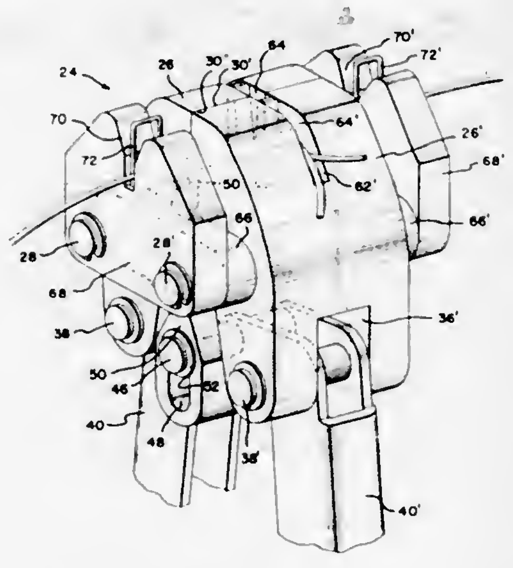
Joseph W. Fagerstrom, Johnstown, and William C. Kent, Gahanna, Ohio, assignors to Western Electric Company, Incorporated, New York, N.Y.
Original application Jan. 31, 1967, Ser. No. 612,896, now Patent No. 3,448,515. Divided and this application Dec. 12, 1968, Ser. No. 805,061
Int. Cl. H01r
U.S. Cl. 29—203 **7 Claims**



An apparatus including vacuum chuck elements for holding tautly a continuous length of a multiconductor information storage-sensing cable and for holding apart opposite sides of a folded section of a multiconductor access cable while the folded section is moved over and secured to adhesive surfaces of the tautly held information storage-sensing cable.

3,571,890
WIRE-TRIMMING AND CONNECTOR-CRIMPING APPARATUS

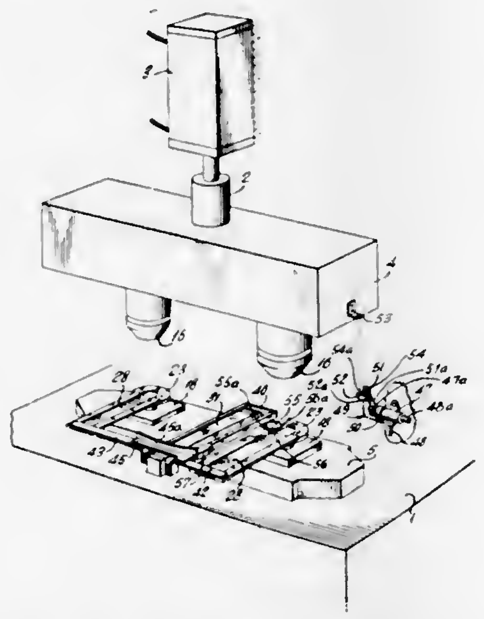
Ronald Carl Brehm, Carlisle, and Robert Maurice Renn, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Apr. 28, 1969, Ser. No. 819,907
Int. Cl. H01r *43/04;* **H05k** *13/00*
U.S. Cl. 29—203 **11 Claims**



Apparatus for trimming the ends of wires and crimping an open U-type electrical connector onto the trimmed ends comprises a die and anvil which are movable relatively towards and away from each other to crimp the connector. The die is divided into two sections along a plane extending parallel to its axis and medially therethrough, the two sections being movable transversely with respect to the die axis from an open position to a closed position. Transversely extending slots extend inwardly from the opposed sides of the die sections and cutter bars are mounted on the anvil which are adapted to enter these slots. In use, connector is positioned on the anvil and wires are positioned between the die sections when the die sections are in their open positions with the ends of the wires extending transversely through one or both of the slots. The die sections are then moved towards each other and the cutter bars move into the slots to trim the wire ends. Upon subsequent movement of the anvil towards the die, the connector is crimped onto the trimmed wire ends.

3,571,891
PRESS FEED AND EJECTOR APPARATUS

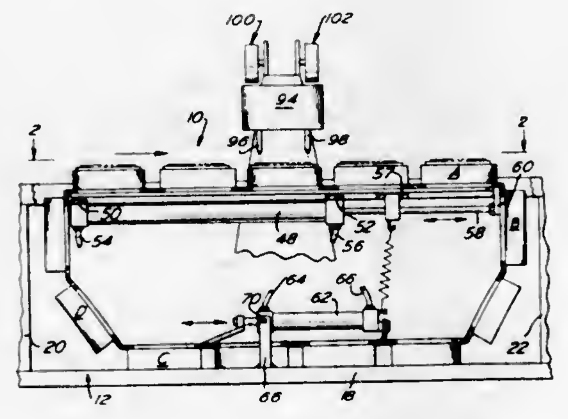
Seward M. Roberts, San Mateo, Calif., assignor to American Flange & Manufacturing Co., Inc., New York, N.Y.
Original application Oct. 31, 1966, Ser. No. 590,993, now abandoned. Divided and this application July 15, 1969, Ser. No. 860,451
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 **4 Claims**



A press feed and ejector mechanism is operatively mounted in conjunction with a die for securing closure flanges within openings in drum heads. The press operation is automated to the extent that a pair of closure flanges are fed into properly aligned work receiving position in the press die and the finished drum head with flanges inserted is ejected from the die each time the press cycles.

3,571,892
CONVEYOR SYSTEM

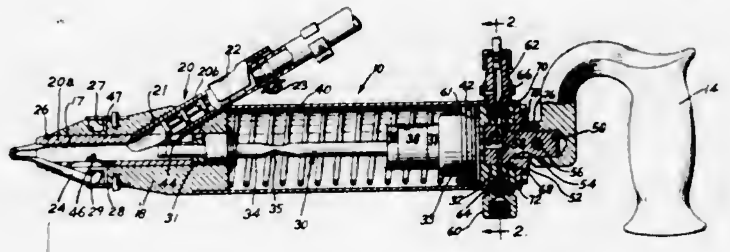
Marvin Levy, Philadelphia, Pa., assignor to Majestic-Penn State, Inc., Philadelphia, Pa.
Filed Jan. 8, 1969, Ser. No. 789,858
Int. Cl. B65g *23/42*
U.S. Cl. 29—208 **8 Claims**



A conveyor system, particularly for riveting binders, having an endless conveyor comprised of rigid link members pivotably connected together and caused to intermittently move by fluid motor means having reciprocal members. Two such motor means are operated sequentially in a predetermined manner so that one motor means reciprocates to a position so that it no longer supports a link member. This permits the link member to rotate through an arc of approximately 90° Then the other motor means moves the conveyor through a distance corresponding generally to the length of a link member.

3,571,893
TIRE STUD GUN WITH ROTARY VALVE

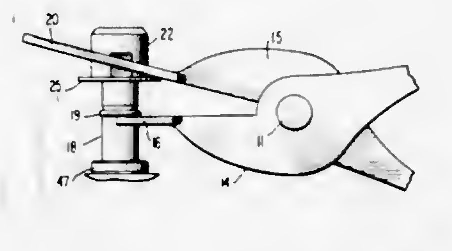
Gaylord B. Haviland, Maineville, Ohio, assignor to Big Four Automotive Equipment Corporation
Filed Mar. 14, 1969, Ser. No. 807,322
Int. Cl. B23q *7/10*
U.S. Cl. 29—212 **6 Claims**



A tire stud gun having a rotary valve thereon at one end of the housing actuated by the handle for selectively actuating the piston therein to force a tire stud into a blind bore in a tire tread.

3,571,894
TOOL FOR INSTALLING AND REMOVING SNAP RINGS

Stanley Bilka, 109 1/2 Van Buren, Winner, S. Dak.
Filed Feb. 17, 1969, Ser. No. 799,827
Int. Cl. B23p *19/08*
U.S. Cl. 29—229 **9 Claims**

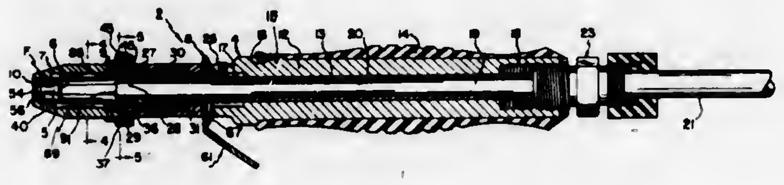


A plier-type tool for removing and installing a snap ring and retainer on the Bendix drive shaft of an automobile starter. One jaw of the tool has an elongated open-ended slot formed therein to fit radially over the shaft and engage the snapring, and the other jaw has an elongated slot with means for engaging the end of the shaft to provide a reaction for applying axial pressure to the ring to force it out of the conventional retaining groove. Means is provided for supporting a snapring in axial alignment with the end of the shaft to facilitate telescoping the ring onto the end of the shaft to install the ring onto the retaining groove. During installation, the conventional retaining collar and thrust washer are snapped into place over the snapring by use of the slots in the opposed jaws of the tool.

3,571,895
ASSEMBLY TOOL DEVICE

Albert T. Buttriss, Westlake, Ohio, assignor to Eaton Yale & Towne Inc.
Filed May 31, 1968, Ser. No. 733,569
Int. Cl. B23p *19/02*
U.S. Cl. 29—235 **20 Claims**

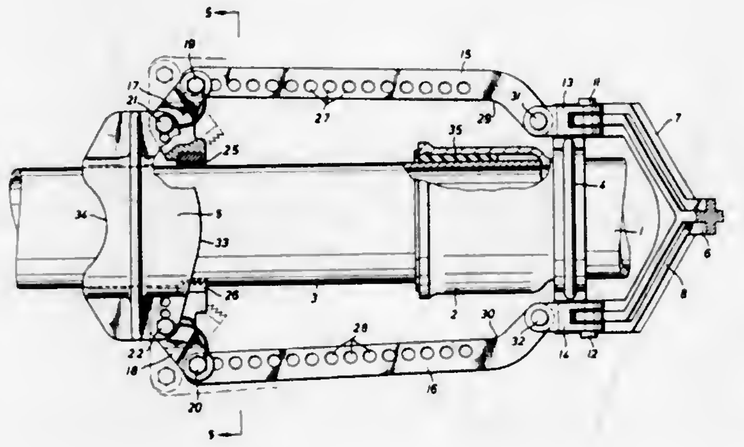
A pneumatic assembly tool device for the semiautomatic insertion of deformable-type fasteners into an apertured workpiece having a hollow housing adapted to receive and transmit fasteners from one end to a reciprocal nozzle mechanism at the other end. The nozzle mechanism includes a plurality of pivotal interior jawlike members operable to engageably position and hold a fastener in aligned relation



for ejection from the nozzle mechanism and insertion into the workpiece, and a trigger mechanism acts to resiliently reciprocate the nozzle mechanism with respect to the housing for selective pivotal movement of the jawlike members.

3,571,896
PIPE JOINT MAKE-OR-BREAK TOOL

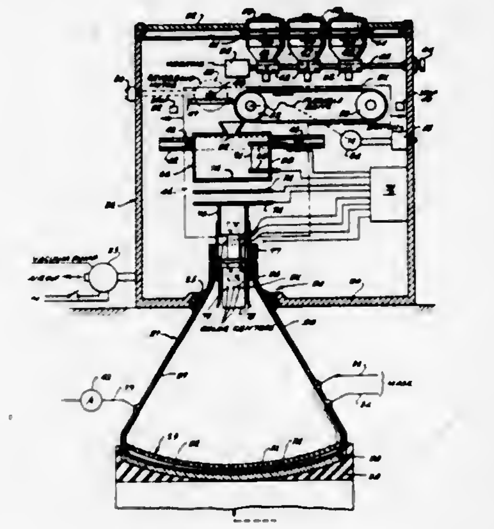
James E. Wilkerson, Tyler, Tex., assignor to Tyler Pipe Industries, Inc., Tyler, Tex.
Filed Dec. 3, 1968, Ser. No. 780,630
Int. Cl. B23p *19/04*
U.S. Cl. 29—237 **4 Claims**



A make-or-break tool for making or breaking the joint between two sections of pipe in which the joint is of the character customarily termed a bell-and-spigot joint or simply a bell-type pipe joint, in which there are two spaced yokes that straddle the pipe and the yoke lever which is pivotally connected to one of the two spaced yokes and linked to the other so that operation of the lever on the axis perpendicular to the axes of the yokes to move the yokes longitudinally of their own axes relative to one another. The linking means is made adjustable so that the tool is applicable both to those situations requiring a long span between yokes at the initiation of operation and those requiring a very close relationship between yokes at such initiation. One of the links is made so that it may act as a yoke itself, being connected to the yoke lever on opposite sides of a pipe and extending across the pipe, which makes it possible to operate within an extremely short axial distance between yokes. Also, the yoke to which the yoke lever is linked is provided with a curved surface on one side to engage a curve on a fitting such as an elbow or a T and the flat surface on the other side to engage a flat surface on such fitting, and being reversible so that the surface desired may be presented in the direction desired. It is also provided with a means for mounting a pin that extends across the yoke to engage an abutment such as is molded onto the outer curve of an elbow of cast iron soil pipe. Finally the yoke that is connected to the lever by links is provided with a one-way pipe engaging and gripping means actuated by forces through the links to grip the pipe and prevent movement of such other yoke longitudinally of the pipe in the direction of the applied forces on the links. The yoke is also notched so that when reversed it will permit the links to extend past it without interference.

3,571,897
APPARATUS FOR MAKING A COLOR SCREEN FOR CATHODE-RAY TUBES

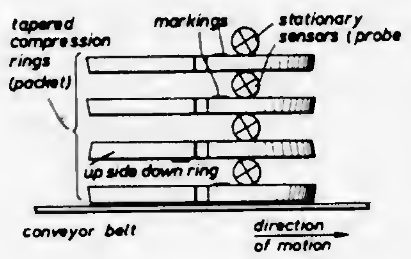
Hans W. Heil, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Original application Aug. 25, 1966, Ser. No. 575,129, now Patent No. 3,479,711, dated Nov. 25, 1969. Divided and this application June 4, 1969, Ser. No. 858,214
Int. Cl. H01j *9/06*
U.S. Cl. 29—25.2 **10 Claims**



Apparatus for forming phosphor patterns on the faceplate of a cathode-ray tube, including means for electrically charging phosphor powder, means for forming the charged phosphor powder into a stream, and means for scanning the faceplate with the charged phosphor powder stream.

3,571,898
METHOD FOR MARKING AND DETERMINING THE ORIENTATION OF PISTON RINGS

Ernst Fuhrmann, Burscheid, Germany, assignor to Goetzewerke Friedrich Goetze A.G., Burscheid, Germany
Filed May 16, 1968, Ser. No. 729,788
Claims priority, application Germany, May 20, 1967, G50,202
Int. Cl. B23q *17/00*
U.S. Cl. 29—407 **7 Claims**

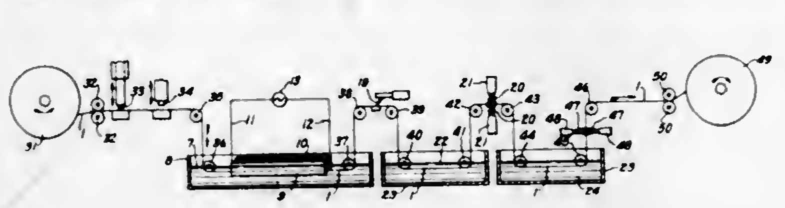


A method and apparatus for determining the orientation of a split piston ring; in particular, for determining whether the ring lies right side up or upside down. A mark made at least in part of an active substance is applied to the piston ring in the region of one of its gap ends and the ring is moved past a device for sensing the presence of the active substance.

3,571,899
MANUFACTURE OF METAL FOIL LEADS

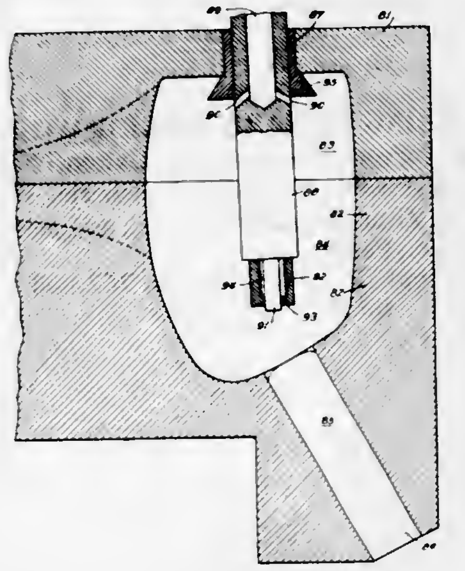
John C. Sobieski, Russell, Ohio, assignor to General Electric Company
Filed Apr. 1, 1969, Ser. No. 811,884
Int. Cl. B23p *17/00*
U.S. Cl. 29—412 **11 Claims**

Metal foil leads for sealing into vitreous material are made by forming a metal foil ribbon into a series of successive foil lead sections joined together by narrow connecting portions and having their edges feathered by etching, and then transversely severing the ribbon at the connecting sections to separate it into individual metal foil leads.



3,571,900
METHOD OF MOLDING A GOLF CLUB HEAD

Benjamin T. Hardesty, Columbia, S.C., assignor to Shakespeare Company, Kalamazoo, Mich.
Continuation-in-part of application Ser. No. 789,677, Jan. 8, 1969, Original application Sept. 15, 1967, Ser. No. 667,991. Divided and this application Dec. 8, 1969, Ser. No. 882,838
Int. Cl. A63b *53/04;* **B29f** *1/00*
U.S. Cl. 29—416 **6 Claims**

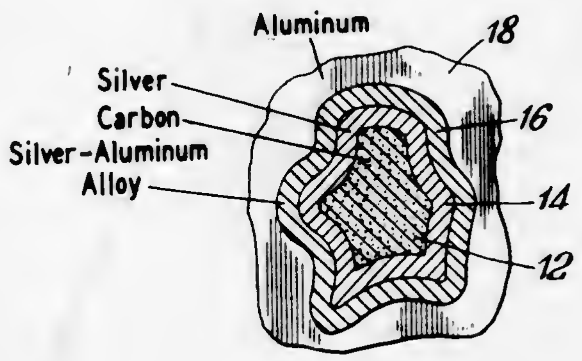


A plastic golf club head is formed in two major parts, a body member and a faceplate. Complementary dovetail members are provided on the body member and face plate so that the faceplate may be founded by sliding it onto the body member. To prevent movement therebetween when in position, an insert plug is inserted in channels provided in both the body member and faceplate in mutual registry. One or more plugs and complementary channels may be utilized. The plugs may be of any desired cross section. However, when only one plug is utilized, it should preferably have a noncircular cross section such as rectangular to prevent rotational movement of the faceplate. Where two or more plugs are utilized, they may be of any cross section. A screw is inserted either through the faceplate and engaged by a threaded insert in the body member, or alternatively inserted through the body member and engaged in a threaded means provided either in the insert plug or in the body member. The structure permits ready changing of the faceplate to provide the club head with various striking contours and angles. The insert plugs are preferably of the same cross section as the entry ducts of the mold used for molding of the plastic heads, so that the "trees" from molding of the heads may be used for insert plugs.

3,571,901
METHOD OF FABRICATING A CARBON-FIBER REINFORCED COMPOSITE ARTICLE

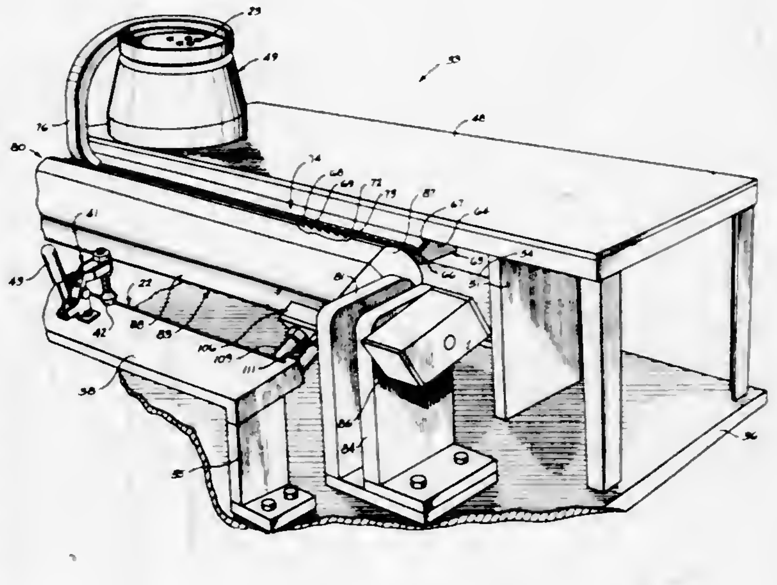
Raymond Vincent Sara, North Olmsted, Ohio, assignor to Union Carbide Corporation, New York, N.Y.
Original application May 9, 1968, Ser. No. 727,898. Divided and this application June 13, 1969, Ser. No. 833,009
Int. Cl. B23p *17/00*
U.S. Cl. 29—419 **5 Claims**

Light weight composite refractory articles comprising a plurality of metal or alloy coated carbon fibers bonded together by an aluminum base matrix are provided. The coating metal or alloy can be any material selected from the group consisting of silver, silver-aluminum base alloys and mixtures thereof. The preferred process for producing such composites comprises contacting silver coated carbon fibers with an aluminum base material followed by hot pressing the so-contacted fibers at the solidus temperature of the aluminum base material to infiltrate aluminum around the silver-coated fibers and then cooling the resultant article to a completely solidified state. Such composite articles are characterized by a high tensile strength coupled with a high modulus of elasticity and are especially suited as materials of construction for aerospace and hydrospace vehicles and systems.



3,571,902
METHODS OF AND APPARATUS FOR ASSEMBLING ELEMENTS WITH A SUPPORT

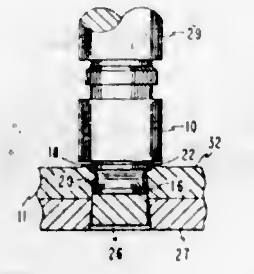
Richard A. Greene, Pickerington, Ohio, assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Feb. 10, 1969, Ser. No. 798,045
Int. Cl. B23p *19/00;* **H05k** *13/04;* **H01f** *7/06*
U.S. Cl. 29—429 **16 Claims**



Methods of and apparatus for assembling a plurality of magnetic cores in a predetermined arrangement with associated nests of a support stick. A plurality of the magnetic cores are deposited successively into aligned nesting pockets of a loading slide in the predetermined arrangement. A plurality of pickup pins of a transfer mechanism pick up the magnetic cores in the predetermined arrangement and transfer the cores onto the associated nests of the support stick. Stripping sleeves then move over the pins and move the cores in the predetermined arrangement into the nests of the support stick.

3,571,903
METHOD OF SECURING A SELF-PIERCING AND CLINCHING ELEMENT TO A SHEET OF METAL

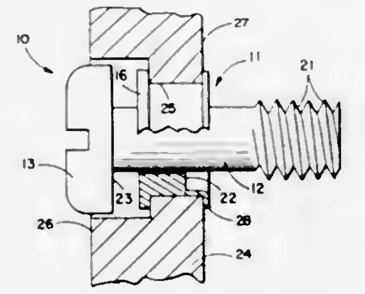
Eric H. Persson, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 13, 1968, Ser. No. 783,534
Int. Cl. B23p *11/00*
U.S. Cl. 29—432.1 **3 Claims**



The invention pertains to a method and apparatus for securing a member to sheet material. The member is formed of material of equal or greater hardness than the sheet to which it is to be attached and in a single operation with a cooperating die is pressed against the sheet stock form its own aperture and deform the material of the sheet adjoining the member to positively secure member and sheet stock together. In an alternative embodiment the member is received in a prepared recess of a workpiece of hard material to effect attachment through a broaching action of the member with respect to the workpiece material.

3,571,904
ARRANGEMENT FOR CAPTIVE SCREW

Bulent Gulistan, Malibu, Calif., assignor to Deutsch Fastener Corp., Los Angeles, Calif.
Continuation-in-part of application Ser. No. 590,601, Oct. 31, 1966, now abandoned. This application Nov. 8, 1968, Ser. No. 777,992
Int. Cl. B23p *11/00, 19/08;* **B21d** *39/00;* **B21h** *3/02*
U.S. Cl. 29—443 **7 Claims**

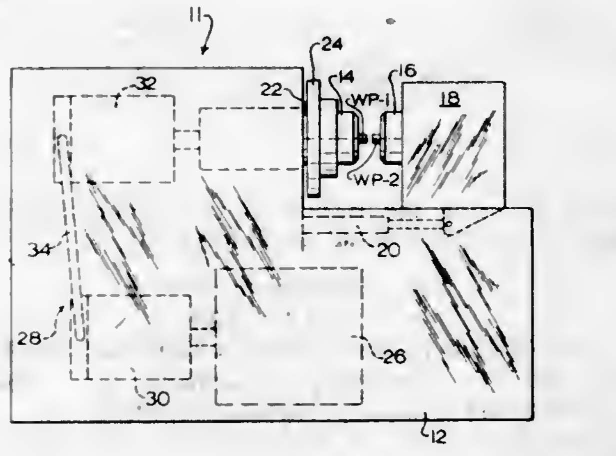


A captive screw arrangement including a sleeve through which is extended a screw blank, after which the portion of the shank projecting beyond the sleeve is provided with screw threads of larger major diameter than the bore of the sleeve. A second bore of larger diameter is included, resulting in a thin-walled portion enabling a flange to be bent outwardly for attaching the sleeve to a workpiece. The interior of the sleeve beyond the first bore may be of sufficient length to allow retraction of the screw shank, and a third bore also may be provided to give the intermediate portion of the sleeve a thicker wall and greater strength than that at the thin-walled end.

3,571,905
FRICTION WELDING SINTERED MATERIALS

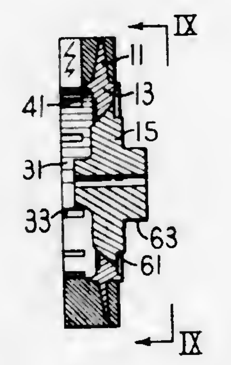
Marion R. Calton, East Peoria, and Carl D. Weiss, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed July 19, 1968, Ser. No. 747,779
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 **4 Claims**

Friction welding porous sintered materials, such as sintered steel, sintered copper and sintered alloys thereof to each other and to other metals including process parameters for the welding of these materials.



3,571,906
FRICTION BONDING OF HARD-TO-GRIP WORKPIECES

Robert C. Barth, Peoria; Marion R. Calton, East Peoria; Daniel L. King, Peoria; Theodore L. Oberle, Washington, and Franklin E. Zimmerman, Pekin, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 26, 1968, Ser. No. 762,904
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 **6 Claims**

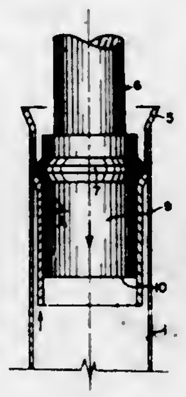


A process for friction or inertia bonding difficult-to-grip parts wherein the parts are mounted within fixtures and a low-melting-temperature alloy is poured into the fixtures so as to absorb hoop stresses and to prevent relative rotation between the workpiece and the fixture.

3,571,907
METHOD OF CLADDING A METAL SURFACE

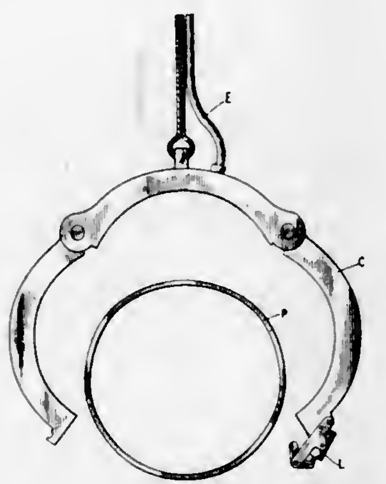
Robert Douglas Watson, Deep River, Ontario, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Mar. 8, 1967, Ser. No. 621,609
Claims priority, application Canada, Mar. 21, 1966, 955,358
Int. Cl. B21d *39/04*
U.S. Cl. 29—474.3 **4 Claims**

Aluminum cladding of zirconium alloy pressure tubes for nuclear reactors reduces the hydrogen pickup of the tubes. Cladding is achieved by heating in air both the aluminum and the alloy and stretch pressing, with sufficient pressure, the aluminum over the alloy. This technique appears to reduce the oxide layer on the aluminum to a sufficient concentration to permit bonding between the metals over 85 percent of the interface. Preferably the surface of the alloy is cleaned and polished immediately prior to heating.



3,571,908
PIPELINE WELDING

Frank Joseph Pilia, Short Hills, N.J., assignor to Union Carbide Corporation, New York, N.Y.
Filed Feb. 19, 1969, Ser. No. 800,408
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—493 **3 Claims**

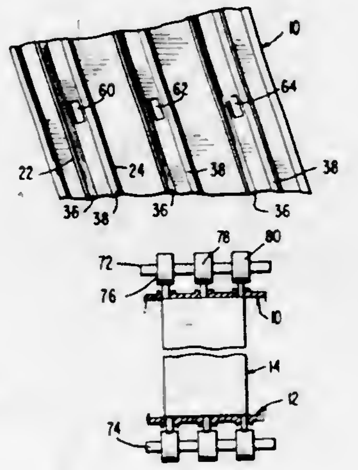


A method for eliminating diameter mismatch between pipe sections to be welded by clamping the sections to be welded in a preheated clamp to cause expansion of the pipe sections to the inside diameter of the clamp. The clamp is designed to be stronger than the pipe sections to prevent overexpansion thereof.

3,571,909
METHOD OF JOINING STRUCTURAL MEMBERS OF A LADDER

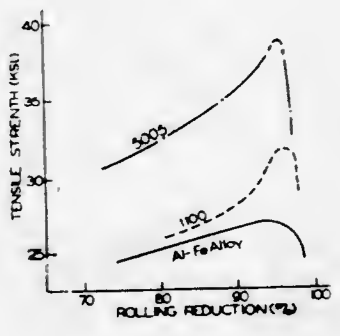
Melvin J. Stern, McComb, Miss., assignor to Croft Metal Products, Inc., McComb, Miss.
Filed Dec. 30, 1968, Ser. No. 787,759
Int. Cl. B21d *39/00;* **B23p** *11/00*
U.S. Cl. 29—509 **4 Claims**

Exceptional rigidity is imparted to a metal ladder by roll forging tabs at the ends of the steps and which project through the side rails. The roots of the tabs are expanded to fit tightly in the side rail openings and an enlarged head is formed on each tab which bears against the side rail and securely locks the step in place. The enlarged heads are confined between ribs on the side rails, the ribs having mutually divergent opposed faces serving to wedge the parts together.



3,571,910
METHOD OF MAKING WROUGHT ALUMINOUS METAL ARTICLES

Linton D. Bylund, Chesterfield County, Va., assignor to Reynolds Metals Company, Richmond, Va.
Original application Aug. 11, 1967, Ser. No. 660,132, now Patent No. 3,397,044, which is a continuation-in-part of application Ser. No. 573,776, Aug. 8, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 379,782, July 2, 1964, now abandoned. Divided and this application Jan. 16, 1968, Ser. No. 712,314
Int. Cl. B23k *19/00*
U.S. Cl. 29—527.7 **9 Claims**

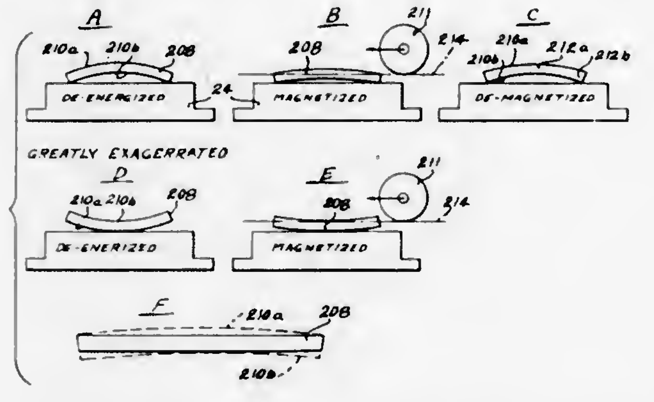


Aluminum foil and other wrought articles including drawn and ironed can bodies are produced from aluminum base alloys containing up to about 2.5 percent iron, having a low work hardening rate above 75 percent reduction and sufficient ductility at high cold work levels to permit cold working to the extent of at least 90 percent without the necessity of annealing or stress relieving.

3,571,911
METHOD OF TREATING A WORKPIECE

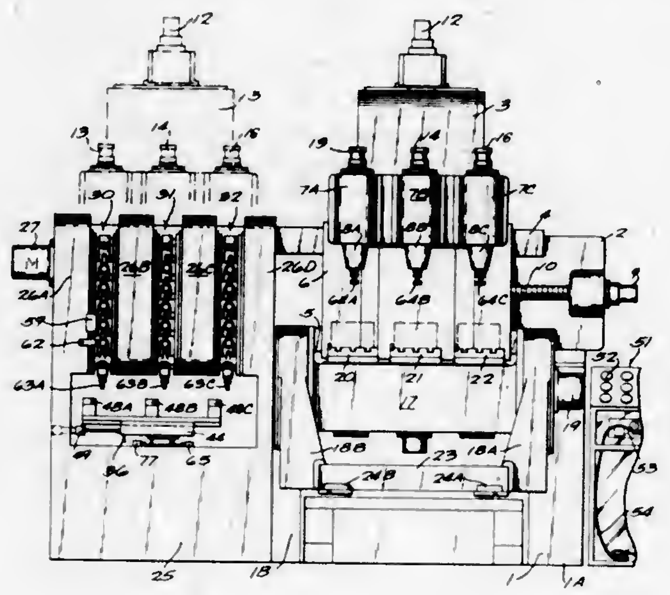
Arthur K. Littwin, Lincolnwood, Ill., assignor to Arthur K. Littwin, Robert L. Littwin, Donald F. Littwin, & Horace A. Yound, Chicago, Ill., as trustees under trust dated 1/2/51 known as Littwin Family Trust No. 1
Original application May 1, 1963, Ser. No. 277,253, now Patent No. 3,368,119. Divided and this application Aug. 18, 1967, Ser. No. 661,642
Int. Cl. B23p *13/04*
U.S. Cl. 29—558 **4 Claims**

Magnetic chuck for holding a workpiece, the workpiece often being distorted by the great magnetic force necessary for holding it, and releasing the holding force in steps while reducing the force of the working operation thereon.



3,571,912
MULTITOOL TOOL CHANGER

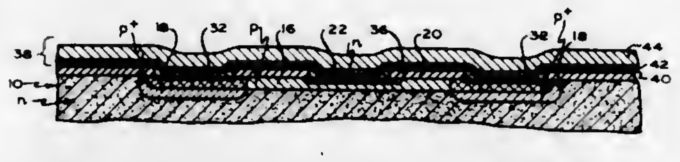
Ervin J. Kielma, Milwaukee, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.
Filed June 17, 1968, Ser. No. 737,415
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 **5 Claims**



The disclosure relates to a multitool tool changer and to a tool storage associated therewith for a multispindle machine tool wherein it is possible to select and effect an interchange of tools for each spindle of the multispindle machine tool simultaneously.

3,571,913
METHOD OF MAKING OHMIC CONTACT TO A SHALLOW DIFFUSED TRANSISTOR

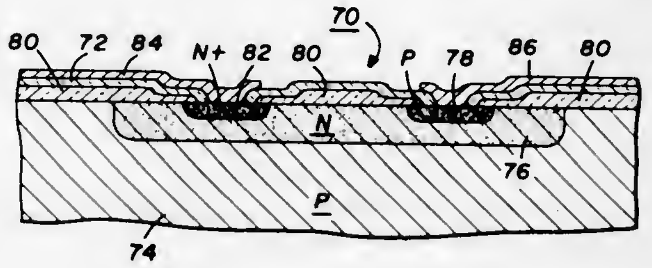
George E. Bodway, Mountain View, and Sanehiko Kakihana, Los Altos, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Aug. 20, 1968, Ser. No. 754,049
Int. Cl. B01j *17/00;* **H01g** *13/00;* **H01l** *11/14*
U.S. Cl. 29—571 **8 Claims**



An NPN microwave transistor is formed by diffusing a shallow P-type base region into an N-type collector region of a silicon-wafer and by diffusing an even more shallow N-type emitter region into the P-type base region. Platinum is alloyed to selected portions of the base region to form platinum silicide base subcontacts. Molybdenum and gold contacts are then formed on the platinum silicide base subcontacts and on the emitter region. These molybdenum and gold contacts are formed by successively depositing layers of molybdenum and gold on the wafer and by removing all but the desired contact portions of these layers with an etchant including ethylene glycol to reduce undercutting of the contacts during etching.

3,571,914
SEMICONDUCTOR DEVICE STABILIZATION USING DOPED OXIDATIVE OXIDE

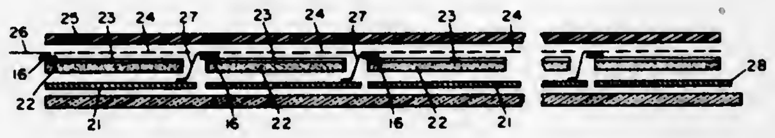
Larry G. Lands, Garland, and Will F. Parmer, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of application Ser. No. 518,234, Jan. 3, 1966, now abandoned. This application Aug. 27, 1969, Ser. No. 857,615
Int. Cl. H01l *7/00*
U.S. Cl. 29—571 **4 Claims**



A stabilized semiconductor device and method of fabrication is disclosed in which a suitably doped silicon oxide stabilization layer for effecting surface passivation is disposed over a surface of a semiconductor device and separated from the surface by a relatively thin layer of silicon oxide to prevent deleterious levels of impurities from diffusing into the surface from the doped stabilization layer.

3,571,915
METHOD OF MAKING AN INTEGRATED SOLAR CELL ARRAY

Fred A. Shirland, Lakewood, Ohio, assignor to Clevite Corporation
Filed Feb. 17, 1967, Ser. No. 616,885
Int. Cl. H01v *49/00*
U.S. Cl. 29—572 **6 Claims**

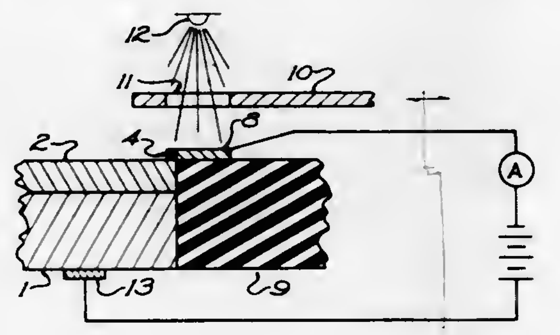


An integral battery of serially connected photovoltaic cells on a single insulating substrate. Metallized areas are formed on the substrate with semiconductive film such as cadmium sulfide vacuum evaporated upon each of the metallized areas. Barrier layers are formed on the cadmium sulfide films to produce PN junctions. Electrode leads extend from each metallized area under the semiconductor film to a top surface of the barrier layer of an adjacent semiconductor film.

3,571,916
SCHOTTKY EDGE CONTACT DIODE

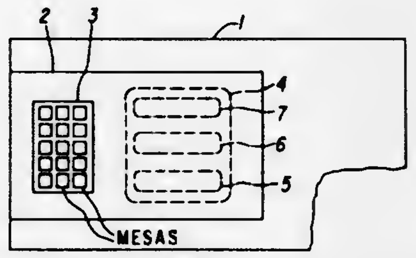
Franz Joseph Landkammer, Woburn, Mass., assignor to Microwave Associates, Inc., Burlington, Mass. Division of Ser. No. 648,018, June 22, 1967, Pat. No. 3,302,284.
Filed Mar. 14, 1969, Ser. No. 825,475
Int. Cl. B01j *17/00;* **H01i** *7/02*
U.S. Cl. 29—578 **4 Claims**

A semiconductor diode is disclosed made so that the Schottky barrier junction is applied to the edge of a semiconductor wafer instead of some arbitrary point on its surface. The area, where contact is made to an electrode, is entirely applied to an insulator adjacent to the edge junction. This structure provides large bonding area with small junction area.



3,571,917
INTEGRATED HEATER ELEMENT ARRAY AND DRIVE MATRIX AND METHOD OF MAKING SAME

Jerry D. Merryman, and Edward M. Ruggiero, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Original application Sept. 29, 1967, Ser. No. 671,821, now Patent No. 3,501,615. Divided and this application May 7, 1969, Ser. No. 847,751
Int. Cl. B01j *17/00;* **H01l** *15/00*
U.S. Cl. 29—573 **4 Claims**



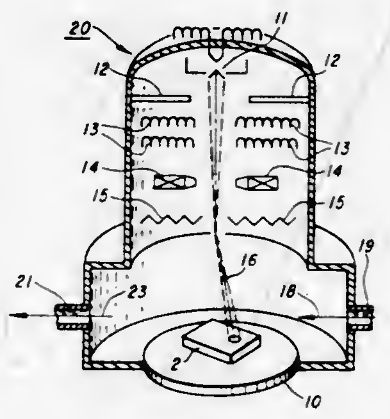
Thermal display including an air isolated integrated semiconductor circuit forming a semiconductor heater element array joined by a metallic connecting pattern which extends out over the heating elements to interconnect selected ones of them and a PN junction isolated integrated semiconductor drive matrix for the heating element array positioned in the same plane as the heating element array. The PN junction isolated integrated semiconductor drive matrix and the semiconductor heating element array are concurrently formed in the same semiconductor substrate and the heating element array is air isolated to provide a high degree of electrical and thermal isolation for the heating element array while both are located in the same plane on a larger support. The thermally sensitive material on which a dynamic display is formed or on which a permanent display is printed is in direct contact with the monocrystalline semiconductor material of the heating circuit array and can be passed over the heating element array and the drive matrix.

3,571,918
INTEGRATED CIRCUITS AND FABRICATION THEREOF

Rolf R. Haberecht, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Original application June 23, 1966, Ser. No. 552,143. Divided and this application Mar. 28, 1969, Ser. No. 814,471
Int. Cl. B01j *17/00;* **H01l** *1/16*
U.S. Cl. 29—577 **7 Claims**

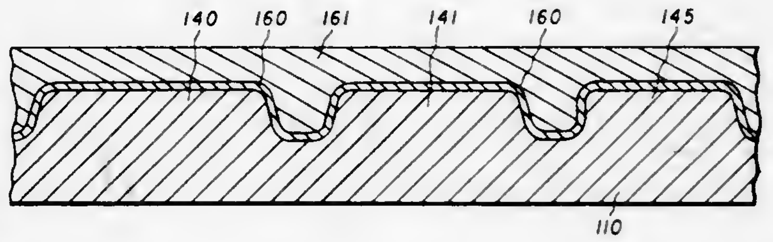
This specification discloses a method of forming an integrated circuit characterized by:

1. Forming on a given substance, respectively and without the usual complex, multihandling operations;
a. a first block of semiconductor material,
b. a second block of a reducible dielectric material;
c. a third block of ferrite, and
d. an insulating film covering the substrate intermediate the first, second and third blocks;
2. Forming a semiconductor device in the first block;
3. Forming a resistor in the second block; and
4. Forming a capacitor or an inductor in the third block. An electron beam below a maximum power level is employed to effect the desired depositions and components with the substrate maintained in one reaction chamber. Various vaporous, or gaseous, reactants are flowed past the substrate during the respective operations but external contamination is avoided. Specific materials, reactants, and operations are given.



3,571,919
SEMICONDUCTOR DEVICE FABRICATION

Paul S. Gleim, Dallas; Kenneth E. Bean, and Stephen P. Emmons, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Continuation of application Ser. No. 491,617, Sept. 30, 1965, now abandoned. This application Sept. 25, 1968, Ser. No. 764,038
Int. Cl. B01i *17/00;* **H01i** *1/16, 1/24*
U.S. Cl. 29—577 **4 Claims**

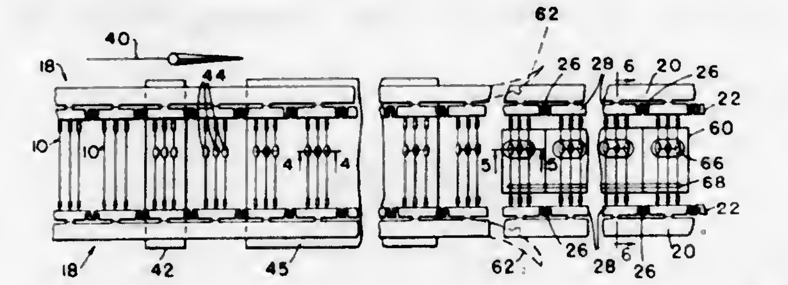


Disclosed is a method of forming a semiconductor device having circuit components in a semiconductor substrate which are electrically isolated from each other by a layer of etch resistant material. During the fabrication of the device the etch resistant material acts as an etch barrier that prevents the etchant from removing any portion of the semiconductor substrate used for the circuit components.

3,571,920
METHOD FOR TRANSISTOR MANUFACTURE

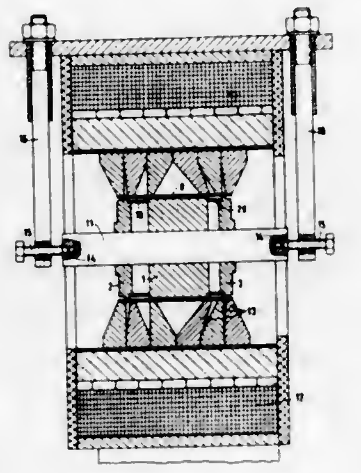
Quentin Berg, C/O Berg Electronics, Inc. York Expressway, New Cumberland, Pa.
Original application Dec. 16, 1965, Ser. No. 524,986, now Patent No. 3,418,089, dated Dec. 24, 1968. Divided and this application May 27, 1968, Ser. No. 732,413
Int. Cl. B01j *17/00;* **H01l** *1/10*
U.S. Cl. 29—588 **3 Claims**

A method for the manufacture of transistors whereby groups of transistor lead wires are rigidly held during attachment of the transistor elements to the wires and are flexibly held during encapsulation of the transistor elements in a protective plastic nodule so as to prevent damage to the transistor elements due to thermal expansion.



3,571,921
METHOD OF MANUFACTURING AN ELECTRIC MOTOR BY HIGH-SPEED FORMING

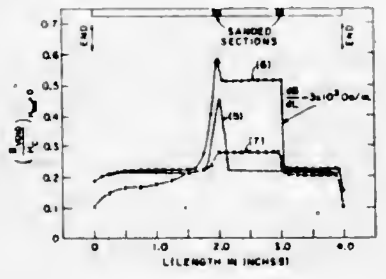
Wolfgang Pieper, Wurzberg, Germany, assignor to Siemens Aktiengesellschaft. Berlin, Germany
Filed June 30, 1969, Ser. No. 837,621
Claims priority, application Germany, July 3, 1968, P176363.4
Int. Cl. H02k *15/00*
U.S. Cl. 29—596 **3 Claims**



A method of manufacture of an electric motor includes the steps of inserting a holding rod into the bore of a stator, the holding rod having the largest diameter which the bore can accommodate, positioning two bearing plates having respective bores of the same diameter as that of the stator on the rod adjacent the opposite ends of said stator, placing a housing around the stator and the bearing plates, pressing the housing against the stator and the bearing plates by a high speed forming process, removing the holding rod from the bores, and inserting a rotor supplied with a pair of bearings into said bores.

3,571,922
METHOD OF FABRICATING A STRAINED SUPERCONDUCTOR MAGNET

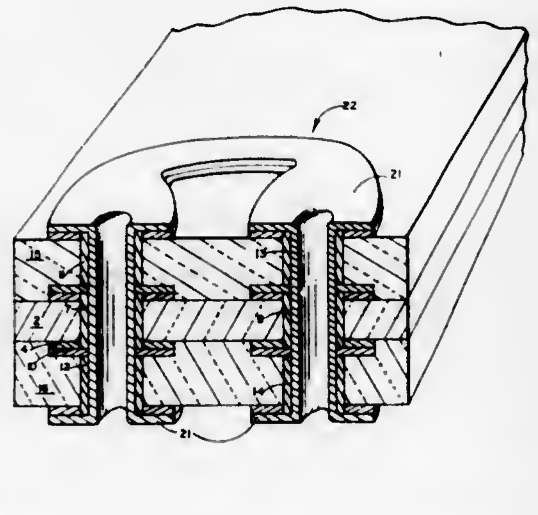
Donald G. Schweitzer, Bayport, and Louis J. Nicolosi, Commack, N.Y., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed July 10, 1968, Ser. No. 743,701
Int. Cl. H01v *11/00*
U.S. Cl. 29—599 **9 Claims**



Method for straining a type I superconductor cylinder for retaining a desired magnetic field gradient in the bore thereof.

3,571,923
METHOD OF MAKING REDUNDANT CIRCUIT BOARD INTERCONNECTIONS

Joseph M. Shaheen, La Habra, and Sterling Graydon, Jr., Santa Ana, Calif., assignors to North American Rockwell Corporation
Filed Dec. 30, 1968, Ser. No. 787,720
Int. Cl. B41m *3/08*
U.S. Cl. 29—625 **3 Claims**

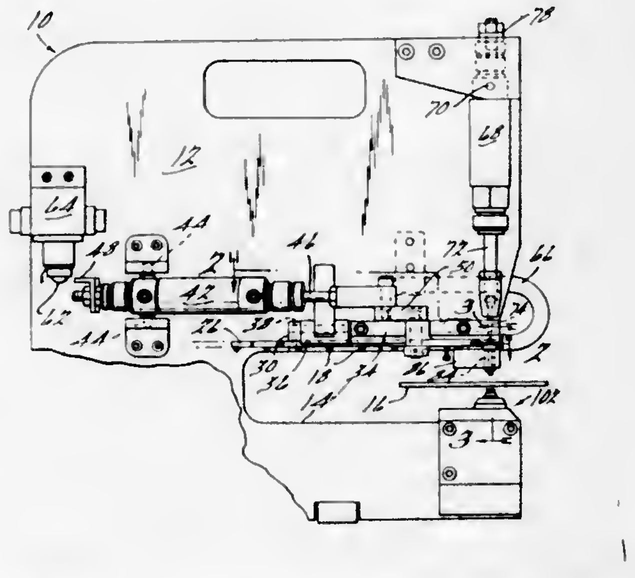


Solid interconnections are deposited sequentially on circuit pads of each layer of a multilayer combination. The interconnection is made such that an alternating series of solid metal posts and metal pads are achieved as a through connection of the multilayer board. Subsequently, the solid interconnections and the circuit terminals of each layer are drilled. The inner surfaces of the solid interconnections, and the inner surfaces of the circuit terminals, exposed by the drilling, are then plated.

As a result, one electrical contact between layers is provided through the undrilled portions of the solid interconnections contacting the circuit terminals of each layer. A second, or redundant, electrical contact is provided through the plated layer which contacts the surfaces exposed by the drilling.

3,571,924
TERMINAL APPLICATOR AND METHOD

Timothy F. Collins, York, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.
Filed Oct. 11, 1968, Ser. No. 766,872
Int. Cl. H01r *9/16*
U.S. Cl. 29—625 **12 Claims**

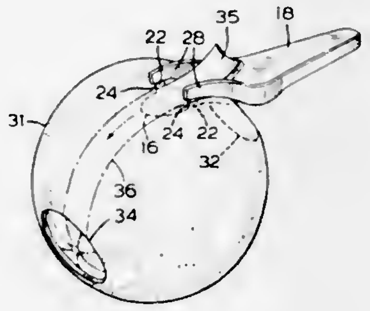


An applicator for mounting individual eyelet type terminals on a circuit board where the terminal is severed from

a carrier strip by a ram which moves the terminal through a transport bore until the terminal flange is clamped between the ram and lip at the end of the bore with the body portion of the terminal exposed out of the bore. Following positioning of a circuit board so that the body of the terminal is fitted in a circuit board hole, an anvil is extended to flare the free end of the terminal and secure it to the circuit board. The ram is withdrawn, another terminal is indexed over the bore, and the ram is again extended into the bore to eject the mounted terminal from the bore and to position the second terminal for mounting on a circuit board.

3,571,925
DEVICE FOR REMOVING THE SKIN FROM AN ORANGE OR THE LIKE

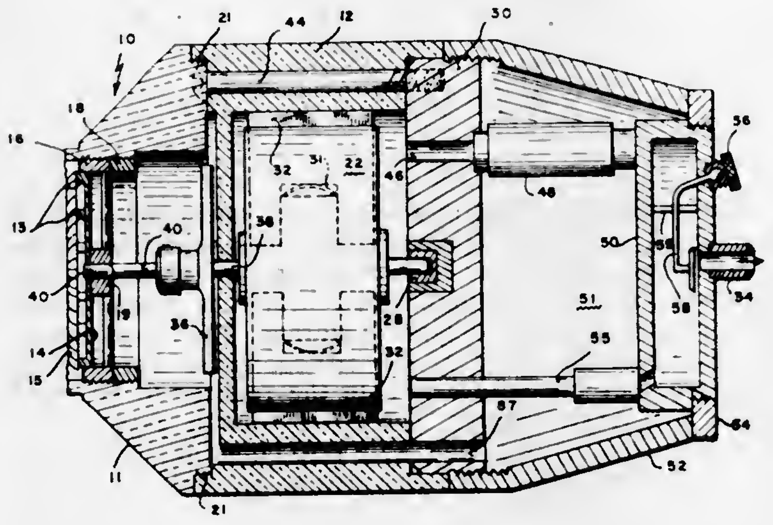
Herbert F. Deutschmann, 1230 Queens Blvd., Kitchener, Ontario, Canada
Filed Sept. 30, 1969, Ser. No. 763,752
Int. Cl. A47j *17/04*
U.S. Cl. 30—24 **1 Claim**



The invention relates to a device for removing the skin from an orange or the like. The device comprises a peeling blade which has a leading edge which is adapted to cut the skin of the orange and to separate the skin from the fruit by lifting the skin. At least one cutting edge extends upwardly from the peeling blade to cut through the thickness of the skin of the orange to cut the portion of the skin which has been separated from the fruit from the portion which remains attached to the fruit. A handle is connected to the blade for manual manipulation of the device.

3,571,926
VACUUM SHAVER

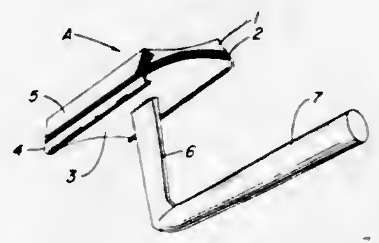
Glenn C. Ainsworth, 4526 Brookwood. NE, Albuquerque, N. Mex.
Filed Aug. 13, 1968, Ser. No. 752,228
Int. Cl. B26b *19/44*
U.S. Cl. 30—41.5 **1 Claim**



An instrument especially designed for providing space men with means for shaving. The apparatus provides for the control and collection of the cut whisker particles produced when shaving in a satellite environment. The shaver features a vacuum-driven motor which drives a rotary head. The cutting head has a vacuum cavity which draws the cut whisker particles and collects them in a cavity containing a filter.

3,571,927
NOVEL SAFETY RAZOR

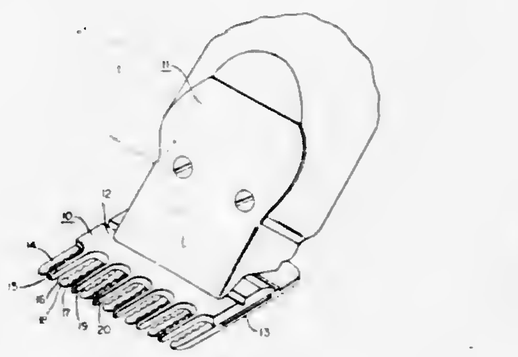
Ray L. Stone, Hemlock Terrace, P. O. Box 567, Croton Falls, N.Y.
Filed June 21, 1968, Ser. No. 739,038
Int. Cl. B26b *21/08, 21/14*
U.S. Cl. 30—51 **10 Claims**



A light, plastic safety razor except for the metal blade therein comprising a plastic cover, a guard plate, a metal blade between said guard plate and said cover, a guard edge juxtaposed below the blade edge and joined to said guard plate, a nonstretchable flexible member attached to the bottom surface of the guard plate and extending therefrom along a first plane which is essentially perpendicular to the bottom surface, and a handle extending from said member in a direction lateral of said plane.

3,571,928
AUTOMATICALLY COMPENSATING HAIR BLENDING DEVICE

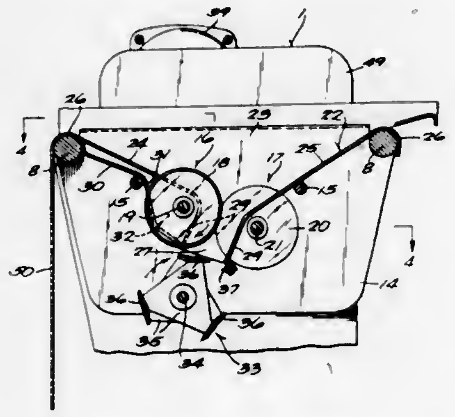
Glenn R. Willey, 1181 Bellemead Drive, Warminster, Pa.; William B. Fuller, Upperstate Road, Chalfont, Pa., and Vernon W. Biesecker, 1171 Bellemead drive, Warminster, Pa.
Filed Jan. 16, 1969, Ser. No. 791,655
Int. Cl. B26b *19/22*
U.S. Cl. 30—195 **10 Claims**



Method and apparatus for blending hair which includes a plurality of cutting reliefs for capturing the hair to be blended wherein the reliefs are of arcuate configuration and disposed in the stationary cutting teeth. The configuration of the reliefs are such in respect to the stroke of the moving cutting teeth that a predetermined area of the relief is not traversed by the moving cutting teeth. A percentage of the hair in the relief will pass to the back of the relief and not be cut against shearing edges disposed within the relief. The area of the relief which is untraversed by the moving cutting teeth is constant resulting in the cutting of a percentage of thicker hair passing into the relief than thinner hair thus automatically compensating the blending effect according to the thickness of the hair being cut.

3,571,929
CURD MILL

Norman J. Peters, Fond du Lac, Wis., assignor to DEC-International Inc., Madison, Wis.
Filed July 1, 1968, Ser. No. 741,709
Int. Cl. A01j *25/06*
U.S. Cl. 31—48 10 Claims

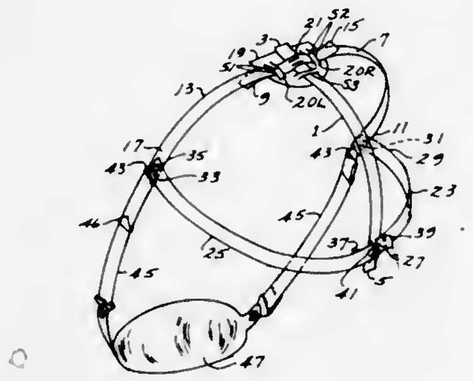


A curd mill for milling slabs of cheese curd. The curd mill includes a hopper to receive the curd to be milled, and two sets of intermeshing cutting discs are mounted for rotation within the hopper and serve to slice the curd. Located beneath the cutting discs is a reel having a series of generally herringbone-shaped blades which act to transversely cut the sliced curd into cubelike pieces.

The curd mill is mounted on a support so that the upper, open end of the hopper is at an angle of about 10° to 20° to the horizontal and in addition, the curd mill is positioned at an angle of about 10° to 20° with the sidewall of the cheese making vat. With this angular disposition of the curd mill, the milled curd is discharged outwardly toward the center of the vat.

3,571,930
ADJUSTABLE HEAD GEAR

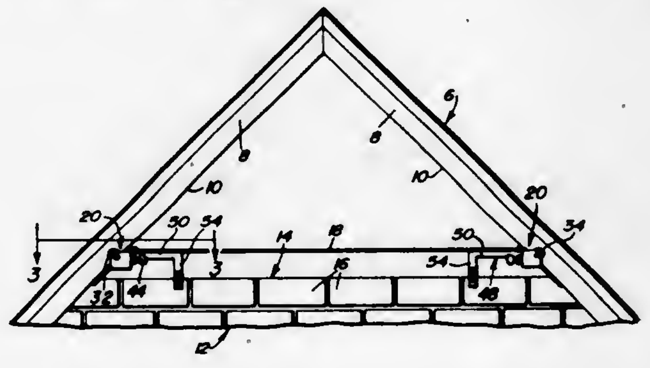
Irvin S. De Woskin, ST. Louis, Mo., assignor to Orthoband, Company, Inc., St. Louis, Mo.
Filed Aug. 15, 1969, Ser. No. 850,512
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 10 Claims



Adjustable headgear is disclosed which includes a first or occipital strap having an upper end and a lower end and is adapted to extend from the back of the head of the wearer upward to the top area of the head. A second strap having an upper end and a lower end is adapted to extend from the right side of the head of the wearer upward to the top area of the head. A third strap having an upper end and a lower end is adapted to extend from the left side of the head of the wearer upward to the top area of the head. A top adjustment piece has slits therein through which the upper ends of the straps pass so that the length of each strap from its lower end up to the adjustment piece can be adjusted by sliding the strap through the slits in the adjustment piece. Backstrap means has forward end portions connected to the lower ends of the second and third straps and extends around from the lower end of the second strap to the lower end of the third strap. The lower end of the first strap is connected to the strap means generally centrally of the latter.

3,571,931
BRICK LAYING DEVICE

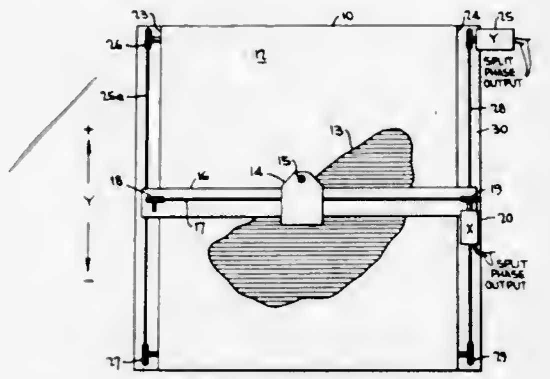
Buddy Arnold Williams, Rte 2, Toccoa, Ga.
Filed July 22, 1969, Ser. No. 843,348
Int. Cl. B43l *7/00*
U.S. Cl. 33—86 6 Claims



A guideline holder for us by a brickmason when planning and progressively laying up horizontal courses of bricks within the encompassing confines of the upwardly converging facia or freeze boards of a gable end frame structure. Each holder comprises a U-shaped adapted bracket which can be readily attached to the inward inclined edge portion of the facia board and which is provided with an upstanding hook to which the guideline is connected. The bight portion of the bracket is provided with a complemental L-type square whose depending short leg is provided with a properly calibrated level indicating and measuring scale.

3,571,932
DIGITAL PLANIMETER

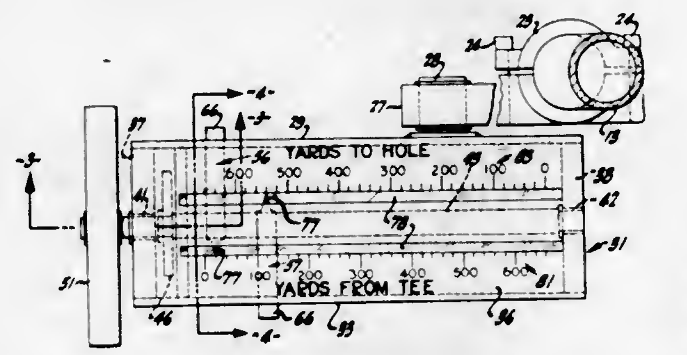
John G. Peddie, San Antonio, Tex., assignor to H. Dell Foster Co., San Antonio, Tex.
Filed Oct. 9, 1967, Ser. No. 673,577
Int. Cl. G01b *7/32;* G06g *7/18*
U.S. Cl. 33—123 11 Claims



This invention relates to a planimetry and particularly to planimetric apparatus whereby digital representations of the cursor movement in one of two orthogonal reference coordinates are provided in incremental fashion to register means for accumulation and temporary storage. The movement of the cursor in the other of the orthogonal reference coordinates causes the information in the register to be transferred to a down counter. The down counter is pulsed, by means of clock pulse signals, to a zero condition. Simultaneously the clock pulses are provided to an adder subtracter device which accumulates the pulses until the down counter obtains the zero output condition. Control means are provided such that the pulse information which is entered into the adder/subtracter unit provides the correct updated pulse accumulation which represents the total summation of the incremental information stored in the register and periodically transferred to the down counter. The accumulated information in the adder/subtracter device may be displayed to provide a current indication of the area traversed by the cursor.

3,571,933
DISTANCE INDICATOR FOR GOLF CART

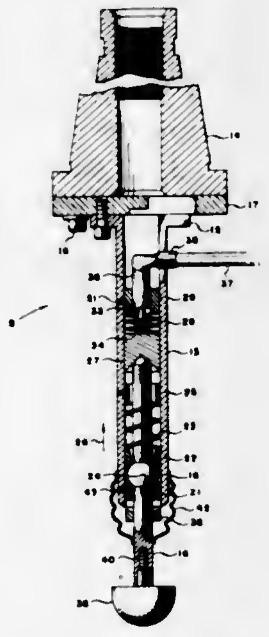
Thomas H. Johnson, Box 811, Auburn, Calif.
Filed Oct. 23, 1968, Ser. No. 769,809
Int. Cl. G01b *3/12;* G01c *22/00*
U.S. Cl. 33—142 1 Claim



Mounted on a golf cart and engageable with a wheel of the cart is a meter calibrated to indicate on a yardage scale the distance traveled by the cart on any particular hole. An inverse scale simultaneously indicates the remaining distance from the cart to the hole. Indicating pointers traveling along the two scales can be individually reset at the beginning of each hole or at the conclusion of each stroke. A cumulative yardage indicator is also optionally utilized.

3,571,934
THREE-AXIS INSPECTION PROBE

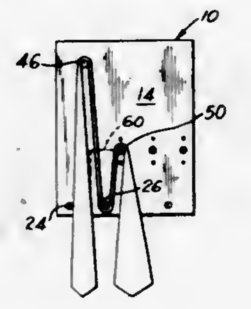
Ernest J. Buck, Sr., Pasadena, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed June 24, 1968, Ser. No. 739,226
Int. Cl. G01b *7/28*
U.S. Cl. 33—174 15 Claims



An inspection probe for use in conjunction with numerically controlled machine tools is disclosed which measures deviations, at specified inspection points, from predetermined numerical dimensions along *x*, *y* or *z* axes in accordance with a predetermined taped program. The probe incorporates mechanical means for inhibiting *x* and *y* axis deflections while making *z* axis measurements, and conversely. The output may be continuously recorded by means of a pneumatic or an electrical strip chart recorder.

3,571,935
NECKTIE MEASURING DEVICE

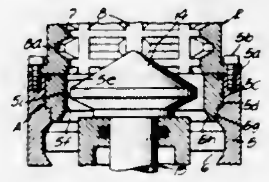
Louis W. Van Wye, Kansas City, Mo. (12604 E. 49th ST., Independence, MO 64055)
Filed Nov. 12, 1968, Ser. No. 774,916
Int. Cl. G01b *3/38*
U.S. Cl. 33—180 10 Claims



A device for measuring a man's necktie before it is put on to insure that the ends of the necktie will be in the desired alignment once the wearer has put on and tied the tie. The measuring device includes a base having a plurality of posts including a neck-size post, a knot post, and a plurality of guideposts, the posts being positioned on the base in predetermined spaced relationship whereby the necktie may be trained thereabout and appropriately adjusted to indicate the position the ends of the necktie will assume after it has been placed about the neck of the wearer and tied.

3,571,936
HIGH OR LOW FLUID FLOW SIGNALLING APPARATUS

Raymond G. Taylor, Jr., Los Angeles, Calif., assignor to Byron Jackson, Inc., Long Beach, Calif.
Original application June 18, 1968, Ser. No. 737,960, now Patent No. 3,468,035, dated Sept. 23, 1969. Divided and this application July 17, 1969, Ser. No. 862,109
Int. Cl. G01c *9/00*
U.S. Cl. 33—205 5 Claims



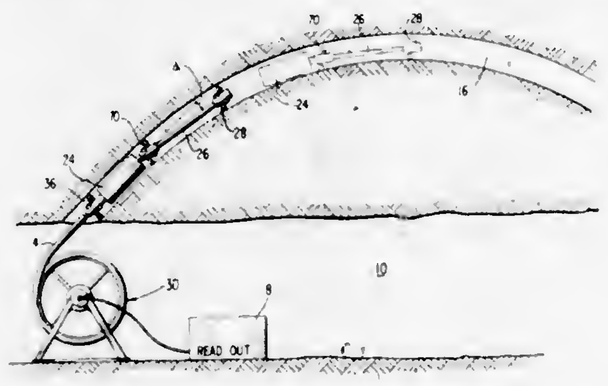
Signalling apparatus for producing pressure pulses in the stream of well drilling fluid in which the fluid flows through a pulse ring assembly having axially spaced rings cooperative with a knob reciprocable through said rings to provide restricted flow paths productive of the fluid pressure pulses in the drilling fluid stream in a number representative of the disposition of the well drilling string in the well bore in the vicinity of the drill bit, and in which a replaceable flow bushing is employed to provide a selected flow area between the pulse ring and the knob when the knob is in its normal position responsive to the influence of drilling fluid pressure thereon, so that movement of the knob to said position is assured under the prevailing flow rate. Such apparatus in which a gravity responsive pendulum system is utilized to determine the extent of movement of said knob and releasable latch means connect the gravity responsive means to the knob.

3,571,937
METHOD AND APPARATUS FOR DETERMINATION OF ORE SAMPLE LOCATION

Howard V. Sears, Box 123, Flat River, Mo.
Filed Nov. 24, 1967, Ser. No. 685,671
Int. Cl. E21b *47/02*
U.S. Cl. 33—205 6 Claims

A sensing device which defines the terminal position and inclination of a curved prospect hole drilled from a passage in a mine by indicating the distance, slope and deflection, from initial position and azimuth, of progessive points along the hole.

An in-hole sensor is provided with a plurality of potentiometers mounted on mutually perpendicular axes to which are attached pendulums. Angular changes in inclination and attitude of the sensor with reference to the pendulum's vertical position cause related electrical outputs from the potentiometers which can be read as degrees by a readout instrument. Other potentiometers therein have their electrical outputs altered to an extent proportional to the deflection of the hole.



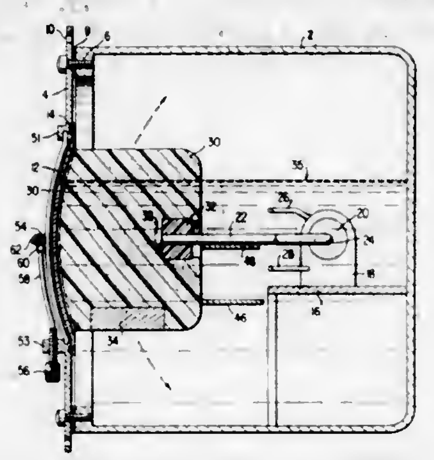
According to the method of the invention cross section samples may be taken from the ground surrounding and in the plane of mine workings by drilling curved prospect holes from within existing mine openings.

3,571,938

AIRCRAFT ATTITUDE INDICATOR

Bruce W. Branick, 3800 27th St., Port Arthur, Tex.
Filed Dec. 23, 1968, Ser. No. 786,169
Int. Cl. G01c *9/20*

U.S. Cl. 33—206 **10 Claims**



An aircraft attitude indicator having a float for oscillation about a horizontal axis and for rotation about an axis normal to said axis. Indicating markings carried by the float and casing provide for fast observation of the attitude of the craft. An adjustable horizontal marker is provided for compensating for the trim of the craft.

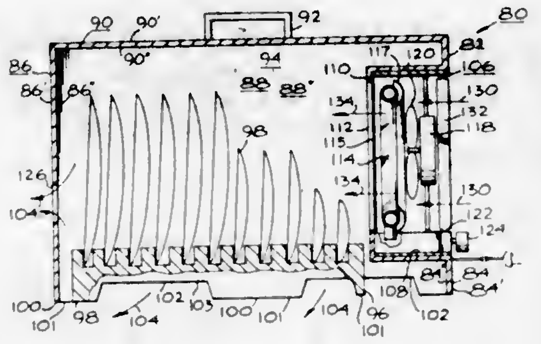
3,571,939

DISH DRYING AND STERILIZING ARRANGEMENT

Beverly Paul, 971 S. Elden, Apt. 28, Los Angeles, Calif. 90006.
Filed Sept. 4, 1969, Ser. No. 855,234
Int. Cl. B01k *5/00*

U.S. Cl. 34—1 **9 Claims**

An improved drying and sterilizing arrangement is provided that is particularly adapted for drying dishes, silverware, pots and pans, et cetera. As disclosed, there is an open bottomed hood member having sidewalls, end walls and a top, and this hood member may be positionable over a dishrack in which the material to be dried and sterilized is contained. The hood member is provided with a source of electromagnetic radiation that emits electromagnetic radiation in the wave length bandwidths in the ultraviolet portion of the electromagnetic radiation spectrum as well as the visible and infrared portions. Means for moving air from regions external the hod through the walls defining the hood and over the material to be dried and thence exhausted to regions external the hood are also provided and which means may comprise a motor driven air fan. The electromagnetic radiation emitting member may be an ultraviolet bulb emitting electromagnetic radiation in the above-described three wave length bandwidths of the electromagnetic spectrum and, consequently, the energy associated with such emission is utilized to both dry and sterilize the material to be dried.

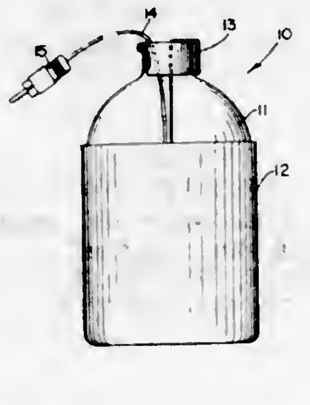


3,571,940

THERMAL CASSETTE

Charles E. Bender, New Paltz, N.Y., assignor to Cenco Medical/Health Supply Corporation, Chicago, Ill.
Filed Apr. 21, 1969, Ser. No. 817,904
Int. Cl. F26b *5/06*

U.S. Cl. 34—5 **2 Claims**



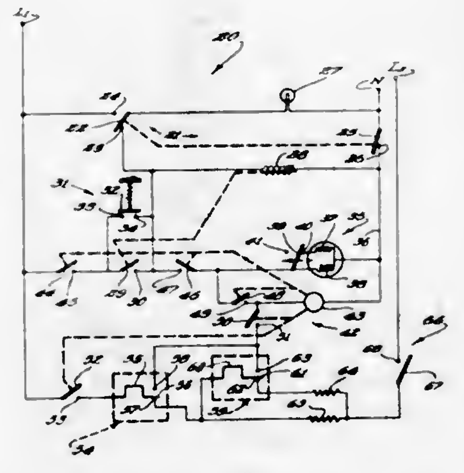
A thermal cassette for housing a container of material to be freeze dried, said cassette having radiation absorbing quality to provide for uniform heat transfer to the container contents to promote better and faster freeze drying.

3,571,941

APPLIANCE CONTROL CIRCUIT

Richard L. Garfield, and Harold S. Stacik, St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Mar. 3, 1969, Ser. No. 803,818
Int. Cl. F26b *13/10*

U.S. Cl. 34—45 **10 Claims**



An appliance control circuit for a dryer or a combination washer dryer employs a plurality of thermostat devices and a timer to control the heat supplied to the appliance from a pair of heating elements to provide a modulated heat supply and a cool-down portion for the drying cycle.

3,571,942

PROCESS FOR PRESERVING FLOWERS

Henry E. Orensten, and Vivian C. Orensten, 2648 Inglewood Ave. S., Minneapolis, Minn.
Filed Sept. 8, 1969, Ser. No. 856,216
Int. Cl. F26b *3/00, 5/00*

U.S. Cl. 34—9 **9 Claims**

This invention relates to a process for drying and naturally preserving flowers and flower color. The process includes controlled pressing the flower between porous sheets, while maintaining a heated dehumidified atmosphere.

3,571,943

WOOD DRYING AND PRESERVING PROCESS

Hulbert E. Sipple, 3481 El Dorado Drive, Long Beach, Calif.
Filed June 23, 1969, Ser. No. 836,223
Int. Cl. F26b *5/00, 5/04*

U.S. Cl. 34—9.5 **8 Claims**

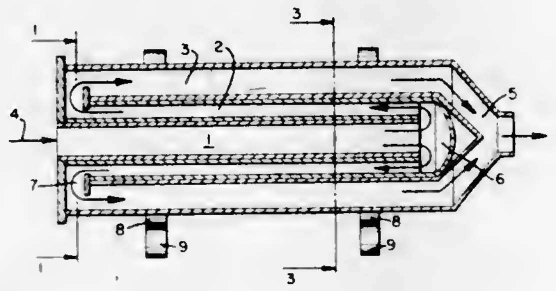
Wood is dried by contact with an optionally preservative-containing hydrocarbon fraction, having a boiling range of not greater than 70° F. at a temperature of from about 125° F. to about 275° F. followed by exposure to subatmospheric pressure.

3,571,944

ROTARY HEAT EXCHANGING APPARATUS

Victor Duhem, Fontainebleau, Avon, France, assignor to Venot-Pic, Franklin-Roosevelt-Avon, France
Filed Feb. 3, 1969, Ser. No. 796,008
Claims priority, application France, Feb. 28, 1968, 141704
Int. Cl. F26b *17/10*

U.S. Cl. 34—57 **1 Claim**



An apparatus for drying sugar beet pulps, fodder plants and similar products, composed of the juxtaposition of a central tube, a series of intermediate tubes of lesser diameter and a series of peripheral tubes of diameter equal to or greater than that of the central tube, through which the products to be dried and the hot gases circulate successively.

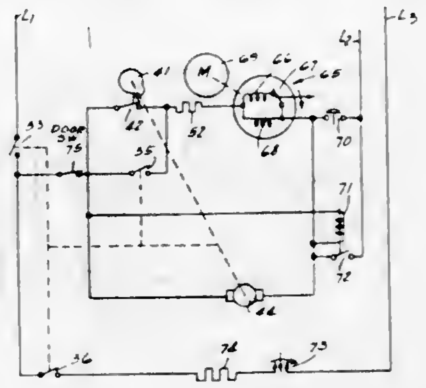
3,571,945

DRYER CONTROL CIRCUIT EMPLOYING TIMER HAVING TWO SPEEDS

Alvin J. Elders, Stevensville, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.
Filed June 25, 1969, Ser. No. 836,465
Int. Cl. F26b *19/00*

U.S. Cl. 34—53 **3 Claims**

A dryer control includes two camstacks, one operating continuously with the timer motor and the other driven by the timer motor under the control of a bimetal strip, connected in series with the dryer motor to provide intermittent operation thereof in accordance with the heat generated by the motor current traversing the bimetal strip, thereby to provide two modes of operation in a dryer program having drying, cool down and antiwrinkle cycles.

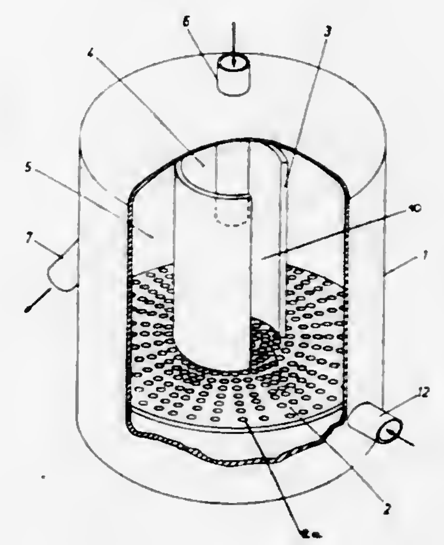


3,571,946

REACTOR FOR REACTIVATING SOLID PARTICULATE MATERIAL WITH A GASEOUS MEDIUM

Joachim Karweil, Essen, and Josef Degel, Bochum, Germany, assignors to Bergwerksverband GmbH, Essen, Germany
Filed July 28, 1969, Ser. No. 845,238
Claims priority, application Germany, July 26, 1968, P 17 69 859.8
Int. Cl. F26b *17/10*

U.S. Cl. 34—57 **19 Claims**



A reactor for reactivating solid particulate material with a fluid comprising a reaction chamber including a perforated bottom wall and upright wall means disposed on the bottom wall and defining within the reaction chamber a central whirl chamber and a first and a second annular whirl chamber surrounding the central whirl chamber. Passageways are provided in the wall means to interconnect the respective whirl chambers. A first inlet is provided to supply solid particulate material to the central whirl chamber and a second inlet communicates with the perforated bottom wall to supply a fluid therethrough to fluidize the particulate material in the central whirl chamber. The particulate material in fluidized condition is subsequently transferred to an outlet via the first and second annular whirl chambers.

3,571,947

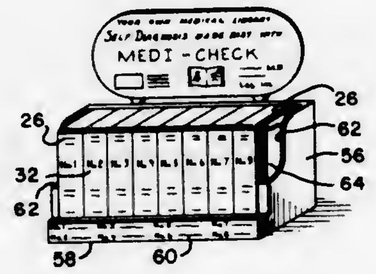
MEANS FOR IDENTIFYING SKIN BLEMISHES

William D. Maddison, Denville, N.J., and James J. De Lade, 195 C. Main St., Little Falls, N.J.
Filed Oct. 1, 1968, Ser. No. 764,101
Int. Cl. G09b *23/28*

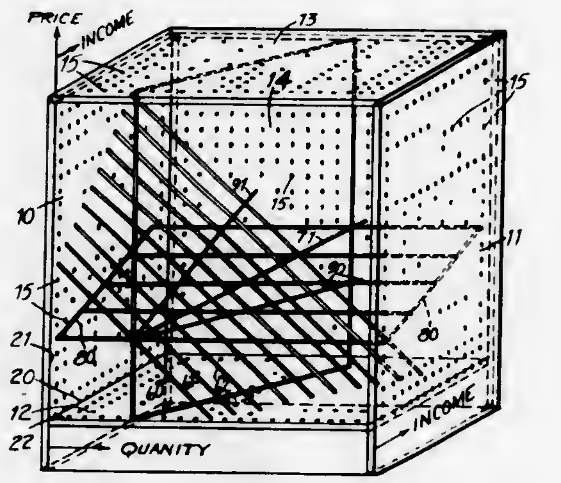
U.S. Cl. 35—17 **4 Claims**

A flexible, compliant film of plastic on which is represented any one of a plurality of discrete skin blemishes.

A handbook associated therewith illustrates all said discrete blemishes, identifies each by name, signifies the pathogenesis thereof, and prescribes theraputic prescriptions therefor. Each film-blemish and handbook illustration thereof is cross-indexed to effect identification of said film-blemish, said film being provided for laying upon the body, adjacent to a naturally subsisting skin blemish, to identify the latter and to determine the treatment therefor via reference to said handbook.

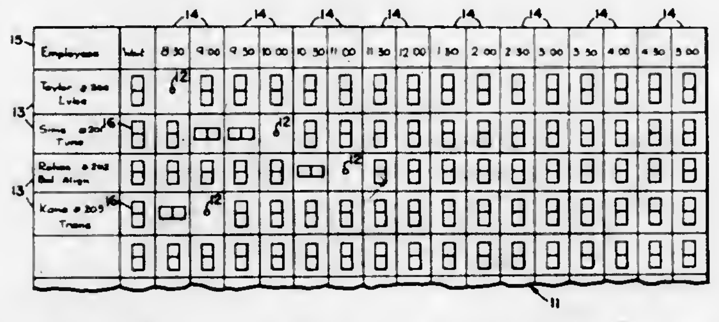


3,571,948
ECONOMICS TEACHING DEVICE
John T. Heffernan, 30 Brigham Road, Worcester, Mass.
Filed June 12, 1969, Ser. No. 832,621
Int. Cl. G09b *19/18, 23/04*
U.S. Cl. 35—24 **7 Claims**



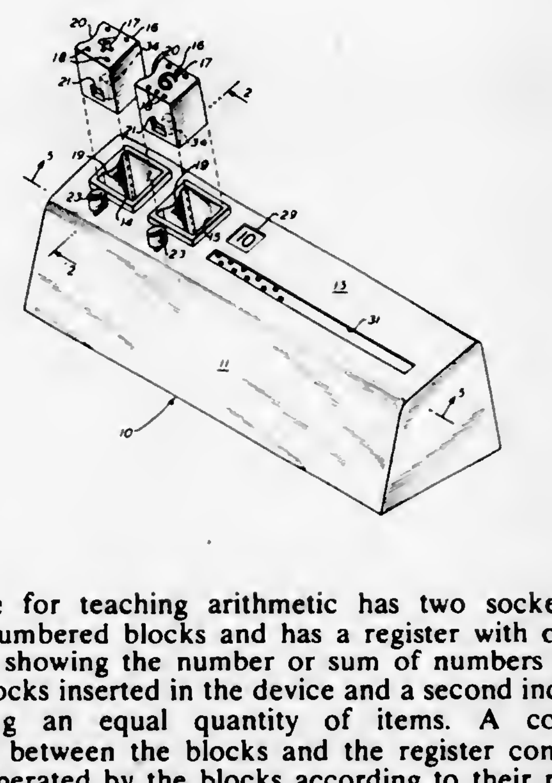
A teaching device for visually representing equations in a three-dimensional relationship including means to effect adjustment of a variable to demonstrate the continuous interplay of the elements of the equation as certain values change. The device is particularly useful for visually illustrating the relationships of basic units in economic theories under conditions of continuous variation of different aspects of the economic data.

3,571,949
WORKSHOP DISPATCH SYSTEM
John C. Gormley, 115 Mira Loma, Vallejo, Calif.
Filed June 17, 1969, Ser. No. 833,929
Int. Cl. G09b *19/18*
U.S. Cl. 35—24 **6 Claims**



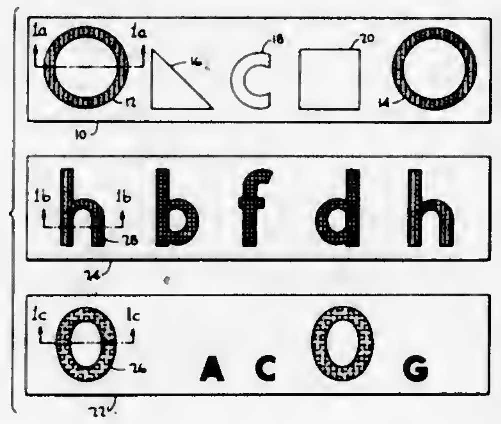
A work scheduling and job dispatch system for use in workshops such as auto repair shops including a first pegboard section for inventorying available man/time intervals per job specialty performed in the shop, a second pegboard section for inventorying received work to be performed in the shop, and a plurality of pegs each identifying an employee and a preselected time interval, adapted for transfer between the pegboard sections whereby available man/time intervals per job specialty are assigned to the available work.

3,571,950
TEACHING DEVICE
Richard K. Walker, 3 Bradley Road, Convent, N.J.
Filed Oct. 27, 1969, Ser. No. 869,548
Int. Cl. G09b *19/02*
U.S. Cl. 35—31 **6 Claims**



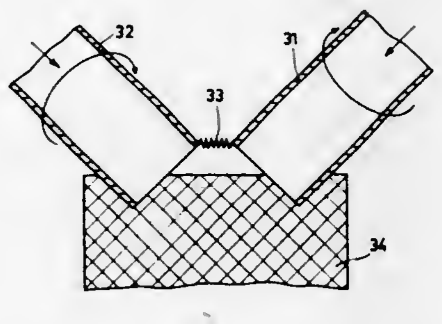
A device for teaching arithmetic has two sockets for receiving numbered blocks and has a register with one indicator for showing the number or sum of numbers of the block or blocks inserted in the device and a second indicator for showing an equal quantity of items. A coupling mechanism between the blocks and the register comprises pushrods operated by the blocks according to their respective numbers and an intermediate plunger having a rock lever pivoted thereto which is operated by the pushrods to cause the plunger to be moved by one-half the sum of the movements of the respective pushrods. The register comprises two indicator tapes each wound on a pair of supply and takeup reels which are intercoupled and driven in synchronism to prevent any stress of the tapes.

3,571,951
MULTISENSORY APPROACH TO READING AND READING READINESS
Herbert A. Siegel, and Dorothy G. Siegel, 901 Barebranch Court, Baltimore, Md.
Filed Oct. 24, 1968, Ser. No. 770,322
Int. Cl. G09b *17/00*
U.S. Cl. 35—35 **14 Claims**



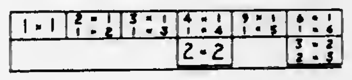
Methods of multisensory association for reading and reading readiness comprising providing material having multicharacteristic indicia associated therewith, such as color, size and texture, scanning the material by sight, and simultaneously scanning the material by feel whereby a plurality of senses are utilized.

3,571,952
ELECTRODE HOLDER FOR USE WITH AN INTERMITTENTLY OPERATED SPARK GAP
Siegfried Schmidt, Hamburg, and Bernd Ehlers, Tornesch, Germany, assignors to U.S. Phillips Corporation, New York, N.Y.
Filed Oct. 9, 1967, Ser. No. 673,774
Claims priority, application Germany, Oct. 22, 1966, P40707
Int. Cl. H01j *7/44, 13/46*
U.S. Cl. 315—35 **6 Claims**



An electrode holder arrangement with two spaced electrodes defining a spark gap therebetween and provided with an insulator means within the spark gap for defining a spark waveline path. The electrodes are spring urged toward the insulator means and each other and are also mounted for rotation about the longitudinal axis.

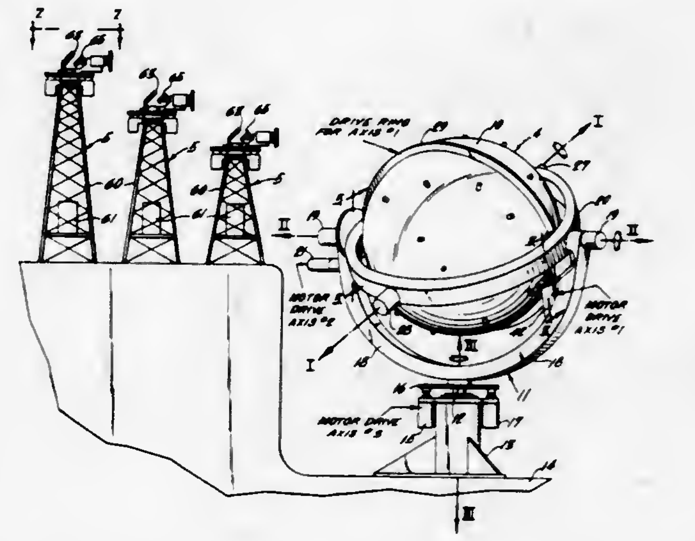
3,571,953
MULTIPLICATION GAME
Frank Sylvester Hassell, Jr., Marshall, Va., assignor to Acne Fund, Frank S. Hassel, Jr., sole administrator
Filed Jan. 3, 1969, Ser. No. 788,785
Int. Cl. G09b *19/02*
U.S. Cl. 35—31 **9 Claims**



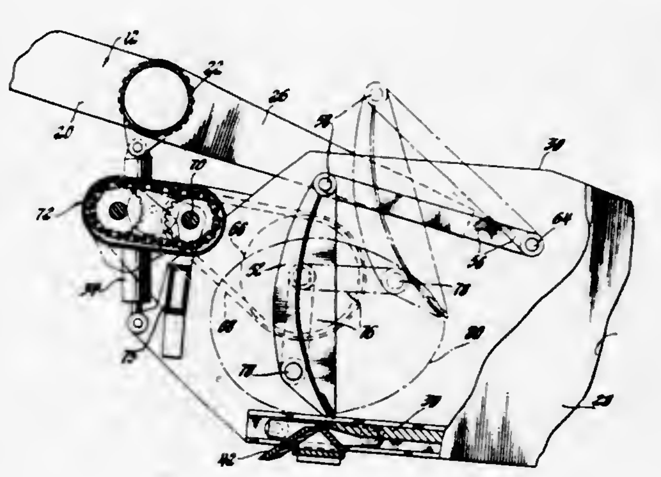
This game is an aid in the learning of the multiplication tables, comprising a yardstick marked on one side with problems and the other with answers to tables 1 through 9 with corresponding numbers on tabs, approximately one-half being of different color.

3,571,954
SPACE TRANSIT SIMULATOR PLANETARIUM
Wallace E. Frank, Westtown, Pa., assignor to Planetaria, Inc., Yorklyn, Del.
Filed May 13, 1966, Ser. No. 549,831
Int. Cl. G09b *27/00*
U.S. Cl. 35—42.5 **23 Claims**

A planetarium capable of simulating planet, sun and moon movements and changes as viewed from outside of, as well as within, cis-lunar space as provided by a star field projector preferably capable of projecting a selected portion of the celestial sphere in any desired orientation and projectors for sun, moon and planets separate from the star field projector and one another capable of projecting any possible orbit of the planets including those viewed from outside the ecliptic plane. Controlling and coordinating the drive means for the various projectors is a computer link which is preferably capable of being programmed for simulation of a selected view point in space for the planetarium audience, including a view point which is itself movable even as the planets are movable and which preferably is based upon an operational principal of vectorial summation.



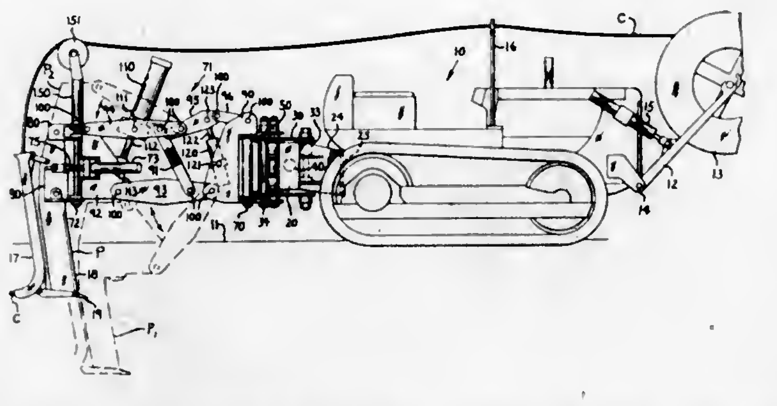
3,571,955
APRON LOADER FOR A SCRAPER
William H. Eiger, Eastlake, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Continuation-in-part of application Ser. No. 644,128, June 7, 1967, now abandoned. This application July 15, 1969, Ser. No. 841,955
Int. Cl. B60p *1/00*
U.S. Cl. 37—4 **2 Claims**



A scraper including a tractor and trailing bowl in which the latter is provided with an apron the upper end of which is connected with a pivoted control arm which guides the apron as the lower edge thereof is rotated by a drive crank so as to assist loading material into the bowl during a digging operation.

3,571,956
CABLE PLOW DRAFT LINKAGE
Robert C. Heiberg, 2115 N.E. 59th Ave, Portland, Oreg.
Filed Apr. 16, 1968, Ser. No. 721,801
Int. Cl. E02f *5/02;* **F16i** *1/00*
U.S. Cl. 37—98 **16 Claims**

A versatile plow for burying cable in a furrow behind a tractor or as much as 5 and ½ feet beyond either side of the tractor and in a roadside ditch below the level of the tractor or in a roadside embankment abode the level of the roadway on which the tractor travels. Such wide lateral adjustment is provided by a special hitch block and such great range of vertical adjustment is provided by a special parallelogram linkage behind the hitch block. The hitch block places the parallelogram linkage in outboard position so that it can be lowered into a ditch at a distance to one side of the tractor.



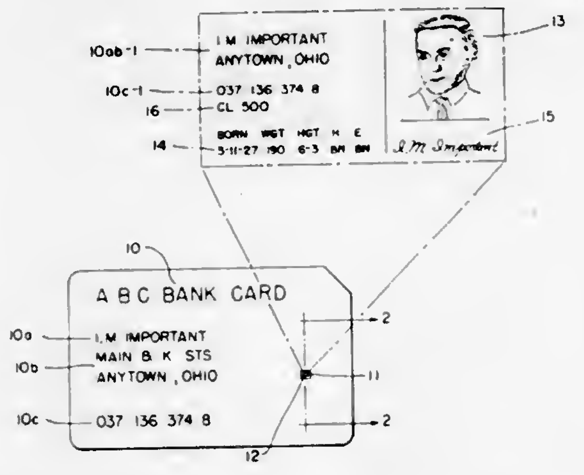
3,571,957
POSITIVE IDENTIFICATION MEANS AND METHOD FOR OWNER-PRESENTED DOCUMENTS

Peter N. Cumming, Dayton, and Earle F. Smith, Kettering, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Jan. 4, 1968, Ser. No. 695,651

Int. Cl. G09f *3/02*

U.S. Cl. 40—2.2 **7 Claims**



A credit card or other identification document as issued to the owner named thereon having as a permanent part thereof a micronegative containing normally unreadable identifying indicia of the owner of the card or document and a viewer capable of enlarging the indicia on the negative sufficiently to produce a readable identification of the owner of the card or document.

3,571,958
BLANKS AND CONSTRUCTIONS MADE THEREWITH

Trevor Stevens, 142 Chesterfield Avenue, Thundersley, Benfleet, Essex; Harry Martyn Secunda, 3,Beechwood Close, Mill Hill, London, N.W. 7, and Jonathan David Fiszpan, 22 Rundell Crescent, Hendon, London, N.W. 4, England

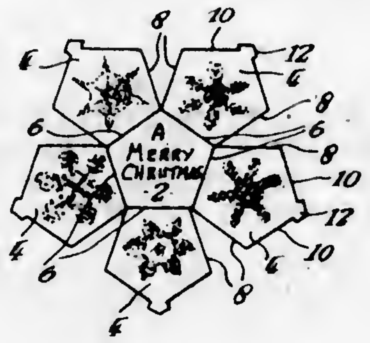
Filed Aug. 15, 1969, Ser. No. 850,429

Claims priority, application Great Britain, Jan. 3, 1969, 535/69

Int. Cl. G09f *1/00*

U.S. Cl. 40—124.1 **10 Claims**

A pop up display device is constructed from two blanks and a closed loop of resilient material. Each blank consists of a central polygonal panel to each edge of which is hingedly attached a pentagonal flap, which is further bounded by two inner sides flanking the side common to the flap and panel and two outer sides. At least one outer side of each flap may have a tab portion. The two blanks are placed with their panels in face to face contact and the closed loop is disposed about the periphery of the blanks so that it crosses each outer side and lies in contact with the exposed faces of the flaps. Under the influence of the closed loop of resilient material, the blanks are caused to adopt a polygonal configuration but can be flattened against the influence of the closed loop of resilient material for insertion into a flat container such as a mailing envelope or the like.



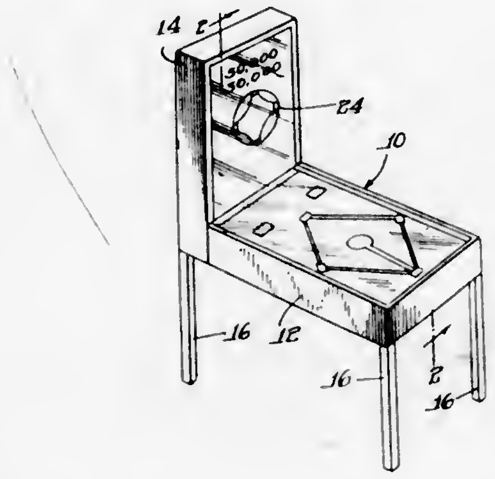
3,571,959
AMUSEMENT GAME DEVICE

Thomas C. Babcock, Deerfield, Ill., assignor to Pace Industries, Inc., Chicago, Ill.

Filed Nov. 12, 1968, Ser. No. 774,780

Int. Cl. G09f *7/00*

U.S. Cl. 40—135 **3 Claims**



A panel for use in an amusement game device includes a supporting member and a protective layer mounted on the supporting member with a layer of screenprint between the supporting member and the protective layer. The panel has portions which are translucent, and the translucent portions provide a continuous smooth surface.

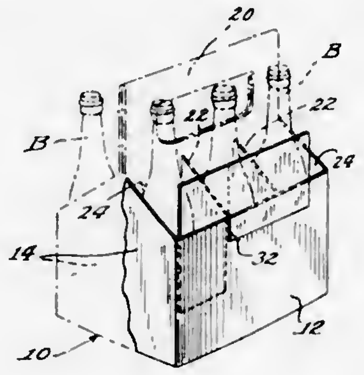
3,571,960
DISPLAY MEANS FOR USE WITH A CARRYING CARTON

Bernard Karel, 311 N. Desplaines St., Chicago, Ill.

Filed Mar. 4, 1968, Ser. No. 710,232

Int. Cl. G09f *3/00*

U.S. Cl. 40—312 **1 Claim**



An inverted L-shaped card carrying advertising display material which is adapted to be positioned in a carrying carton for bottles or the like, between the bottle and the sidewall of the carrying carton so that the display portion of the card is generally parallel to the sidewall of the carrying carton when same is shipped or transported, but wherein the display portion is positioned to extend outwardly and forwardly thereof when the carrying carton is displayed on the shelf in the store so that the display portion carrying the advertising material is readily seen and attracts the attention of the shopper when walking down the aisle of the store.

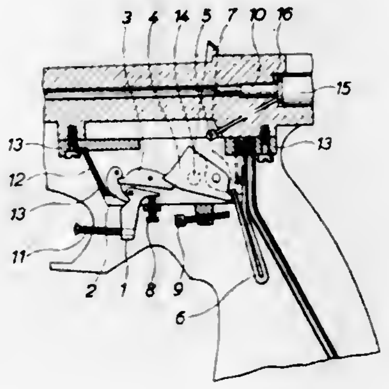
3,571,961
FIRING MECHANISM WITH A REARWARDLY ACTIVATED FIRING PIN

Joel Lehtinen, Karhula, Jumalniemi, Finland, assignor to Oy Sako AB, Riihimaki, Finland

Filed Oct. 7, 1968, Ser. No. 765,433

Int. Cl. F41c *3/00, 11/02, 19/00*

U.S. Cl. 42—69 **10 Claims**



A firing mechanism in small arms of the type, which use miniature rifle cartridges which present an annular detonating fuse located in the rim of the cartridge case, includes a trigger and a movement transmitting device which cause the firing pin to strike the rim of the cartridge to set off the detonating fuse. The striking pin is directed from the front, and moves backwards to the rim of the cartridge case.

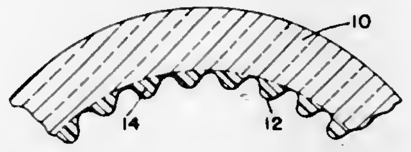
3,571,962
MONOLITHIC METALLIC LINER FOR FIBERGLASS GUN TUBES

Merrill Eig, Parsippany, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed June 10, 1969, Ser. No. 831,876

Int. Cl. F41c *21/02;* **F41d** *17/06, 17/08*

U.S. Cl. 42—76 **10 Claims**



A tubular device suitable for use as gun barrels and the like and being capable of withstanding sudden high pressures normally encountered in ordnance use, the device having a nonstructural metallic inner liner of noncircular configuration overwrapped by fiberglass windings acting in a structural capacity, and a resilient elastomeric material disposed between the liners at substantially uniform spaced intervals.

3,571,963
HOOK-SETTING ACCESSORY FOR FISHING POLE

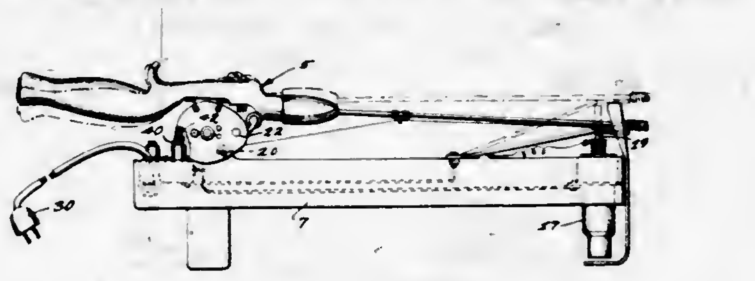
Martin V. Ledbetter, 1714 Quillian, Pueblo County, Colo.

Filed Dec. 20, 1968, Ser. No. 785,678

Int. Cl. A01k *97/00, 97/12, 97/00, 97/12*

U.S. Cl. 43—16 **2 Claims**

The present invention comprises a frame for holding a fishing rod and having a quick acting solenoid whose vertically moving armature strikes the rod to impart a sharp upward thrust to the end of the rod in response to a first downward pull on the rod tip for the purpose of setting the hook in a fish's mouth.



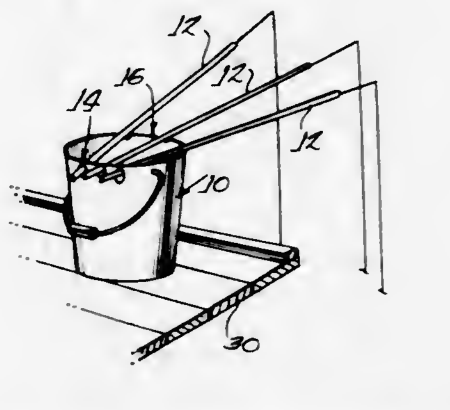
3,571,964
FISHING POLE AND BAIT HOLDER

Stephen Bogathy, 9759 S. Maryland Ave., Chicago, Ill.

Filed Aug. 25, 1969, Ser. No. 852,688

Int. Cl. A01k *97/10*

U.S. Cl. 43—21.2 **9 Claims**



A pail having a cluster of cups along one side of its rim and a cluster of sockets in the side of the pail opposite the cups, the cups and sockets being arranged to receive the handle and adjacent portions of several fishing poles and hold the poles in place for fishing while the pail contains bait or other fishing materials and provides a stool for the fisherman to sit upon.

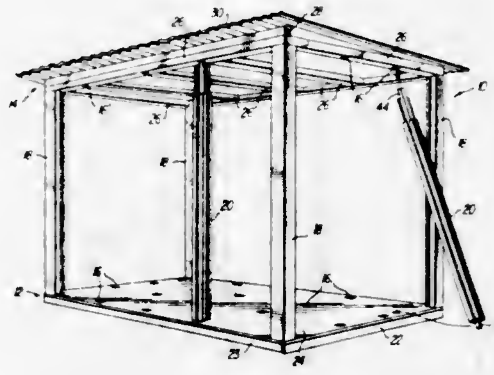
3,571,965
EDUCATIONAL CONSTRUCTION MEMBER AND UNIT

Bruce L. Gibb, Casilla 16074, Correo Il, Providencia, Santiago, Chile

Filed June 11, 1969, Ser. No. 832,220

Int. Cl. A63h *33/06*

U.S. Cl. 46—19 **5 Claims**

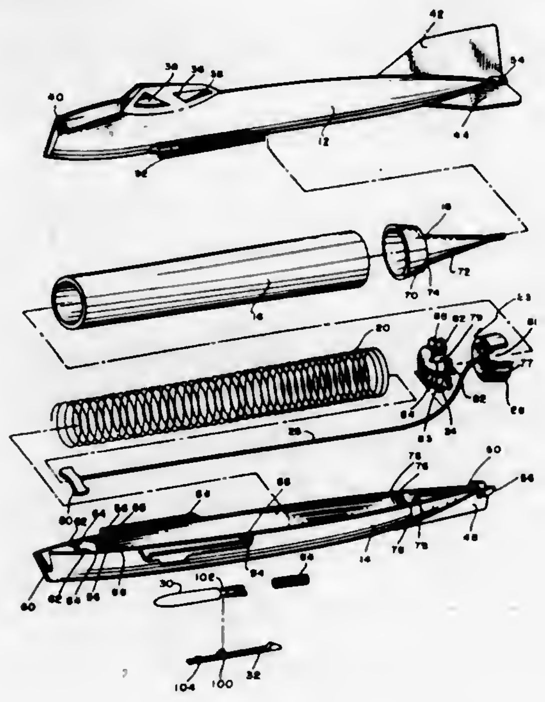


A toy construction unit including beams provided with panel receiving channels and dowel receiving openings. When these beams are employed as uprights in a structure such as a toy house, some panels may be inserted into the channels to provide walls, and others may cooperate with supporting dowels to provide window or other openings. Still other panels may provide supports for level boards used to horizontally divide space within the house.

3,571,966

TOY BOAT

James E. Phelps, Apt 101, 420 E. 13th, Wichita, Kans.
Filed Jan. 7, 1969, Ser. No. 789,552
Int. Cl. A63h *23/04*
U.S. Cl. 46—94 **15 Claims**

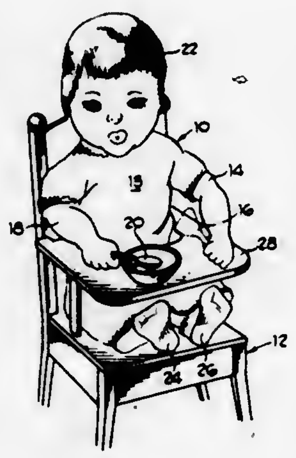


A toy submarine has an elongated hollow plastic body formed by two halves bonded together and contains a propulsion system including a cylindrical water tube, a piston biased toward a rear position by a compression coil spring disposed in the tube, and a cord extending forwardly in the tube from the piston and having a member external of the body for manual pulling the piston against the force of the piston spring thereby drawing in water behind the piston whereby upon release of the piston the body will be propelled by expulsion of water from the tube by the piston. The center of gravity is such that the body will nose over to dive when the piston is in forward position and will level off and will surface when the piston reaches rear position. The body also forms a pair of outrigger located torpedo tubes.

3,571,967

HIGH CHAIR DOLL

Marvin I. Glass, Chicago, and Leonid Kripak, Villa Park, Ill., assignors to Marvin Glass Associates, Chicago, Ill.
Filed May 7, 1969, Ser. No. 822,355
Int. Cl. A63h *13/00*
U.S. Cl. 46—116 **8 Claims**

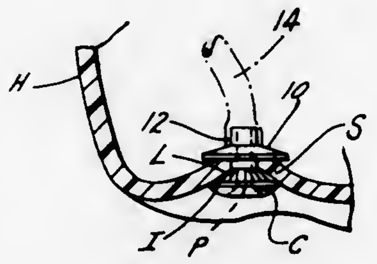


A doll having a number of movable body members and internal driven means operatively coupled thereto, and a high chair having a motor and associated driving means for cooperating with the doll driven means to effect animation of the various body members. The doll is seated in the high chair and by insertion of a key in any of several pairs of aligned openings in the back of the high chair and the doll various movements of the doll are provided.

3,571,968

TEARING DOLL EYE

Harvey W. Samo, Maplewood, N.J., assignor to Margon Corporation, Rahway, N.J.
Filed May 14, 1969, Ser. No. 824,409
Int. Cl. A63h *11/00*
U.S. Cl. 46—135 **10 Claims**

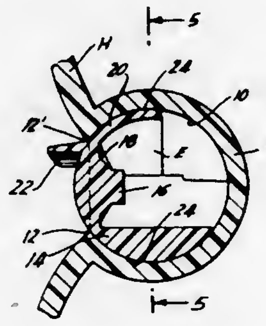


A tearing doll eye comprising a lens having pupil and iris portions made of a body of transparent material, the iris portion of the lens being provided at its rear face with means for producing iris lines and the lens being formed with a duct through the pupil portion thereof to provide a tearing outlet, the said duct being given a configuration such as to produce and maintain the intended simulative appearance of the pupil and the iris.

3,571,969

DOLL WITH MANUALLY MANIPULABLE UNIVERSALLY MOVABLE DOLL EYES

Harvey W. Samo, Maplewood, N.J., assignor to Margon Corporation, Rahway, N.J.
Filed May 19, 1969, Ser. No. 825,733
Int. Cl. A63h *3/40*
U.S. Cl. 46—168 **4 Claims**



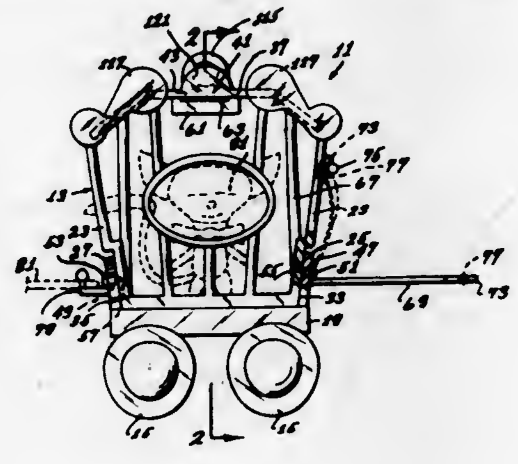
A doll head with doll eyes mounted for universal movement in the eye sockets of the doll head, the eyes being provided with means manually manipulable by child for moving the eyes into a variety of different positions in the sockets for imparting amusingly different facial expressions to the doll.

3,571,970

MINIATURE WHEELED TOY VEHICLE

Ralph Dunn, Manhattan Beach; Armando P. Villasana, and Robert E. Finney, Los Angeles, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 10, 1969, Ser. No. 790,209
Int. Cl. A63h *11/12*
U.S. Cl. 46—202 **3 Claims**

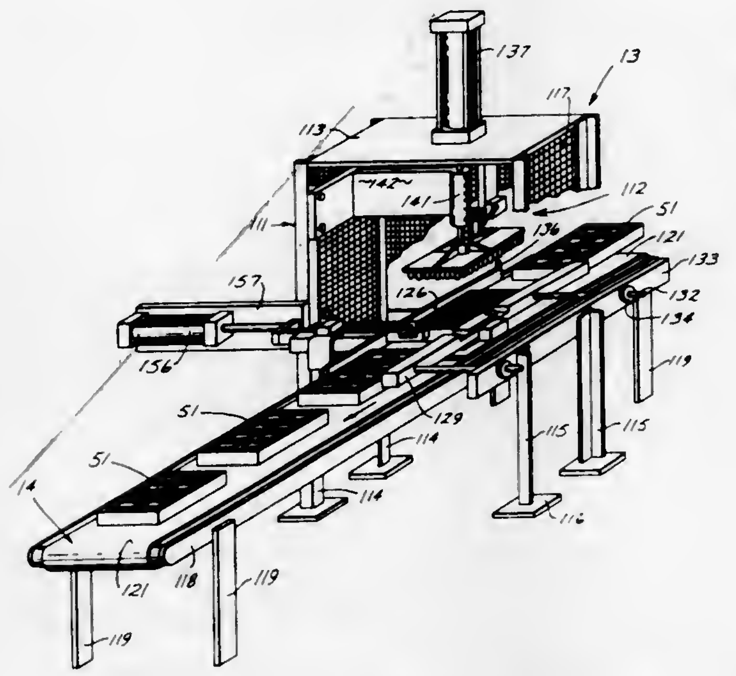
This is a miniature toy vehicle including an enclosure carried by rotatable wheels. The enclosure is adapted to be easily opened for access to a removable toy figure mounted therein and is fabricated in a single molding process. It generally comprises a lower frame portion to which opposite sidewalls and end plates are hingedly connected and a roof section extending inwardly from the top of one of these sidewalls. Also, a latching arrangement is included at the top of an opposite sidewall for releasably holding a portion of the roof section.



3,571,971

AUTOMATIC FLAT FILLER AND DIBBLER

Robert J. Broersma, Spring Lake, Mich., assignor to Hoyer Foundry and Machine Co., Kingston, Pa.
Filed May 23, 1968, Ser. No. 731,482
Int. Cl. A01g *9/08*
U.S. Cl. 47—1 **10 Claims**



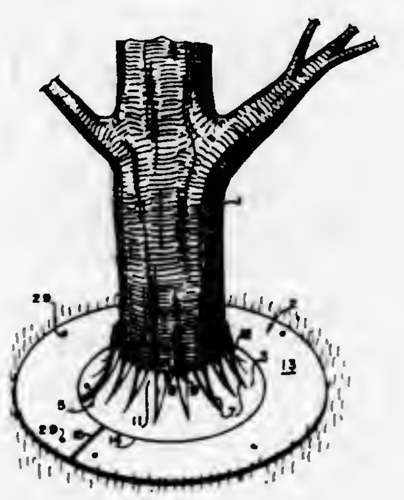
An automatic flat filler and dibbler apparatus wherein empty nursery flats are conveyed to a hopper device and filled with packing media, such as soil. The filled flats pass under a compacting roller for compressing the material within the flats and are then moved under a scraper for removing excess soil from the flats. The filled flats are then transported to a dibbler mechanism with the flats being momentarily stopped to permit a dibbler plate to be pressed into the soil to form a plurality of dibbles or openings therein. The flat is then removed from the dibbler apparatus and is in condition for receiving transplants.

3,571,972

PROTECTIVE GROUND COLLAR

William J. Carter, Jr, 4700 LaVista Road, Tucker, Ga.
Filed Feb. 28, 1969, Ser. No. 803,146
Int. Cl. A01g *17/00*
U.S. Cl. 47—25 **7 Claims**

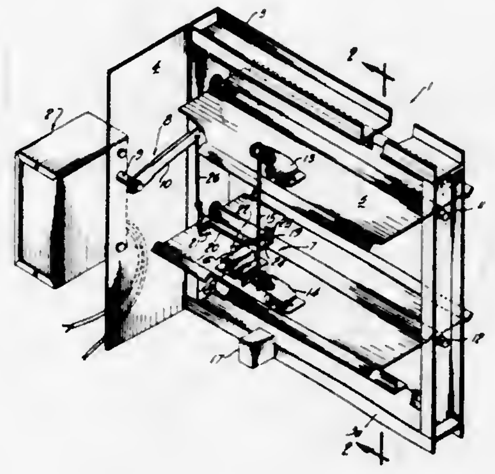
For enveloping upright elements such as trees, posts and the like at ground level to inhibit the growth of vegetation, a collar is formed of flexible water resistant sheet material and a main opening is formed therein from which a main slit extends to the outer edge of the sheet of material, the main slit being for the purpose of facilitating envelopment of a tree trunk and the like. A plurality of radial inner slits are formed in the sheet and extend outwardly from the central opening to define a plurality of flexible fingers which are disposed against the tree trunk or post to inhibit plant growth. Preferably the sheet is of laminated construction and the inner slits are formed in such manner that the fingers formed in the two laminated sheets are disposed in staggered relationship and the main slits in the two sheets are disposed out of coincidence with each other.



3,571,973

CLOSURE OPERATOR

Frank D. Roberts, North Reading, Mass., assignor to Rixson Inc., Franklin Park, Ill.
Filed May 5, 1969, Ser. No. 821,791
Int. Cl. E05f *15/20*
U.S. Cl. 49—2 **12 Claims**



A closure operator to effect remote, failsafe opening and closing of a closure, particularly a single-blade or multiblade-type damper.

A damper latch is attached directly to the damper to prevent momentary opening of the blades in response to transient pressures caused by wind, pressure blasts, or the like. Appropriate linkages connect the closure operator to the damper latch and to all blades to effect opening and closing as desired.

In particular, the closure operator features a pivoted operator lever coupled to the damper linkages. An electromagnet carrier, including an armature latch, is driven by a motor to engage a cooperating driving arms latch pivoted on the operator lever. Engagement of the latter two latches locks the operator lever to the driven electromagnet carrier so that the lever and carrier move in unison.

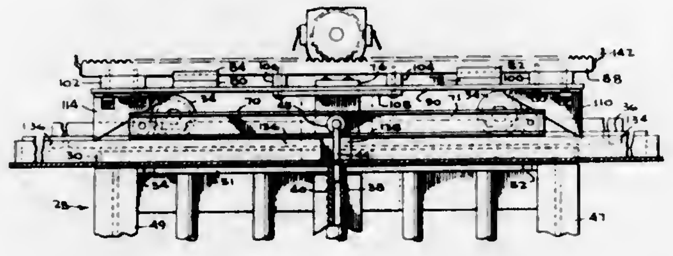
The carrier-controlled movement of the lever releases the damper latch and opens the damper blades. The lever and carrier are stopped in the damper open position, when a limit microswitch is actuated in response to full opening of the damper.

Upon the occurrence of (1) a manual switch operation to effect damper closure, (2) a power failure, (3) circuit malfunctioning, or (4) the detection of an undesired condition such as smoke or fire, the electromagnet is deenergized. This enables immediate disengagement of the two latches; and the electromagnet carrier thus releases the operator lever to immediately close and latch securely the damper blades.

3,571,974
CELL DOOR LOCKING AND DRIVING SYSTEM

James E. Browning, and David Hull Youngblood, San Antonio, Tex., assignors to Southern Steel Company, San Antonio, Tex.

Filed Aug. 29, 1969, Ser. No. 854,047
Int. Cl. E05b *53/00*
U.S. Cl. 49—18 **11 Claims**

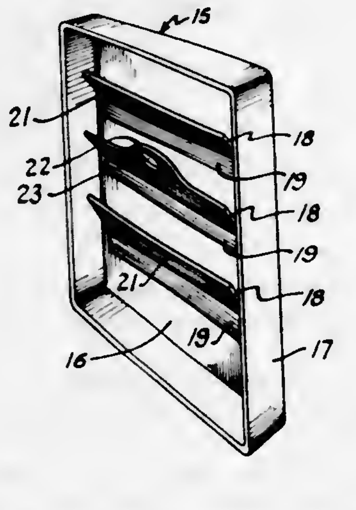


A housing enclosed cell door supporting carriage driven by an electric motor driven drive pinion engaging a rack on a reciprocable slide bar on the carriage with camming means on each end of the slide bar. The slide bar being movable through an overtravel increment at each end of travel of the carriage to bias a pivotable cell door lock bar operator carried by the carriage in a direction to move the lock bar into locking engagement with the door upon arrival of the door at either a fully open or fully closed position with the camming means also serving to move the lock bar to an unlocked position upon subsequent reapplication of driving force to the rack so that the door can again be moved.

3,571,975
WINDOW PROTECTOR

Stanley E. Misiaszek, 1951 S. W. 43rd. Ave., Fort Lauderdale, Fla.

Filed Apr. 22, 1969, Ser. No. 818,296
Int. Cl. E06b *9/00*
U.S. Cl. 49—51 **7 Claims**

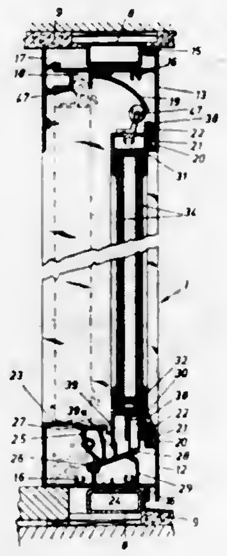


This invention is a window protector, made of fiberglass or any other desired material, and is especially adapted to be mounted on the outside and over a jalousie type of window. The protector embodies a panel the same shape and slightly larger than that of the window. The panel has a flanged periphery, thereby forming a shallow box in which is located a plurality of equally spaced and vertically disposed rectangular members or slats that have their lower edges suitably secured to the inside of the aforesaid panel. Each member has its upper edge set at a predetermined distance away from the panel, thereby permitting the edge to hook under one of the rectangular glass slats of the window when this invention is mounted on the outside of the window. The invention is held in place by the slats of the window pressing against the slats of the window protector.

3,571,976
DOOR AND WINDOW ARRANGEMENT

Kurt Schmid, Steyr, Austria, assignor to Alcan Aluminiumwerke GMBH, Gottingen-Wiende, Germany

Filed Dec. 5, 1969, Ser. No. 882,639
Claims priority, application Austria, Dec. 10, 1968, Mar. 17, 1969, A12001/68;A2568/69
Int. Cl. E05d *15/20*
U.S. Cl. 49—130 **13 Claims**

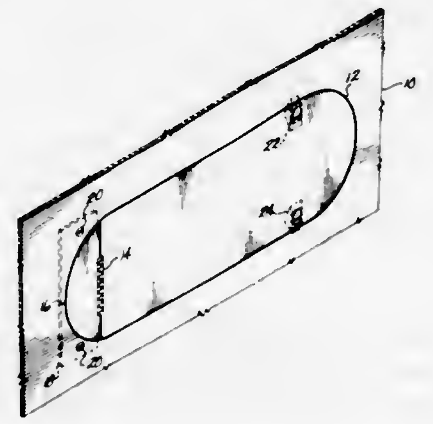


Two sliding doors or window sashes are supported on tracks of two rockers longitudinally juxtaposed on the bottom member of the door or window frame and each carrying two parallel tracks, the two pairs of tracks on respective rockers being aligned when both rockers are in an opening or in a closing position, and only one track of one rocker being aligned with one track of the other rocker when the rockers are in the opening and closing position respectively, whereby the doors or window sashes may both extend in the plane of the frame to obstruct the same or be practically coextensive in the direction of their sliding movement and offset transversely of this direction.

3,571,977
ACCESS AND PRESSURE RELEASE DOOR LATCH MECHANISM

Peter C. Abeel, Kent, King, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed June 27, 1969, Ser. No. 838,056
Int. Cl. E05b *65/06, 65/10*
U.S. Cl. 49—379 **6 Claims**

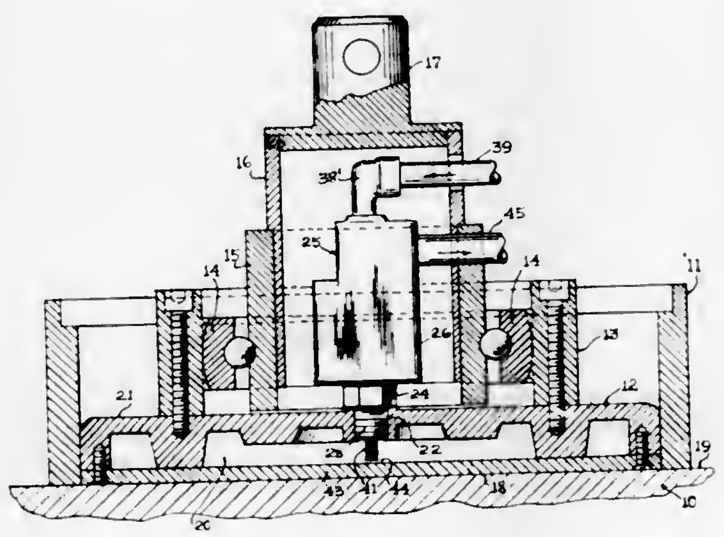


A force actuated latch mechanism for use in combination with an access and pressure relief door for a pressurized chamber. The preferred embodiment relates to a combined pressure relief and access door for an aircraft nacelle structure wherein the door is pivotally mounted near its forward or upstream edge and is provided with a spring-biased overcenter latch mechanism near its aft or downstream edge. Quick release from the outside of the chamber is achieved by insertion of a simple implement such as a screwdriver and application of hand pressure.

3,571,978
LAPPING MACHINE HAVING PRESSURE PLATES, THE TEMPERATURE OF WHICH IS CONTROLLED BY A COOLANT

Lawrence Day; Joseph Dobrick, Chicago, and Arthur Kay, Evanston, Ill., assignors to Spitfire Tool & Machine Co., Inc., Chicago, Ill.

Filed Sept. 11, 1967, Ser. No. 666,716
Int. Cl. B24b *5/00, 29/00, 41/06*
U.S. Cl. 51—129 **5 Claims**

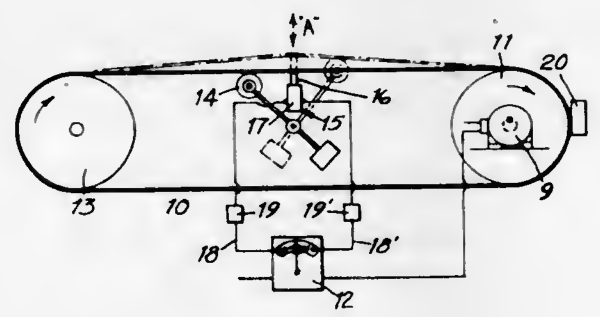


A lapping machine having one or more hollow pressure plates through which a coolant, such as water, is continuously circulated, during the lapping of work, to maintain a constant temperature of the lapping surfaces of the machine to avoid heating of the work or the means, such as wax or the like, which may be employed for holding the work in position beneath the pressure plate.

3,571,979
ABRASIVE BELT DEVICE

Randall S. Manchester, Troy, N.Y., assignor to Norton Company, Troy, N.Y.

Filed Nov. 29, 1968, Ser. No. 779,703
Int. Cl. B24b *21/00*
U.S. Cl. 51—135 **5 Claims**

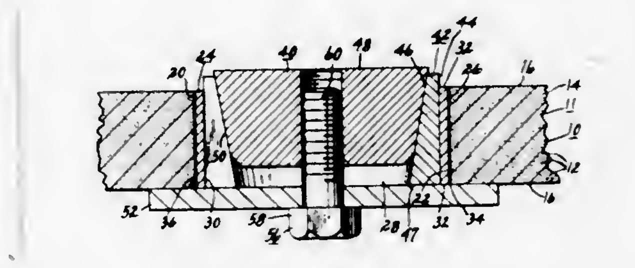


A method and means for incorporation into abrasive belt grinding equipment to extend the life of abrasive belts by regulating the belt breakdown rate for optimum operating life and by aiding in the removal of grinding swarf or other dulling and filling components from the abrasive surface while the abrasive belt performs its production operation.

3,571,980
ABRASIVE STRUCTURES HAVING A COMPRESSION-PRODUCING REINFORCING RING

Robert C. Fisher, Milford, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed June 3, 1969, Ser. No. 829,950
Int. Cl. B24b *5/00*
U.S. Cl. 51—206 **13 Claims**

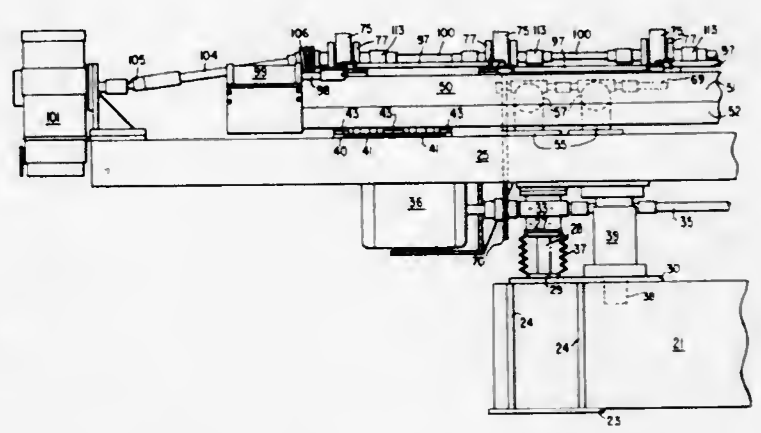


As an article and a method for making a reinforced grinding wheel wherein either (a) an in-tension ring is inserted into the grinding wheel central aperture or (b) an untensioned ring is inserted into the grinding wheel central aperture, and tensioned or (c) an annular disc formed of abrasive grains and a binder is molded around the periphery of an in-tension ring, with maintenance of the ring in its in-tension state until at least full attachment thereof to the peripheral surface of the grinding wheel central aperture. Reducing the tension induces a compressive stress on the peripheral surface of the grinding wheel central aperture which offsets a certain amount of the tensile stresses of rotation, thus allowing operation at higher speed and in greater safety.

3,571,981
BAR FEEDING APPARATUS FOR CENTERLESS GRINDING MACHINES

Robert L. Schaller, Camillus, and James M. Magistro, Clay, N.Y., assignors to Sundstrand-Engelberg Inc., Syracuse, N.Y.

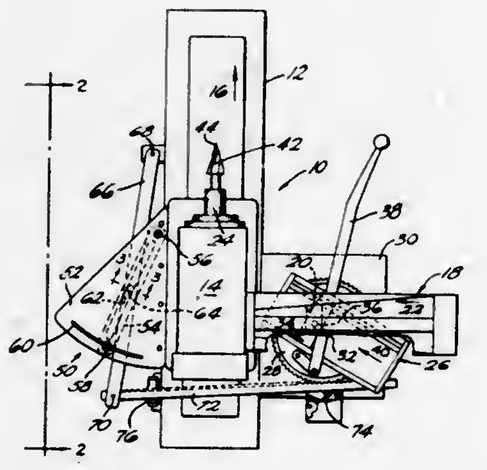
Filed Apr. 17, 1969, Ser. No. 817,094
Int. Cl. B24b *47/02*
U.S. Cl. 51—215 **7 Claims**



The bar supporting rolls are journalled in yoke members mounted on carrier beams extending on opposite sides of a main supporting beam. The rolls carried by each carrier beam engage the under peripheral surface of the bars at points spaced 45° circumferentially from the vertical plane passing through the axis of the bar. Screwjacks are provided to move the main beam vertically. Additional screwjacks are provided for moving the carrier beams transversely of the main beam. The movements of the main beam and the carrier beams are linear. A motor serves as a common power source to operate all of the screwjacks in unison, imparting transverse movement of each carrier beam equal to the vertical movement of the main beam, whereby the 90° contact spacing of the rolls with the bars is maintained for bars of all diameters. Means is provided for adjusting each yoke member relative to the carrier beam toward and from the axis of the bars to compensate for war on the rolls.

3,571,982
WORK MOVING APPARATUS

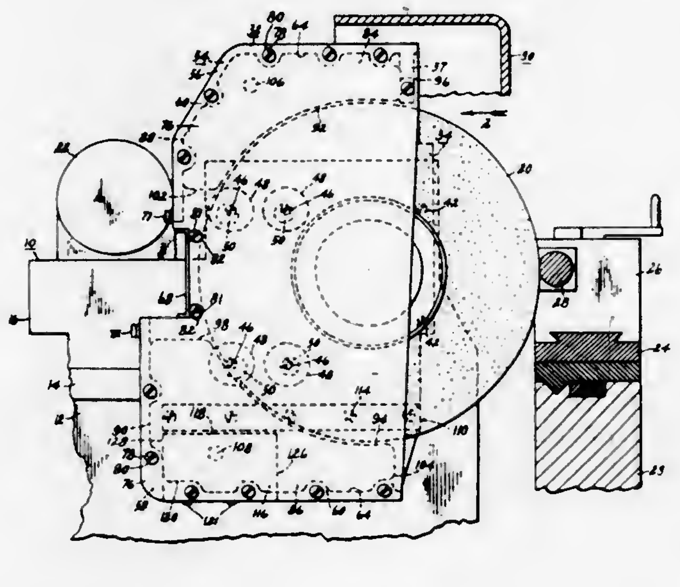
Joseph J. Ramge, 1495 Fairholme Road, Grosse Pointe Woods, Mich.
Filed June 16, 1969, Ser. No. 833,348
Int. Cl. B24b *3/06*
U.S. Cl. 51—219 **5 Claims**



Apparatus for supporting a tool which must be accurately moved along a predetermined path relative to a cutter, grinding wheel, polishing wheel or the like for forming, grinding, polishing, and/or refluting of the tool wherein improved mechanism is provided for enabling variable proportioning of tool rotation and translation. A simple rack and pinion mechanism is incorporated in the work moving apparatus so that a desired change can be made in the amount of rotation of the tool achieved for each unit of translatory movement of the tool.

3,571,983
GUARD SYSTEM

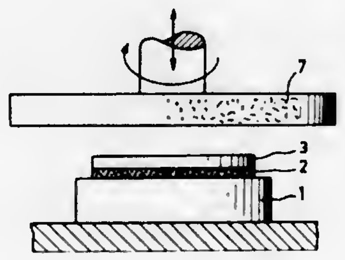
Irving J. Stewart, Cincinnati, and Lloyd W. Helson, Milford, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed May 6, 1969, Ser. No. 822,120
Int. Cl. B24b *55/04*
U.S. Cl. 51—269 **12 Claims**



Rigid closed cell energy dissipaters for use in high-speed cutting tools interposed between the cutting tool and the inner surface of the cutting tool guard and/or the machine base and the cutting tool guard, for substantially dissipating the energy of impact of broken tool fragments. In addition, the cutting tool guard is capable of limited rotational movement and may be shear-mounted.

3,571,984
METHOD OF GRINDING THIN PLATES

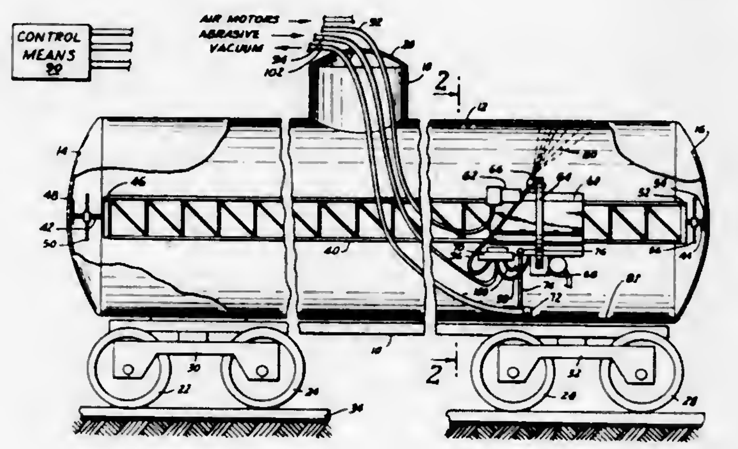
Jacob Koorneef, and Jules Bos, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 13, 1968, Ser. No. 783,619
Int. Cl. B24b *1/00*
U.S. Cl. 51—281 **5 Claims**



A method of grinding thin plates of brittle material for use such as a diaphragm in a hearing aid to an accurately defined thickness and with precise tolerances by coating one side of the plate with an adhesive material or cement and supporting the plate on a support member and placing between the plate and the support a brass wire mesh so that the adhesive will be pressed into the mesh and will absorb any foreign matter in the cement so as not to effect the defined thickness of the plate.

3,571,985
CYLINDER TREATING METHOD

Clarence E. Hulbert, Jr., Houston, Tex., assignor to Capvac Industries, Inc., Freeport, Tex.
Original application Oct. 20, 1965, Ser. No. 498,962, now Patent No. 3,477,178, dated Nov. 11, 1969. Divided and this application Oct. 9, 1968, Ser. No. 797,293
Int. Cl. B24c *1/00*
U.S. Cl. 51—319 **1 Claim**

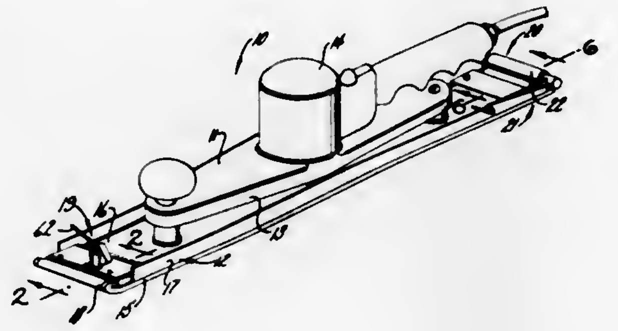


A method of cleaning the interior of a hollow cylindrical member in which support means are positioned within the cylindrical member, nozzles means are supported on the support means, an abrasive mixture is supplied through the nozzle means, and the nozzle means are rotated and moved longitudinally through the cylindrical member.

3,571,986
SHOE FOR RUBBING MACHINE

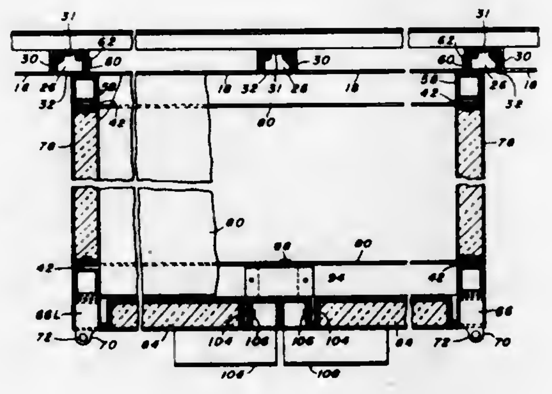
Roy J. Champayne, c/o National-Detroit, Inc., 2810 Auburn St., Rockford, Ill.
Filed May 29, 1969, Ser. No. 829,008
Int. Cl. B24b *21/04*
U.S. Cl. 51—368 **9 Claims**

An elongated rubbing shoe mounted for gyratory motion on a rubbing machine. To form the shoe, an elongated support is covered on its bottom and the top of one end portion with a layer of resiliently compressible material. A rubbing sheet underlies the layer, and one end of the sheet is anchored to the support by a clamp mounted on the top of one end portion of the support. A roller mounted on the top of the other end portion of the support is operable to pull the sheet tightly around the resilient layer and hold the sheet tensioned between the clamp and the roller. One end portion of the support is bent upwardly, and the layer of resilient material is curved upwardly around that end portion and along the top of that portion. When the sheet is tensioned by the roller, the resilient material curving around the end portion of the support is radially compressed. As the sheet stretches in use, the resilient material expands to maintain the sheet tensioned between the clamp and the roller.



3,571,987
WALL PANELING AND MODULAR FURNITURE SYSTEM

Howard A. Anderson, Franklin Township, Allegheny County, Pa., assignor to United States Steel Corporation
Filed Apr. 16, 1969, Ser. No. 816,681
Int. Cl. F04f *19/04*
U.S. Cl. 52—27 **6 Claims**

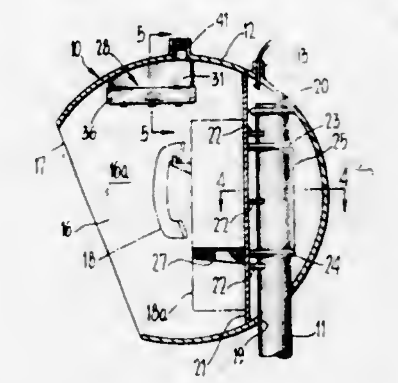


A system of wall paneling and room furniture including a plurality of panels of uniform width and thickness installed vertically upon an existing wall structure, hardware adapted to be received within a system of concealed holes in the paneling for supporting the furniture, and a modular furniture system constructed of basic furniture panels assembled through the use of special hardware to form tables, cabinets, shelving, desks and the like.

3,571,988
TELEPHONE BOOTH OR THE LIKE

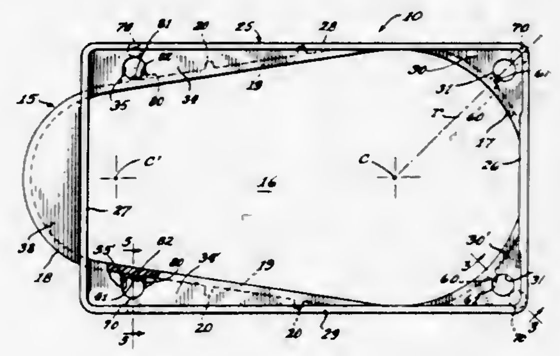
Rollie B. Nawman, 3421 Hollis St., Oakland, Calif.
Filed Mar. 14, 1969, Ser. No. 807,275
Int. Cl. E04h *1/14*
U.S. Cl. 52—27 **16 Claims**

A booth or enclosure for housing a public telephone. The booth includes an upwardly extending support post secured to a floor or platform, and a hollow casing carried by the post and defining a chamber within which the telephone is supported upon a mounting plate secured to the post by fastener structure. The casing is curvilinear in substantially all directions and hangs from the post adjacent the upper end thereof. Access is afforded to the chamber and telephone therewithin through a large opening along one side of the casing, and all of the mounting structure by means of which the casing is secured to the support post is located within the casing and is concealed behind the mounting plate which is in substantially contiguous relation along each of its peripheral edges with the facing surfaces of the casing.



3,571,989
PLASTIC CEMENT CASE

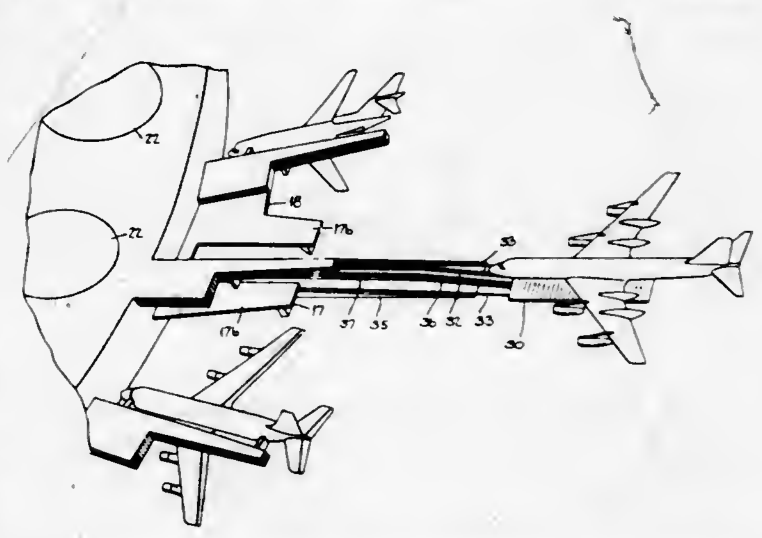
Joseph J. Gaysowski, Westchester, Ill., assignor to Rixson Inc., Franklin Park, Ill.
Filed Feb. 24, 1967, Ser. No. 618,447
Int. Cl. E05f *7/00;* **E04b** *1/41*
U.S. Cl. 52—27 **13 Claims**



An improved cement case for effecting the floor mounting of a door control unit, such as a door closer or door check, for controlling a swinging door. The case is made of impact resistant plastic material and supports metal anchors which, with the case, are embedded in cement. The door control unit which is disposed in the case is directly connectable with the metal anchors.

3,571,990
AIR TERMINAL AND RELATED APPARATUS

Wendell E. Rossman, 3137 N. 53th St., Phoenix, Ariz.
Filed Oct. 18, 1968, Ser. No. 768,802
Int. Cl. E04h *6/06;* **B66b** *9/06;* **B60s** *13/00*
U.S. Cl. 52—30 **12 Claims**



Apparatus and structures for facilitating the loading and unloading of parked aircraft at an airport are disclosed. The structures include a radial shaped air terminal building having upper and lower above ground concourse levels, and an intermediate main passenger receiving and check-in level and a plurality of subterranean levels. Each of the concourse levels includes passenger concourses with appropriate passageway gates interconnecting the passenger concourses with the exterior of the building. The lower level of the two concourse levels has gangways projecting from its passageway gates at an elevated height corresponding to the height of passenger doors of ground level parked aircraft that may be parked adjacent the gangways to facilitate loading the aircraft from the lower concourse level and unloading it thereto. Apparatus is provided to park aircraft at an elevated height adjacent the upper concourse level of the two concourse levels and gangways extend from the passageway gates of the upper concourse level to the passenger doors of the adjacent elevated parked aircraft to facilitate loading from the upper concourse level and unloading of the aircraft thereto. The apparatus includes a lift sled which can lift a parked aircraft to an elevated position adjacent the terminal building' s upper concourse level in two stages, insuring that the aircraft will not interfere with ground level parked aircraft adjacent the terminal building. The air terminal building's subterranean levels may be used for parking areas and mass transportation depots and are connected to the concourse levels and the main passenger receiving and check-in level by appropriate elevating means.

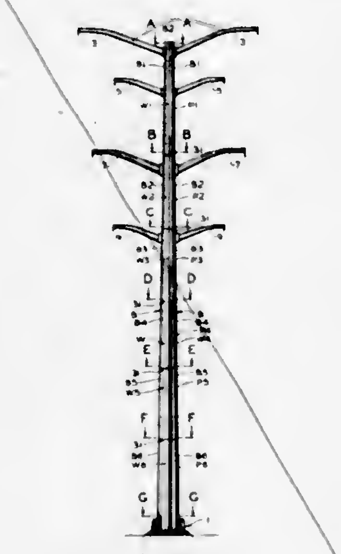
3,571,991
METAL POLE

Edward S. Doocy, Jackson, Mich., and Gerald E. Hertig, Birmingham, Ala., assignors to Anderson Electric Corporation, Leeds, Ala.

Filed Feb. 6, 1969, Ser. No. 796,976

Int. Cl. E04h *12/08*

U.S. Cl. 52—40 **38 Claims**



A tubular steel power transmission line pole having a high bending strength/cost ratio and aesthetic appearance, comprising a pair of side bars and web members having side flanges lapping the side margins of the side bars on the inside of the latter, with the side bars and web members secured together by welds along the side edges of the side bars. The pole has a special base mounting structure for receiving bolts extending upward from a concrete footing, adapted to provide for secure attachment of the pole to the footing without requiring an excessive amount of steel in the structure. It also has internal bracing at points where line-supporting arms extend outward, the arms being secured to extensions of this bracing.

3,571,992
FASCIA SYSTEM FOR A FLAT ROOF

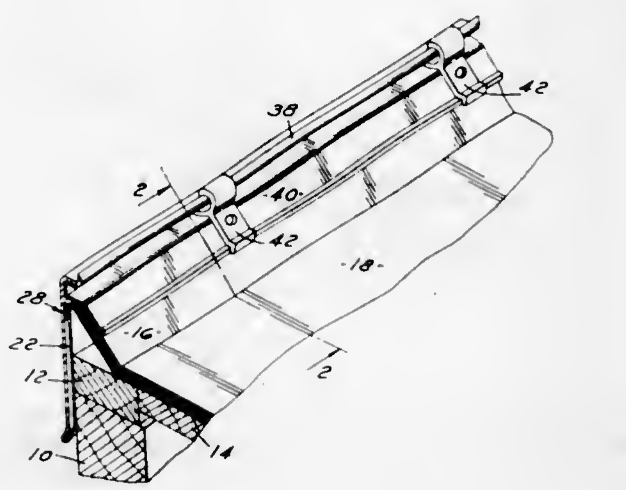
Joseph C. Comiskey, St. Clair Shores, Mich., assignor to Bernice C. Comiskey, St. Clair Shores, Mich.

Filed Apr. 16, 1969, Ser. No. 816,664

Int. Cl. E04d *1/36, 3/38, 13/15*

U.S. Cl. 52—60 **11 Claims**

A marginal edge construction for a generally flat roof deck including an upright fascia strip extending longitudinally along the edge of the roof in overlying relation with the waterdam or cant, a liner flashing strip fitting against the fascia strip and overlying the marginal edge portion of the layers of roofing material, and a plurality of anchor members disposed in spaced-apart relation along the length of the fascia strip and liner strip lockingly engaged with the upper end of the fascia strip, with the securing means in the form of screws or the like for securing the anchor members to the roof deck and maintaining the entire fascia system assembly in proper position.



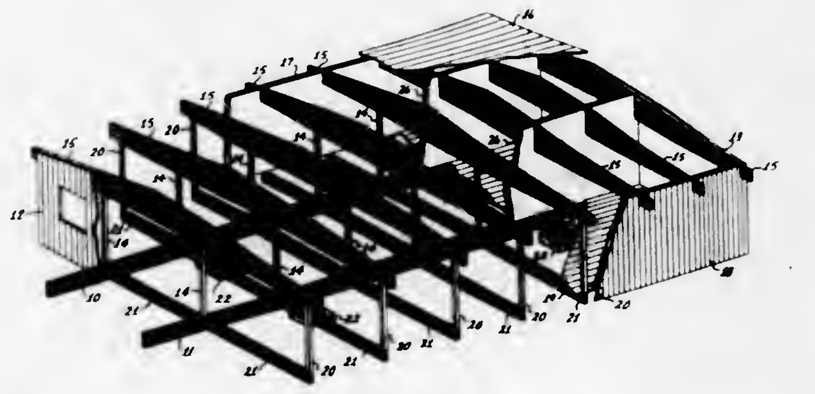
3,571,993
TRANSPORTABLE PREFABRICATED BUILDING STRUCTURE WITH CANTILEVERED ROOF TRUSSES

James M. Potter, 1000 E. Butler Ave., Flagstaff, Ariz.

Filed Feb. 14, 1969, Ser. No. 799,361

Int. Cl. E04h *1/12*; **E04b** *1/34*

U.S. Cl. 52—73 **4 Claims**



A system of mass producing low cost buildings in a central production plant by conveying the buildings through the production assembly stages, transporting the buildings to the permanent location and placing the building on permanent support piers.

3,571,994
GLAZING GASKET

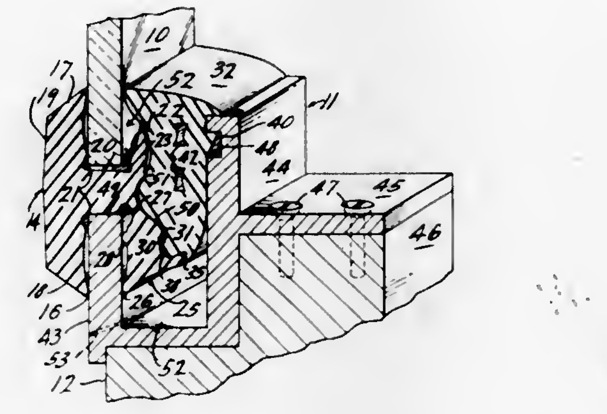
Howard R. Brown, Bowling Green, Ohio, and Michael C. Rizza, Walnut Creek, Calif., assignors to The D.S. Brown Company, North Baltimore, Ohio

Filed Mar. 12, 1969, Ser. No. 806,561

Int. Cl. E06b *7/14, 3/62*

U.S. Cl. 52—209 **9 Claims**

A resilient glazing gasket for positioning and sealing window panes within a rigid channel frame. The gasket, in cross section, has an outer strip and a normally extending intermediate web to be positioned between the pane and one edge of channel leg. A deformable locking flange extending from the intermediate web is adapted to be slipped past the edge of the channel leg and then pushed into the channel by a wedge which is forced into locking position between one side of the glass pane and the other channel leg. The wedge and locking flange include complementarily shaped configurations which engage with each other to hold the wedge and locking flange in position within the channel.



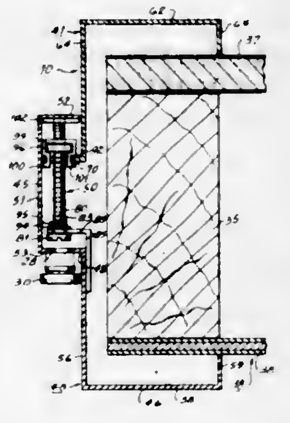
3,571,995
ADJUSTABLE DOORFRAME

David P. Kasprzak, Largo, Fla., assignor to The Celotex Corporation, Tampa, Fla.

Filed Aug. 19, 1968, Ser. No. 753,455

Int. Cl. E06b *1/22*

U.S. Cl. 52—212 **4 Claims**



An adjustable doorframe with concealed adjusting and securing means can be used to finish walls of different thicknesses. The doorframe comprises two elongated portions which are arranged to be transversely telescoping with respect to one another and adjustable by means of a bolt and bolt locking means which prevent separation of the two elongated portions after factory assembly. Two vertical doorframes and a horizontal header connected along beveled ends complete the full doorframe assembly in actual installations.

3,571,996
DOORFRAME

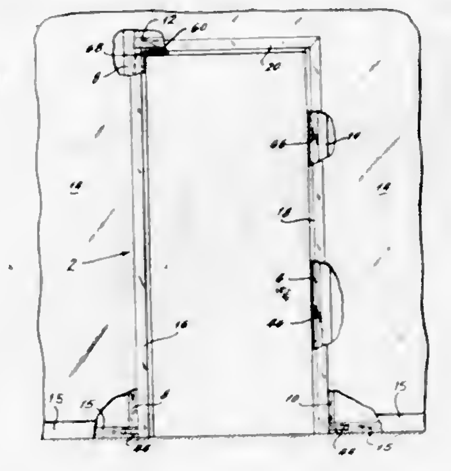
Claude Richard Braswell, Ballwin, Mo., assignor to Mesker Brothers Industries, Inc., St. Louis, Mo.

Filed Apr. 7, 1969, Ser. No. 814,073

Int. Cl. E06b *1/12, 1/60*

U.S. Cl. 52—217 **10 Claims**

A doorframe for installation in a rough door opening and including channellike jambs and a header, the former being connected to the latter at their upper ends. A positioning assembly is mounted in the channellike portion of the header and includes a slide element which can be extended outwardly over one of the jambs and into engagement with the stud covered by that jamb. The laterally directed force applied by the slide element is transferred through the header to the opposite jamb and the stud covered by it, thereby securing the doorframe firmly in place.



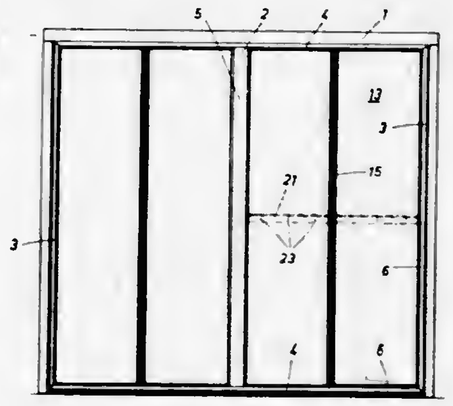
3,571,997
WING FOR AT LEAST PARTLY CLOSING A WALL OPENING

Ludwig Lindpointner, Hart 69, Leonding, Austria

Filed Mar. 12, 1969, Ser. No. 806,666

Int. Cl. E04c *7/34, 2/38*; **E06b** *3/24*

U.S. Cl. 52—309 **10 Claims**



A metal frame is composed of frame members consisting of extruded sections and connected by plug connections. The frame members have inner side portions which define a frame opening. Each of said side portions carries at least two edge lips projecting into said frame opening. The wing also comprises paneling which covers said frame opening and is held in position between and by said edge lips.

3,571,998
MOBILE HOME SKIRTING

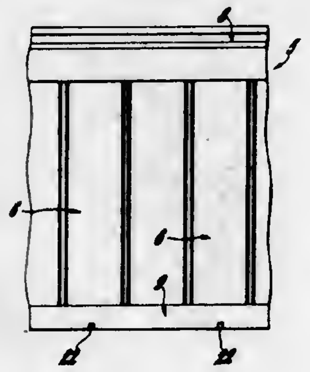
Marco J. Iacona, 42260 Utica Road, Utica, Mich.

Filed Nov. 12, 1968, Ser. No. 774,845

Int. Cl. E04d *2/38*

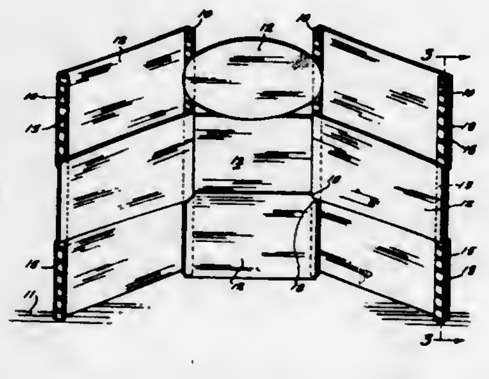
U.S. Cl. 52—478 **3 Claims**

Mobile home skirting is disclosed comprising a top track, a bottom track and a plurality of panels in said tracks, each track having a front wall and a backwall, each panel having a major portion forming a front wall thereof and a minor portion forming a backwall thereof, said panels arranged in edge-overlapping and independently vertically slidable relationship to each other when disposed in said tracks with the front and back walls of the panels in contact, respectively, with the front and back walls of said tracks, the front wall of each panel and the front wall of each track both being formed with mutually engageable locking means for retaining said panels in said tracks, the backwall of each panel and the backwall of each track both being formed for free engagement relative to each other, said panels being vertically slidable in said tracks when the bottom track moves vertically in respect to the top track on account of weather changes, each panel being vertically slidable independently of the other panels when said panels are disposed in said tracks for installation or disassembly of said panels in respect to said tracks, the front wall of each panel capable of being flexed in respect to the front wall of each track so as to release said locking means to permit removal of said panel from the front side of said mobile home skirting.



3,571,999
KNOCKDOWN DISPLAY

John G. Downing, c/o Downing Displays 300 Gennessee St.,
Cincinnati, Ohio
Filed July 2, 1969, Ser. No. 838,437
Int. Cl. E04b *2/56;* **G09f** *7/02*
U.S. Cl. 52—483 **5 Claims**

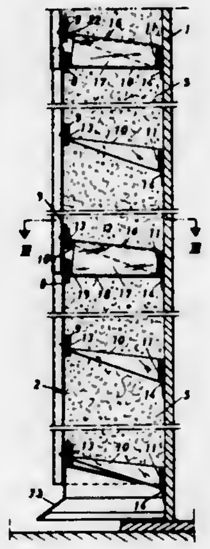


A display having a set of sectionalized supporting standards and a set of supported panels adapted to be connected together to form the display by a two-part pressure engaged separable fastener means, the pieces in each set having bonded thereto one of the separable fastener parts.

3,572,000
MOUNTING OF EXTERIOR SURFACE CLADDING FOR TANKS OR SIMILAR STRUCTURES

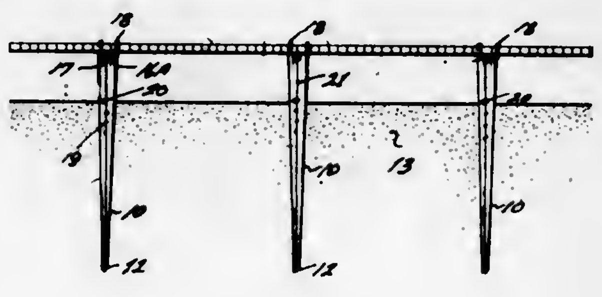
Karl-Axel Albert Gustavsson, Goteborge, Sweden, assignor to
Entreprenadisolering AB,, Goteborg, Sweden
Filed June 25, 1969, Ser. No. 836,459
Claims priority, application Sweden, July 4, 1968, 9204/68
Int. Cl. E04b *2/40, 1/68*
U.S. Cl. 52—486 **7 Claims**

A bracket for supporting surface coatings on tanks and similar buildings, this bracket extending perpendicularly out from the wall of the building and carrying at its outer end an essentially horizontal rail. This rail extends in front of and at a distance from the wall of the building to which there are attached a protection surface forming said surface coating. The invention resides in the arrangement of carrying arm arranged on said bracket and being vertically displaceable in relation to the same. The carrying arm is further, at its outer end, provided with at least one hook, this hook carrying a second horizontal rail, a lower row of protection sheets adapted to be arranged at said second horizontal rail.



3,572,001
SUPPORT FOR CONCRETE REINFORCING STEEL

Oldrich Munchinsky, General Delivery, Outlook,
Saskatchewan, Calif.
Filed Apr. 6, 1969, Ser. No. 804,861
Claims priority, application Great Britain, July 12, 1968, 33253/68
Int. Cl. E04c *5/16, 5/18*
U.S. Cl. 52—678 **1 Claim**

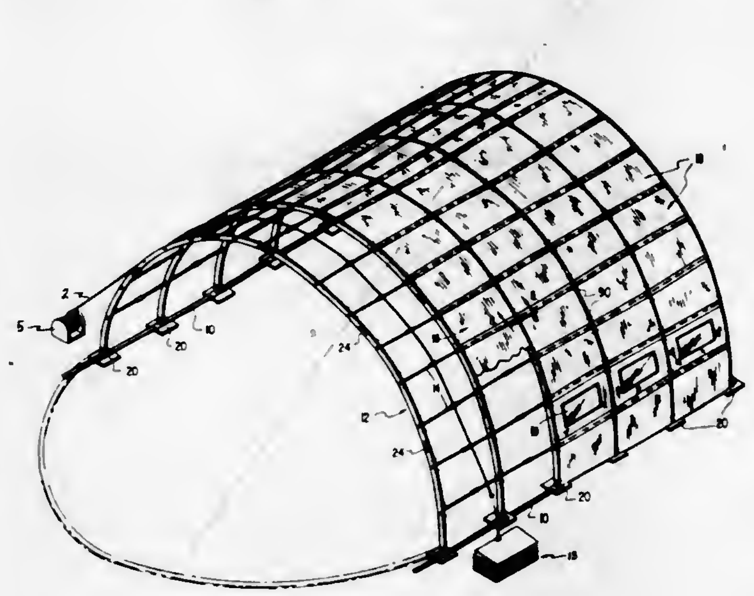


An elongated support for concrete reinforcing steel which can be driven into the sub-base and which is provided with a slot in the upper end to receive the steel and support same. The upper end portions bounding the slot are then bent over to secure the steel in place.

3,572,002
METHOD OF ERECTING PREFABRICATED BUILDING

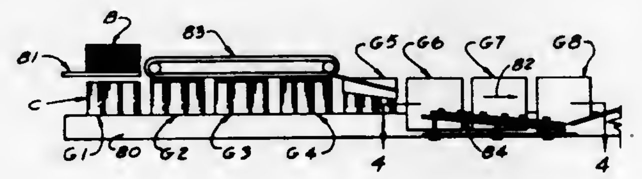
Walter B. Nichols, 77 Lounsbury Road, Trumbull, Conn.
Continuation-in-part of application Ser. No. 631,799, Apr. 18, 1967, now abandoned. This application Aug. 4, 1969, Ser. No. 847,010
Int. Cl. E04b *1/35;* **E04g** *21/14*
U.S. Cl. 52—741 **13 Claims**

A method of erecting a prefabricated portable building comprising the step of placing elongated base sills or the ground site in laterally spaced and parallel relationship, hinging a plurality of superstructure ribs to the sills at intervals spaced along the sills, attaching purlins between adjacent ribs using fasteners prefabricated thereon, and securing a plurality of foldable panel units to the ribs in overlying relationship with the purlins using releasable wedge assemblies prefabricated on the ribs.



3,572,003
PACKAGING MACHINE AND METHOD

John H. Perry, Doraville, and Harry A. Fawcett, Stone Mountain, Ga., assignors to The Mead Corporation
Filed Sept. 13, 1968, Ser. No. 759,719
Int. Cl. B65b *11/08*
U.S. Cl. 53—3 **8 Claims**

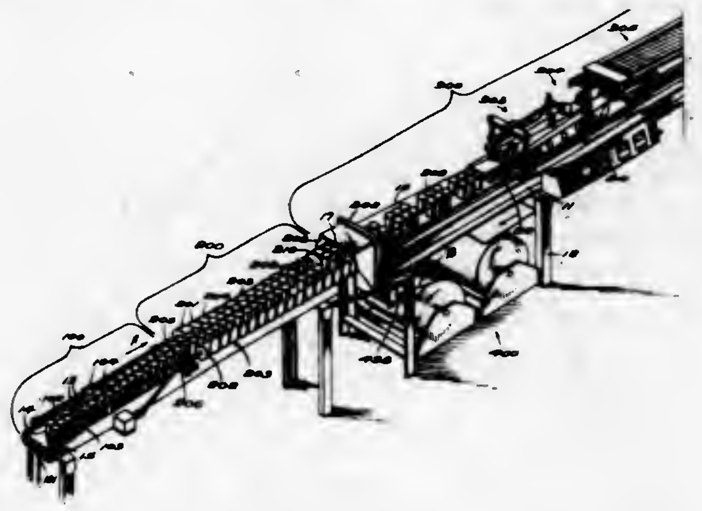


A packaging machine for securing a wrapper-type blank about a group of articles is provided with a continuously movable tucking stud mounted on an endless conveyor element whose working reach is disposed alongside the path of movement of a group of articles and an associated blank, said stud being engageable with a pair of article retaining and blank reinforcing flaps so as to fold such flaps inwardly of the blank to positions of enveloping relationship relative to an article. Guides are arranged so as to complete the folding of the blank in such manner as to force the flaps into secure article gripping relationship relative to the article and thereafter the ends of the blank are folded underneath the group of articles and secured together.

3,572,004
PACKAGING APPARATUS

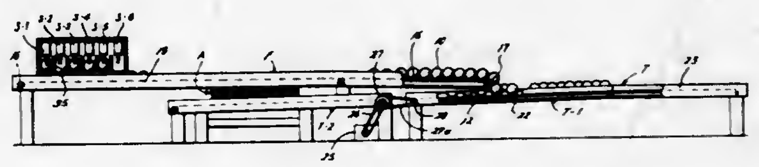
Keith Stewart Carmichael, Wilmington, Del., assignor to E.I. du Pont de Nemours and Company, Wilmington, Del.
Filed July 15, 1968, Ser. No. 744,848
Int. Cl. B65b *53/02*
U.S. Cl. 53—48 **4 Claims**

An apparatus for packaging articles such as cans in an overwrap of thermoplastic polymeric material is provided wherein said apparatus comprises means for grouping a plurality of articles to be packaged, means for enwrapping said articles with said film, means for heat sealing overlapped edge portions of said film and enclosing said articles therewithin, means for separating said film-enwrapped grouped articles, and means for shrinking said heat-sealed film to provide a package of grouped articles characterized by a substantially wrinkle-free film extending over the top, bottom, sides and portions of the ends of said grouped articles.



3,572,005
AUTOMATIC PACKAGING APPARATUS

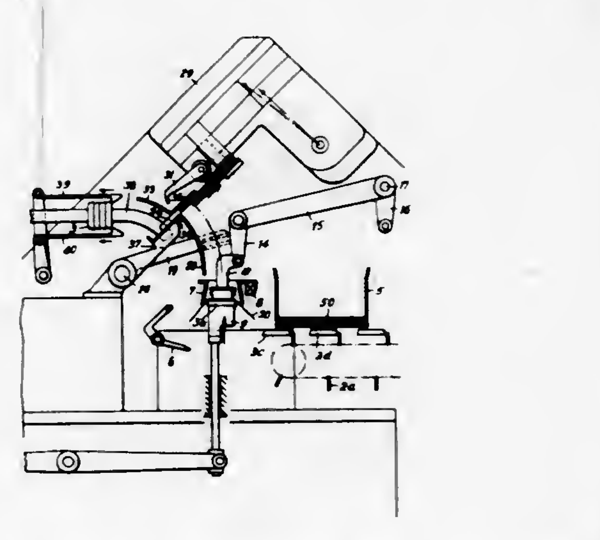
Lloyd E. Allen, Harlingen, Tex., and Lawrence W. McCracken, Morristown, N.J., assignors to Tri-Pak Machinery Services Inc. and Keyes Fibre Company, a fractional part interest to each
Filed June 11, 1969, Ser. No. 832,388
Int. Cl. B65b *35/44*
U.S. Cl. 53—160 **9 Claims**



An automatic packaging apparatus for rapidly, accurately and gently packing randomly oriented objects, such as fresh fruits and vegetables, into compartmented trays.

3,572,006
DEVICE FOR WRAPPING ARTICLES

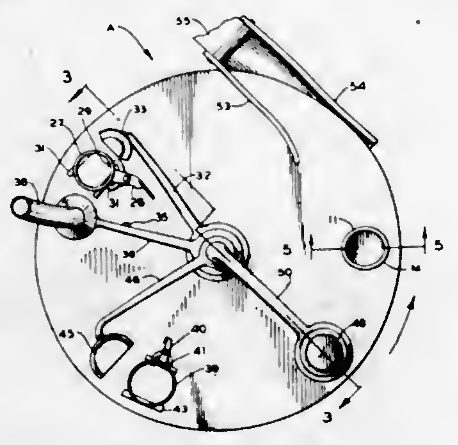
Marcel Demierre, Chavannes, Switzerland, assignor to Sapal Societe Anonyme des Plieuses Automatiques, Vaud, Switzerland
Filed Dec. 19, 1967, Ser. No. 691,754
Claims priority, application Switzerland, Dec. 30, 1966, 18800/66
Int. Cl. B65b *11/38*
U.S. Cl. 53—225 **4 Claims**



Method and apparatus for wrapping flat articles wherein each article with its wrapping material is pushed through a folding tunnel for the purpose of partially folding the wrapping material about the article, and each article is then transported to a final folding station; additional folding operations being performed during the transport. The next cycle of operations in the apparatus is begun during this transport.

3,572,007
APPARATUS FOR SEALING TWO-PIECE CONTAINERS

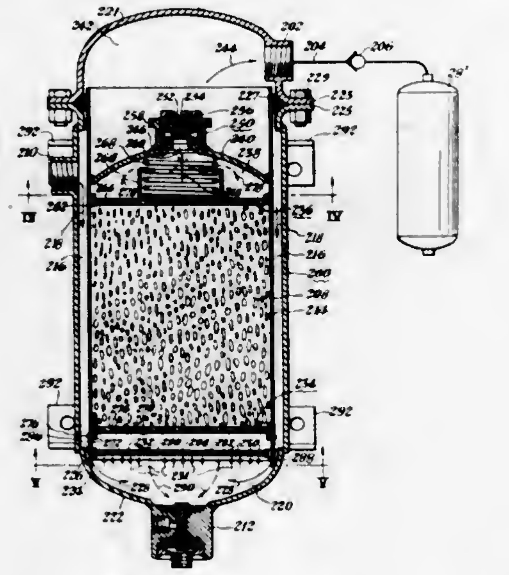
Richard K. Shelby, Chicago, and Jay W. Rapp, Park Ridge, Ill., assignors to Monsanto Company, St. Louis, Mo.
Original application Dec. 20, 1966, Ser. No. 603,220, now Patent No. 3,511,018, Continuation-in-part of application Ser. No. 546,990, May 2, 1966, now Patent No. 3,428,238. Divided and this application Mar. 25, 1969, Ser. No. 840,072
Int. Cl. B65b *3/06, 1/06*
U.S. Cl. 53—282 **16 Claims**



An apparatus for permanently sealing a plastic cover member to a plastic receptacle. The receptacle is disposed in a worktable and moved to a plurality of work stations. At one of such work stations, a cover member is disposed on the receptacle and at another of said work stations, a flange on the cover member is heated and urged into a groove on the receptacle to thereby permanently seal the cover member to the receptacle. Thereafter, the container in the form of a unitary member is removed from the worktable.

3,572,008
METHODS AND MEANS FOR CLEANING AND DRYING COMPRESSED FLUID SYSTEMS

Paul M. Hankison, Peters Township, Washington County, and William Foster Walker, Bethel Park, Pa., assignors to Hankison Corporation, Canonsburg, Pa.
Continuation-in-part of application Ser. No. 637,860, Feb. 10, 1967, now Patent No. 3,464,186, which is a continuation-in-part of application Ser. No. 547,115, Mar. 22, 1966, now abandoned , which is a continuation-in-part of application Ser. No. 445,639, Apr. 5, 1965, now abandoned. This application Oct. 25, 1968, Ser. No. 770,626
Int. Cl. B01d *53/04*
U.S. Cl. 55—33 **14 Claims**



We disclose methods and means for separating gaseous materials including vaporized moisture and for regenerating the gas separator or absorbent used for this purpose. We also disclose methods and means for separating a contaminant liquid from the aforementioned or other fluid systems and for regenerating the liquid separator thus employed.

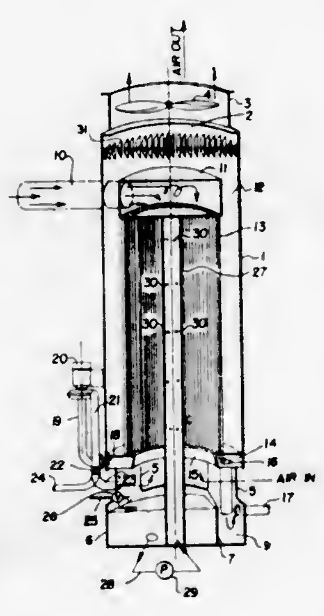
3,572,009
EXHAUST EMISSION CONTROL COMPOSITION

Elza I. Cheshire, and Mae M. Cheshire, 5602 N. Walton St., Pensacola, Fla.
Filed Dec. 24, 1969, Ser. No. 888,065
Int. Cl. B01d *47/00*
U.S. Cl. 55—84 **3 Claims**

An exhaust emission control composition which contains borax, baking soda and water.

3,572,010
VAPOR CONTROL APPARATUS

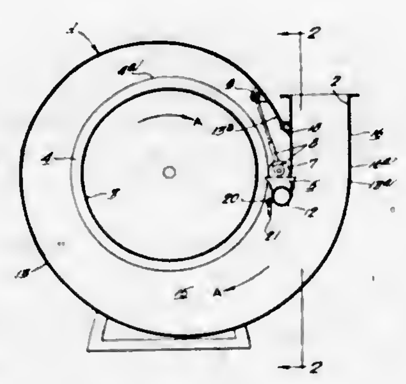
John A. Dupps, Sr., Germantown, Ohio, assignor to Duke, Inc., Germantown, Ohio
Filed Aug. 4, 1969, Ser. No. 847,269
Int. Cl. B01f *3/04*
U.S. Cl. 55—222 **10 Claims**



Vapor control apparatus embodying in a single unit the combined functions of a shell and tube condenser, a condensing water cooling tower, and an air scrubber.

3,572,011
FILTERING APPARATUS FOR GASEOUS MEDIA

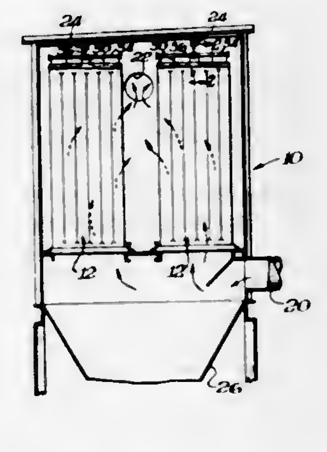
Gunnar Wilhelmsson, Vaxjo, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden
Filed Sept. 17, 1969, Ser. No. 858,790
Claims priority, application Sweden, Sept. 20, 1968, 12,680
Int. Cl. B01d *50/00*
U.S. Cl. 55—290 **3 Claims**



Filtering apparatus having rotatably mounted filter drum with a cylindrical filter surface mounted within a volute casing whose inlet directs dirt-laden medium against the exterior of the filter surface and whose outlet withdraws clean medium from the interior of the drum. The suction nozzle has a suction gap directed toward the filter surface to remove foreign material therefrom. A rotatable roller is pivotally suspended to bear against the cylindrical surface in advance of the suction nozzle to follow the accumulation of foreign material on the filter surface, enlarging the suction gap when the material builds up and reducing it when the material is depleted. The nozzle is fixedly mounted adjacent the inlet of the volute casing and a plate is hinged to the casing and biased against the roller to deflect the incoming dirt-laden medium circumferentially of the drum and a similar plate is hinged to the nozzle and biased against the roller to permit movement of the roller changing the opening of the slot. Blow nozzles are also provided to blow gaseous medium between the nozzle and the cylindrical surface to assist in the loosening of the foreign material from the surface for removal by the suction nozzle.

3,572,012
DUST COLLECTOR

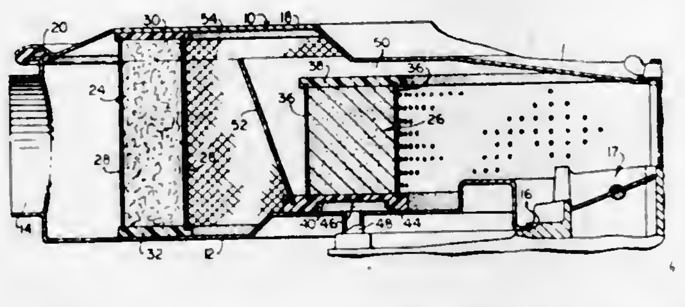
Charles T. Martin, and Vincent E. Schoeck, Hagerstown, Md., assignors to The Carborundum Company, Niagara Falls, N.Y.
Filed Nov. 20, 1968, Ser. No. 777,294
Int. Cl. B01d *46/04*
U.S. Cl. 55—304 **9 Claims**



A collector system for collecting impurities such as dust includes a housing having a plurality of compartmentalized filter bags and a shaker for causing the impurities to fall from the bags into collecting means at the bottom of the bags. At least one rod is secured within the top of each bag and has a plurality of exposed hooks slidably mounted upon a support tube disposed above the bags in a direction transverse to the compartments of each bag. The tube and hooks have complementary noncircular shapes and the tube is secured to the shaker mechanism to transmit its movement to the bags.

3,572,013
FUEL VAPOR EMISSION CONTROL

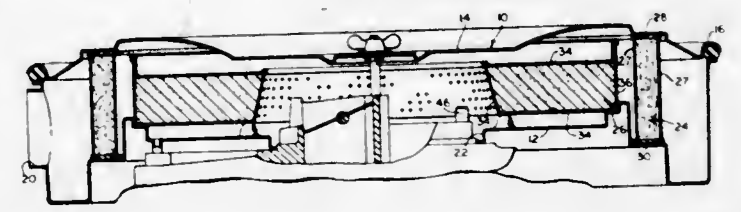
Gunnar W. Hansen, Ypsilanti, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 22, 1968, Ser. No. 769,584
Int. Cl. B01d *50/00*
U.S. Cl. 55—316 **6 Claims**



An engine air cleaner has a ringlike carbon bed filter element to absorb fuel vapors, a baffle member assuring saturation of the filter before vapor breakthrough to the atmosphere, the filter element being desorbed or purged of the vapors during normal air flow through the air cleaner.

3,572,014
ENGINE AIR CLEANER CARBON BED FILTER ELEMENT CONSTRUCTION

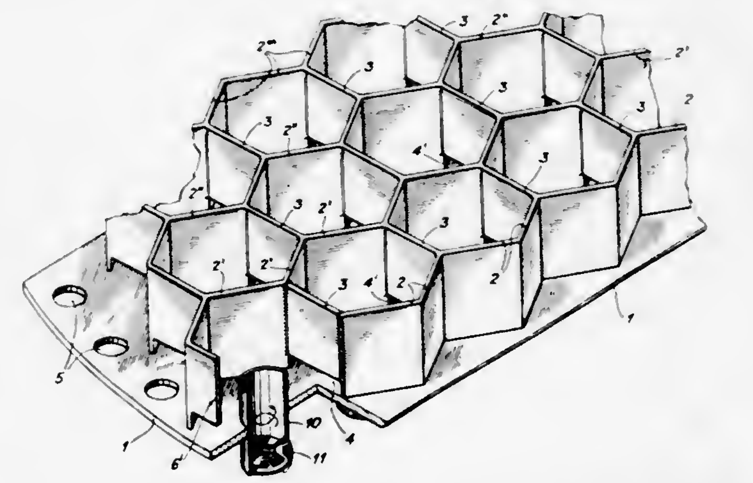
Gunnar W. Hansen, Ypsilanti, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 1, 1968, Ser. No. 772,684
Int. Cl. B01d *50/00*
U.S. Cl. 55—316 **8 Claims**



An engine air cleaner has an axial flow fuel vapor filter element of activated carbon, the element having an annular bafflelike solid sidewall and perforated screens for the remaining walls; alternately, more than one wall is formed of solid material to restrict fuel vapor breakthrough either to the atmosphere or to the carburetor.

3,572,015
WATER SEPARATOR FOR SATURATED-STEAM GENERATORS

Alfred Brunner, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed May 23, 1968, Ser. No. 731,419
Claims priority, application Switzerland, May 31, 1967, 7697/67
Int. Cl. B01d *45/12*
U.S. Cl. 55—347 **7 Claims**

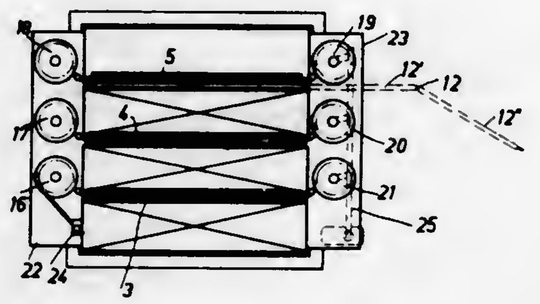


The tube sections containing the twist-producing elements are each surrounded by a jacket which has an internal diameter at least 1.5 times that of the internal diameter of the tube section and extends at least a distance equal to the internal diameter of the tube section above the tube section to receive the water separated from the steam. Outlets are provided at the base of the jackets to allow the water to run off out of the path of the dried steam.

3,572,016
ROLL-TYPE BAND FILTER SUITABLE FOR VENTILATING DUCTS

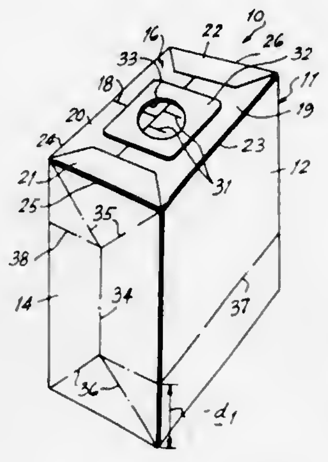
Gerhard Max Neumann, Berlin-Dahlem, Germany, assignor to Delbag Luftfilter G.m.b.H., Berlin, Germany
Filed Mar. 22, 1968, Ser. No. 715,233
Claims priority, application Germany, Apr. 14, 1967, D52813
Int. Cl. B01d *46/18*
U.S. Cl. 55—353 **7 Claims**

Conventional roll-type band filters for filtering for example air in ventilating ducts, comprise a drawoff roller and a takeup roller for a filter band, the band being from time-to-time rolled up to expose a fresh surface. Considerable space may be saved by the arrangement of the invention, in which a filter case is provided for insertion in the duct, which case contains two or more filter bands disposed substantially parallel to the flow of gas being filtered, separated gas streams in the filter case being deflected at an angle to pass through one of the filter bands. In a particular embodiment one or more of the filter bands are contained in replaceable magazines for insertion in the filter case.



3,572,017
DISPOSABLE DUST CONTAINERS FOR SUCTION CLEANERS

Dominick Terzuoli, 2258 E. 70 St., Brooklyn, N.Y.
Filed Oct. 23, 1969, Ser. No. 868,793
Int. Cl. B01d *46/02*
U.S. Cl. 55—367 **8 Claims**

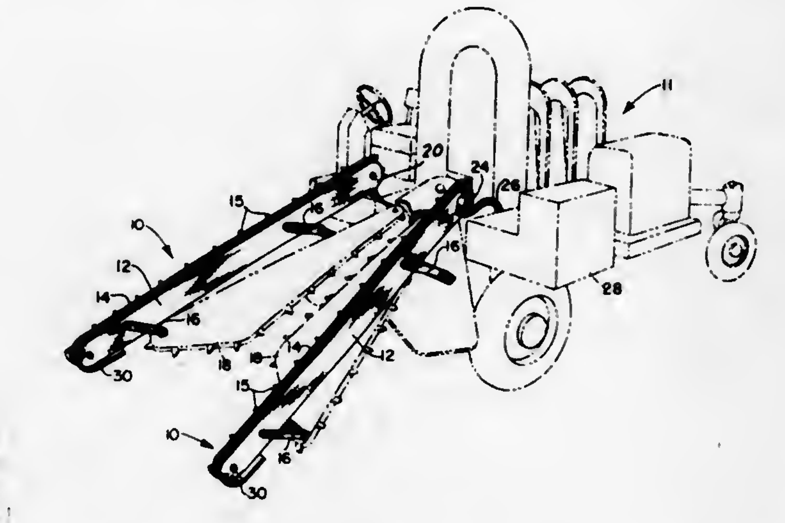


A disposable dust container for a suction cleaner is comprised of a bag of pliable porous sheet material including a pair of opposing first sidewalls, a pair of opposing second sidewalls extending between, and joined to the first sidewalls along the longitudinal margins thereof and a pair of rectangular end walls at the opposite ends of the bag and each being joined, at its periphery, to the first and second sidewalls to give to the bag substantially the form of a cuboid. The sidewalls of the bag are folded so that the second sidewalls are creased inwardly between the first sidewalls and so that the rectangular end walls lie flat against opposite sides of the bag at opposite ends of the bag. The thus folded bag is self-opening to the cuboid form when dust-laden air is admitted to the interior of the bag through an opening in one of its end walls or one of its first sidewalls in response to the application of suction to the exterior of the bag.

3,572,018
ATTACHMENT TO SUGAR CANE HARVESTER

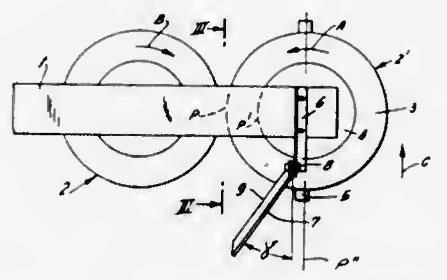
Vernon P. Broussard, P.O. Box 227, St. Martinville, La.
Filed Feb. 17, 1969, Ser. No. 799,768
Int. Cl. A01d *45/02, 45/10*
U.S. Cl. 56—119 **3 Claims**

Two tracks having rounded ends respectively mounted by swing bars outboard of and partially extended forward of and to upright-cane gathering apparatus having sticker chains with stickers extending in transverse planes for gathering standing cane, said swing bars being adapted to swing in vertical planes to allow the lower ends of the tracks to rest on and move over uneven ground, and endless sticker chains adapted to travel on said outboard tracks with the stickers extending in planes normal to the stickers of the upright-cane gathering apparatus, for gathering fallen cane in approximately horizontal position.



3,572,019
ROTARY MOWER WITH DEFLECTING PLATE FOR WINDROW FORMATION

Josef Glunk, and Elke Gusewell, Gottmadingen, Germany, assignors to Maschinenfabrik Fahr A. G., Gottmadingen, Germany
Filed May 14, 1969, Ser. No. 824,405
Claims priority, application Germany, May 16, 1968, P 17 57 497.9
Int. Cl. A01d *57/26*
U.S. Cl. 56—192 **11 Claims**

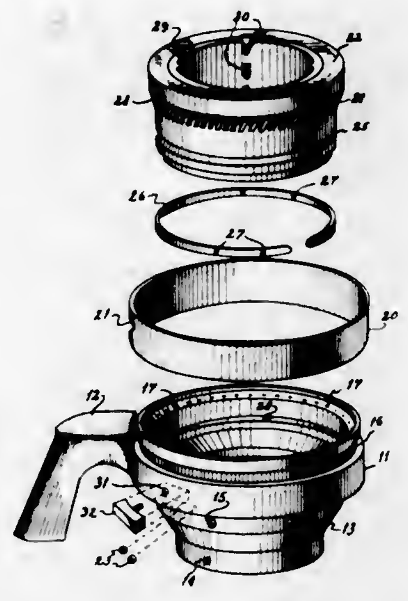


A rotary mower has at least two mower assemblies each with a vertical cylindrical drum bearing at its lower end a plurality of outwardly projecting blades. These drums are mounted below a support beam and rotated in opposite directions about their axes so as to cut a standing crop and then project it back between them. A deflecting plate is mounted behind at least one of the assemblies on the support and has a bent over forward edge which lies immediately adjacent to the body and the blade orbit and extends counter to the sense of rotation of the mower. This plate can pivot upwardly freely to prevent blockages and is inclined to the direction of travel of the mower to form a windrow from the rearwardly cast crop material.

3,572,020
FRUIT HARVESTER

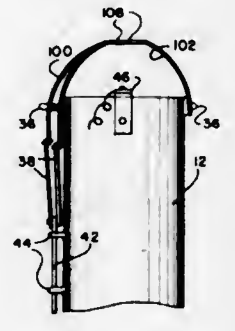
Joseph L. Poggie, Massapequa, N.Y., assignor to Fairchild Hiller Corporation, Montgomery County, Md.
Filed Apr. 28, 1969, Ser. No. 819,705
Int. Cl. A01g *19/08*
U.S. Cl. 56—332 **6 Claims**

A fruit harvester including a harvester head that comprises a hollow housing, a hollow cylindrical rotor rotatably mounted within the housing and means such as an air drive for causing the rotor to rotate. The hollow cylindrical rotor has ridges on its interior surface that strike the fruit that is to be harvested when the rotor rotates and causes the fruit to spin about its stem and be severed from the tree. A guide fence is included for placement on top of the fruit harvester head to guide the fruit into the harvester head and to keep the fruit from being thrown out of the harvester head. A flexible tube is provided for connection to the lower end of the fruit harvester head to transport the severed fruit from the harvester head.



3,572,021
FRUIT PICKER

Samuel A. McDonald, 626 S. Banana River Drive, Merritt Island, Fla.
Filed Sept. 29, 1969, Ser. No. 861,920
Int. Cl. A01g *19/08*
U.S. Cl. 56—334 **18 Claims**

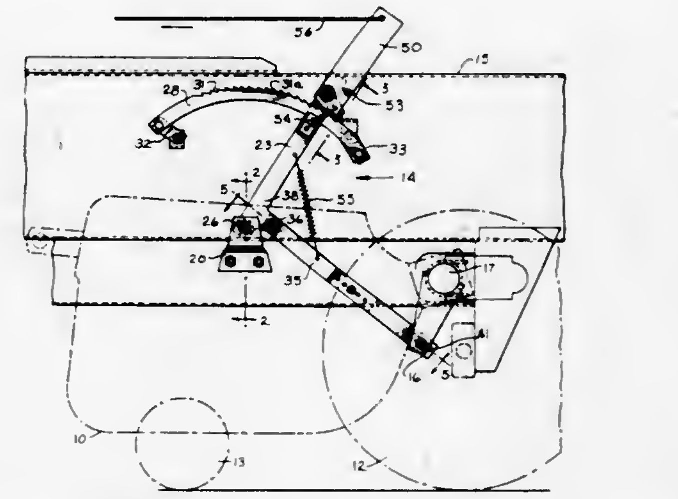


An electrically actuated, stem severing fruit picker including an elongated tube, having a handle on one end, and a pair of pivoting cutting jaws on the other end, and a fruit contact switch wired to a solenoid system for activating the cutting jaws. A circuit breaker is included to unjam the cutting jaws, should the fruit stem remain unsevered after the first cutting attempt, which causes repeated closing and opening of the jaws until the fruit stem is severed. The noncutting edges of the cutting jaws are recessed, thereby allowing perfect mating of the cutting portions. Segments of the jaw cutting edges are flattened for more perfect cutting of the fruit stem. A control rod is secured to the jaws and the electrical actuation system, and the jaws may be arranged so that either an upward or downward movement of the control rod will cause the cutting jaws to close. The tube includes means for selectively retaining and releasing severed fruit therefrom.

3,572,022
BALER PICKUP HEIGHT ADJUSTING MECHANISM CAPABLE OF REMOTE ACTUATION

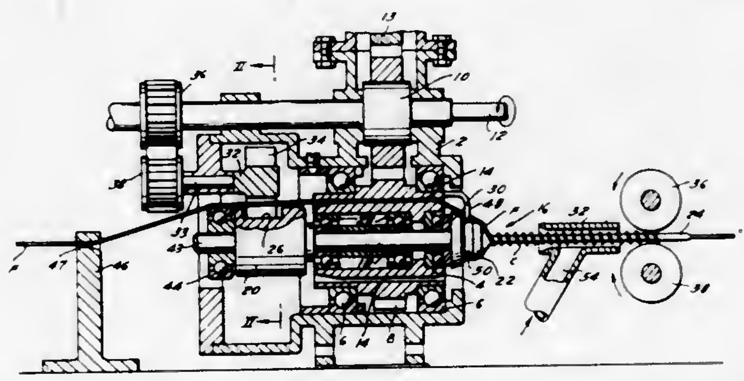
Charles A. Smith, New Holland, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 1, 1969, Ser. No. 846,664
Int. Cl. A01f *15/04*
U.S. Cl. 56—341 **7 Claims**

A height adjusting mechanism on the side of a baler has a link connected between a bracket rigidly attached to the rotatable baler pickup support and a lever pivotally mounted on the baler. The lever has a toggle pivotally mounted at the opposite end of the lever from the pivot. The toggle has a pawl engageable with a ratchet rack curved about the lever pivot and a stop engaging the lever to move the lever opposite to the ratchet rack for raising the pickup and permitting the lever to swing back to the pickup in the lowest position or intermediately engaging the pawl with the ratchet rack for intermediately positioning the pickup. The toggle may be remotely operated by a cable. A lost motion slot is provided between the link and bracket and a spring between the link and lever permits the lever to be set at positions beyond the lost motion slot when the pickup is otherwise held to preset the pickup height.



3,572,023
COILING APPARATUS

Walter O. Galonska, Great Neck, N.Y., assignor to Henry Rogers, New York, N.Y.
Filed Jan. 23, 1969, Ser. No. 793,363
Int. Cl. B29d *5/00*
U.S. Cl. 57—1 **15 Claims**

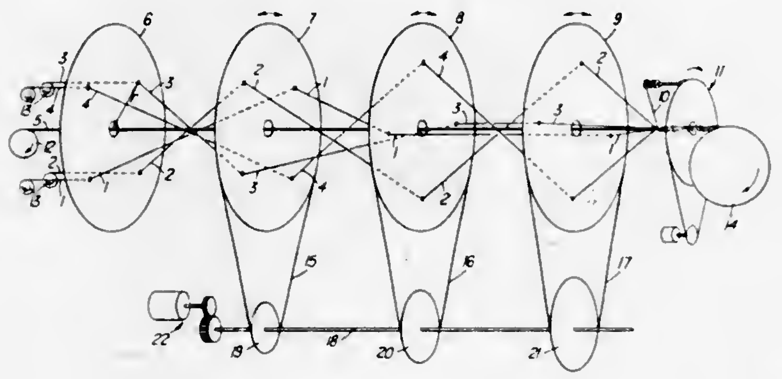


A coiling apparatus, especially for forming plastic filaments into coils for use in slide fasteners in which a rotor having a guide passage parallel to and radially displaced from the axis of the rotor coils a filament passing through the guide passage onto a mandrel which is supported in and extends axially through the rotor and in which means engaging the mandrel are provided which prevent rotation of the mandrel during turning of the rotor about its axis without obstructing coiling of the filament about the mandrel.

3,572,024
MANUFACTURE OF ELECTRIC CABLES

Eric Lyons, St. Helens, England, assignor to British Insulated Callenders Cables Limited, London, England
Filed Oct. 31, 1968, Ser. No. 772,106
Claims priority, application Great Britain, Nov. 1, 1967, 49 655/67
Int. Cl. B65h *81/08*
U.S. Cl. 57—3 **10 Claims**

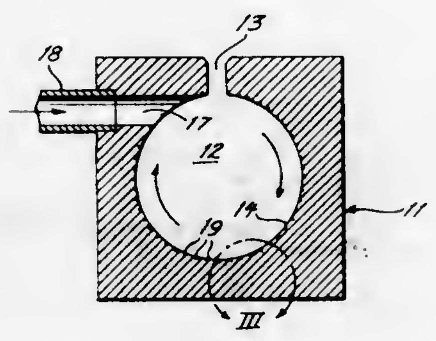
In the manufacture of an electric cable, a layer of wires is applied to an advancing core by a method comprising drawing the wires through a fixed lay plate, at least two intermediate lay plates and a final lay plate, and then bringing them into engagement with the core. The final lay plate is caused to oscillate about the core through an angle greater than 720°, each half-cycle of its oscillation comprising a major part during which the angular velocity of the lay plate has a substantially uniform value and a minor part during which its angular velocity is greater than that uniform value.



The intermediate lay plates are caused or permitted to oscillate at the same frequency as and in phase with the final lay plate, the amplitude of each oscillating lay plate exceeding that of the preceeding lay plate by less than 360°. In the resulting layer each of the wires extends about the core in a helical path which reverses its circumferential direction at intervals spaced apart along the length of the core by a distance which is at least twice the length of lay of the wires about the core.

3,572,025
STRAND SPLICER

Malcolm F. Irwin, West Chester, Pa., assignor to Techniservice Corporation, Kennett Square, Pa.
Filed June 30, 1969, Ser. No. 837,509
Int. Cl. B65h *69/06*
U.S. Cl. 57—22 **6 Claims**

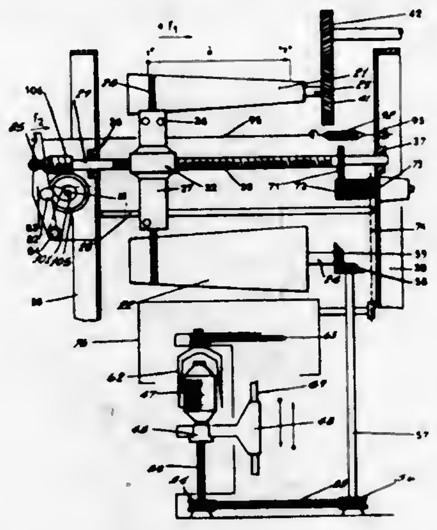


Splicer apparatus for textile strands is provided with a strand-receiving chamber having its interior wall striated longitudinally thereof and transversely of a communicating fluid-receiving axis.

3,572,026
DRIVE CONTROL FOR ROVING FRAME

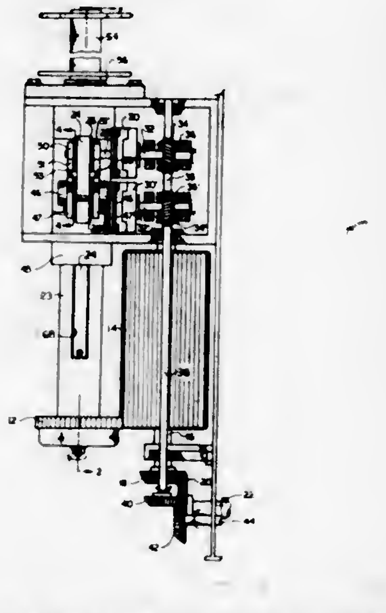
Jean Frederic Herubel, Guebwiller, France, assignor to N. Schlumberger & Cie, Guebwiller, France
Filed Mar. 10, 1969, Ser. No. 805,786
Claims priority, application France, Mar. 12, 1968, 143379
Int. Cl. D01h *1/04*
U.S. Cl. 57—96 **12 Claims**

A control for winding yarn in textile machines to rotate the bobbin at a speed which is inversely proportional to the diameter of the yarn wound on the bobbin including: a pair of cone pulleys with a transmission axially slidable with respect thereto and guided through a carriage. The carriage is threadedly engageable with an axially displaceable threaded member which in turn is connected to a compensating means whereby rotation of the cones axially displaces the threaded member through the belt and carriage, and this displacement is amplified by the compensating means thereby effecting the output of the pulley transmission and the rotational speed of the bobbin.



3,572,027
TEXTILE SPINDLE ASSEMBLY

Christoph W. Aurich, Clemson, S.C., assignor to Maremont Corporation, Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,807
Int. Cl. D01h *1/24, 1/36*
U.S. Cl. 57—99 **14 Claims**

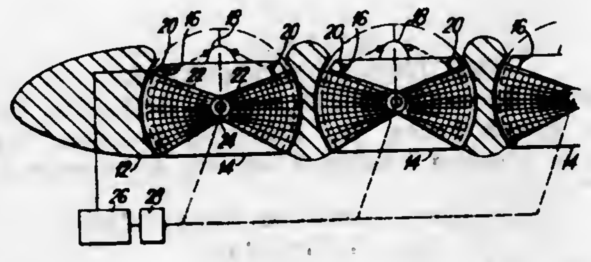


An elongate flexible belt entrained about guide rollers and about two drive rolls alternately rotated in opposite directions reciprocates a spindle vertically as it is simultaneously rotated about its axis. The drive rolls are rotated from a common input shaft through oppositely threaded pairs of worm and worm gears and selectively energizable clutches. A gear affixed to the spindle meshes in all its reciprocatory positions with an elongate gear which is driven to rotate the spindle about its axis.

3,572,028
BLADE INGESTION PREVENTION

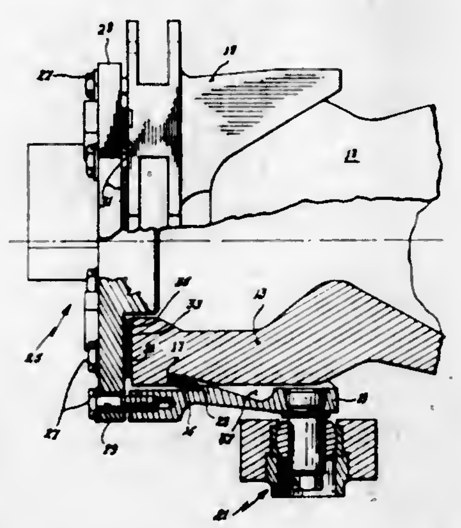
Maurice I. Taylor, Allestree, England, assignor to Rolls Royce Limited, Derby, England
Filed Sept. 16, 1969, Ser. No. 858,310
Claims priority, application Great Britain, Sept. 26, 1968, 45 754/68
Int. Cl. F02c *7/04;* **B64d** *33/02*
U.S. Cl. 60—39.09 **5 Claims**

The invention provides an apparatus for either preventing an engine component from flying out of an engine or preventing a foreign body from entering an engine and is particularly applicable to each engine of a bank of gas turbine lift engines. The apparatus consists of detecting means which comprises a photoelectric scanner mounted centrally in the intake of a gas turbine engine and a ring of photoelectric cells spaced around the engine intake wall and a guard means which comprises a pair of part spherical gridlike shields having a power source operable by the detecting means to span the intake.



3,572,029
ROCKET ENGINE THRUST CHAMBER ATTACHMENT MEANS

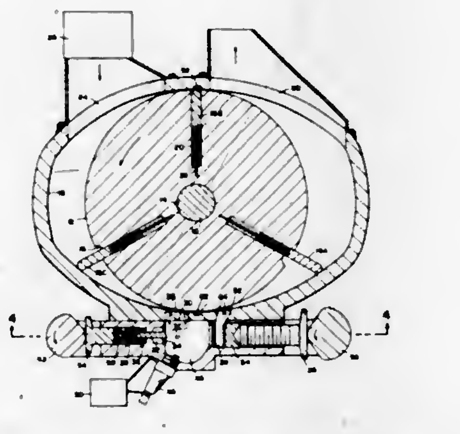
Arthur P. Swift, Jr., Woodland Hills, Calif., assignor to the United States of America, as represented by the Secretary of the Air Force
Filed Sept. 4, 1969, Ser. No. 855,232
Int. Cl. F02c *7/20*
U.S. Cl. 60—39.32 **4 Claims**



A yieldable mounting ring of teardrop cross section is mounted between a solid wall rocket engine thrust chamber wall and a sleeve holding the gimbal assembly which provides for the thrust direction control capability of the engine. The ring is segmented to expand and contract and allow unrestricted dimensional changes in the thrust chamber while maintaining the chamber in alignment with any attached structural elements.

3,572,030
ROTARY ENGINE ASSEMBLY

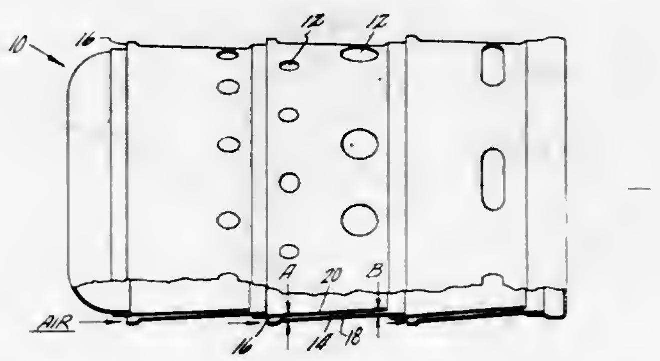
James D. Cuff, 2632 Valleybrook Drive N.E., Huntsville, Ala.
Filed Dec. 26, 1968, Ser. No. 787,053
Int. Cl. F02c *3/00*
U.S. Cl. 60—39.61 **3 Claims**



A rotary internal combustion engine having a combustion chamber or chambers located exterior to the compression and expansion areas of the engine.

3,572,031
VARIABLE AREA COOLING PASSAGES FOR GAS TURBINE BURNERS

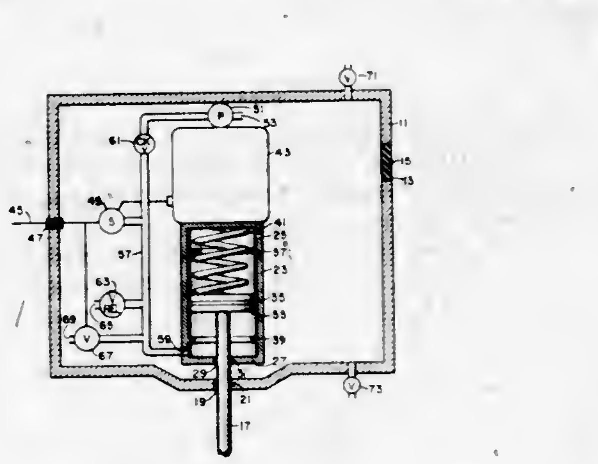
Eugene J. Szetela, South Windsor, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed July 11, 1969, Ser. No. 840,954
Int. Cl. F02c *7/18*
U.S. Cl. 60—39.65 **1 Claim**



A cooling apparatus for maintaining the walls of a gas turbine burner within acceptable temperature limits. Cooling air which is also used for combustion is passed through variable cross-sectional area cooling passages in the "Thermal Skin$_{TM}$" walls of the burner to maintain a constant temperature distribution along the walls.

3,572,032
IMMERSIBLE ELECTROHYDRAULIC FAILSAFE VALVE OPERATOR

William M. Terry, 2624 Carolina Way, Houston, Tex.
Filed July 18, 1968, Ser. No. 745,896
Int. Cl. F15b *15/18*
U.S. Cl. 60—52 **5 Claims**

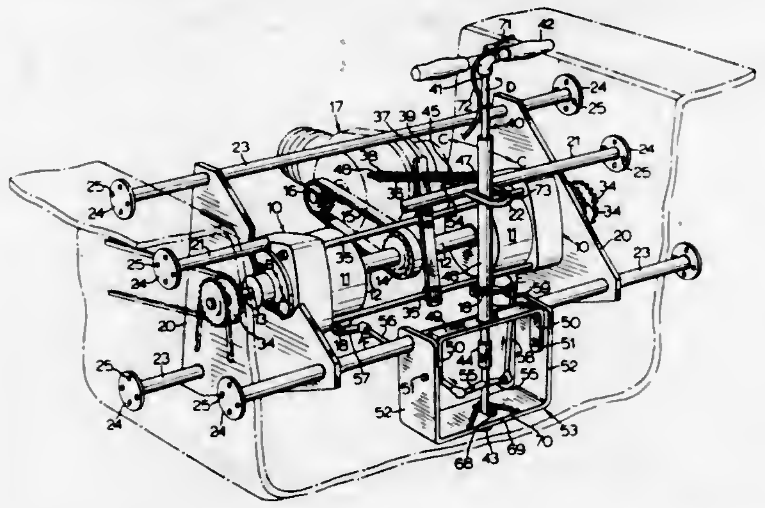


An electrohydraulic valve operator for remote undersea operation in which all the working components are immersed in hydraulic fluid and maintained at ambient hydrostatic pressure. A spring or other biasing means is used to provide fail-safe operation.

3,572,033
POWER TRANSMISSION APPARATUS

Noel Partick Tolley, Scarborough, Ontario, Canada, assignor to Dowty Equipment of Canada Limited, Ajax, Ontario, Canada
Filed Sept. 5, 1969, Ser. No. 855,636
Int. Cl. B60k *29/00;* **G05g** *9/00*
U.S. Cl. 60—53 **11 Claims**

Power transmission apparatus for use in a vehicle, the apparatus comprising two coaxially disposed hydrostatic transmission units each of which consists of a variable displacement hydraulic pump and a fixed displacement hydraulic motor, fluid from the pump, the input shaft of which is driven by an engine, serving to operate the motor. The housings of the units are journaled for turning movement about the axis of rotation of the output shafts of the units and a coil compression spring arrangement is provided for applying to the housings a balancing torque which counterbalances the reaction



torque on the housings during operation of the apparatus, this reaction torque causing turning of the housings of the units so that the angular orientation of the housings is dependent on the magnitude of the reaction torque. The variable displacement setting of the pump of each transmission unit is so dependent on the angular orientation of the housings, which are interconnected to prevent relative rotation therebetween, that variation in the reaction torque on the housings results in a corresponding variation in the output torque which can be supplied by the output shafts, with a corresponding variation, in the opposite sense, in the speed of rotation thereof. The setting of the coil compression spring arrangement is adjustable to vary the magnitude of the balancing torque applied to the housings, and a steering assembly is provided so to vary the variable displacement setting of the pumps as to cause differential rotation of the wheels on the opposite sides of the vehicle in which the apparatus is installed, with resultant turning of the vehicle.

3,572,034

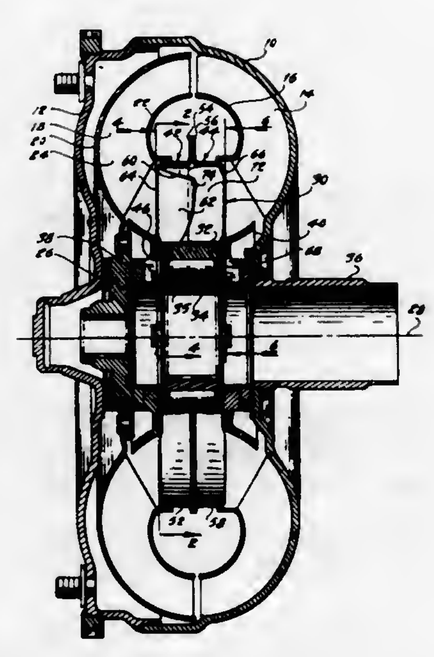
FABRICATED TWO-PIECE STATOR ASSEMBLY FOR HYDROKINETIC TORQUE CONVERTERS

Alan R. Fisher, Highland Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 21, 1969, Ser. No. 878,718

Int. Cl. F16d *31/06;* **F16h** *41/04*

U.S. Cl. 60—54 **15 Claims**



A bladed stator assembly comprising two circular bladed sections situated in adjacent relationship, each section complementing the other, one section defining a fluid flow entrance region and the other section defining a fluid flow exit region, and radially displaced blades, each blade including a leading edge portion integrally formed on one stator section and a trailing edge portion integrally formed on the other stator section.

3,572,035

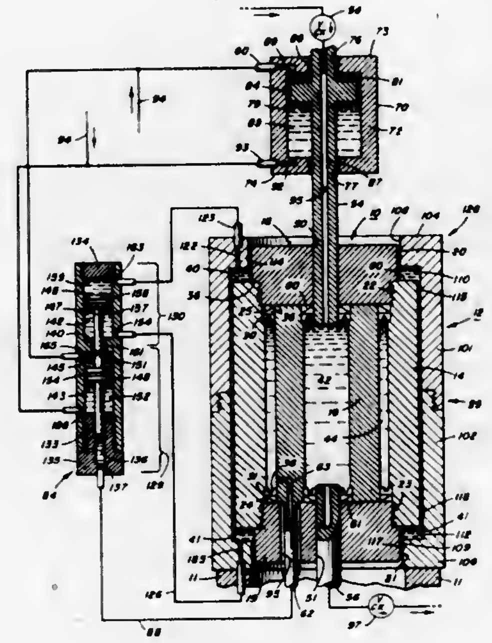
FRICTION COMPENSATOR

John Edward Beroset, Alsace Township, Berks Co., Pa., and Francis Joseph Fuchs, Jr., Princeton Junction, N.J., assignors to Western Electric Company Incorporated, New York, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,205

Int. Cl. F15b *7/00*

U.S. Cl. 60—54.6 **7 Claims**



A pressure vessel having an actuating system for advancing and retracting an element, e.g. a piston, slidably into and out of the vessel is provided with means responsive to frictional forces generated by the sliding passage of the element into and out of the vessel to generate a compensating force for opposing the effect of the frictional force on the actuating system.

3,572,036

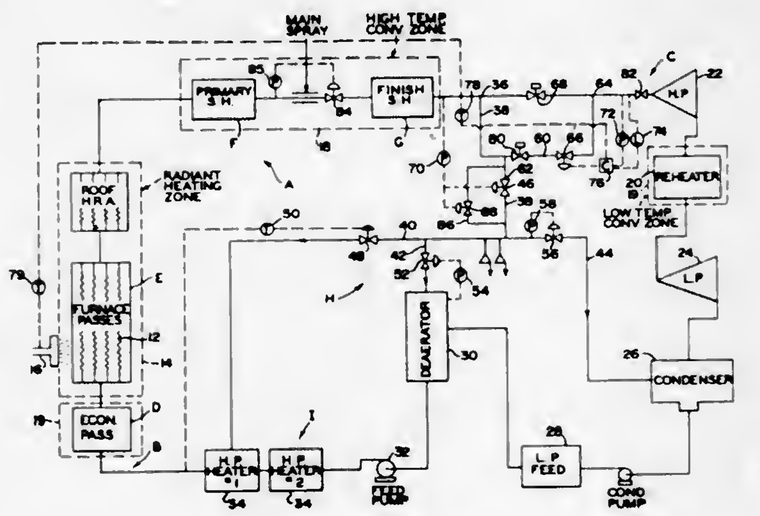
VAPOR GENERATOR START-UP SYSTEM

Eugene B. Beckman, Rockaway Township, and Raymond M. Costello, Parsippany, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed Oct. 21, 1968, Ser. No. 769,097

Int. Cl. F01k *3/14*

U.S. Cl. 60—104 **13 Claims**



A once-through vapor generator which comprises a main flow path including heating surfaces, and a bypass system comprising a first conduit connected to the outlet end of said heating surfaces including a pressure-reducing means therein, and a second conduit leading from the inlet side of said pressure reducing means back to the main flow path connected to the latter at a point downstream of said first conduit. The second conduit also contains a pressure-reducing means, including control means which is responsive to the turbine inlet pressure and load once the flow at the heating surfaces outlet end reaches a preset temperature.

3,572,037

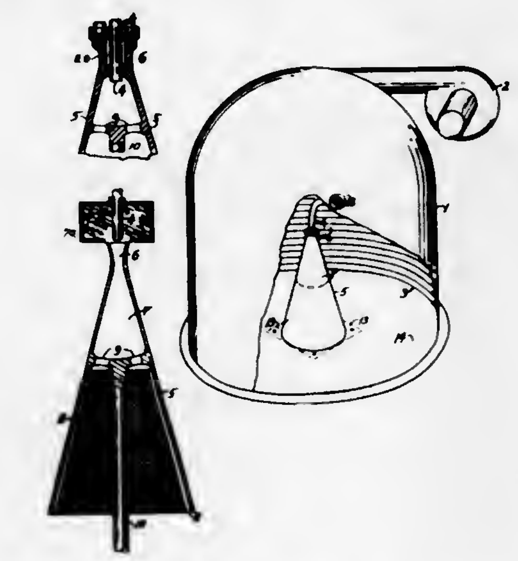
EXTERNAL COMBUSTION ENGINE

Goerge C. Sorensen, 589 S.E. 4th St., Ontario, Oreg.

Continuation-in-part of application Ser. No. 800,200, Feb. 18, 1969. This application May 12, 1969, Ser. No. 825,131

Int. Cl. F01d *1/02;* **F22b** *27/08*

U.S. Cl. 60—108 **2 Claims**



An external combustion engine is constructed with a rotatable housing having compression and expansion chambers and a stator mounted within the expansion chamber. The stator is provide with a helical crest, and the expansion chamber, an internal lining adapted to oppose cyclonic flow created by the crest. The inlet to the compression chamber is venturi in effect so that steam introduced directly to the chamber can draw other gases, such as combustion gases, into the chamber as well. Such gases may be relied upon to superheat the steam within the compression chamber.

3,572,038

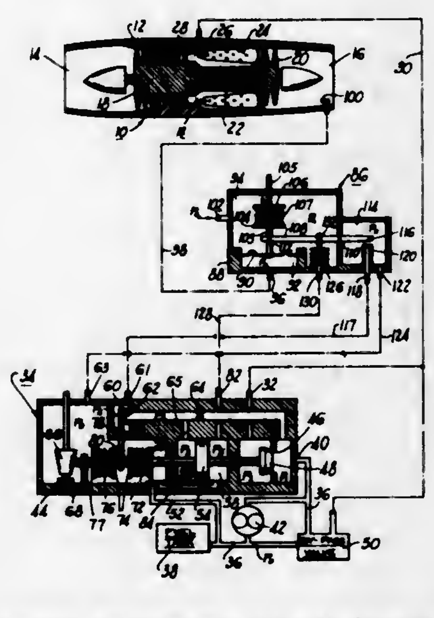
THRUST CONTROL MECHANISM

Samuel E. Arnett, South Bend, Ind., assignor to The Bendix Corporation

Filed July 29, 1968, Ser. No. 748,416

Int. Cl. F02k *3/00;* **F02c** *9/08*

U.S. Cl. 60—243 **7 Claims**



A thrust control mechanism for use in association with a combustion engine having a valve means to control the flow of fuel to said combustion engine upon command, which is responsive to a pressure responsive member for sensing thrust as a function of the pressure drop across said combustion engine exhaust nozzle. Said thrust control mechanism may further include an absolute reference means to compensate for changes in ambient pressure of the device and a variable nozzle area input means to compensate for changes in combustion engine thrust due to different settings of nozzle area.

3,572,039

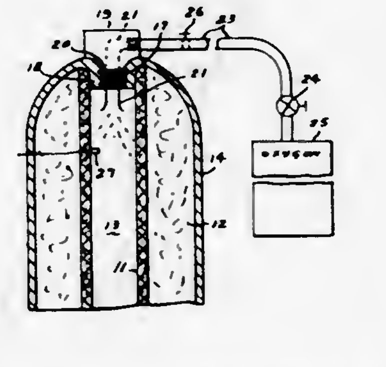
BOOSTER ROCKET MOTOR

Albert Ray Osburn, Brigham City, Utah, assignor to the United States of America as represented by the Secretary of the Air Force

Filed Oct. 25, 1968, Ser. No. 773,362

Int. Cl. F02k *9/06*

U.S. Cl. 60—280 **2 Claims**



An improved booster for a space vehicle or missile and in which the booster employs two types of propellants. The main charge consists of an oxygen-rich mixture cast in the form of a cylinder within the booster and the other charge, which serves as a covering or overlay for the main charge, consists of an oxygen-poor mixture formed as a hollow cylinder. The main charge is therefore rendered immune from combustion by the covering layer so that when oxygen is fed to the interior of the inner cylinder, the oxygen-poor mixture is able to support combustion, and as it burns through its own thickness the main charge becomes uncovered and ignites, due to the presence of the oxygen contained within the main charge. If the booster is one of several, clustered about the space vehicle and fails to ignite upon the introduction of the supplied oxygen, a valve controlled by an explosive bolt in the oxygen supply line is exploded which automatically cuts off the line to all the boosters and terminates the launching operation. In this way, the remaining boosters which might have functioned and therefore could have caused an imbalance of thrust would now have been rendered inactive so that the costly upper stages of the rocket are preserved.

3,572,040

SOLID FUEL GAS GENERATOR

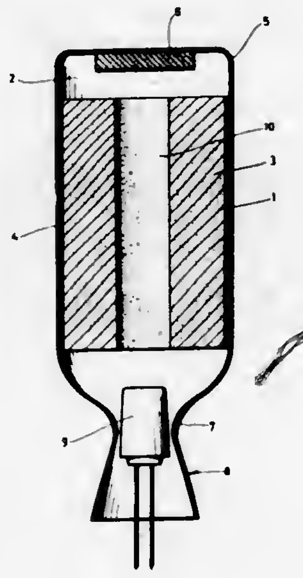
Kuno Dreyer, Munich, Germany, assignor to Messerschmitt-Bolkow Gesellschaft mit beschrankter Haftung, Munich, Germany

Filed Mar. 6, 1969, Ser. No. 804,828

Int. Cl. F02k *9/04*

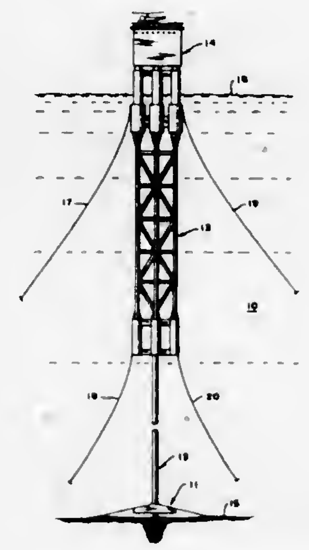
U.S. Cl. 60—256 **1 Claim**

A gas generator, particularly a solid fuel rocket engine, comprises a cylindrical member which is closed at one end and includes thrust nozzle discharge at its opposite end. A solid charge of hollow cylindrical configuration is disposed within the combustion chamber intermediate its length and an igniting charge is located adjacent the closed inner wall of the combustion chamber. The ignition system for the engine includes a detonating cap which is located at the narrow section of the nozzle discharge and it forms a temporary dam to permit the buildup of pressure within the combustion chamber during the initial phase of ignition so that inflammation of the entire length of the interior portion of the cylindrical solid charge can take place. After the detonating cap is ignited, its ignition jet passes through the hollow charge to ignite the igniting charge at the closed end of the combustion chamber. A combustion gas is produced by the igniting charges flow through the hollow center of the hollow charge and when a sufficient pressure is attained, the burnt out housing of the detonating cap is ejected through the thrust nozzle.



3,572,041
SPAR-TYPE FLOATING PRODUCTION FACILITY

Gerardus Graaf, the Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y.
Filed Sept. 18, 1968, Ser. No. 760,456
Int. Cl. E02b *17/;* **E21b** *15/02;* **B63b** *35/44*
U.S. Cl. 61—46.5 **8 Claims**



A production facility for underwater oil and gas wells including an onbottom platform to which flow and trunk lines are connected, a marine riser supporting the weight of the vertical portions of the flow and trunk lines, a spar section, and a superstructure which contains all of the fluid handling and processing equipment, controls, personnel requirements etc. When the production system according to the present invention is in assembled condition, the marine riser is vertically disposed on the platform and extends upwardly with the body of water in a substantially self-supporting manner. The spar section and superstructure, after having been separately floated into position over the marine riser, are connected thereto so that a portion of the spar section and all of the super structure component are disposed abode the surface of the water.

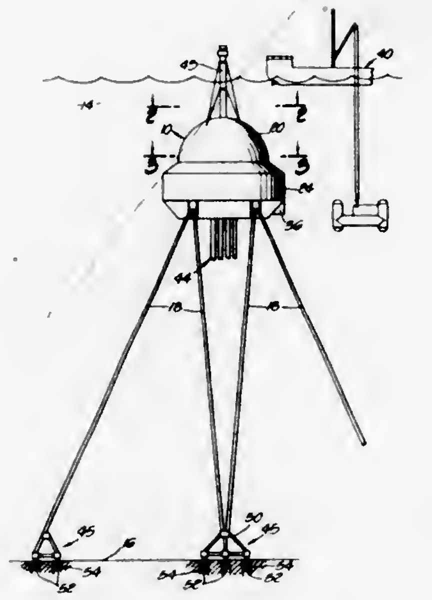
3,572,042
PROCESS FOR FORMING A PLASTIC FILL SHEET ON OCEAN FLOOR SILT

Thorndyke Roe, Jr., Oxnard, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 6, 1969, Ser. No. 864,222
Int. Cl. E02b *3/12, 29/06*
U.S. Cl. 61—36 **2 Claims**

A resin solution is fed through an extrusion head disposed underwater and in close proximity to the sediment of the ocean floor. The solution is formed of a sea water insoluble resin-plasticizer system dissolved in a sea water insoluble solvent, the resin-plasticizer system of the solution having a relatively high specific gravity greater than 1.0 so that, when the system precipitates in the sea water, it drops onto the sediment. Preferably, the extrusion head is moved along at a controlled rate to form a continuous sheet of a desired thickness.

3,572,043
UNDERWATER STRUCTURE

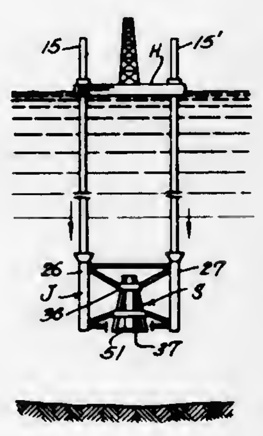
Ernest A. Clara, Los Angeles County, Calif. (GMG Associates 12150 Stagg St. North Hollywood, Calif. 91605)
Filed Feb. 24, 1969, Ser. No. 801,341
Int. Cl. B63b *35/44, 21/00*
U.S. Cl. 61—46 **14 Claims**



An underwater structure comprising a buoyant housing immersed in a body of water and an anchoring system connected between the housing and the floor of the body of water and cooperating with the fluid pressure of the water to maintain the housing in a stable position a predetermined distance above the floor. The housing is an inverted, generally cup-shaped structure having an open bottom portion, and the anchoring system comprises a plurality of tiedown legs having their upper ends attached to the housing and their lower ends anchored to the floor of the body of water in which the housing is immersed. The tiedown legs are preferably hollow tubular members sealed to prevent water from entering the interior thereof, and of such dimensions as to be relatively weightless in water and of neither negative nor positive buoyancy. The lower ends of the tiedown legs are anchored to the floor of the body of water in which the housing is immersed by means of rods which extend into cavities in the floor and are bonded thereto by grout. An exemplary use of the underwater structure of this invention, an aquadome, is for housing drilling equipment and/or personnel for recovery of petroleum and natural gas from offshore oil fields.

3,572,044
MULTIUNIT OFFSHORE PLATFORM

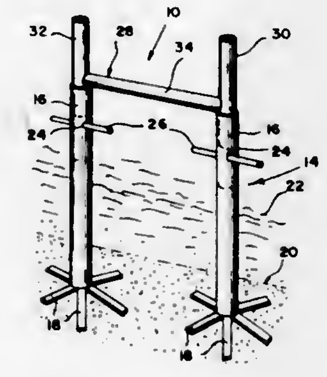
Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y.
Filed Mar. 24, 1969, Ser. No. 809,820
Int. Cl. E02b *17/02;* **E21b** *7/12*
U.S. Cl. 61—46.5 **6 Claims**



The invention relates to an offshore platform for use in relatively deep water, being equipped for exploratory purposes and/or for producing crude oil from a subsurface wellhead. The platform comprises a floatable hull section that detachably engages an intermediary jacket. The latter supportedly rests on or near the floor of a body of water and incorporates a removable wellhead structure. After use of the platform for drilling and completion operations at a well site, the jacket and wellhead structure are separated whereby the latter will remain at the site, while the jacket is removed by the hull for further use. The jacket is then raised from the ocean floor by the floatable hull for transfer to another well site.

3,572,045
PIER ASSEMBLY

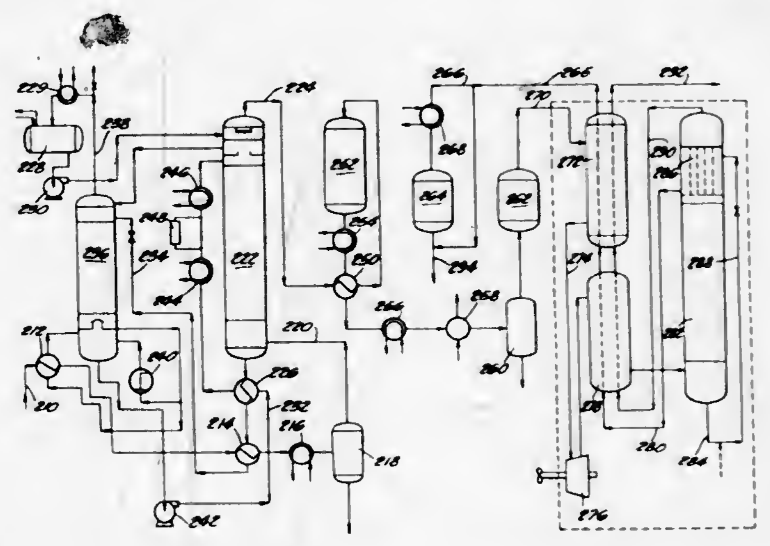
Clifford L. Owen, Hines, Minn.
Filed Oct. 15, 1968, Ser. No. 767,716
Int. Cl. E02b *3/22*
U.S. Cl. 61—48 **7 Claims**



A pier assembly includes pairs of tubular pier supporting posts. The lower ends of the posts are slit to form feet which are bent to extend laterally outwardly and which are provided with a slight twist so that the posts may be screwed securely into the ground, H-shaped pier deck supporting members have vertical legs telescopingly received in the tubular posts and crossmembers for supporting the pier deck. Angle brackets for supporting pier joists or stringers may also be provided on the vertical legs adjacent the crossmember. A tire casing is mounted on the posts and vertical legs to serve as a boat bumper.

3,572,046
APPARATUS FOR PURIFICATION OF RAW AMMONIA SYNTHESIS GAS

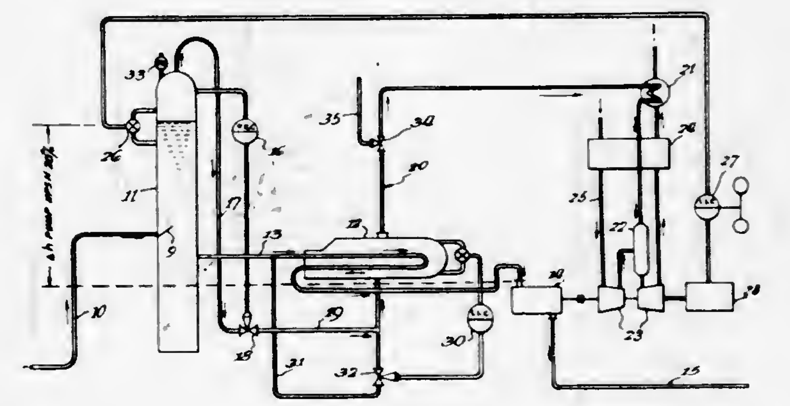
Bernard J. Grotz, Jr., Arcadia, Calif., assignor to C. F. Braun & Company, Alhambra, Calif.
Original application Oct. 22, 1965, Ser. No. 502,260, now Patent No. 3,442,613. Divided and this application Sept. 12, 1968, Ser. No. 798,214
Int. Cl. F25j *3/00, 3/08, 3/02*
U.S. Cl. 62—38 **6 Claims**



The present invention relates to apparatus for the purification of raw ammonia synthesis gas which comprises methanating means having an inlet and an outlet, means connecting the outlet of said methanating means with the inlet of first heat exchange means, first heat exchange means having an inlet and an outlet, means connecting the outlet of said first heat exchange means with a work removal means, work removal means, means connecting said work removal means with the inlet of a second heat exchange means, a second heat exchange means having an inlet and an outlet, means connecting the outlet of said second heat exchange means to the inlet of a rectifier means, a rectifier means having an inlet, an outlet and a condenser means, and means for communicating fluid from the lower end of said rectifier means to said condenser means.

3,572,047
ANTICAVITATION AND REFRIGERATION SYSTEM AND METHOD

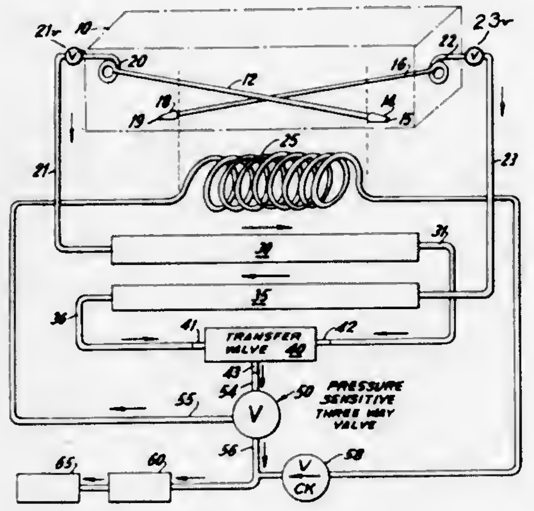
Paul E. Hatfield, Omaha, Nebr., assignor to Northern Natural Gas Company, Omaha, Nebr.
Filed Mar. 6, 1969, Ser. No. 804,921
Int. Cl. F17c *7/02;* **F17d** *1/14*
U.S. Cl. 62—45 **14 Claims**



In a cryogen-pumping system, the formation of vapor due to heat leak, especially, causes cavitation in the pump. A separator is provided to separate the cryogen vapor from the liquid. Then the vapor is expanded in a heat exchanger to subcool the cryogen liquid upstream of the pump.

3,572,048
OMINPOSITIONAL CRYOGENIC UNDERWATER BREATHIND APPARATUS

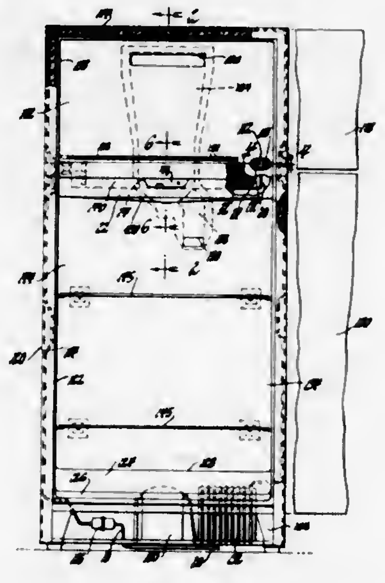
Robert H. Murphy, West Hartford, Conn., assignor to The Wiremold Company, West Hartford, Conn.
Filed Oct. 14, 1968, Ser. No. 767,373
Int. Cl. F17c *7/02*
U.S. Cl. 62—52 **19 Claims**



Cryogenic underwater breathing apparatus comprises a liquified air storing tank having mounted therein freely pivoted pickup tubes for extracting the stored fluid. An orientation responsive transfer valve automatically connects at least one of the pickup tubes, having a weighted receiving orifice disposed within the liquid phase air mass under the action of gravity, to an output demand regulator for consumption via air vaporizing apparatus, with structure being provided to maintain the system in a proper pressurized relationship relative to the ambient environment.

3,572,049
ELECTRICAL ASSEMBLY FOR A REFRIGERATOR

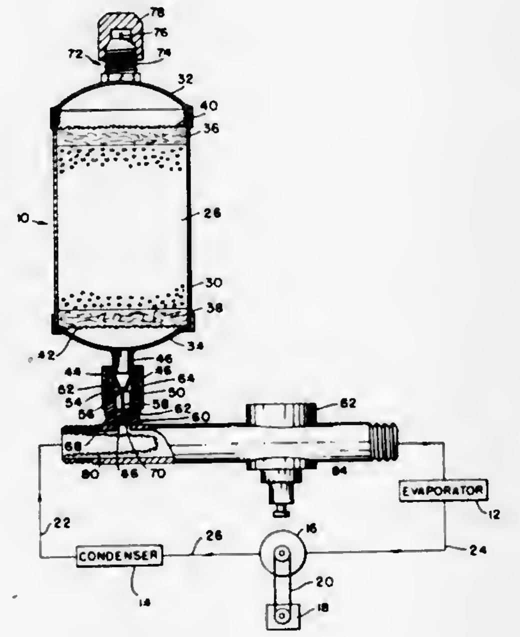
Earl J. Moorman, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 22, 1969, Ser. No. 859,781
Int. Cl. F25b *49/00*
U.S. Cl. 62—132 **5 Claims**



In the preferred form, a refrigerator cabinet is provided with a sheet metal outer shell and a plastic inner liner with polyurethane foam insulation in between. The interior of the inner liner is divided into an upper freezing compartment and a lower above freezing compartment by a sheet metal wall having a lower portion in the rear and a higher portion in the front supported by a front crossmember and the rear wall of the outer shell. Suitable insulation and an evaporator are provided above the lower portion together with a fan and fan motor at the rear which draw air through the inlets in the sheet metal wall and at the front of the upper compartment through the evaporator and discharge the air through plastic ducts in the rear wall extending to both the upper and lower compartments. A lamp socket and lamp, and a removable plastic housing surrounding the lamp are supported directly by the higher front portion of the sheet metal wall. This housing supports a centrally located door switch cooperating with the door to the lower compartment and connected in series with the lamp socket. A thermostatic refrigeration control switch is also mounted upon the housing and has a thermosensitive bulb extending to the lower rear portion of the sheet metal wall.

3,572,050
REFRIGERATION COMPONENT

Edward W. Bottum, 9357 Spencer Road, Brighton, Mich.
Filed Feb. 3, 1969, Ser. No. 795,827
Int. Cl. F25b *47/00*
U.S. Cl. 62—85 **17 Claims**

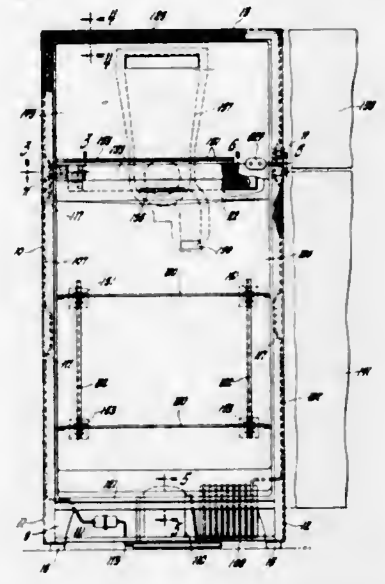


The refrigeration component comprises a drier for a refrigeration system. The drier encloses a casing in which a desiccant charge is provided. At least one tubular member is provided on the casing in fluid communication with the casing interior. Preferably, a single tubular member is provided on the casing to form both an inlet to and an outlet from the casing. Threaded fastening means are provided on that tubular member for threading engagement with threaded fastening means on a fitting of a refrigeration line of a refrigeration system to connect the drier to the system for the flow of refrigerant into and out of the drier in response to pressure conditions in the refrigerant line. The tubular member preferably includes a plunger for depression of a valve element within the fitting of the refrigerant line to simultaneously open communication between the drier and the refrigerant line upon screwing of the drier onto the fitting.

3,572,051
PARTIAL INTERNAL CONDENSER

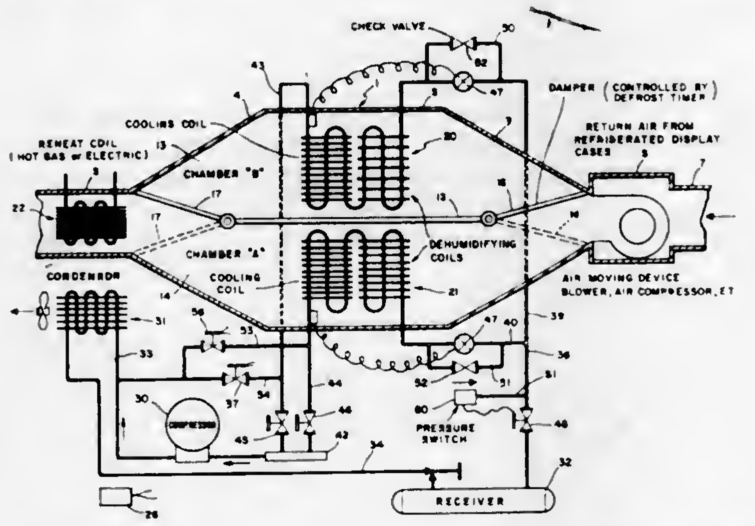
Louis D. Benasutti, Fairborn, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 22, 1969, Ser. No. 859,780
Int. Cl. F25b *47/00*
U.S. Cl. 62—277 **6 Claims**

In the preferred form of this sheet metal refrigerator cabinet, an inturned front flange extending at right angles to the top and sidewalls has an inturned U-shaped stiffening fold which snugly receives a loop of refrigerant tubing located in the refrigerant circuit between the condenser and the evaporator. This construction not only stiffens the front door opening of the cabinet but also provides efficient heat transfer from the warm refrigerant tubing to the U-shaped fold to prevent condensation of atmospheric moisture around the door opening.



3,572,052
DUCTED REFRIGERATION UNIT

Steven J. Toth, Kendallville, Ind., assignor to Streater Industries Inc., Albert Lea, Minn.
Filed May 15, 1969, Ser. No. 824,934
Int. Cl. F25b *47/00*
U.S. Cl. 62—278 **3 Claims**

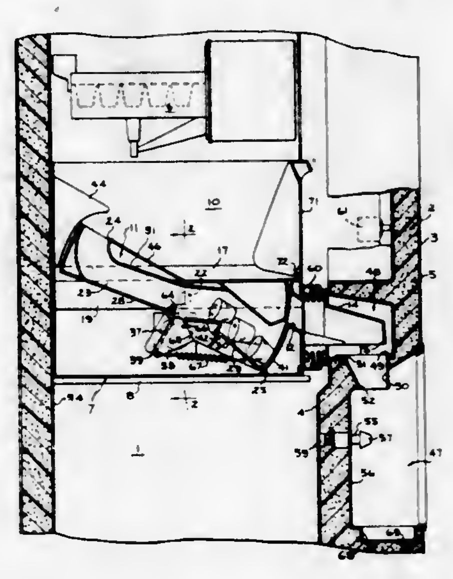

CHECK VALVE
DAMPER (CONTROLLED BY DEFROST TIMER)
RETURN AIR FROM REFRIGERATED DISPLAY CASES
COOLING COIL
REHEAT COIL (HOT GAS or ELECTRIC)
CHAMBER "B"
CHAMBER "A"
DEHUMIDIFYING COILS
COOLING COIL
CONDENSOR
AIR MOVING DEVICE BLOWER, AIR COMPRESSOR, ET
COMPRESSOR
PRESSURE SWITCH
RECEIVER

The invention relates to a ducted refrigeration unit for continuously supplying quantities of refrigerated air to a group of refrigerated food display cases. The unit has two chambers arranged in parallel with a cooling coil disposed in each chamber. A liquid refrigerant is selectively and alternately supplied to one coil during the time a hot defrosting gas is supplied to the other coil. Damper means alternately direct circulating air through the chamber in which the coil thereof is supplied with a liquid refrigerant while bypassing the chamber in which the coil thereof is being defrosted.

3,572,053
HOUSEHOLD REFRIGERATOR INCLUDING THROUGH-THE-DOOR ICE SERVICE

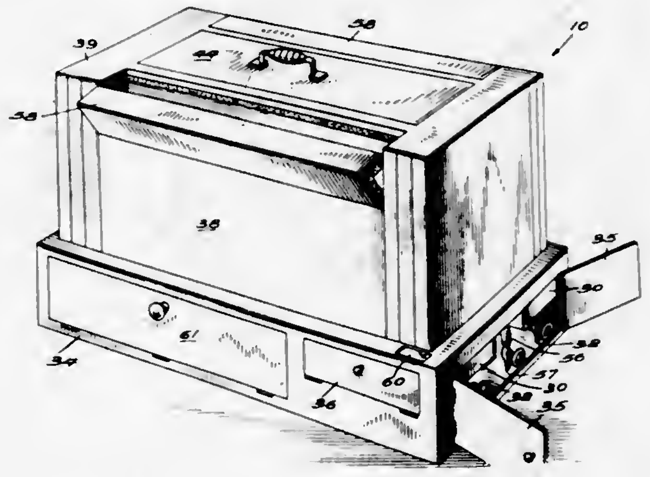
Dwight W. Jacobus, and William C. Bodong, Louisville, Ky., assignors to General Electric Company
Continuation-in-part of application Ser. No. 824,728, Apr. 29, 1969, now abandoned , which is a continuation of application Ser. No. 669,234, Sept. 20, 1967, now abandoned. This application June 23, 1969, Ser. No. 835,689
Int. Cl. F25c *5/18*
U.S. Cl. 62—344 **17 Claims**

A refrigerator cabinet including a freezer compartment containing an icemaker, an ice storage receptacle and dispenser for storing and dispensing ice pieces made by the ice maker, a passage in the freezer door for delivering ice pieces from the dispenser to a service area on the outer surface of the door, and operating means including an actuating means on the outer surface of the door for energizing the dispenser. Preferably, means are provided for closing the passage when the dispenser is not energized and the receptacle and dispenser are removable as a unit from the cabinet. A door-operated switch prevents operation of the dispenser when the door is open.



3,572,054
PORTABLE COOLER

Anthony M. Curcio, 3723 N. 8th St., Philadelphia, Pa.
Filed Feb. 25, 1969, Ser. No. 802,000
Int. Cl. B67d *5/62*
U.S. Cl. 62—390 **5 Claims**

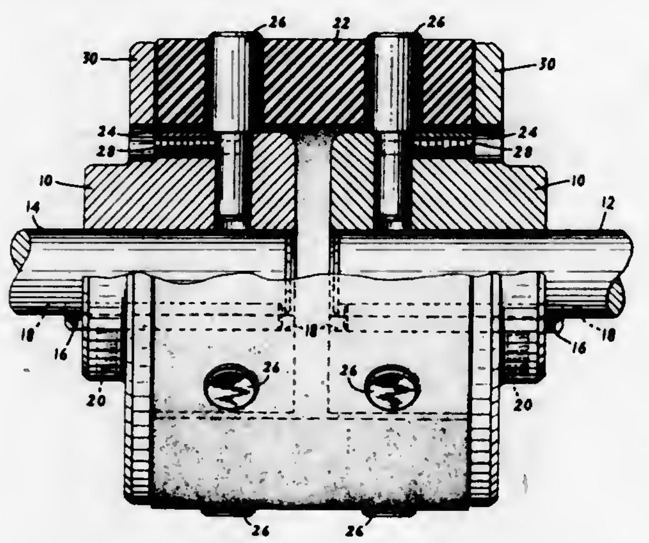


A cooler box having insulated compartments for containing food, ice, and water and additionally having syrup containers with dispensing spigots for the syrup, as well as dispensing spigots for the melted ice of the ice container and the water container.

3,572,055
MARINE-TYPE FLEXIBLE COUPLING

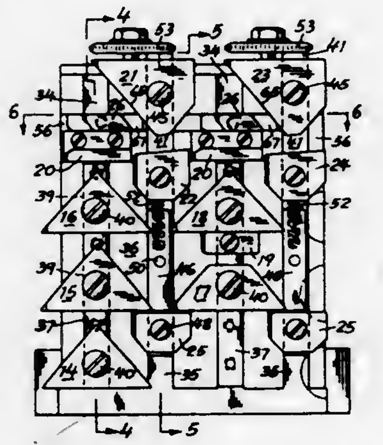
Peter R. Billey, 17 Stillman St., South Dartmouth, Mass.
Filed Aug. 13, 1969, Ser. No. 849,845
Int. Cl. F16d *3/52*
U.S. Cl. 64—11 **4 Claims**

A marine-type flexible coupling comprising hubs attached to the drive shaft and the propeller shaft connected by a loose-fitting elastomeric sleeve held on the hubs by pins passing through the sleeve into the hubs which is capable of handling (1) angular misalignment which occurs when the connected shafts are not parallel or not coaxial; (2) parallel offset alignment which occurs when the connected shafts are parallel but not coaxial; and (3) combined shaft offset and angular misalignment which occurs when the connected shafts are not parallel and their centerlines do not intersect.



3,572,056
GUARD CAM FOR KNITTING MACHINES

Jack Radin, Brooklyn, N.Y., assignor to Monarch International Ltd., Brooklyn, N.J.
Continuation of application Ser. No. 830,186, May 16, 1969, now abandoned , which is a continuation of application Ser. No. 665,929, Sept. 6, 1967, now abandoned. This application Dec. 15, 1969, Ser. No. 885,369
Int. Cl. D04b *9/26*
U.S. Cl. 66—57 **11 Claims**

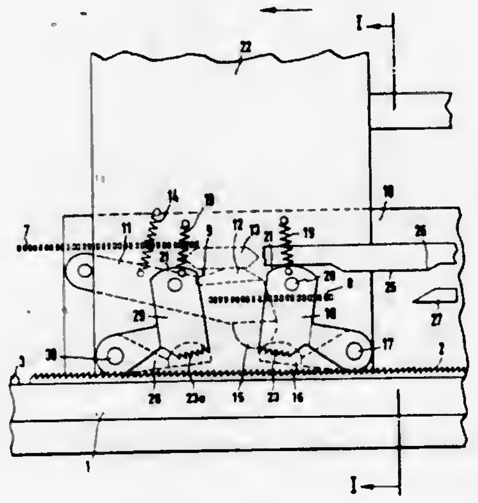


A guard cam for use in conjunction with a stitch cam at a feed in latch needle-knitting machines, which, with the stitch cam, provides therebetween a confined path of travel for the needless in their stitch-drawing movement and which, by itself, prevents undesirable needle overthrow and provides proper paths of travel for needles moving at the tuck and welt levels. The guard cam is adjustable in a direction at right angles to the direction of adjustment of the stitch cam whereby a fixed distance may be maintained therebetween.

3,572,057
ARRESTING MECHANISM FOR A CARRIER MOUNTED ON A CARRIAGE OF A FLAT KNITTING MACHINE

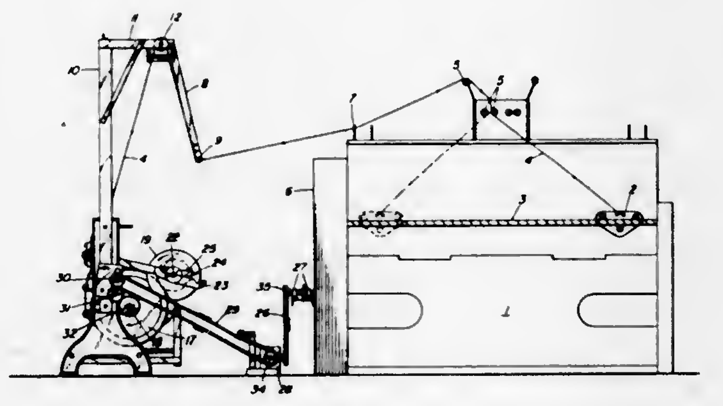
Erich Krause, Bopfingen, Germany, assignor to Universal Maschinenfabrik Dr. Rudolf Schieber G.m.b.H., Westhausen, Germany
Filed Sept. 10, 1969, Ser. No. 856,858
Int. Cl. D04b *7/10*
U.S. Cl. 66—76 **6 Claims**

A carrier for the narrowing device of a flat knitting machine moves from a leading position to a trailing position on a carriage when the carrier is arrested while the carriage moves along a needle bed, and a cam arrangement on the carrier and carriage operates the narrowing during the carrier arrest. The arresting mechanism is triggered by a jack butt in the needle bed which tilts an actuating arm on the carriage by abutting engagement, the actuating arm pivoting a toothed stopping arm on the carrier into engagement with a toothed arresting rail on the needle bed.



3,572,058
DEVICE FOR FEEDING ELASTIC YARN INTO A STITCH-THROUGH TYPE MACHINE

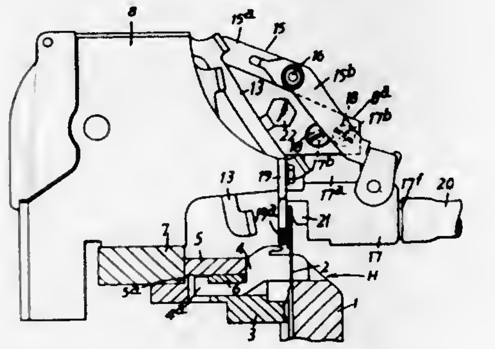
Albert J. Richards, 290 Mount Hope St., Lowell, Mass., and Fred E. Bower, 86 Lowell Blvd., Methuen, Mass.
Filed Mar. 12, 1969, Ser. No. 806,545
Int. Cl. D04b *23/06*
U.S. Cl. 66—84 **7 Claims**



A device, which can be in the form of an attachment to a stitch-through fabric-making machine, such as a Malimo machine. The attachment is particularly useful for laying in elastic weft threads to be stitched in by warp threads into the fabric and takes a drive from the main machine drive to turn a drum or drums which receive weft or filling threads, such as elastic threads, from a beam or creels they drive. The rotation of the drum, while continuously in one direction, is at varying rates so that the elastic filling threads are fed to the machine carriage at the rate the carriage moves, which prevents stretching of the filling threads and produces a smooth, uniform fabric. The device can be in the form of an attachment to an already existing machine or, of course, can be built into a new machine.

3,572,059
IMPROVED MULTIFEED CIRCULAR KNITTING MACHINE EQUIPPED WITH PNEUMATIC YARN TRAPPERS

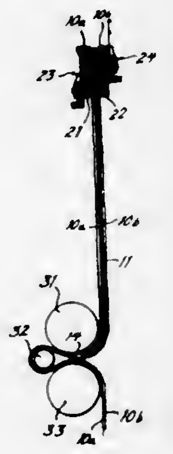
Walter Goadby, Evington, Leicester, England, assignor to Camber International (England) Limited, Leicester, England
Filed Dec. 2, 1968, Ser. No. 780,377
Claims priority, application Great Britain, Dec. 16, 1967, 57,235/67
Int. Cl. D04b *15/61*
U.S. Cl. 66—140 **8 Claims**



A multifeed circular knitting machine with a striper at each feed. Each striper includes fingers to present yarns and withdraw them from needles, and a cutter device for severing a withdrawn yarn. A yarn holder block, between each striper and its cutter device, holds a withdrawn and severed yarn until next required. Each yarn holder block has a through-aperture open at one end adjacent to a path taken by a withdrawn yarn and in communication at its opposite end with air suction. Air suction is produced by a fan unit common to all the stripers.

3,572,060
MACHINE KNITTING

Charles A. Titone, Burlington, N.J., assignor to Titone Research & Development Corporation, Burlington, N.J.
Filed May 5, 1969, Ser. No. 821,922
Int. Cl. D04b *27/34*
U.S. Cl. 66—150 **17 Claims**

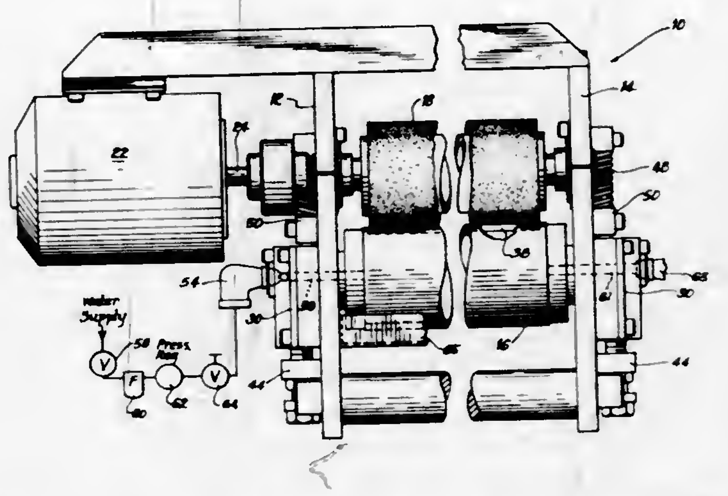


Lateral contraction or "necking" of warp-knitted tubular fabric between knitting and winding locations is prevented by inserted guide plates equal in width to the as-knit tubular portions and supported for lateral movement, as is especially useful in manufacture of panty hose and similar bifurcated tubular garment fabrics or the like.

3,572,061
MOISTURIZER MEANS FOR WEBS

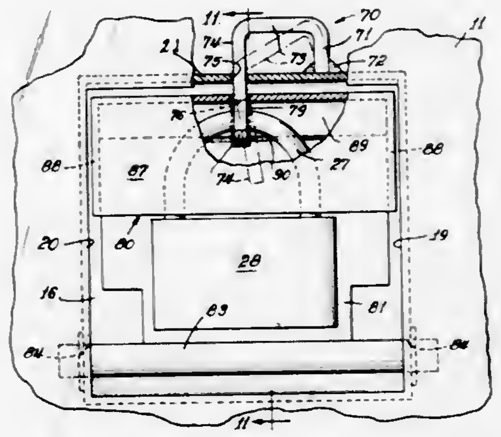
Henry H. Hering, Jr., Homewood, Ill., assignor to B. Offen & Co., Inc., Chicago, Ill.
Filed Jan. 2, 1969, Ser. No. 788,502
Int. Cl. B05c *5/00*
U.S. Cl. 68—200 **7 Claims**

An apparatus for applying moisture to web surfaces wherein water or other fluid is introduced into tubular supply means located adjacent the path of movement of the web. An opening is provided in the top surface of the tubular elements and the water is maintained under pressure so that a continuous supply of water is forced outwardly through the opening and exposed on the outer surface of the tubular elements. An applicator means such as a brush operates to continuously pick up the water and to throw the water onto the web surfaces.



3,572,062
TAMPER PROOF LOCKING MEANS USING A PADLOCK

Emmett R. Beebe, Glenview, Ill., assignor to S & C Electric Company, Chicago, Ill.
Filed Sept. 22, 1969, Ser. No. 859,975
Int. Cl. E05b *15/02, 65/52;* **E05c** *3/04*
U.S. Cl. 70—1.5 **7 Claims**

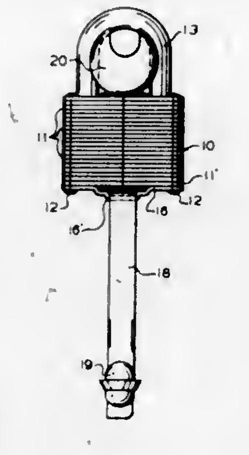


A J-shaped pivoted hasp has a slot in the hook end through which a padlock shackle receiving staple projects with the flange at the hook end overlying the shackle to limit access thereto. A hook or tongue movable with the hasp is in several species engageable with a member to be locked to the hasp carrying member. Also in another species the staple is mounted on one member and the hasp is pivoted on another member. The staple is movable into locking engagement with the hasp when the padlock is forcibly displaced.

3,572,063
TAMPER-PROOF SEAL RETAINING LOCKS

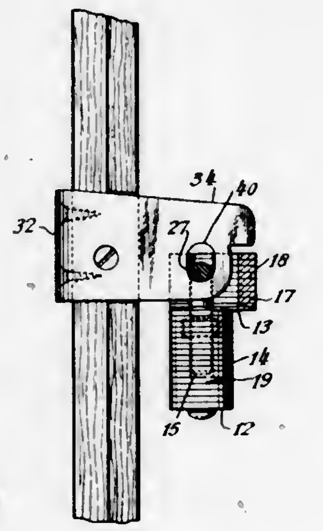
Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.
Filed Sept. 8, 1969, Ser. No. 855,818
Int. Cl. E05b *67/38;, 171/4, 39/02*
U.S. Cl. 70—50 **4 Claims**

For goods or materials which are shipped or stored under seal there is provided a key-actuated lock formed on one wall with a channel plate having an opening therein registering with the keyway of the lock. The channel plate is adapted to hold over the lock keyway and in guarding relation thereto, a portion of a sealing element. As long as the sealing element remains intact and in position it is impossible for a tamperer to gain unauthorized access to the lock keyway. However, if the seal should be removed or broken, thus giving visual evidence of tampering, the lock must, nevertheless, be illegally opened to give a tamperer access to the protected goods, thereby providing double security.



3,572,064
PADLOCKS

Daniel Victor Berry, Bracknell, and Stanley Gerald Thomas Knott, Wadhurst, England, assignors to Ingersoll Locks Limited, London, England
Filed Jan. 27, 1969, Ser. No. 794,250
Int. Cl. E05b *67/22;* **E05c** *19/08*
U.S. Cl. 70—52 **4 Claims**

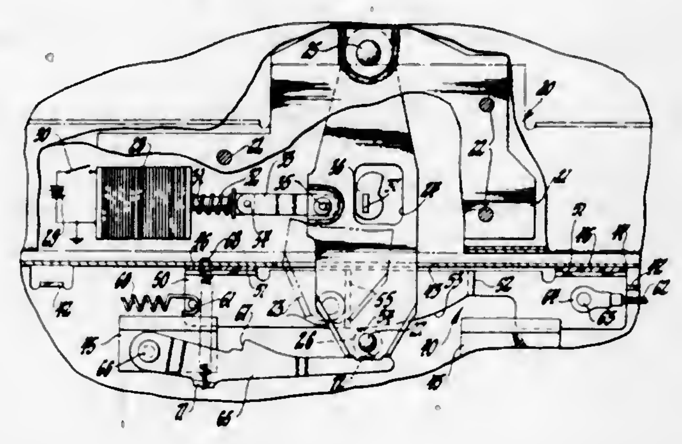


The invention relates to a padlock comprising a shackle adapted to engage with one or more members to be locked, a casing adapted to accommodate said shackle in a locking position and provided with a recess adapted to accommodate part of said member or members when the shackle is in said locking position the arrangement being such that in use with the shackle in the locking position at least part of the member-engaging portion and the member or members adapted to be engaged thereby is accommodated by said recess.

3,572,065
CLOSURE LATCH

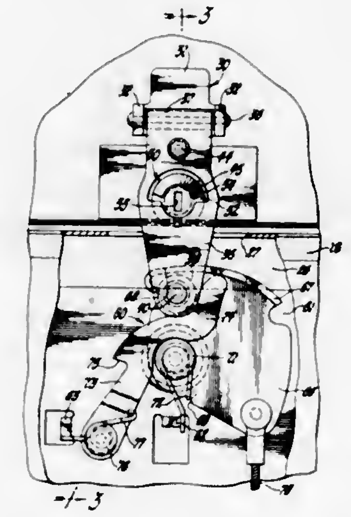
Theodore F. Peters, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 31, 1969, Ser. No. 846,537
Int. Cl. E05b *65/19;* **E05c** *3/30, 11/00*
U.S. Cl. 70—156 **10 Claims**

A closure latch for a vehicle body deck lid or the like includes a striker pivotally mounted on the deck lid for movement from a first position in operative relation to a latch member slideably mounted to the vehicle body to a second position out of engagement with the wedge plate, movement of the striker to the second position to unlatch the deck lid being effected by a power source from within the vehicle or by a conventional key lock from the exterior of the vehicle. The latch member is slideably mounted on the vehicle body for movement from an unlatched position to a latched position relative to the striker and is power driven to the latched position.



3,572,066
CLOSURE LATCH

Theodore F. Peters, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 31, 1969, Ser. No. 846,450
Int. Cl. E05b *65/19;* **E05c** *3/30, 11/00*
U.S. Cl. 70—156 **6 Claims**



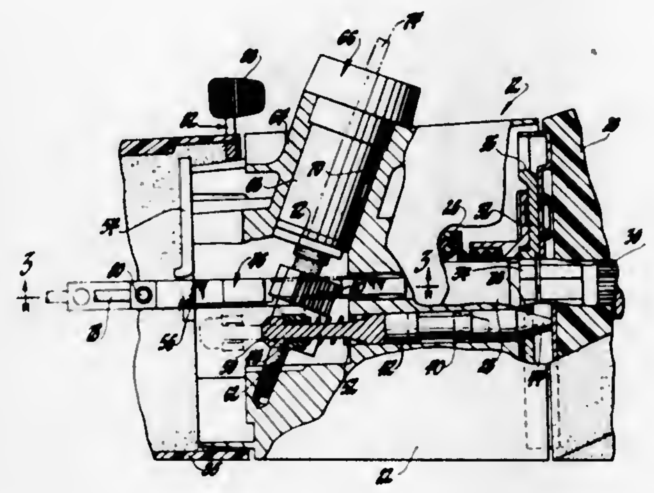
A closure latch for a vehicle deck lid or the like includes a striker plate pivotally mounted on the deck lid for movement from a first position in operative relation to a latch member to a second position out of engagement with the latch member. The latch member, in the form of a wedge plate is pivotally connected to the vehicle body and power rotated during final closure to engage and pull down the striker plate thereby pulling the deck lid firmly against the vehicle body with a weather seal compressed therebetween.

3,572,067
STEERING COLUMN LOCK

Dan R. Kimberlin, and Frederick C. Riffelmacher, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 1, 1969, Ser. No. 846,881
Int. Cl. B60r *25/02;* **E05b** *65/12*
U.S. Cl. 70—252 **4 Claims**

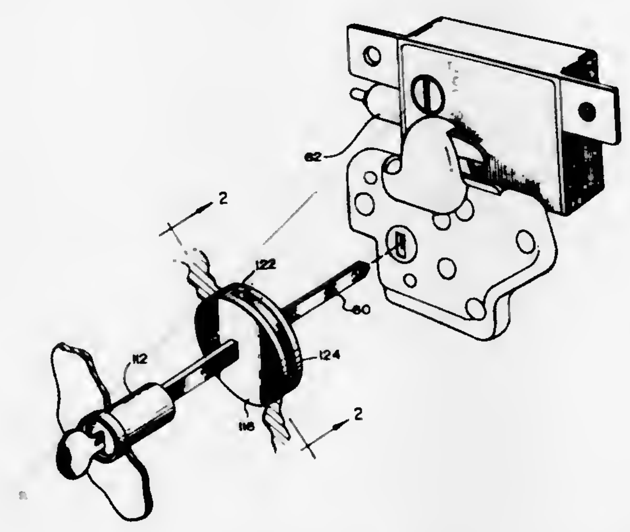
A motor vehicle-steering column lock of the type having a lock bolt movable between locking and unlocking positions with relation to the vehicle-steering shaft and an ignition and starter switch assembly both controlled by a key-operated rotatable cylinder lock further includes a finger-operated blocking lever operative to prevent key rotation of the

cylinder lock actuator to a position placing the lock in locked condition until the blocking lever is first consciously depressed preparatory to the actuating rotation on the lock cylinder actuator.



3,572,068
LATCH RELEASE SYSTEM

Peter T. Carlson, Canton; Frederick J. Weremey, Milton, and Edward B. Mitchell, Belmont, Mass., assignors to United-Carr Incorporated, Boston, Mass.
Filed Sept. 12, 1968, Ser. No. 759,286
Int. Cl. E05b *65/12*
U.S. Cl. 70—241 **6 Claims**

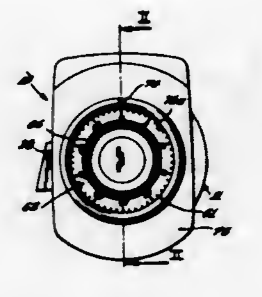


This is a latch release system which uses a manually actuated switch means electrically connected to a release mechanism including a heat motor and gear means. The heat motor and gear means have means of electrically opening the circuit instituted by the manual switch. The gear means turns a shaft which is connected at one end to a keylock and which is passed through a latch mechanism and is adapted to turn in one direction without turning the keylock.

3,572,069
KEY OR PERMUTATION OPERATED LOCK

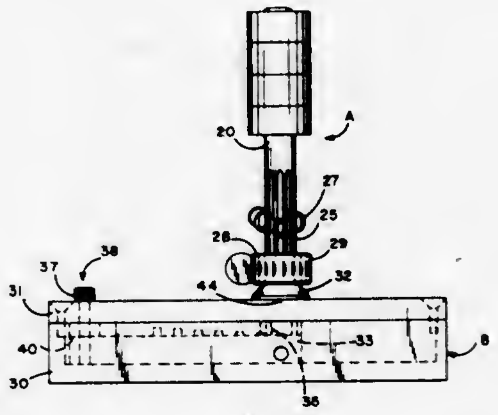
George P. Junkunc, Palos Heights, Ill., assignor to Junkunc Bros. American Lock Company, Crete, Ill.
Filed Sept. 18, 1969, Ser. No. 859,072
Int. Cl. E05b *37/08, 65/02*
U.S. Cl. 70—285 **10 Claims**

Combined key or permutation operated lock for locker doors and the like wherein a set of tumblers is mounted on a fixed center post for axial movement therealong between a normal position wherein a fence on a pivoted latch bolt confronts peripheral edges of the tumblers and noninterfering position wherein the set of tumblers is clear of the fence to permit release of the latch bolt. Cam means operated by a key cylinder engage the set of tumblers and selectively move the same to the noninterfering position upon rotating of the key cylinder in a release direction by a key.



3,572,070
SETTABLE KEY AND SETTING MECHANISM FOR TUBULAR LOCK

Max K. Brand, P.O. Box 3531, San Diego, Calif.
Filed May 22, 1969, Ser. No. 826,904
Int. Cl. E05b *19/18*
U.S. Cl. 70—411 **8 Claims**

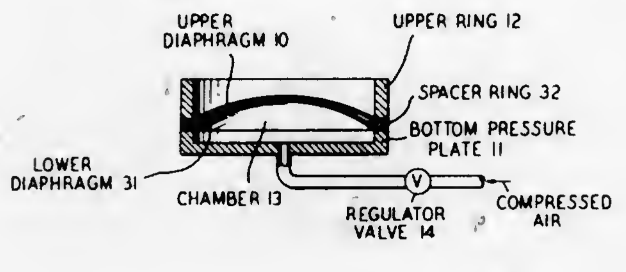


An elongated block having a plurality of abutments of successively varying height aligned lengthwise of its upper surface, is mounted for longitudinal slidable movement in a boxlike housing. A key-receiving bushing is fitted into the top of the housing with the path of movement of the abutments extending through a notch in the bushing. Detent means centers any selected one of the abutments in the notch in the bushing bore. A settable key for a tubular lock comprises a tubular body insertable in the bushing and having a plurality of tumbler-actuating pins mounted for independent longitudinal adjustment in individual grooves located symmetrically about the periphery of the body. The pins are enclosed by an encircling resilient sleeve enclosed by a compressible steel band. With the key inserted in the bushing and bearing on the block, the pins are adjusted in predetermined sequence to contact code-determined ones of the abutments and are retained in adjusted or set position by the resilient pressure of the band enclosed sleeve.

3,572,071
PARABOLIC REFLECTOR ANTENNAS

Ralph A. Semplak, Shrewsbury, and Richard H. Turrin, Colts Neck, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed June 7, 1968, Ser. No. 735,334
Int. Cl. B21d *26/02*
U.S. Cl. 72—54 **1 Claim**

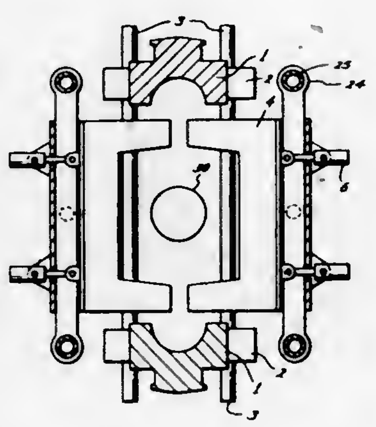
This application discloses a method for making a paraboloidal surface. In particular, such a surface is made by immobilizing the circumference of a circular portion of a thin diaphragm and applying a sufficient uniform pressure to the circular portion to permanently deform it. It has been discovered empirically that the surface thus produced is paraboloidal to a sufficiently high degree of approximation to be useful as a microwave reflector antenna. In addition,



refinements in the final shape can be realized by using a plurality of closely spaced blanks in the deformation process.

3,572,072
ELECTROHYDRAULIC-FORMING SYSTEM

Marvin L. Hundley; Edwin A. Till, Jr., and Buel O. Russell, Fort Worth, Tex., assignors to said Hundley and said Russell assignors to Electro-Form, Inc., Fort Worth, Tex.
Continuation-in-part of application Ser. No. 656,142, July 26, 1967, now abandoned. This application Feb. 8, 1968, Ser. No. 709,523
Int. Cl. B21d *26/12*
U.S. Cl. 72—56 **22 Claims**

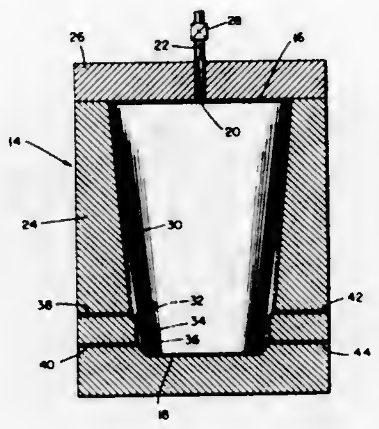


Electroforming system including a tubular forming apparatus and a switch means for connecting an electrical power source to any one of a plurality of such forming apparatus. The forming apparatus includes two die portions which are wedgedly engaged by die support means to maintain the die portions in a closed position during the electroforming operation. End covers having novel seal means and electrodes are provided to enclose a workpiece within the die assembly. The switch means includes a first pair of conductive plates which is connected by coaxial cables to the power supply. A pair of plates is also provided for each forming apparatus and is connected by coaxial cables to the electrodes of the forming apparatus. The latter plates are movably mounted to abut the first pair of plates. A shorting bar is provided which abuts the first pair of plates when no plates are in an abutting position with the first two pairs.

3,572,073
METHOD OF SHAPING A THIN-WALLED BODY

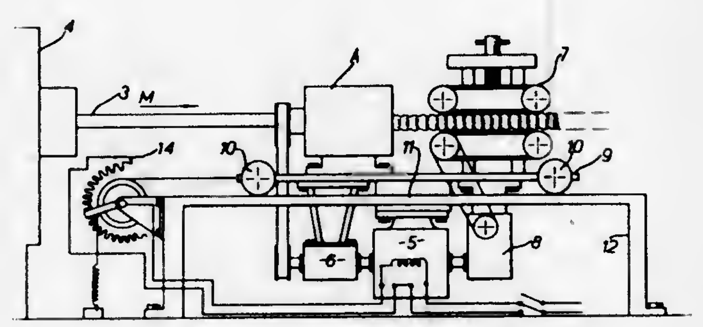
Walter B. Dean, Narberth, and Harry P. Schane, Both (c/o The Budd Company 250 Huntng Park Ave. Philadelphia, Pa. 19132), Lafayette Hill, Pa.
Filed Mar. 10, 1969, Ser. No. 805,403
Int. Cl. B21d *26/04*
U.S. Cl. 72—62 **4 Claims**

A method of shaping a body includes putting a preform into a mold and heating the assembly to produce and increase pressure within the preform causing the preform to expand and conform to the shape of the interior of the mold.



3,572,074
CORRUGATING METHODS AND APPARATUS

Henry William Holdup, Southampton; John Alfred Baskwell, Winchester; Reginald Henry Lush, Midanbury, Southampton, and James Arthur Francis Donelan, Alton, England, assignors to Pirelli General Cable Works Limited
Filed Jan. 3, 1969, Ser. No. 788,779
Claims priority, application Great Britain, Jan. 9, 1968, July 25, 1968, 1266/68;35552/68
Int. Cl. B21d *15/04*
U.S. Cl. 72—77 **4 Claims**

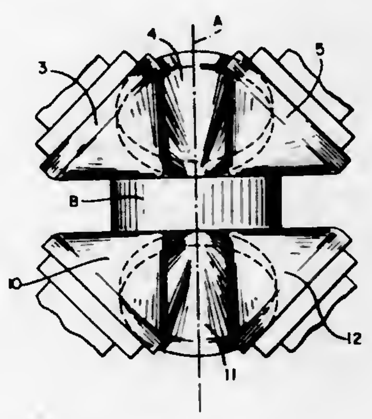


For producing annular corrugations in metal tubing, such as an electric cable sheath, an apparatus is disclosed which includes an annular corrugating member having a helical-working ridge on its inner circumference and mounted so as to encircle the tubing eccentrically with the working ridge bearing against the tubing. The corrugating member is mounted for free rotation in its own plane within a head which is itself rotatable about the tubing axis so as to move the geometric center of the corrugating member in a circle around the tubing axis. The working ridge bears against successive portions of the tubing to form annular corrugations as the head is rotated and the tubing is moved through the corrugating member.

3,572,075
METAL-ROLLING METHODS

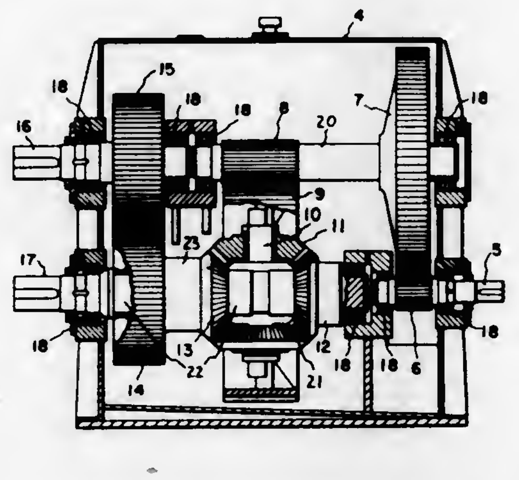
Claus L. Sporck, Traverse City, Mich., assignor to Hitco, Gardena, Calif.
Filed Nov. 13, 1968, Ser. No. 775,266
Int. Cl. B21h *1/02;* **B21b** *19/14*
U.S. Cl. 72—86 **9 Claims**

The method of forming metal billets into desired cylindrical and circular shapes by imposing a squeezing force on the billet to cause the metal to flow in a direction for obtaining the desired shape while simultaneously imposing an additional force operating in a direction the same as the direction of metal flow caused by the squeezing force to assist the flow caused by the squeezing.



3,572,076
PIPE-FORMING METHOD AND APPARATUS

Shigeo Kojima; Tsutomu Nishi; Tetsunosuke Ogo, and Tetsuo Sasaki, Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaishi, Japan
Filed Oct. 14, 1968, Ser. No. 767,208
Claims priority, application Japan, Oct. 14, 1967, 65893/67
Int. Cl. B21d *5/08*
U.S. Cl. 72—181 **7 Claims**

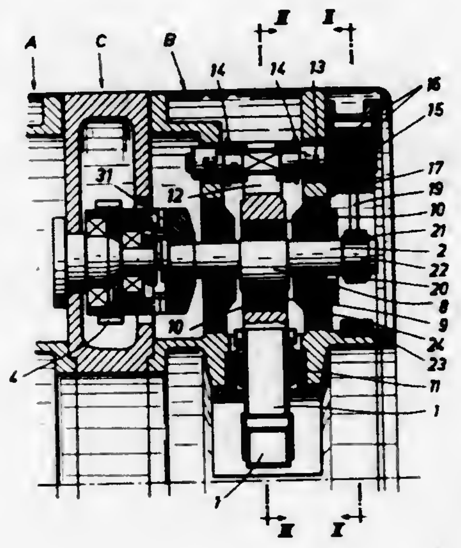


A pipe-forming method and apparatus wherein one pipe-forming roll at each of a number of tandem-forming stations is rotated at a first speed. The mating rolls at each station are rotated at different speeds determined by the central points of contact made by each of the rolls at a station and the metal plate being formed, thereby minimizing the effects of slippage between the other surfaces of the rolls and the metal plate and preventing the breakage of the drive shafts for the rolls.

3,572,077
APPARATUS FOR A CONTINUOUS SWAGING OF ROD-SHAPED WORKPIECES

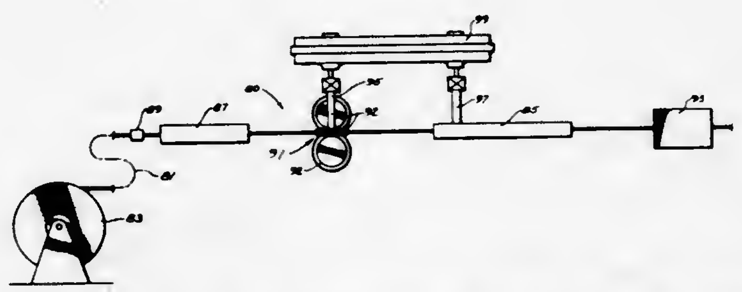
Bruno Kralowetz, Weinleiten 142, Steyr, St. Ulrich, and Gottfried Blaimschein, Punchstrasse 2, Steyr, Austria
Filed Apr. 18, 1969, Ser. No. 817,356
Claims priority, application Austria, May 3, 1968, A4253/68
Int. Cl. B21j *9/06, 9/18*
U.S. Cl. 72—189 **10 Claims**

At least one swaging unit is provided, which defines a feed path along which a rod-shaped workpiece is axially movable in said unit. Each of said units comprises a frame, a plurality of guides spaced around said path and extending substantially radially with respect to said path and rotatably mounted in said frame on axes which extend transversely to said path, a plurality of dies which consist of connecting rods and are slidably mounted in respective ones of said guides, a plurality of eccentric shafts mounted in said frame and extending parallel to said path and operatively connected to respective ones of said dies to reciprocate the same in said guides, and oscillating means for imparting to each of said dies an oscillating pivotal movement about the axis of rotation of the respective guide.



3,572,078
VARIABLE ORIFICE, ZERO FRICTION DRAW DIE

Clifford F. Kennedy, Simi; Thomas M. Shelton, Glendale, and Hugh N. Chu, Canoga Park, Calif., assignors to North American Rockwell Corporation
Filed Jan. 29, 1967, Ser. No. 649,975
Int. Cl. B21b *21/00*
U.S. Cl. 72—194 **10 Claims**



A tube tapering arrangement including at least three rotatable and equiangularly spaced circular disc dies. The die circumferences are identically contoured with variable depth die peripheries that are aligned adjacent one another in a geometric pattern defining a die orifice. During tube tapering of elongated workpieces, the disc dies are rotated synchronously so that the workpiece is deformed to the desired taper configuration.

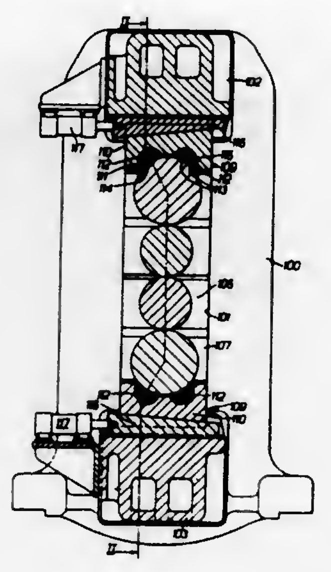
ERRATUM

For Class 72—199 see:
Patent No. 3,572,146

3,572,079
ROLLING MILLS

Harry Laurence Fred Bond, Hathersage, near Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, Yorkshire, England
Filed Aug. 29, 1967, Ser. No. 664,120
Claims priority, application Great Britain, Aug. 31, 1966, 38874/66
Int. Cl. B21b *31/32, 31/30*
U.S. Cl. 72—245 **2 Claims**

This invention is concerned with improved bearings for rolls of a rolling mill. According to the invention a pair of opposed rolls are supported in vertically adjustable hydrostatic bearing assemblies for resisting the vertical rolling force and separate means are provided to contain the horizontal forces. The hydrostatic bearing assemblies surround less than half



the circumference of the roll barrels so that they can accommodate different sizes of rolls and do not need to be changed each time the rolls are changed or reground.

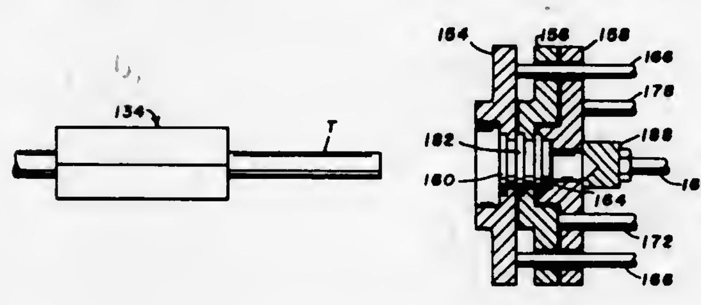
3,572,080
PRODUCTION OF POINTED WORKPIECES

Peter Alexoff, Poland; George A. Mitchell, Youngstown, Ohio, and Fred E. Halstead, Wynne, Ark., assignors to George A. Mitchell Company, Youngstown, Ohio

Continuation-in-part of application Ser. No. 681,291, Nov. 7, 1967, now abandoned. This application Oct. 3, 1968, Ser. No. 764,875

Int. Cl. B21c *5/00*

U.S. Cl. 72—354 **6 Claims**



Described are a method an apparatus for pointing long slender workpieces, characterized in that concentric, telescoping dies of successively smaller cross-sectional areas are forced over the end of the workpiece to thereby progressively reduce its cross-sectional area in steps. Also described are a method and apparatus for preventing bowing or curving in a point formed by forcing a die over a workpiece to extrude the point.

3,572,081
APPARATUS FOR MECHANICALLY EXPANDING LARGE DIAMETER PIPE

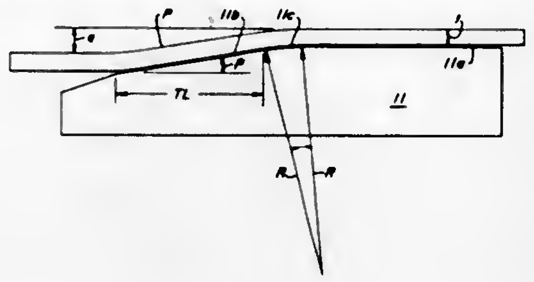
Douglas E. Alexander, North Huntington Township, Westmoreland County, Pa., assignor to United States Steel Corporation

Filed Apr. 21, 1969, Ser. No. 818,036

Int. Cl. B21d *41/02*

U.S. Cl. 72—393 **3 Claims**

Apparatus for expanding pipe in increments includes a plurality of expandable dies having a length substantially less than that of the pipe. Each die includes a first curved outer section with a radius substantially equal to the inside diameter of the expanded pipe, a second curved outer tapered section having a minimum radius no greater than the inside radius of the unexpanded pipe, and a third arcuate section tangent to the first and second sections. The third section is also arcuate in its longitudinal direction and has a radius sufficiently long to prevent stressing of the fibers of the pipe wall a substantial amount beyond the yield point of the pipe material.



3,572,082
RAIL HOLE SWAGING MACHINE

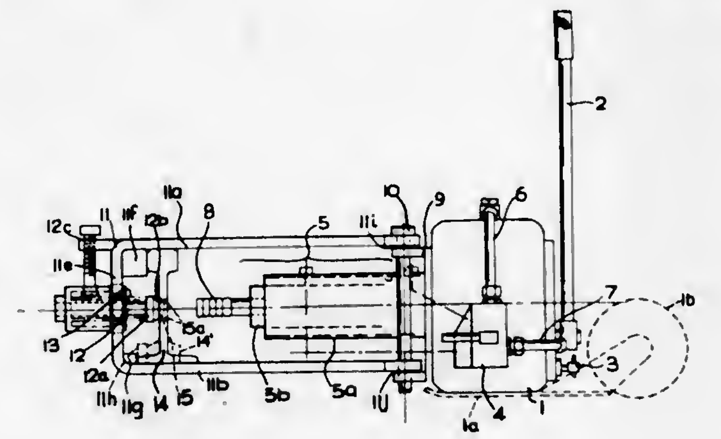
William Wooley Payne, Nottinghamshire, England, assignor to W. E. & F. Dobson Limited

Filed Dec. 5, 1967, Ser. No. 688,159

Claims priority, application Great Britain, Dec. 13, 1966, 55824/66

Int. Cl. B21j *9/12*

U.S. Cl. 72—453 **7 Claims**



A portable swaging machine for swaging holes in laid railway rails, comprising as a rigid structure a hydraulic hand pump to which is connected a control and a hydraulic jack, the jack ram having its outer end adapted for fitment of a swaging tool, a releasable fastening device in the form of a U-frame releasably pivoted to the rigid structure and adapted for fitting about a rail in looplike manner, there being optionally provided a centering plunger for engaging the rear of the hole, a spacer for use with a bull head rail, adjustment means for holes at different levels, and skid or wheel means under the machine.

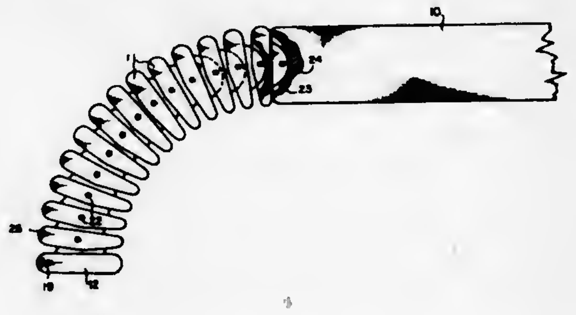
3,572,083
ARTICULATED FLEXIBLE WAVE GUIDE BENDING AND SIZING MANDREL FOR H PLANE

John G. Schmitt, 2516 Norcross St., Hillcrest Heights, Md.

Filed Aug. 19, 1968, Ser. No. 753,350

Int. Cl. B21b *25/04*

U.S. Cl. 72—466 **3 Claims**



This invention is directed to an articulated flexible waveguide bending and sizing mandrel for the H-plane form. This mandrel is capable of forming a waveguide inner surface which is free of scratches or burrs and without any flats or sidewall wrinkles in the bend surfaces or along the straight sections. A plurality of individual elements are secured together by separate shear pins which permits the elements to pivot relative to each other. One face is made at an angle in order to permit bends up to 180° with a minimum radius. The minimum radius depends on the size of each element and the angle of the face.

3,572,084
APPARATUS FOR DIFFERENTIAL THERMAL ANALYSIS

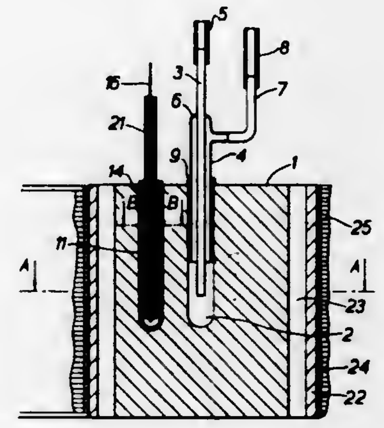
Ivor Clifford Herbert May, Banstead Surrey, England, assignor to BP Chemicals (U.K.) Limited, London, England

Filed Jan. 21, 1969, Ser. No. 792,708

Claims priority, application Great Britain, Jan. 25, 1968, 3906/68

Int. Cl. G01n *25/00*

U.S. Cl. 73—15 **6 Claims**



Apparatus for low temperature differential thermal analysis wherein cooling of the sample block is carried out by means of a liquefied gas fed in the form of discrete slugs through small-bore plastics tubing, to a cavity in the block.

3,572,085
METHOD OF DETECTING LEAKS IN FLUID-CONTAINING EQUIPMENT

Joseph J. Packo, 3043 N. Federal Highway, Fort Lauderdale, Fla. 33306

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,898

Int. Cl. G01m *3/22*

U.S. Cl. 73—40.5 **8 Claims**

The invention relates to a method of detecting leaks in closed systems, for example pipelines, vessels, containers and other equipment adapted to contain fluids in static or flowing condition. According to the present invention certain agents which provide heat reactions, referred to as heat indicants, are used. A suitable amount of a heat-indicant compound is supplied to the interior of such equipment. In event a leak exists or develops in such equipment the heat-indicant upon escape into the atmosphere will react with oxygen and/or moisture and generate heat. The heat thus generated can be detected by suitable sensitive infrared detector equipment thereby giving an indication that a leak exists.

Examples of heat-indicant agents which are suitable for detecting leaks in closed systems are metal alkyls, metal alkyl halides, metal hydrides, metal alkyl hydrides, diphosphines, alkyl phospines halide, alkyl phosphines. When such agents escape into the air they react with the oxygen and/or moisture and generate heat which can be detected by suitable infrared detector equipment.

3,572,086
VISCOMETERS

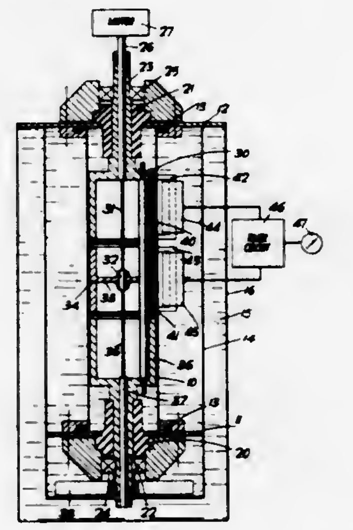
James Stewart Johnston, Bognor Regis, England, assignor to Rosemount Engineering Company Limited, Bognor Regis, Sussex, England

Filed Mar. 4, 1969, Ser. No. 804,214

Claims priority, application Great Britain, Mar. 7, 1968, 11,143/68

Int. Cl. G01n *11/14*

U.S. Cl. 73—59 **24 Claims**



A viscometer has a cylindrical driven member immersed in the liquid within a cylindrical container. A continuously rotated drive shaft extends into the container and is coupled by a resilient coupling to the driven member so that the viscous drag due to fluid in the annular gap between the driven member and container causes the driven member to lag behind the drive shaft; the lag is sensed as a time lag, using sensors outside the container, as a measure of viscosity. With this construction, the viscous torque is not transmitted through any seals or bearings. Guard rings directly driven by the drive shaft may be provided adjacent the ends of the driven member to eliminate end effects. A vernier measurement system with electrical read-out is provided.

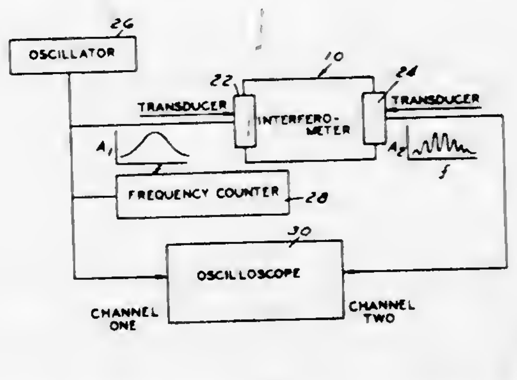
3,572,087
PHASE ANGLE MEASUREMENT OF ULTRASONIC VELOCITIES

Jack G. Parks, Troy, Mich., assignor to the United States of America as represented by the Secretary of the Army

Filed Sept. 24, 1969, Ser. No. 860,741

Int. Cl. G01n *29/02*

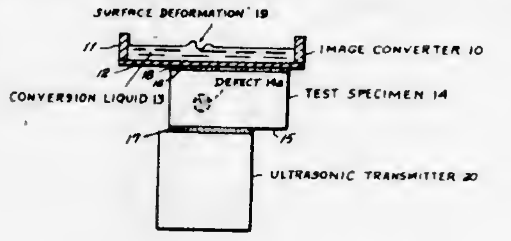
U.S. Cl. 73—67.2 **7 Claims**



An electronic device and method for determining the velocity of propagation of compressional sound waves in non-dispersive liquids by measuring relationship between phase angle and frequency. The device uses a double crystal, fixed geometry, ultrasonic interferometer to measure the compressional wave velocities in the liquid.

3,572,088
DEVICE FOR CONVERSION OF ULTRASONIC IMAGES INTO VISIBLE DISPLAYS

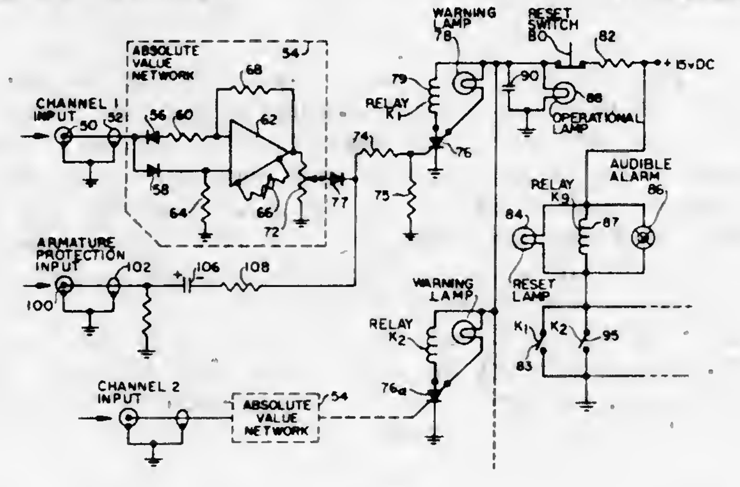
Otto R. Gericke, Medfield, and Robert C. Grubinskas, Holliston, Mass., assignors to the United States of America as represented by the Secretary of the Army
Filed Feb. 20, 1968, Ser. No. 706,985
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.6 **5 Claims**



Apparatus for ultrasonic visualization of discontinuities in optically opaque materials wherein the test specimen is not immersed in a liquid medium.

3,572,089
PEAK ACCELERATION LIMITER FOR VIBRATIONAL TESTER

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Carl P. Chapman, La Crescenta, Calif.
Filed Feb. 4, 1969, Ser. No. 796,405
Int. Cl. G01m *7/00*
U.S. Cl. 73—71.6 **6 Claims**

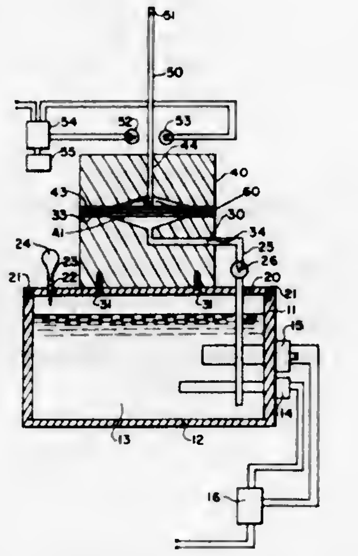


An electronic detection and protection system is provided for use with vibrational or dynamic testing apparatus for qualification of an object such as a spacecraft component, and for preventing damage to the object during testing. The system responds to peak accelerations of either polarity above a predetermined amplitude threshold, as perceived by tranducer means mounted on the object under test, to institute control effects such as deactivating the test apparatus or actuating alarm indicators, or both. The system also responds to the true root mean square current of the alternating current exciting signals flowing in the electrical drive of the test apparatus whenever a predetermined amplitude threshold is exceeded to initiate the same control effects so as to protect the electrical drive.

3,572,090
APPARATUS AND METHOD FOR TESTING PAPERBOARD

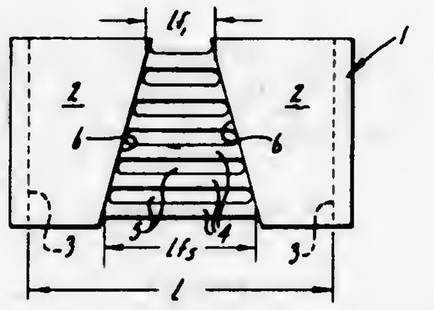
Richard M. Graham, Concord, and Gordon C. Wheeler, Walnut Creek, Calif., assignors to Fibreboard Corporation, San Francisco, Calif.
Filed June 3, 1968, Ser. No. 734,144
Int. Cl. G01m *3/26;* **G01n** *5/02*
U.S. Cl. 73—73 **5 Claims**

A device for measuring the rate at which liquids are absorbed into the cut edge of paperboard comprises mating top and bottom sections which engage a sample of paperboard at their peripheral edges and form an internal chamber with only a continuous cut edge of the paperboard exposed to liquid in the chamber. A source of liquid is provided to fill the chamber and a calibrated capillary tube is provided so that the rate of absorption may be determined by measuring the time required for a given amount of liquid to be absorbed.



3,572,091
MECHANICAL STRAIN INDICATOR

Keith H. McFarland, P.O. Box 328, Los Altos, Calif. 94022
Filed Sept. 27, 1968, Ser. No. 773,693
Int. Cl. G01n *3/00*
U.S. Cl. 73—88 **2 Claims**

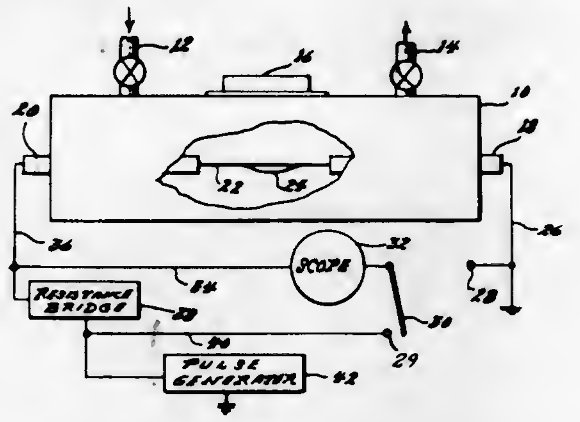


A device and method for measuring, indicating, and recording the strain produced in structural members when subjected to a force. A coupon comprising two thick end pieces and a thinner center membrane which is separated into fibers or ligaments of varying length. When attached to the member to be tested, the strain produced causes rupture of successive fibers starting with the shortest first, the actual strain being established as lying between that existing in the longest fiber to fail and the shortest one to remain whole. Variations in properties of material and geometries utilized and application of appropriate calibration permits determination of such parameters as stress, force, load, pressure, acceleration, torque, temperature, etc.

3,572,092
PULSED HOT WIRE SYSTEM

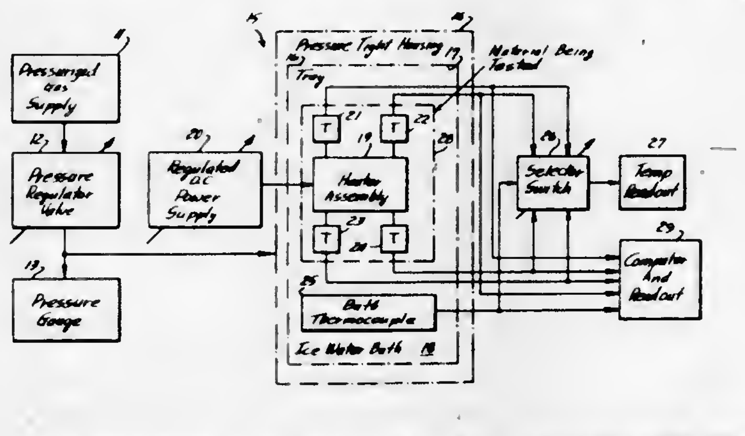
Louis Zernow, Glendora, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed June 16, 1969, Ser. No. 833,507
Int. Cl. G01n *25/00*
U.S. Cl. 73—15 **4 Claims**

An apparatus for testing micro quantities of biological organisms or chemical compounds including a chamber having a controlled atmosphere, a wire or conductive foil mounted in the chamber for supporting a specimen and connected electrically to a variable pulse generator and a null balanced resistance bridge where the temperature-time history of the specimen can be maintained and measured simultaneously.



3,572,093
THERMAL TESTING INSTRUMENT

Harold S. Butler, Jr., Panama City, Roger K. Johnson, Lynn Haven, and Robert H. Payne, Jr., Panama City, Fla., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 7, 1969, Ser. No. 839,443
Int. Cl. G01n *25/16*
U.S. Cl. 73—15 **11 Claims**

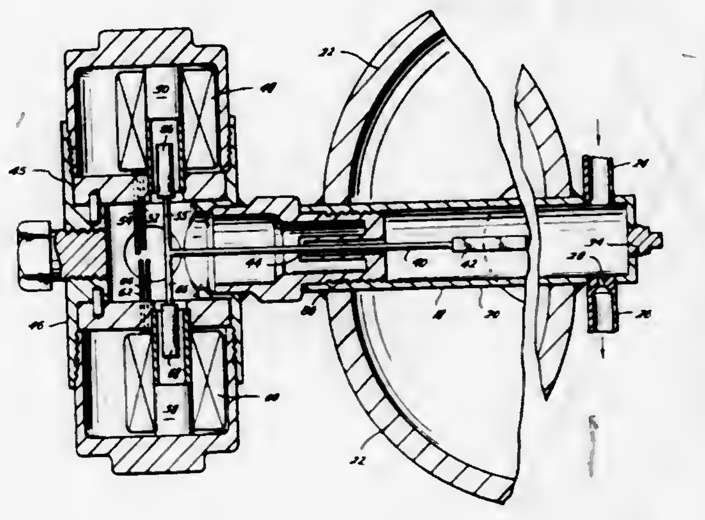


This invention is an instrument for measuring the thermal conductance of a material while it is located within a simulated water environment of various depths and pressures. A heater heats one side of said material to a temperature approximately human body heat. Said heater and material are submerged in a tray of ice water located in a pressure tight housing. Gas under controlled pressure conditions is used to pressurize the inside of said housing and, thus, apply water depth simulating pressures to both sides of said wetted material, so as to effect compression thereof in proportion thereto. While compressed temperature readings are taken with thermocouples located on the heater side of said material which effectively indicate the body heat loss therethrough to said ice water. The heat loss, if any, is proportional to the thermal conductance of the material at any given depth simulating pressure.

3,572,094
GAS DENSITY MEASURING APPARATUS

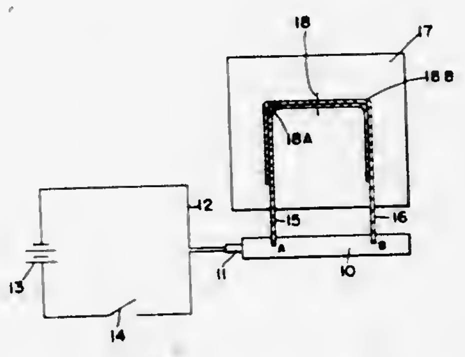
William B. Banks, Houston, Tex., assignor to Automation Products, Inc., Houston, Tex.
Filed Apr. 18, 1969, Ser. No. 817,364
Int. Cl. G01n *29/02*
U.S. Cl. 73—30 **4 Claims**

Apparatus for measuring the density of gas flowing through an orifice in a line having an enclosed sample chamber positioned inside of the line with its exterior in contact with the flowing gas so that the chamber temperature will be maintained at the temperature of the flowing gas, an inlet line supplying a sample of gas to be measured from the line on a first side of the orifice to the sample chamber and an outlet line having a restriction therein connected from the sample chamber to the line on a second side of the orifice thereby maintaining the gas in the sample chamber at approximately the pressure on the first side of the orifice, and a gas density measuring instrument in the sample chamber. Valves in the inlet and outlet lines and a passageway between the chamber and a point exteriorly of the pipeline for isolating the sample chamber and admitting a calibration gas to the chamber for calibration. The pipeline including an enlarged passageway into which the sample chamber is positioned thereby avoiding restricting gas flow through the pipeline by the sample chamber.



3,572,095
APPARATUS FOR MEASURING DETONATION VELOCITIES IN EXPLOSIVES

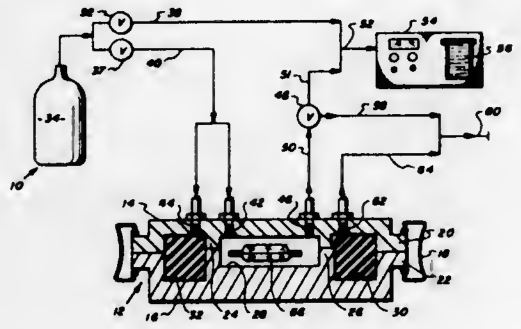
James F. Kowalick, Southampton, Pa., assignor to the United States of America as represented by the Secretary of the Army
Filed Apr. 9, 1969, Ser. No. 814,728
Int. Cl. G01n *33/22*
U.S. Cl. 73—35 **4 Claims**



Two lengths of metal-sheathed explosive-detonating cord are placed on an aluminum plate in side by side position to form a double length portion of cord intermediate their ends. One end of each length of cord is secured to a body of explosive for initiation in response to detonation of the body. A detonator, attached to the body near one of the secured cord ends, detonates the body which initiates the cord lengths. Initiation fronts, travelling along the cord length, form offset or lateral marks in the aluminum plate where the fronts meet. The mark location relative to the cord lengths, detonation velocity of the cords and the distance between the secured ends enables a very accurate determination of the detonation velocity of the explosive body.

3,572,096
METHOD AND APPARATUS FOR INSPECTING SEALED PACKAGES FOR LEAKS

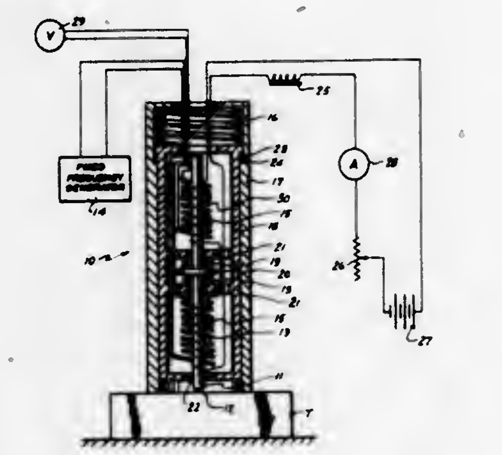
Raymond A. Meyer, Thousand Oaks, Calif., assignor to North American Rockwell Corporation
Filed Dec. 23, 1968, Ser. No. 785,879
Int. Cl. G01m *3/16*
U.S. Cl. 73—40.7 **8 Claims**



A method of and apparatus for inspecting sealed packages for leaks where a sealed package in an improved inspection fixture is exposed to a relatively low-pressure carrier gas for a short time period that results in a readout developed by a detector readout instrument which distinguishes gross, medium, and fine package leaks.

3,572,097
RESONANT SENSING DEVICES AND METHODS

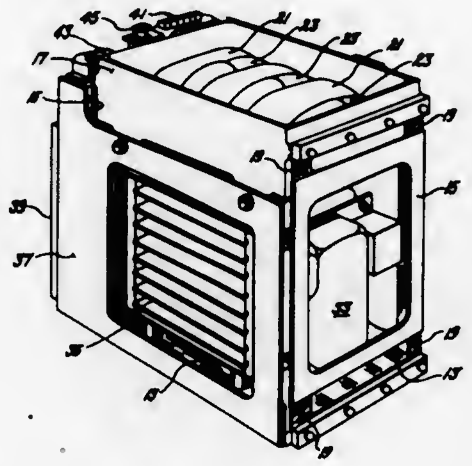
Claud Kleesattel, 9841 64th Road, Forest Hills, N.Y. 11374
Filed May 7, 1968, Ser. No. 727,169
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.2 **17 Claims**



In order to determine the surface properties of a test piece a fixed static force is applied to a mechanical resonating means for holding the latter in steady contact with the test piece at a contact surface shaped to provide increasing areas of contact with increasing penetration thereof into the test piece surface, the mechanical resonating means is vibrated at a fixed frequency and, while being thus held in steady contact with the test piece and vibrated, a characteristic or parameter of the mechanical resonating means which determines its resonance frequency is varied to achieve its resonance at the fixed frequency of vibration, with the variation of such characteristic or parameter required to achieve resonance being measured as an indication of the surface properties, such as hardness, of the test piece.

3,572,098
MASS MEASURING INSTRUMENT SPRING SYSTEM

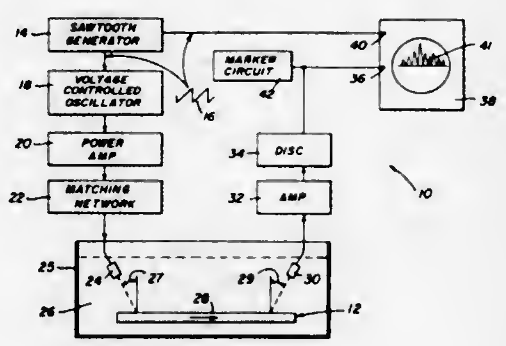
Joseph W. Fogwell, San Antonio, Tex., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Nov. 26, 1968, Ser. No. 779,116
Int. Cl. G01g *3/16*
U.S. Cl. 73—67.2 **5 Claims**



A spring system to provide a force for oscillating a mass at precise and repeatable frequencies including a pair of spaced parallel plate springs each having the lower end thereof attached to a fixed base plate. The upper and lower ends of each spring includes plate fulcra and the upper end is attached to and supports a weighing pan in which the mass is positioned. The pan is offset from neutral causing the plate fulcra to be deformed and, when released, the restoring force produces oscillation at a fixed frequency. Since the spring constant is known and the mass is constrained to substantially linear motion, the oscillation frequency will be an indication of the mass in the weighing pan.

3,572,099
ULTRASONIC NON-DESTRUCTIVE TESTING APPARATUS AND METHOD

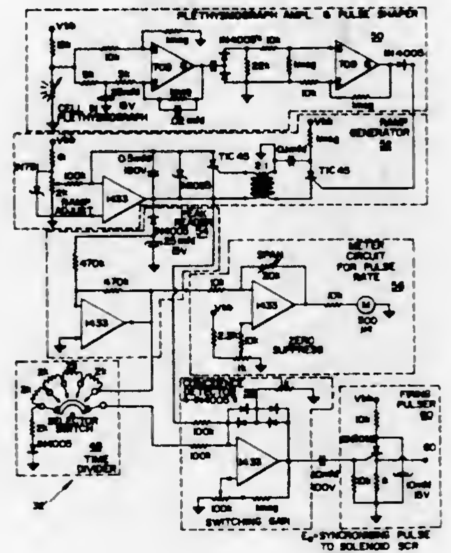
Alfred B. Wieczorek, Mount Prospect, Ill., assignor to General American Transportation Corporation, Chicago, Ill.
Filed Aug. 23, 1968, Ser. No. 754,861
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.7 **26 Claims**



A continuous frequency-modulated electrical wave having a continuous frequency-modulation of a repetitive wave shape is generated and is converted into an ultrasonic transmitted wave which is continuous and frequency-modulated of the repetitive wave shape. The ultrasonic wave is impinged on an object such that a series of ultrasonic pulses each corresponding to a Lamb wave mode is induced therein. The ultrasonic pulses are converted to electrical test pulses which are then correlated with the modulating frequencies.

3,572,100
SYNCHRONIZER FOR A TONOMETER

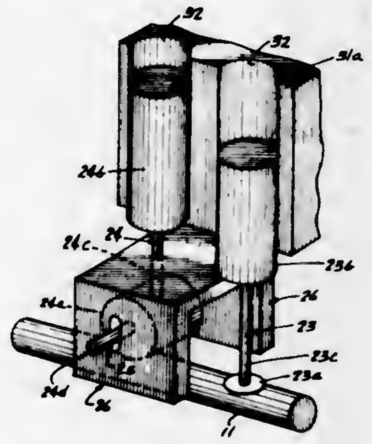
Bernard Grolman, Worcester, and Robert G. Lavallee, Ashland, Mass., assignors to American Optical Corporation, Southbridge, Mass.
Filed May 28, 1969, Ser. No. 828,506
Int. Cl. A61b *3/16*
U.S. Cl. 73—80 **7 Claims**



A synchronizer for an air-puff tonometer which through electronic control programs the firing of the air-puff after the trigger mechanism for the tonometer has been actuated. The instrument (combination of air-puff tonometer and synchronizer) is useful as a general diagnostic tool or to more accurately determine intraocular pressure (IOP).

3,572,101
FIRMNESS TESTING APPARATUS

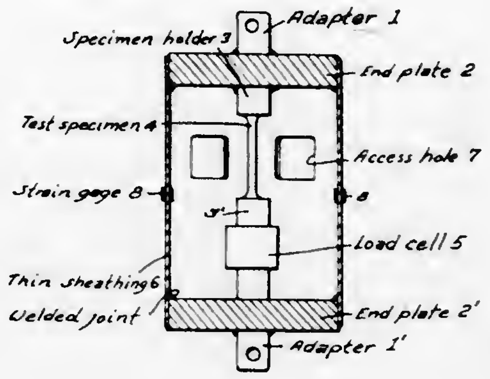
Arnold G. Moore, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Sept. 24, 1969, Ser. No. 860,533
Int. Cl. G01n *3/42*
U.S. Cl. 73—81 **11 Claims**



A testing apparatus is provided for use in testing the firmness of a tobacco rod or the like. The apparatus includes a frame for accommodating a rod to be tested, and a pair of sensing elements adjustably mounted on a carrier, the latter being movable relative to the frame so as to traverse the length of the accommodated rod. Each sensing element is adjustable and has an end thereof in contact with the periphery of the accommodated rod and imparts a predetermined force on the rod exterior. There is a predetermined differential in the force imparted on the rod exteriorly by said sensing elements. Electrical means are provided which are operatively connected to said sensing elements and measure the relative deflection of said sensing elements as they traverse the rod length.

3,572,102
FIXTURE FOR TESTING BRITTLE MATERIALS

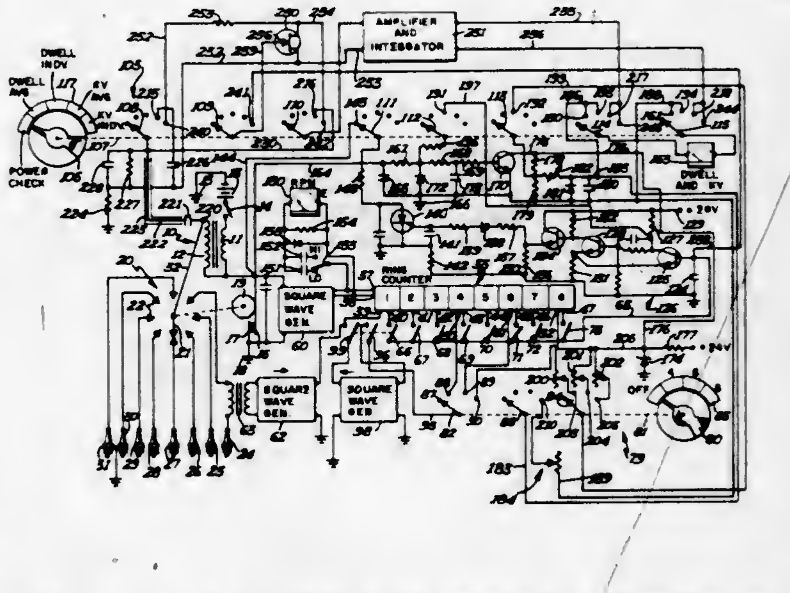
Francis I. Baratta, 138 Ridge St., Arlington, Mass. 02174
Filed May 12, 1969, Ser. No. 823,879
Int. Cl. G01n *3/00*
U.S. Cl. 73—93 **4 Claims**



Brittle materials to be tested are formed into small test specimens. These specimens are then subjected to a compression force, or a tension force, until they rupture. The rupture or yield point is then recorded. If the compression or tension forces are slightly misaligned, bending or twisting of the specimen will cause premature rupture and inaccurate data as to the true strength of the material. This invention teaches simple apparatus, a yieldable thin cylinder around the specimen, to reduce such bending or twisting of the specimen.

3,572,103
ANALYZER FOR MULTI-CYLINDER INTERNAL COMBUSTION ENGINE HAVING MEANS FOR IDENTIFYING INDIVIDUAL CYLINDERS

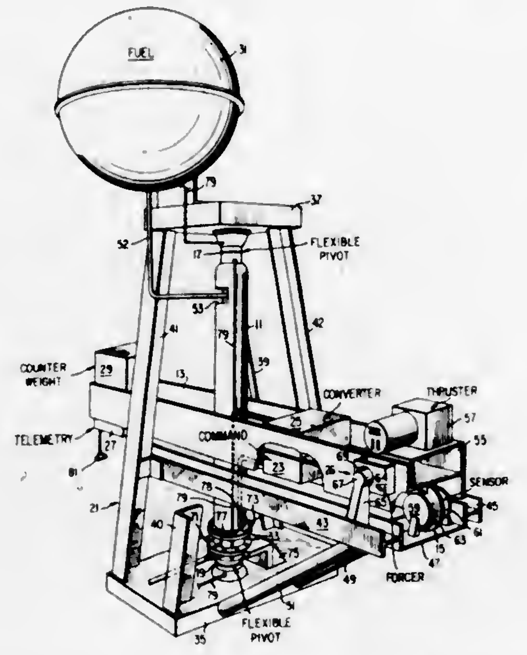
Joseph A. Marino, Hopkins, Minn., assignor to Marquette Corporation, Minneapolis, Minn.
Filed Jan. 6, 1967, Ser. No. 607,820
Int. Cl. G01m *15/00*
U.S. Cl. 73—116 **18 Claims**



An analyzer for multicylinder internal combustion engines in which there is an electronic counter triggered by pulses from the ignition system and normally reset by the firing voltage applied to any of selected spark plugs in which the electronic counter has a plurality of stages corresponding to the number of cylinders in the engine and in which there is an electrical testing means adapted to be operated by the output signal of any one or more stages of the counter to produce an electrical effect for analyzing the performance of the engine.

3,572,104
MICRO-POUND EXTENDED RANGE THRUST STAND

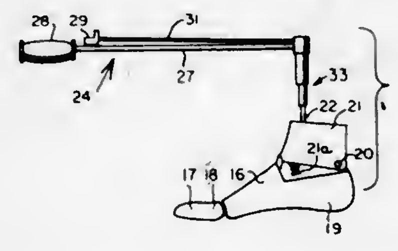
Kenneth W. Stark, Hyattsville, Md., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 29, 1969, Ser. No. 828,909
Int. Cl. G01l *5/00*
U.S. Cl. 73—117.4 **12 Claims**



This disclosure describes a micro-pound extended range thrust stand comprising a vertical tubular member rotatably held at both ends by flexible pivots. A horizontal support beam is attached to the tubular member and supports a thruster package at one end. A counter weight is mounted on the other end of the support beam to balance the weight of the thruster package. A sensor is provided for sensing the movement of the beam caused by low level thrusts. And, a magnetic forcer is provided for counteracting higher level thrusts so that a null balance system is provided for testing higher level thrusts. Suitable electronic means are provided for controlling the operation of the thruster and for telemetering data from the sensor and other measuring devices.

3,572,105
APPARATUS FOR TESTING THE FORCE REQUIRED TO RELEASE A SKI BOOT BINDING

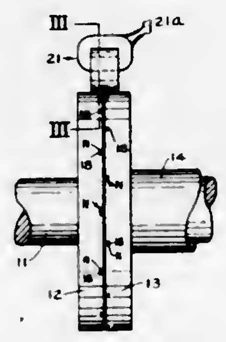
Frederic H. Kaehler, 1314 Owana Ave., Royal Oak, Mich. 48067
Filed July 9, 1968, Ser. No. 743,357
Int. Cl. G01l *5/03*
U.S. Cl. 73—133 **14 Claims**



Apparatus for testing the force required to release a ski boot from a releasable binding, the apparatus comprising a foot-shaped force transmitting body adapted to be fitted into a ski boot mounted on a ski by a binding which is operable to release the boot in response to the imposition of predetermined forces on the boot in directions laterally and longitudinally of the ski. The foot-shaped body is articulated to simulate the action of the human foot and ankle and is provided with an accessible coupling device by means of which torsional forces in either of two mutually normal planes of rotation may be transmitted to the boot. The torsional forces may be applied by a conventional torque wrench.

3,572,106
MEANS FOR MEASURING ANGULAR DISPLACEMENT OF COAXIALLY ROTATING ELEMENTS

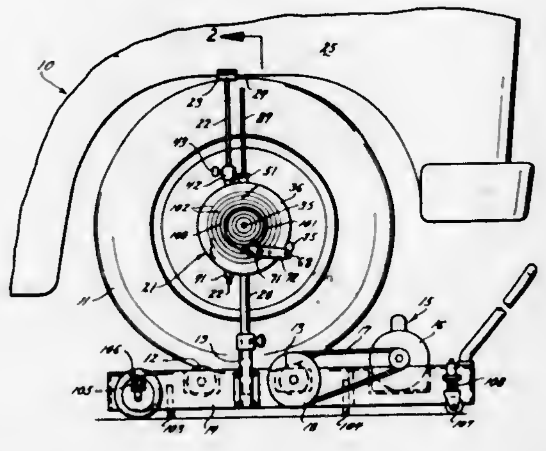
Robert P. Jonas, Phoenix, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.
Filed Sept. 26, 1969, Ser. No. 861,393
Int. Cl. G01l *3/10*
U.S. Cl. 73—136 **11 Claims**



This torque meter has two disks disposed side by side and fixed to axially spaced points on a shaft, magnetic recordings of one configuration extending around the periphery of one disk and magnetic recordings of another configuration extending around the periphery of the other disk. It also has a single magnetic head disposed to sense the magnetic flux from the recordings on both rotating disks to produce two distinct signals appearing alternately with time. The signals from the magnetic head are fed to a circuit that responds to both signals to produce a rectangular wave wherein the difference between adjacent half cycles is related to the relative rotary movement of the disks.

3,572,107
RADIAL TIRE FORCE INDICATOR APPARATUS

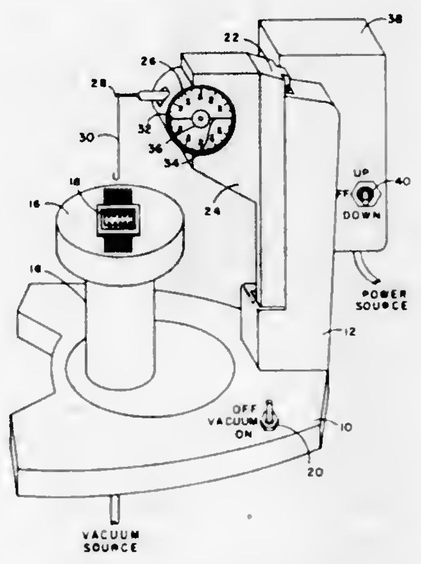
Lee Hunter, 13501 Ladue Road, Ladue, Mo. 63141
Filed Feb. 20, 1969, Ser. No. 800,869
Int. Cl. G01m *17/02*
U.S. Cl. 73—146 **5 Claims**



Apparatus for indicating the vehicle supporting strength characteristics of a tire which carries the weight of the vehicle adjacent thereto, and for locating the inequalities or weak areas in the tire construction. The apparatus includes means to engage and turn the vehicle tire at a low speed so as not to introduce suspension system responses, means to monitor the vehicle motion resulting from variations in structural strength of the tire, and means associated with the monitoring means to display the tire strength and weaknesses throughout a complete revolution thereof and to compare such response to a theoretically uniform strength tire.

3,572,108
MEANS FOR TESTING WIRE BONDS IN MICROELECTRONIC CIRCUITS

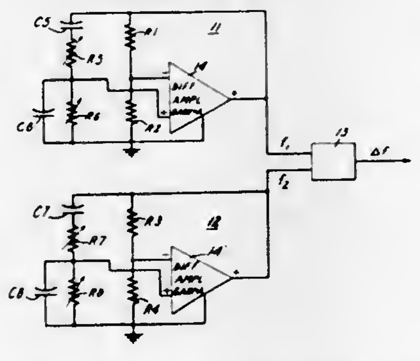
Michael B. McShane, Costa Mesa, and Keramet O. Ucer, Newport Beach, Calif., assignors to Collins Radio Company, Dallas, Tex.
Filed June 5, 1969, Ser. No. 830,717
Int. Cl. G01l *5/00*
U.S. Cl. 73—141 **2 Claims**



Apparatus for testing wire bonds in microelectronic circuits including a circuit holder and gauge means which is movably supported to travel towards or away from said circuit holder. The gauge means includes wire grasping means which is operatively connected to the gauge means. After grasping a wire in a microelectronic circuit on said circuit holder, the gauge means is moved away from the support means until the wire or bond fails, and the force required is registered by the gauge means.

3,572,109
INTEGRAL SEMICONDUCTOR STRAIN GAGE TRANSDUCERS WITH FREQUENCY OUTPUT

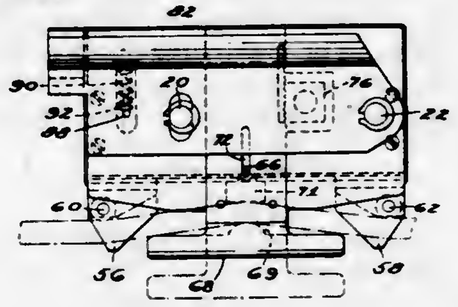
Alexander J. Yerman, Scotia, N.Y., assignor to General Electric Company
Filed Aug. 9, 1968, Ser. No. 751,426
Int. Cl. G01b *7/20;* **G01p** *15/08*
U.S. Cl. 73—141 **8 Claims**



A precise instrument transducer having an analog frequency output as a function of applied force comprises two identical Wien bridge oscillators with integral single crystal semiconductor strain gages arranged to produce approximately equal and opposite resistance changes in the two oscillators so that the resulting frequency changes are additive. Applied as an accelerometer the gage pairs are on opposite sides of a cantilever beam, and as a load cell are oriented in different directions on (100) cut silicon where, together with the other circuit elements, they can be fabricated by integrated circuit techniques.

3,572,110
TENSION INDICATOR

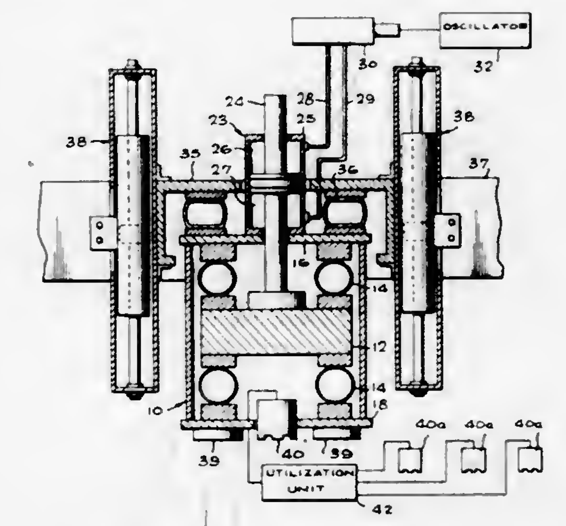
David W. James, Dearborn, Mich., and Roy LoPresti, Chicago, Ill., assignors to Ford Motor Company, Dearborn, Mich.
Filed Nov. 12, 1968, Ser. No. 774,854
Int. Cl. G01l *5/10*
U.S. Cl. 73—144 **9 Claims**



The tension in automotive V-belts is indicated by a device that deflects the belt between two rollers fastened to a leaf spring. Two microswitches, one of which is normally closed and the other normally open, are actuated by the resulting deflection of the spring. The microswitches are electrically in series with each other and with a light bulb and the normally open switch is preset to close when a predetermined minimum tension is reached while the normally closed switch is preset to open when a predetermined maximum tension is reached. Thus the light bulb will be turned on when the tension in the belt is within a predetermined range. Quantitative measurements of the tension can be obtained by fastening strain gauges to the spring and connecting the strain gauges through a bridge-type circuit to a meter reading directly in tension units. The tension indicator is operated by hand and contains an efficient latching mechanism for maintaining a predetermined amount of deflection in the belt during measurement.

3,572,111
SYSTEM FOR NONDESTRUCTIVE TESTING OF ROADS AND THE LIKE

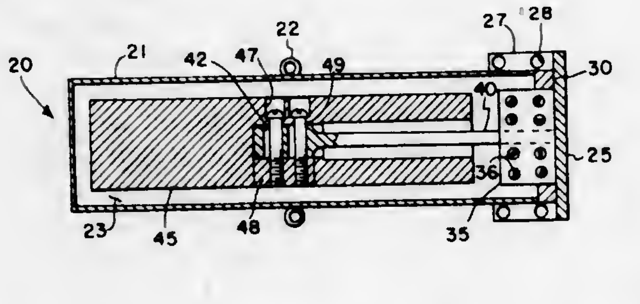
John William Johnson, Manhattan Beach, Calif., assignor to Foundation Mechanics, Inc., El Segundo, Calif.
Filed Sept. 18, 1969, Ser. No. 859,065
Int. Cl. E01c *19/30*
U.S. Cl. 73—146 **10 Claims**



A nondestructive road testing system comprising a housing in which a vibratory mass is positionable at a null position by means of sets of balanced air springs. The housing is coupled to the bumper of a vehicle, such as a truck, through hydraulic elevator cylinders, which lower the housing onto a test surface and raise it therefrom. The housing supports a sensor which comes in contact with the test surface when the housing is positioned thereon, thereby applying a static force thereto. The force produces a deflection in the surface which is sensed by the sensor and which is measured and/or recorded. The vibratory mass is coupled to a piston in a double chamber hydraulic actuator. A sinusoidal alternating current from an electrical oscillator is supplied to a control valve which in turn controls the oscillation of the piston and the mass coupled thereto by controlling the supply of fluid to the hydraulic actuator. The oscillating mass produces a dynamic force which is applied to the test surface, with the resulting deflections being sensed by the sensor.

3,572,112
DYNAMIC VIBRATION ABSORBER

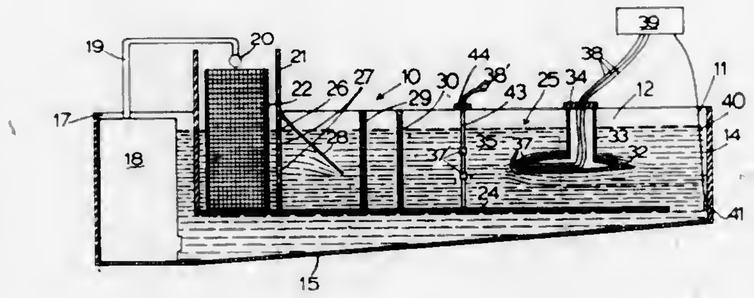
William B. Igoe, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 30, 1969, Ser. No. 837,825
Int. Cl. G01m *9/00*
U.S. Cl. 73—147 **10 Claims**



A tuned damped vibration absorber for a mass vibrating in more than one degree freedom of motion. It consists of a cantilever spring and attached mass designed so that they will absorb vibrations simultaneously at different frequencies in corresponding different degrees of motion.

3,572,113
HYDRAULIC MODEL TESTING TANK WITH ELECTRICAL TRACING INDICATOR

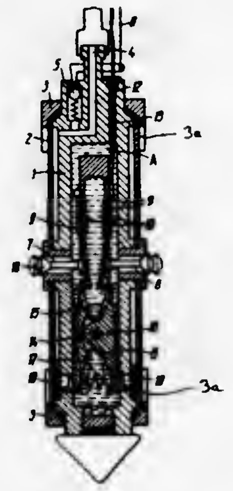
Eugene Carl Huebschman, 1100 Bragg Circle, Tullahoma, Tenn. 37388
Filed Apr. 1, 1969, Ser. No. 811,898
Int. Cl. G01m *10/00*
U.S. Cl. 73—148 **9 Claims**



An apparatus for rendering visable the flow lines past a model placed in testing tank or model basin. An indicator such as phenolphthalein is placed in an electrolytic solution. Electrodes located on the model are energized so that a local change in pH results producing streaks of indicator solution for studying the flow lines about the model.

3,572,114
DEVICE FOR EVALUATING DEFORMATION CHARACTERISTICS OF ROCKS IN SITU

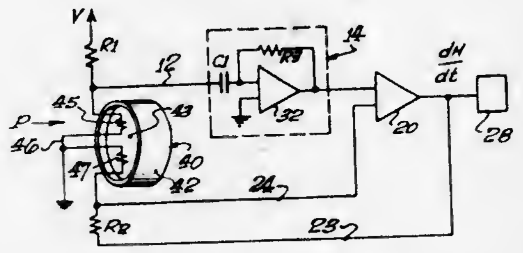
Konstantin Vladimirovich Ruppeneit, Tovarischesky per. 8, kv. 8; Evgeny Semenovich Prigozhin, Ul. Glagoleva 24, korp. 2, kv. 14; and Jury Rodionovich Perkov, Sportivnaya ul. 6, kv. 2, all of Moscow, U.S.S.R.
Filed Aug. 12, 1968, Ser. No. 751,779
Int. Cl. E21b *49/00*
U.S. Cl. 73—151 **3 Claims**



A device for measuring deformation characteristics or rocks is inserted into a bore hole therein and a fluid medium under pressure is introduced between a body of the device and a surrounding envelope to pressurize the walls of the bore holes. A feeler is extended from the body to contact the wall of the bore to follow its deformation under the action of the fluid medium and a measuring device is coupled to the feeler to measure its displacement. The measuring device is released by grips when measurement is being made so as to be floating in a chamber in the body and suspended by the feeler from the wall of the bore hole. The chamber is filled with a dielectric liquid lighter than water and the measuring device is in the upper portion of the chamber and above an aperture in which the feeler travels so that if water enters the chamber through the aperture, the measuring device will remain protected by the dielectric liquid.

3,572,115
ALTITUDE RATE TRANSDUCER AND COMPUTING CIRCUIT

Robert Feuer, Wayne, N.J., assignor to Conrac Corporation, New York, N.Y.
Filed Aug. 12, 1969, Ser. No. 849,366
Int. Cl. G01c *21/00*
U.S. Cl. 73—179 **5 Claims**

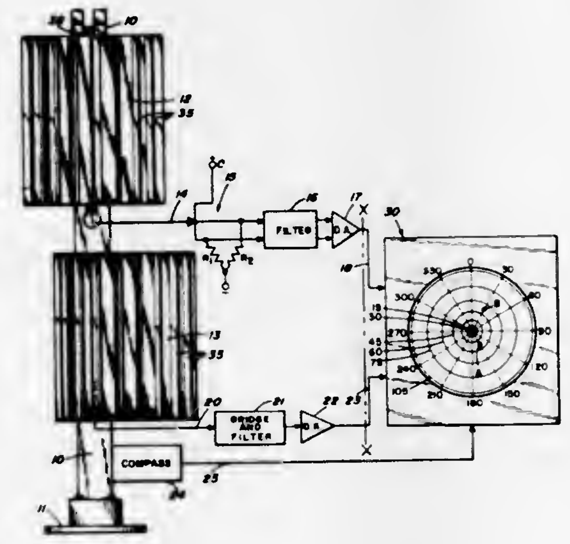


An altitude rate signal is developed electronically by differentiating a static pressure signal P and solving the equation $dH/dt = -(K/P)\cdot(dP/dt)$ by linear operations which include representing the product of P by a variable voltage. In one modification a piezoresistive static pressure transducer is energized by the voltage, and the transducer output is utilized to represent the product. Another

modification represents the product by linear circuitry capable generally of deriving any function of the form AB/C from input signals representing A, B and C. Two choppers are driven synchronously with variable on-off ratio. Circuitry including one chopper maintains the chopping ratio proportional to B/C, while the other chopper multiplies that function by A.

3,572,116
SEMICONDUCTOR WIND SPEED AND DIRECTION SENSOR

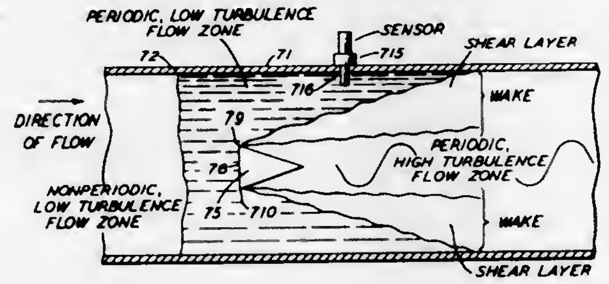
John E. Penn, 5441 E. 16th St., Indianapolis, Ind. 46218
Filed Oct. 24, 1969, Ser. No. 869,033
Int. Cl. G01w *1/02*
U.S. Cl. 73—189 **7 Claims**



A semiconductor wind speed and direction sensor having two cylindrical wind drag units eccentrically supported on torque responsive strips, each with the diameter in alignment with the eccentricity and being normal or at 90° to each other and with silicon semiconductor strain gages mounted on the torque responsive material strips to sense and produce electric signals representative of drag unit torque movement in response to and proportional to the wind direction and the square of wind velocity.

3,572,117
BLUFF BODY FLOWMETER

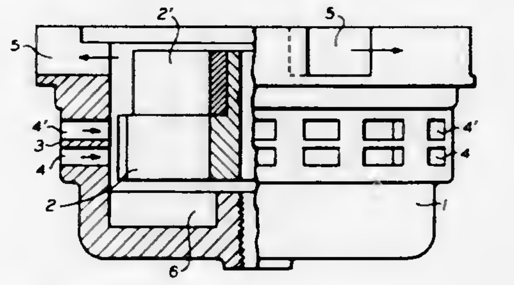
Alan E. Rodely, Watchung, N.J., assignor to Eastech, Inc., Watchung, N.J.
Filed May 27, 1968, Ser. No. 732,238
Int. Cl. G01p *1/00*
U.S. Cl. 73—194 **19 Claims**


PERIODIC, LOW TURBULENCE FLOW ZONE
SENSOR
SHEAR LAYER
72
71
715
716
WAKE
DIRECTION OF FLOW
79
76
PERIODIC, HIGH TURBULENCE FLOW ZONE
NONPERIODIC, LOW TURBULENCE FLOW ZONE
75
710
WAKE
SHEAR LAYER

Flowmeters utilizing nonstreamlined, bluff bodies and sensors are disclosed for generating oscillating wakes in a fluid flowing through a pipe to produce high signal-to-noise signals which are free from intermittency and are sensed outside of the wake in the flow near and upstream from the bodies. Each of the bodies comprises prescribed geometric configurations and includes a base surface facing the flow and downstream surfaces to control the oscillatory flow. The bodies each have sharp upper and lower corners at the edges of the facing base surface for defining separation lines for the flow. The facing base surfaces are selectively blunt or convex for reducing pressure loss in the pipe due to the bluff body.

3,572,118
TURBINE-WHEEL WATERMETER

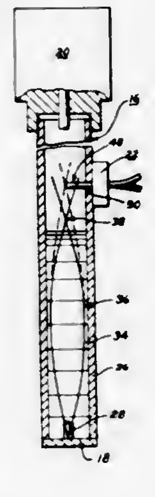
Wilfried Hilzendegen, Weingarten, Baden, Germany, assignor to Paul Neuhoff & Co. GmbH, Weingarten, Baden, Germany
Filed May 7, 1969, Ser. No. 822,517
Claims priority, application Germany, May 25, 1968, P 17 73 498.4
Int. Cl. G01f *1/08*
U.S. Cl. 73—229 **3 Claims**



An improved turbine-wheel type meter comprises two freely rotatable turbine meter wheels on a common shaft in a suitable housing. The wheels are angularly adjustable with respect to one another from a matching position to one of maximum offset. A multiplicity of paired inlet orifices around the periphery of the housing direct the fluid to be measured tangentially against the blades of one of the wheels, and outlet passageways remove discharged fluid from the vanes of the other wheel.

3,572,119
FLUID QUANTITY INDICATING DEVICE

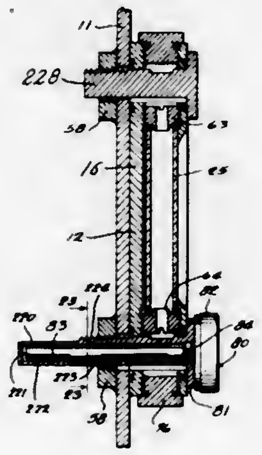
Aloysius Bak, Davenport, Iowa, assignor to The Bendix Corporation
Filed Aug. 7, 1969, Ser. No. 848,290
Int. Cl. G01f *23/28*
U.S. Cl. 73—290 **6 Claims**



A device for indicating the quantity of fluid in a vessel. A waveguide that is connected to a source of microwave energy is extended in the fluid with the fluid being present in the waveguide at a level equal to the fluid level in the vessel. A node is created at the lower end of the waveguide by a shorting bar. A detector that is responsive to mircowave energy is connected to the waveguide to detect changes in another mode location within the waveguide due to changes in fluid level in the vessel and waveguide.

3,572,120
LIQUID LEVEL GAUGE

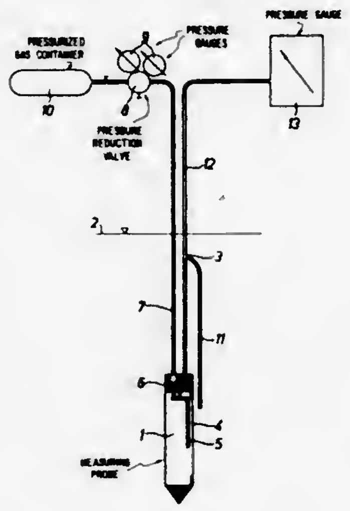
Gus J. Lukas and Floyd J. Bydalek, Manitowoc, Wis., assignors to Lube Devices, Inc., Manitowoc, Wis.
Continuation-in-part of applications Ser. No. 407,710, Oct. 30, 1964, now abandoned, and Ser. No. 670,696, Sept. 26, 1967, now Patent No. 3,455,163, dated July 15, 1969. This application June 12, 1969, Ser. No. 832,707
Int. Cl. G01f *23/02*
U.S. Cl. 73—292 **8 Claims**



A combination liquid level gauge and dial thermometer adapted to be mounted upon a tank in which the dial thermometer is visible from the front of the gauge but has a sensor which is in heat transmitting relation to the liquid.

3,572,121
DEVICE FOR PNEUMATICALLY MEASURING LIQUID LEVELS

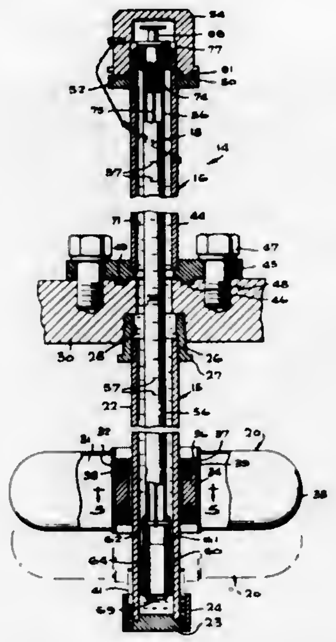
Zsolt Kesseru, Tibor Willems, and Istvan Bagdy, Budapest, Hungary, assignors to Nikex Nehezipari Kulkereskedelmi Vallalat, Budapest, Hungary
Filed Sept. 16, 1969, Ser. No. 858,377
Claims priority, application Hungary, Sept. 16, 1968, 11,827
Int. Cl. G01c *23/14*
U.S. Cl. 73—302 **1 Claim**



An arrangement for measuring liquid levels by pneumatic means, equipped with a gas bottle and a measuring probe which is connected to the pipe system dipping beneath the surface of the liquid and consisting of a feed pipe and a measuring pipe, said probe controlling the supply of gas under pressure and being provided with a diaphragm.

3,572,122
MEASURING STICK TYPE GAUGE

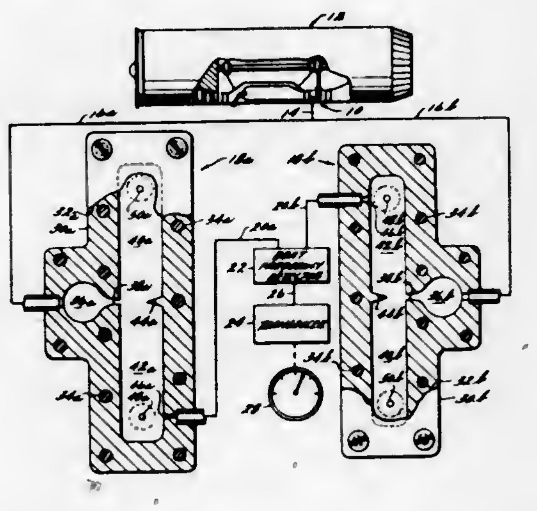
Henry Nusbaum, Los Angeles, Calif., assignor to Roylyn Incorporated, Glendale, Calif.
Filed July 28, 1969, Ser. No. 845,191
Int. Cl. G01f *23/06*
U.S. Cl. 73—314 **6 Claims**



A gauge for determining the liquid level or quantity of liquid in a sealed tank in which a vertically movable measuring stick type gauge element is housed in a tubular assembly within the tank. The gauge is thus isolated from the contents of the tank. A float operable in the tank is provided on the exterior of the tubular assembly and includes a magnetic device for attracting, or magnetically latching, a particular section of the gauge element having a magnetic device thereon to the float for the purpose of orienting the element with respect to the float.

3,572,123
FLUIDIC TEMPERATURE SENSING SYSTEMS

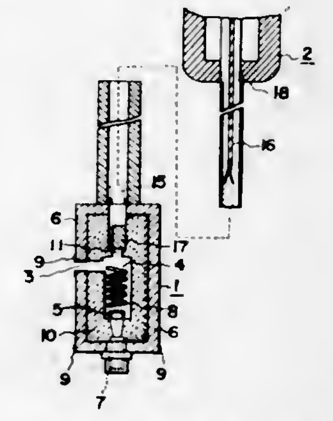
Willis A. Boothe, Scotia, N.Y., and William L. Phipps, Cincinnati, Ohio, assignors to General Electric Company
Filed Jan. 2, 1968, Ser. No. 695,277
Int. Cl. G01k *3/00*
U.S. Cl. 73—339 **7 Claims**



The disclosure shows a fluidic temperature sensing system which comprises two fluidic temperature sensors connected to a common fluid source. Flow of fluid through the sensors provides output signals having pressure variations, the frequency of which is proportionate to fluid temperature. When there is a step change in temperature, the difference in frequency between the two signals, at the end of their short term time constants, accurately reflects the actual change in fluid temperature before either sensor has reached a steady state condition, reflecting the temperature change. Also the rates of changes of the sensors during their short and long term time constants may be set to generate a temperature function signal and provide a leading relationship in which the frequency difference at the expiration of the short term time constants is greater than at the new steady state conditions. A fluidic beat detector provides an output signal proportionate to the difference in frequency of the two sensor signals. This output signal is employed to provide an analogue readout having a minimum response time.

3,572,124
APPARATUS FOR SIMULTANEOUS DETERMINATION OF CARBON-TEMPERATURE IN LIQUID STEEL DURING BLOWING

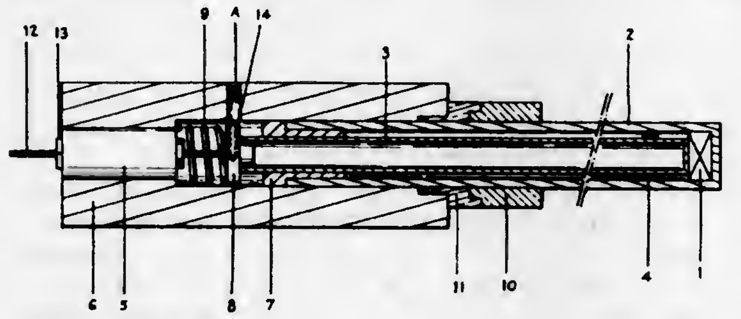
Noriyoshi Nagaoka, Genichi Usui, Akichika Ozeki, and Moriyuki Ishiguro, Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha
Filed Apr. 14, 1969, Ser. No. 815,955
Claims priority, application Japan, Apr. 15, 1968, 43/24,890
Int. Cl. G01k *1/00, 7/04*
U.S. Cl. 73—341 **4 Claims**



In a sampling vessel for receiving liquid steel during blowing, independent thermocouples are mounted on the inside of the bottom of said vessel and purging air is ejected through the side aperture of said vessel through an auxiliary lance supporting said vessel. A permeable stopper is provided at the top of the vessel which permits free flow of said purging air but prevents counter flow of liquid steel in said vessel.

3,572,125
DILATOMETRIC COUPLING DEVICE FOR VERY HIGH TEMPERATURE (3000° C.) REGULATION

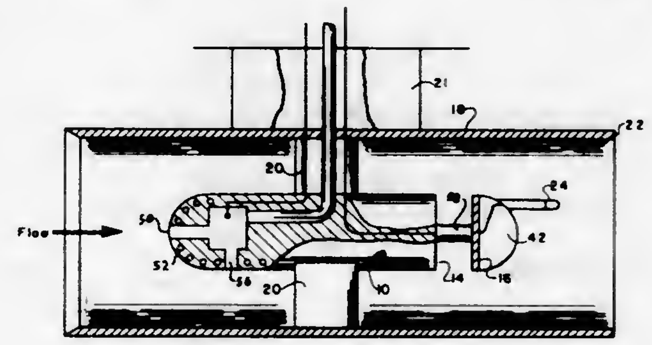
Jacques C. Maire, Epinay-sur-Seine, and Jean Pierre M. Slonina, Le Vesinet, France, assignors to Le Carbone Lorraine, Paris, France
Filed Jan. 24, 1969, Ser. No. 793,744
Claims priority, application France, Feb. 9, 1968, 139,215; Dec. 11, 1968, 177,722
Int. Cl. G01k *5/50*
U.S. Cl. 73—363 **4 Claims**



A device for the measurement of high temperatures up to about 3000° C. comprises a stack of graphite pseudomonocrystals about 50 mm. high. The stack is enclosed between an outer fixed cylindrical sheath of vitreous carbon and an inner movable sheath of vitreous carbon, and arranged in an assembly comprising a carbon push rod and a displacement detector so as to detect the expansion of the stack along the *c* axis only, this expansion being converted into a longitudinal displacement of the inner sheath.

3,572,126
ALTITUDE MEASURING DEVICE

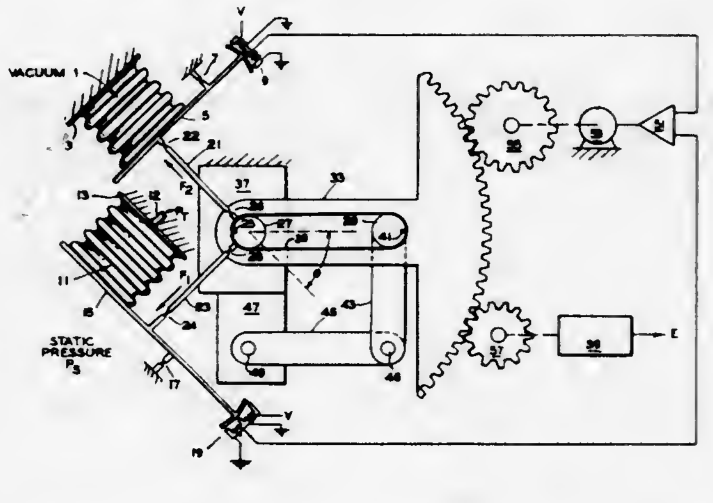
Douglas F. White, Bedminster, N.J., and Marvin D. Scadron, Glenview, and Joseph C. Faul, Melrose Park, Ill., assignors to American Standard Inc., New York, N.Y.
Filed June 17, 1968, Ser. No. 737,717
Int. Cl. G01c *21/00*
U.S. Cl. 73—384 **15 Claims**



The airspeed of an airplane is determined by means of a device which includes an upstream cylindrical member and a downstream disc-like member spaced from said cylindrical member by a predetermined distance. Oscillations are produced in the air which passes around the cylindrical and disc structures and the frequency of the oscillations are measured. The frequency of the oscillations is directly related to the velocity of the fluid thus providing a direct determination of air speed. The altitude of the airplane is computed with great accuracy, by measuring directly, the total air temperature and air stagnation pressure in addition to the airspeed, and using these quantities in standard formulas well known to those versed in the art.

3,572,127
FRICTION FREE FORCE VECTOR PRESSURE RATIO SENSOR

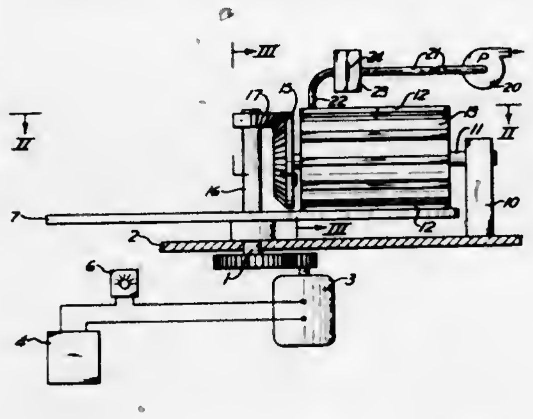
William E. Brandau, Westwood, N.J., assignor to The Bendix Corporation
Filed May 27, 1969, Ser. No. 828,267
Int. Cl. G01l *7/06*
U.S. Cl. 73—407 **7 Claims**



A force vector pressure ratio sensor has a carriage adapted to pivot about a first axis and has a pulley rotatably mounted on the carriage. A second pulley is connected to the first pulley by a non-slip belt and has a movable axis normally coincident with the first axis. A change of pressure ratio causes the second pulley to be displaced about the first pulley and a pair of sensors detect the displacement and provide signals corresponding thereto. A servo is responsive to the sensor signals for causing the carriage to pivot about the first axis until the axis of the second pulley is coincident with the first axis and the angular position of the carriage corresponds to the pressure ratio. Friction free displacement of the second pulley is provided by extensive use of flex pivots in combination with the belt and pulley arrangement. A linkage assembly programs the rotation of the first pulley relative to the carriage thereby eliminating any errors in the carriage position caused by friction between the first pulley and the carriage. The angular position of the carriage, which is free of frictional errors, corresponds to the ratio of the pressures.

3,572,128
DUSTFALL SAMPLING APPARATUS

Wesley C. L. Hemeon, 5618 Northumberland St., Pittsburgh, Pa. 15217
Filed June 13, 1969, Ser. No. 832,941
Int. Cl. G01n *1/00*
U.S. Cl. 73—421 **8 Claims**

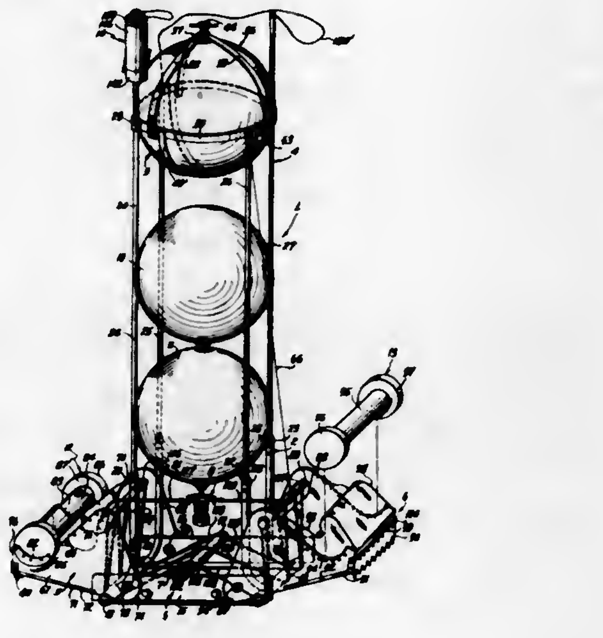


A series of wipers are disposed above a smooth horizontal surface that collects falling dust. Periodically, wiping movement is effected between the collecting surface and each wiper in succession so that the dust is removed from that surface and retained on the wiper engaging it. This wiper then is moved to a storage position and the next wiper is moved into contact with the collecting surface. Means are provided for removing the dust from each successive wiper in storage position and for measuring the quantity of dust so removed.

3,572,129
FREE-FALL BOTTOM SAMPLER

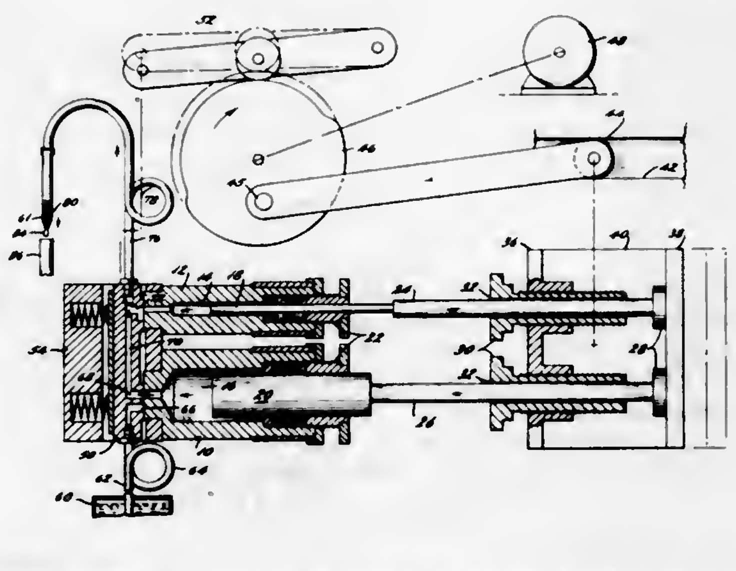
Thomas N. Walthier, San Diego, André Marcel Rosfelder, La Jolla, and Clifford E. Schatz, San Diego, Calif., assignors to Bear Creek Mining Company, Salt Lake City, Utah
Filed Mar. 8, 1968, Ser. No. 711,792
Int. Cl. G01n *1/08*
U.S. Cl. 73—425.2 **21 Claims**

A bottom sampler to obtain a sample of the bottom of a body of water. A pair of clam shell jaws are pivotally connected to the base of an upright frame of the sampler. Hollow buoyant spheres are retained within the upright portion of the frame. The jaws are latched in an open position against the bias of resilient elements which close the jaws when the latch is released in response to impact with the bottom. Two weights, one on the back of each jaw stabilize the sampler during descent and fall off when the jaws close. A camera located within one of the hollow spheres photographs the bottom of the body of water from which the sample is taken. A unique signal-flare and smoke producing device automatically actuates when the sampler returns to the surface. Other day or night signal devices such as a radio or flasher can also be used and provision is made to attach such devices to the sampler.



3,572,130
LIQUID SAMPLE PICK-UP AND DISPENSING APPARATUS

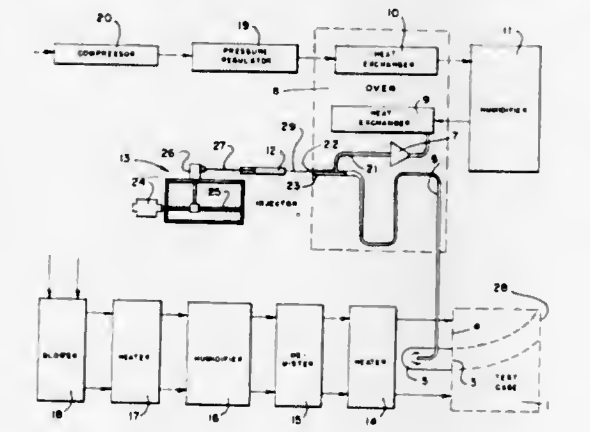
Herbert Goldsmith, Rockville, Md., assignor to National Instrument Laboratories, Inc., Rockville, Md.
Filed Aug. 27, 1969, Ser. No. 853,415
Int. Cl. G01n *1/14*
U.S. Cl. 73—425.6 **4 Claims**



The present invention is directed to an apparatus for sucking up controlled amounts of liquid sample and thereafter dispensing the liquid sample along with controlled amounts of a diluent liquid. The apparatus comprises a pair of plunger pumps having a common pump actuating means. Diluent liquid enters the pumps through a slide valve having a liquid inlet passage open only to one pump during the suction stroke, drawing diluent thereto from a diluent source. The slide valve also has an outlet channel and outlet passage tube open to the same pump only during the pumping stroke, but open at all times to the other pump. The suction stroke of the pumps serves to draw diluent into the one pump from the inlet passage and at the same time sucks diluent back from the outlet passage into the other pump, and draws a small controlled quantity of sample up into the end of the outlet passage tube. During the pressure stroke diluent is pumped from both pumps into the outlet passage tube expelling all of the sample therefrom as well as a controlled amount of diluent. A lost motion pump actuating means is provided so that the slide valve shifts when no pumping occurs.

3,572,131
METHOD AND APPARATUS FOR MEASURING THE INSECT REPELLENT PROPERTIES OF CHEMICAL VAPORS

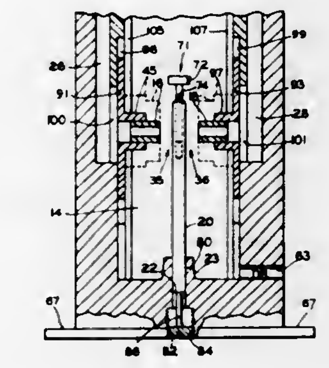
Robert H. Wright, Francis E. Kellogg, and Donald J. Burton, Vancouver, British Columbia, and Philip N. Daykin, Edmonton, Alberta, Canada, assignors to the United States of America
Filed June 30, 1969, Ser. No. 840,899
Claims priority, application Canada, Dec. 12, 1968, 37,578
Int. Cl. G01n *33/00*
U.S. Cl. 73—432 **13 Claims**



A method of and apparatus for testing the ability of various chemical vapors to repel mosquitoes and other biting insects by injecting into a cage containing such insects two differing temperature controlled humidified streams of air, one an environmental stream and another stream introduced into the environmental stream, the latter containing the vapor of said chemicals and measuring the intrinsic repellency of said chemicals.

3,572,132
FLUIDIC ACCELEROMETER

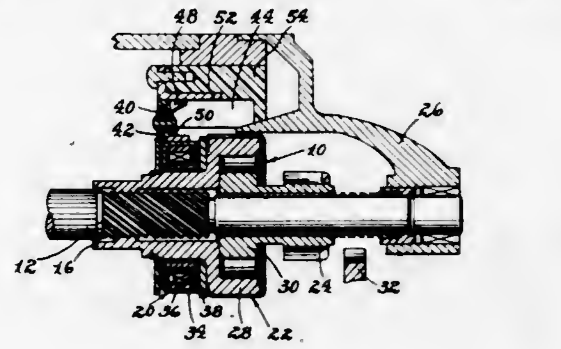
Leonard A. Trugman, Ridgewood, N.J., assignor to The Bendix Corporation
Filed Nov. 1, 1968, Ser. No. 772,677
Int. Cl. G01p *15/02*
U.S. Cl. 73—515 **5 Claims**



A fluidic accelerometer including an elastic flapper valve member sensitive to accelerational forces applied along an axis transverse the flapper valve member to cause deflection of the flapper valve member so as to unbalance a fluidic bridge circuit which gives rise to a differential pressure at outputs of the accelerometer. The fluidic bridge circuit includes two flow matched restrictors and two control nozzles operated by the flapper valve member in response to the accelerational forces applied to the flapper valve member along the sensitive axis thereof.

3,572,133
STARTER DRIVE WITH POSITIVE ADVANCE AND INERTIA RELEASE

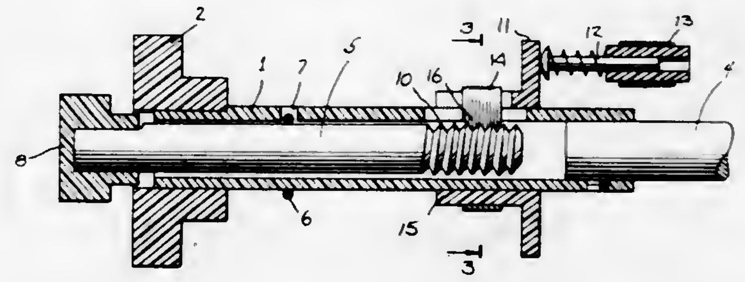
Paul F. Giometti, Horseheads, N.Y., assignor to The Bendix Corporation
Filed Apr. 4, 1969, Ser. No. 813,455
Int. Cl. F02n *11/00*
U.S. Cl. 74—7 **10 Claims**



A starter drive having position responsive advance assist means capable of preventing disengagement of the drive in the event of a false start. The assist means comprise, in the preferred embodiment, an axially-movable electromagnetic brake with a non-rotating coil and magnet body. As the drive advances, an electrical contact for the coil slides along a conducting strip which terminates immediately before the drive reaches its fully advanced position de-energizing the brake and thereby releasing the advance assist.

3,572,134
TUNER MECHANISM FOR TELEVISION AND THE LIKE

Julius Kemeny, Suffolk, Va., assignor to General Electric Company
Filed Sept. 30, 1969, Ser. No. 862,650
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.85 **3 Claims**

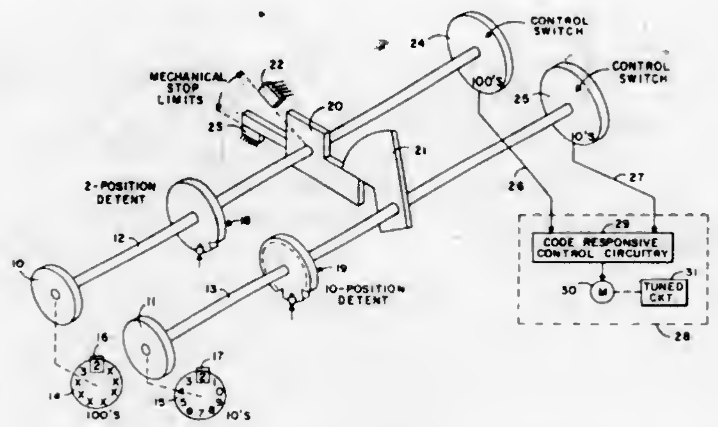


A tuner mechanism for television receivers and the like has a tubular channel selector shaft. A threaded fine tuning shaft within the selector shaft reciprocates a fine tuning means concentrically positioned around the selector shaft by means of mechanical interconnections extending through a slot in the channel selector shaft.

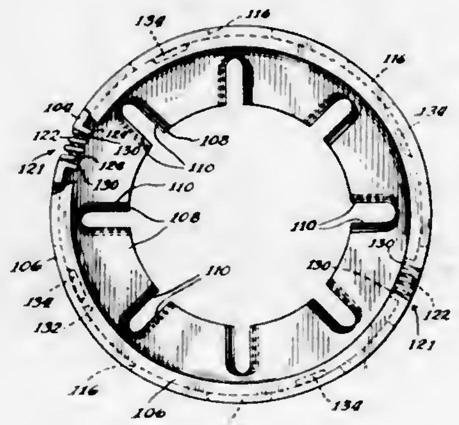
3,572,135
RELATED POSITION LOCKOUT FOR STEP-POSITIONED SHAFT PAIR

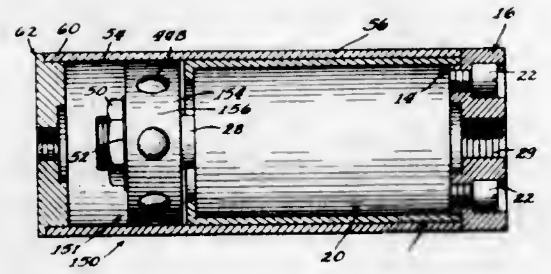
Winston F. Williams, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Oct. 21, 1969, Ser. No. 867,996
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.54 **4 Claims**

This invention comprises a combination camming and locking means for a pair of shafts which are positionable to predetermined relative angular positions. A dog member mounted for rotation with one of the shafts and a sector camming member mounted for rotation with the other of the shafts cooperate in a combination camming and locking fashion to prevent the selection of particular permutations as concerns relative shaft positions.



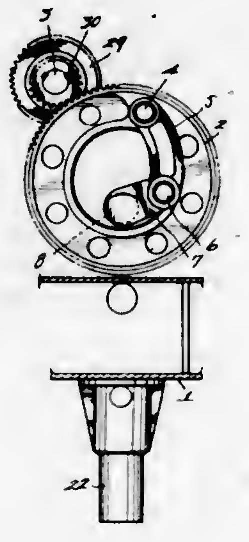
3,572,136
LINEAR ACTUATOR
Richard B. Stanley, 4 Coventry on Duxbury, Plum Grove Village, Rolling Meadows, Ill. 60008
Filed Mar. 17, 1969, Ser. No. 807,506
Int. Cl. F16h *21/16*
U.S. Cl. 74—25 **6 Claims**





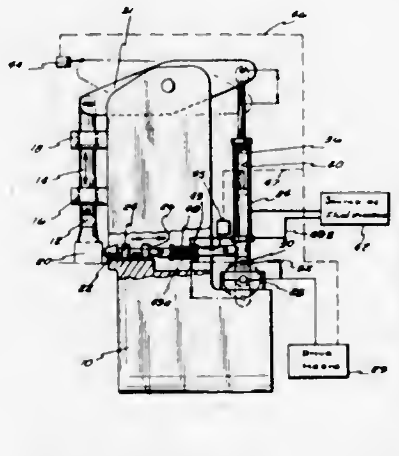
A device for converting rotary motion to linear motion in which a shaft member and a tubular member are mounted in concentric telescoping relation, and a bearing unit in the form of a plurality of bearing balls rolling on the tubular member and mounted in a special cage or retainer is interposed between the shaft member and the tubular member, and a wedge lock is established between the shaft member and the bearing balls that wedge locks the balls between the two members. The bearing unit is mounted in a fixed plane disposed transversely of the device shaft and tubular member, and the balls are spaced equidistantly about the axes of said members and rotate about individual axes that are canted at an acute angle on the order of two degrees out of parallelism with the longitudinal axes of said members.

3,572,137
SLIDE DRIVE MECHANISM FOR A PRESS
Kohji Nakano, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Aida Tekkosho, Sagamihara-shi, Kanagawa-ken, Japan
Filed May 21, 1969, Ser. No. 826,475
Int. Cl. F16h *21/22*
U.S. Cl. 74—44 **2 Claims**



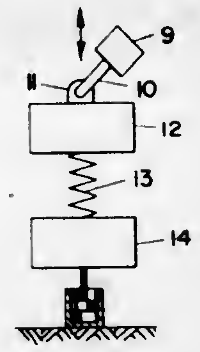
A slide drive mechanism for a press in which a slide actuating shaft is provided with an eccentric sheave adapted to cause a connecting rod connected to the slide of the press to reciprocate. The slide actuating shaft has imparted thereto a non-constant angular velocity movement from a drive shaft which rotates at a constant angular velocity and imparts a non-constant angular velocity rotational movement to the slide via an intermediate transmission means.

3,572,138
RECIPROCATING DRIVE
Marcus J. Auernhammer, Engleside, Mich., assignor to Visi-Trol Engineering Company, Detroit, Mich.
Filed Jan. 10, 1969, Ser. No. 790,424
Int. Cl. F16h *21/18*
U.S. Cl. 74—50 **16 Claims**



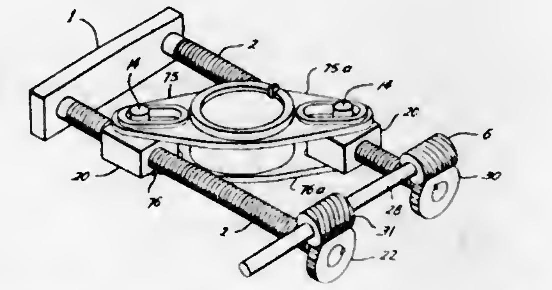
Various drive line arrangements for connecting a tool to a rotating drive shaft in order to provide a controlled, reciprocating tool motion with a pneumatic overload device protecting the drive shaft when the tool becomes jammed or is subjected to an abnormal load.

3,572,139
LOAD OPPOSITE RESONANT SYSTEMS
Howard L. Shatto, Jr., 5890 La Jolla Corona Drive, La Jolla, Calif. 92037, and Peter V. H. Serrell, 344 S. Granados, Solana Beach, Calif. 92075
Continuation-in-part of application Ser. No. 795,643, Jan. 31, 1969. This application Mar. 27, 1969, Ser. No. 813,803
Int. Cl. B06b *3/00;* **F16h** *33/20*
U.S. Cl. 74—87 **9 Claims**



A "load opposite" resonant system is provided with selected mass and spring compliance, an oscillator having an appropriate frequency and power output, and an engine with corresponding frequency and power output such that the operating frequency range of the system is in the region of, and predominately within the range and influence of its locked-load resonant frequency.

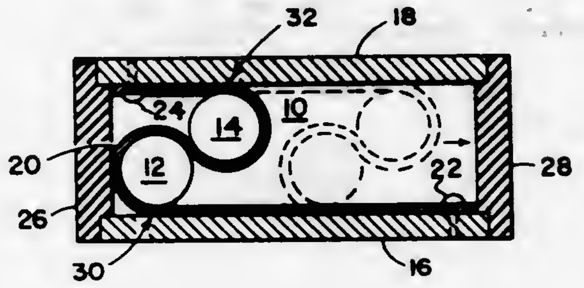
3,572,140
HIGH TORQUE MANUAL OPERATOR
Ronald A. Gulick, Houston, Tex., assignor to Research Engineering Corporation
Filed Mar. 14, 1969, Ser. No. 807,346
Int. Cl. F16h *1/18, 27/02*
U.S. Cl. 74—89.15 **5 Claims**



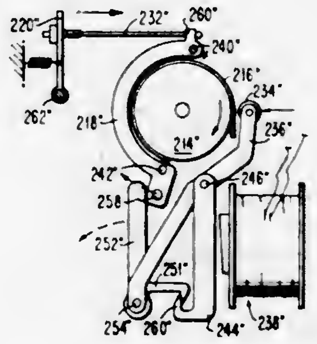
An operator having an output member linked to an input shaft in the following manner. Linkages join the member to nuts that are threadedly engaged to oppositely spaced longitudinal screws, both screws being of the same turn, i.e., right or left handed. Similar ends of the screws are keyed to worm wheels, the wheels being of opposite turn one to the other. The wheels are engaged with dual worms positioned toward opposite ends of a common shaft, the worms being of opposite turns. This shaft serves as an input shaft.

3,572,141
ROLLER-BAND DEVICES
Donald F. Wilkes, Albuquerque, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
Original application Nov. 15, 1967, Ser. No. 683,375, now Patent No. 3,471,668, dated Oct. 7, 1969. Divided and this application Mar. 26, 1969, Ser. No. 840,566
Int. Cl. F16h *55/34*
U.S. Cl. 74—89.22 **6 Claims**

A roller-band device which minimizes sliding friction, having rotatable members in a guideway with walls thereof spaced apart less than the summation of the diameters of the members for supporting the members, and resilient band means under tension between the guideway walls with a band portion convoluted about at least one of the rotatable members to form a free-rolling cluster and maintain the members with axes generally parallel.



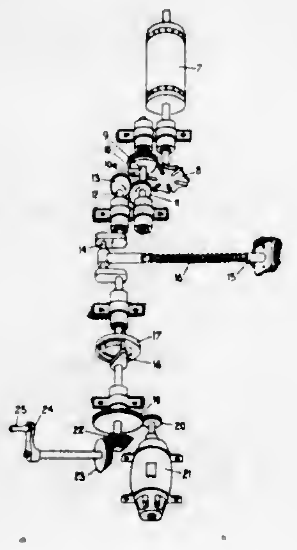
3,572,142
MECHANICAL POWER TRANSMISSION SYSTEM
Reynold Benjamin Johnson, Palo Alto, and Ralph Eugene Marrs, Campbell, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 2, 1969, Ser. No. 829,642
Int. Cl. F16h *27/00*
U.S. Cl. 74—112 **4 Claims**



A higher mechanical force over uniform distance in response to mechanical pressures or electric pulses of varying amplitude over varying duration is provided for one or a multiple of devices to be shifted by a simple, compact, inexpensive high gain power transmission system. An electric motor driven power roll has one or more flexible bands arranged loosely about the periphery. One end of each band is coupled to an operating lever, preferably in the form of a hanger compactly encircling the power roll and the band on one side. The hanger is pivoted on one side of the roll and connected to one end of the band on the other side of the roll. The device to be shifted is attached to an extension of the hanger near the pivot. The band is connected to the lever on the other side of the roll beyond which extends a disengaging portion of the lever. A pressure roller is arranged on an arm to press the band into engagement with the peripheral surface of the roll. An armature is arranged for movement in response to manual pressure on a key or electric energization of a magnet, or the like. The movement of the armature is exerted through a mechanical latch to cause the arm carrying the pressure roller to press the band into frictional contact with the moving power roll. The band then pulls the lever in a direction for shifting the device as desired and opening the mechanical latch through action of the disengaging extension of the lever. Thus uniform travel of the device to be shifted obtains from applied force which is not necessarily uniform as to time or amplitude or distance traveled.

3,572,143
SWITCHES DRIVEN BY STRETCHABLE ENERGY ACCUMULATORS OF THE CRANKSHAFT-SPRING TYPE

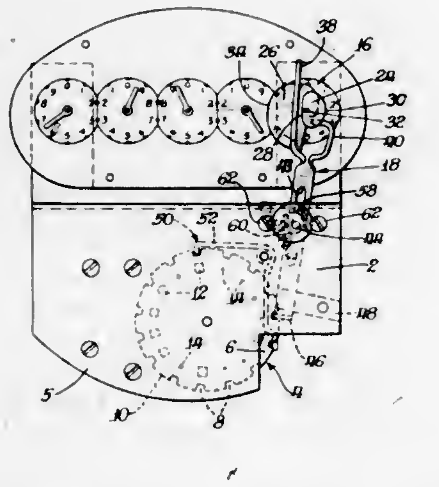
Gerardus A. van Riemsdijk, Nijmegen, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabrieken N.V., Nijmegen, Netherlands
Filed Sept. 24, 1969, Ser. No. 860,724
Claims priority, application Netherlands, Sept. 25, 1968, 6813678
Int. Cl. E16h *27/02, 29/00*
U.S. Cl. 74—116 **3 Claims**



A switch driven by an energy accumulator of the crankshaft-spring type via a rotatable disc having equiangularly spaced slots and via a driving member cooperating with said disc and driven by a shaft, said driving member temporarily engaging each time, during its movement, a slot of said disc to take the latter along for its stepwise rotation, and in which the movable switch part is positively coupled with said disc and the crankshaft is positively coupled with said driving member via two cooperating elliptical toothed wheels.

3,572,144
ACTUATING MECHANISM

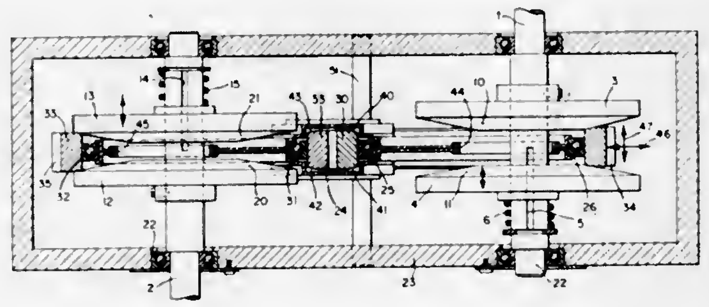
Donald J. Lemens, South Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.
Filed Apr. 29, 1969, Ser. No. 820,051
Int. Cl. F16h *27/02*
U.S. Cl. 74—142 **13 Claims**



An actuating mechanism is disclosed which includes a cam member having two differently shaped cam surfaces for moving a spring loaded actuating member along a path determined by the shape of the cam surfaces. As the actuating member moves along its path, it engages and advances a driven member. The cam surfaces are shaped and positioned relative to the actuating member such that a minimal amount of force and load is transmitted to the cam member by the actuating member.

3,572,145
VARIABLE SPEED MECHANISM

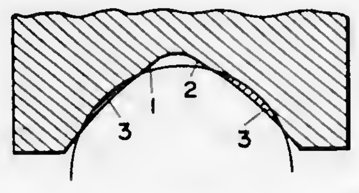
Claus L. Sporck, Traverse City, Mich., assignor to Hitco, Gardena, Calif.
Filed Oct. 8, 1969, Ser. No. 864,760
Int. Cl. F16h *15/42, 55/52*
U.S. Cl. 74—192 **6 Claims**



Mechanism for changing the speed of rotation of an output shaft relative to an input shaft in which a pair of torque transmitting rings are mounted on a carriage and interengaged for rotation about fixed axes, one ring being in frictional contact with an expansible pulley on the input shaft and the other ring being in frictional contact with an expansible pulley on the output shaft, the change in speed being obtained by that carriage is shiftable to move the rings radially of the pulleys to shift the points of contact with respect to the centers of rotation of the pulleys.

3,572,146
APPARATUS FOR USE IN SIZING CONE STEEL TUBES

Teiichi Ohtsuki and Toshiyuki Ono, Tokyo, and Yoshiaki Ono, Fujisawa-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed July 18, 1968, Ser. No. 745,754
Claims priority, application Japan, July 21, 1967, 42/46,578
Int. Cl. B21b *1/00, 17/00*
U.S. Cl. 72—199 **1 Claim**

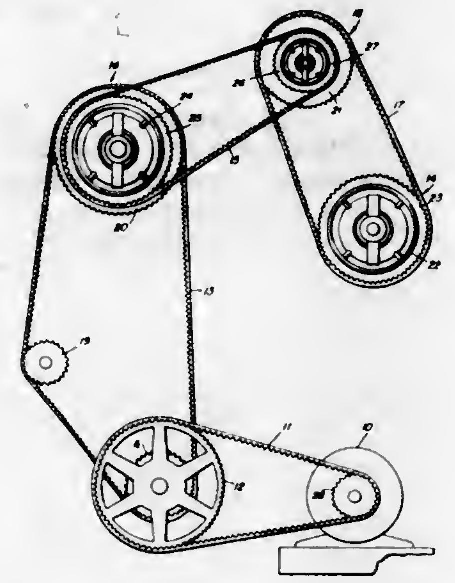


Apparatus for use in shaping conical steel tubing including a roll caliber having a hyperbolic curvature on the rolling surface thereof which contacts the tubing.

3,572,147
DUAL DIRECT TIMING BELT FEED ROLL DRIVE

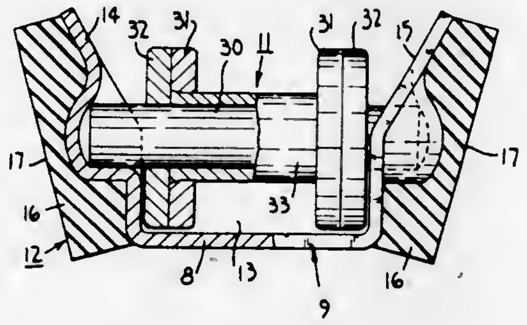
David Noel Obenshain, Luke, Md., assignor to Westvaco Corporation, New York, N.Y.
Filed July 11, 1969, Ser. No. 840,909
Int. Cl. F16h *9/24*
U.S. Cl. 74—219 **11 Claims**

A variable ratio drive mechanism is presented which employs three exchangeable timing gears and a fixed timing gear driven by two fixed length timing belts. A pressure actuated pulley assembly is provided on the drive end of each timing gear to enable the exchangeable timing gears to be readily removed in order to change the drive ratio, and, an adjustable parallel arms mounting means is provided for one of the exchangeable timing gears drives to adjust the tension in the timing belts when different timing gears are installed.



3,572,148
V-BELT

Maurice E. Hebert, 2069 Chapdelaine, Ste-Foy, Quebec, Canada
Filed June 10, 1969, Ser. No. 831,855
Claims priority, application Canada, May 2, 1969, 50,382
Int. Cl. F16g *5/18*
U.S. Cl. 74—236 **10 Claims**

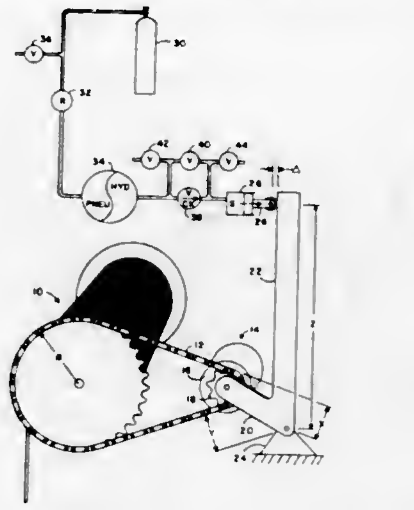


A V-belt comprising a metallic chain having inner and outer links interlocked by a plurality of pivot pins, each of the pins extending beyond the sides of the chain to removably secure between its opposed ends in an associated friction member having outer friction surfaces.

3,572,149
DRIVE MECHANISM

Robert W. Cain, Dallas, and Richard H. Sliger, Richardson, Tex., assignors to Collins Radio Company, Dallas, Tex.
Filed May 19, 1969, Ser. No. 825,881
Int. Cl. F16h *7/14*
U.S. Cl. 74—242.15 **1 Claim**

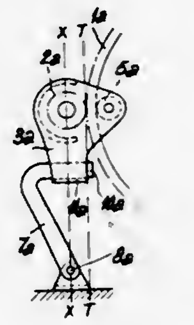
A motor means is mounted on the short arm of a two armed lever. The motor means is connected to a driven means by an endless chain. The long arm of the lever is loaded by a hydraulic cylinder means whereby tension



in the chain is maintained, and backlash is kept at a minimum.

3,572,150
MOTION TRANSMITTING DEVICES

Francois Durand, 108 Boulevard Carnot, Le Vesinet, Yvelines, France
Filed May 15, 1969, Ser. No. 824,809
Claims priority, application France, May 21, 1968, 152,616
The portion of the term of the patent subsequent to Aug. 19, 1986, has been disclaimed
Int. Cl. F16h *57/00*
U.S. Cl. 74—410 **4 Claims**

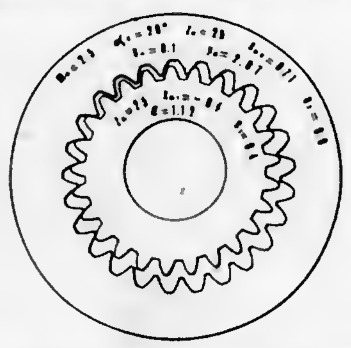


A device designed for driving a toothed relatively large gear or annulus by means of a toothed pinion mounted in a support independent of the fixed structure carrying said gear or annulus. This support comprises only a roller engaging a track formed on the toothed gear or annulus, concentrically to the teeth thereof, said roller having its axis disposed in the plane comprising the axis of the driving pinion and the axis of the driven gear or annulus. A retaining rod connects this support to a single fixed point. This rod is pivoted to said point by means of universal joint, but it is pivoted to the pinion support by means of a pin of which the axis forms a certain angle with respect to the theoretical axis of said rod.

3,572,151
PROFILE SHIFTED INVOLUTE INTERNAL GEAR APPARATUS HAVING NO DIFFERENCE IN NUMBER OF TEETH BETWEEN INTERNAL GEAR AND PINION

Muneharu Morozumi, 293–1 Aza Kitanaka, Oaza Kurita, and Koro Yaezima, 1699–2 Wakazato Minamiichi, both of Nagano-shi, Nagano-ken, Japan
Filed Oct. 8, 1969, Ser. No. 864,827
Claims priority, application Japan, Oct. 12, 1968, 43/74,447
Int. Cl. F16h *1/06, 55/06*
U.S. Cl. 74—413 **1 Claim**

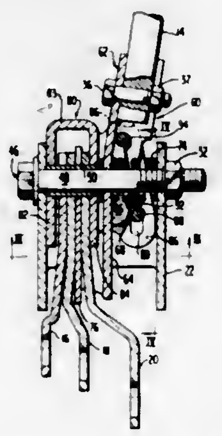
An internal gearing comprises an internal gear and a pinion having no difference in number of teeth and arranged in intermeshing engagement with an appropriate center distance and with a contact ratio of greater than 1,



by providing adequate profile shifting to the internal gear and the pinion of ordinary involute tooth profile.

3,572,152
GEAR SHIFT MECHANISM

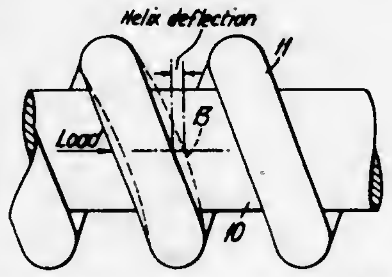
Max R. C. Bruhn, Jr., and James Vander Jagt, Jr., Spring Lake, Mich., assignors to Grand Haven Stamped Products, Grand Haven, Mich.
Filed Feb. 10, 1969, Ser. No. 797,860
Int. Cl. F16h *57/06*
U.S. Cl. 74—476 **8 Claims**



A gear shifting mechanism having a housing, forward and reverse gear actuating levers pivotably mounted within the housing, and a selector which is mounted within the housing for pivotable movement about two mutually perpendicular axes. A lever engaging means on the selector has arms which extend along the levers and inwardly on either side of the gear actuating levers. The selector is biased away from the reverse gear actuating lever by a cam and a biased cam follower. A second biasing means urges the selector to a position so as to engage the forward lever farthest away from the reverse actuating lever.

3,572,153
FLEXIBLE MECHANICAL TRANSMISSION CABLES

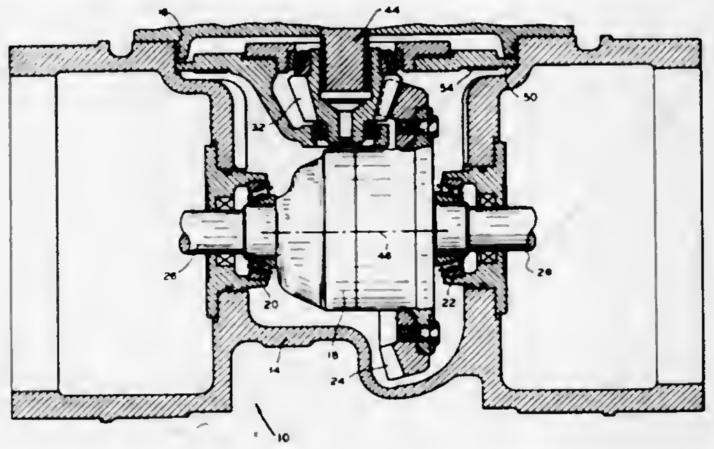
Ernest Baker Dove, Basildon, Essex, England, assignor to Teleflex Products Limited, Basildon, Essex, England
Filed July 17, 1969, Ser. No. 842,492
Claims priority, application Great Britain, Aug. 9, 1968, 38,134/68
Int. Cl. F16h *1/04;* **B21d** *53/28*
U.S. Cl. 74—422 **3 Claims**



In a flexible mechanical transmission cable of the type having a multi-wire core and a drive wire applied in an open helix around the core, the cross-section of the drive wire, which has hitherto been circular, is now made of near involute form. The base of this near involute cross-section, which is contiguous with the cable core, is formed with a concavity or convexity such as to cause one or more portions of said base to bed into the core and thereby enhance the grip between the drive wire and the core under load.

3,572,154
DIFFERENTIAL ASSEMBLY

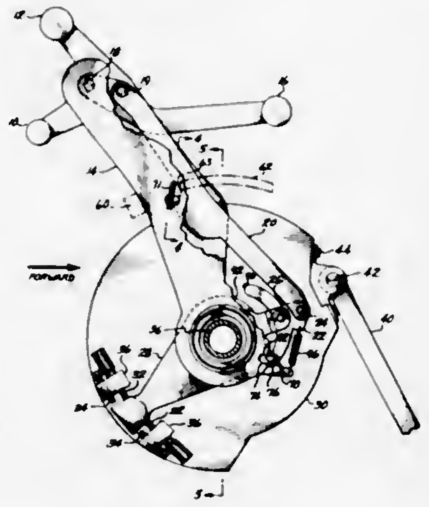
Gerald P. Bartolomucci, Brooklyn, Mich., assignor to Clark Equipment Company
Filed May 27, 1969, Ser. No. 828,181
Int. Cl. F16h *1/14, 35/08*
U.S. Cl. 74—424 **5 Claims**



A motor and differential assembly combination in which the motor shaft is separable from the differential input gear. The input gear is journaled in a support which is connected to the differential housing and positions the input gear for proper mesh with the differential ring gear.

3,572,155
INTERLOCK MECHANISM

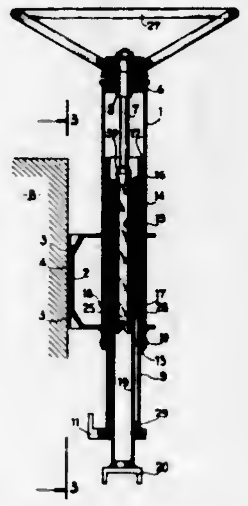
Geoffrey M. Banks, Bellevue, Wash., assignor to The Boeing Company, Seatttle, Wash.
Filed June 30, 1969, Ser. No. 837,535
Int. Cl. G05g *11/00*
U.S. Cl. 74—479 **2 Claims**



A control system for interlocking either of two input levers to an output member. The preferred embodiment involves an aircraft pilot's forward and reverse thrust throttle control levers wherein the reverse thrust lever is pivotally carried by the forward thrust lever. A rotatable pawl member is used to drivingly interconnect the output member with the forward thrust lever in a first rotatable position, and to drivingly interconnect the reverse thrust lever with the output member when the pawl member is in a second position. Positioning of the pawl member is accomplished by movement of the reverse thrust lever. The interconnect pawl is self-locking for load transfer in either direction during forward thrust operation.

3,572,156
SAFETY STEERING COLUMN FOR AN AUTOMOBILE VEHICLE

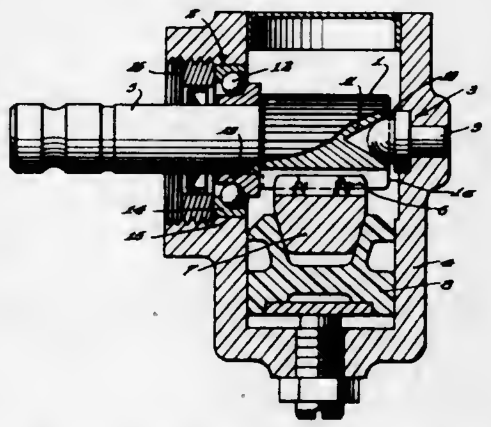
Michel Grançon, Marnes-la-Coquette, France, assignor to Automobiles Peugeot, Paris, and Regie Nationale des Usines Renault, Billancourt, France
Filed Feb. 25, 1969, Ser. No. 801,960
Claims priority, application France, Mar. 20, 1968, 144,499
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **10 Claims**



Safety steering column structure for a vehicle. The column structure comprises a steering shaft carrying the steering wheel and slidably keyed relative to an element which bears against the body of the vehicle. The shaft is connected to rotate with the steering mechanism. A projection on the shaft is adapted to force a passage through energy absorbing and dissipating material which does not restore the energy when a thrust on the shaft results in a relative displacement between the projection and the material. The projection is in the normal steering position, located a short distance from an entrance in the material.

3,572,157
PIN AND SOCKET PINION BEARING FOR RACK AND PINION ASSEMBLY

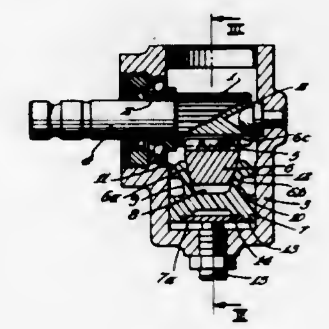
Frederick J. Adams, Campton, near Shefford, and Ronald S. Goldsmith, Hitchin, England, assignors to Cam Gears Limited, Hitchin, England
Filed July 8, 1969, Ser. No. 839,882
Claims priority, application Great Britain, Aug. 30, 1968, 41,435/68
Int. Cl. B62d *1/20*
U.S. Cl. 74—498 **8 Claims**



An inexpensive pinion mounting for rack and pinion assemblies useful in automotive steering gear having cooperating socket and pin or spigot parts providing radial and thrust bearing surfaces supporting a free end of the pinion and coacting with an adjustable anti-friction radial and thrust bearing to rotatably mount the pinion and hold it against axial shifting in a housing for the assembly.

3,572,158
RESILIENTLY DEFORMABLE RACK BAR SUPPORT FOR RACK AND PINION ASSEMBLY

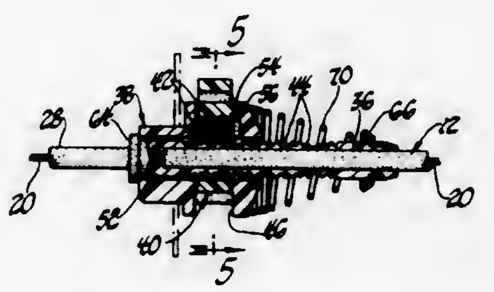
Frederick J. Adams, Campton, near Shefford, England, assignor to Cam Gears Limited, Hitchin, England
Filed July 8, 1969, Ser. No. 839,957
Claims priority, application Great Britain, Aug. 30, 1968, 41,436/68
Int. Cl. B62d *1/20*
U.S. Cl. 74—498 **5 Claims**



A rack and pinion assembly for automotive steering gear having a carrier providing an interference fit slidable support for the rack bar holding the rack teeth in meshed engagement with the pinion teeth and preventing lateral displacement of the bar. The bar preferably has a wedge-shaped transverse cross-section, and the carrier preferably has a wedge-shaped recess receiving the rack bar. The carrier is adjustably mounted in the assembly housing to force the rack bar deeper into the recess, and sidewall portions of the carrier are caused to be displaced and compressed between the rack bar and the housing, providing support of the rack bar against transverse movement in the general direction of the pinion axis.

3,572,159
MOTION TRANSMITTING REMOTE CONTROL ASSEMBLY

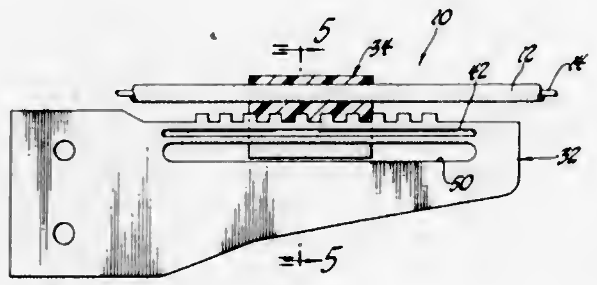
August E. Tschanz, Dryden, Mich., assignor to Teleflex Incorporated, North Wales, Pa.
Filed June 12, 1969, Ser. No. 832,760
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **12 Claims**



A motion transmitting remote control assembly including a conduit movably supporting a motion transmitting core element. A fitting is disposed about the conduit adjacent one end for attaching the conduit to the support structure. An elongated circular adjustment means having threads or teeth thereabout is attached to the conduit adjacent the other end and extends through a support means or member adapted for attachment to a support structure. A locking member is supported in a passageway extending through the support member transversely to the axis of the conduit and has a first circular bore therethrough with teeth thereabout and a second larger circular bore therethrough so that the locking member may be moved between a first position wherein the adjustment means may be moved longitudinally through the support member and a second position wherein the teeth in the small circular bore engage the teeth on the adjustment member to prevent longitudinal movement of the adjustment member. A biasing means or spring reacts between the adjustment member and the support member to urge relative movement therebetween.

3,572,160
MOTION TRANSMITTING REMOTE CONTROL ASSEMBLY

Peter Anten Stahr, Pontiac, Mich., assignor to Teleflex Incorporated, North Wales, Pa.
Filed June 12, 1969, Ser. No. 832,709
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **14 Claims**

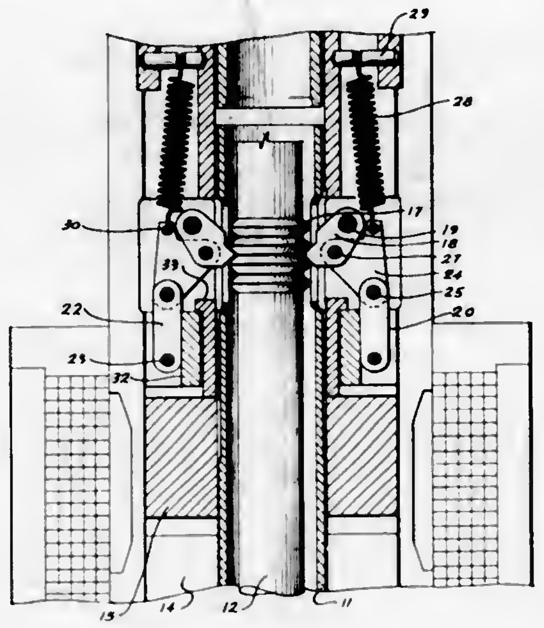


A motion transmitting remote control assembly including a conduit movably supporting a motion transmitting core element. A fitting is disposed about the conduit adjacent one end for attaching the conduit to a support structure. A plate-like bracket having teeth therealong is disposed adjacent the opposite end of the conduit and is adapted to be connected to a support structure. An adjustment means comprising an elongated member of organic polymeric material molded about the conduit includes a first plurality of teeth with arms extending from opposite extremities thereof for coacting with a groove in the plate to maintain the teeth in the adjustment means in spaced relationship to the teeth along the periphery of the plate whereby the adjustment means may be moved along the plate. The arms also coact with a slot in the plate so that the adjustment means may be snapped into position with the teeth thereof engaging the teeth of the plate to prevent movement of the adjustment means along the plate.

3,572,161
CONTROL ROD ANTIEJECTION LATCH

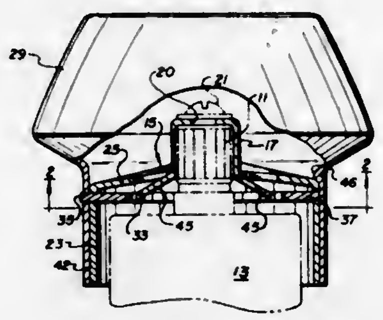
Harold V. Lichtenberger, West Simsbury, and Louis A. Bertone, Tariffville, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed July 8, 1969, Ser. No. 839,915
Int. Cl. G05g *5/06;* **H02k** *4/00*
U.S. Cl. 74—527 **10 Claims**

A nuclear reactor control rod antiejection latch for use with magnetic jacking type control rod drives and having a pawl which rachets to allow insertion of the control rod, but which prevents withdrawal unless the control rod life coil is energized. A pivotally mounted locking pawl normally engages the control rod and is positively disengaged when an unlocking slug is drawn down by the lifting coil. A connecting link is pivotally attached to both the pawl and a link on the slug. The connecting link has a spring force exerted upwardly on it. The location of the pivoted connections and the spring force is such that ratcheting of the pawl occurs without displacement of the slug and against a lesser spring force than is acting on the slug.



3,572,162
PLUMBING HANDLE KNOB COMBINATION

William F. Gresham, San Clemente, and George R. Stucka, Arcadia, Calif., assignors to VSI Corporation
Filed Apr. 1, 1969, Ser. No. 812,972
Int. Cl. G05g *1/10*
U.S. Cl. 74—553 **15 Claims**



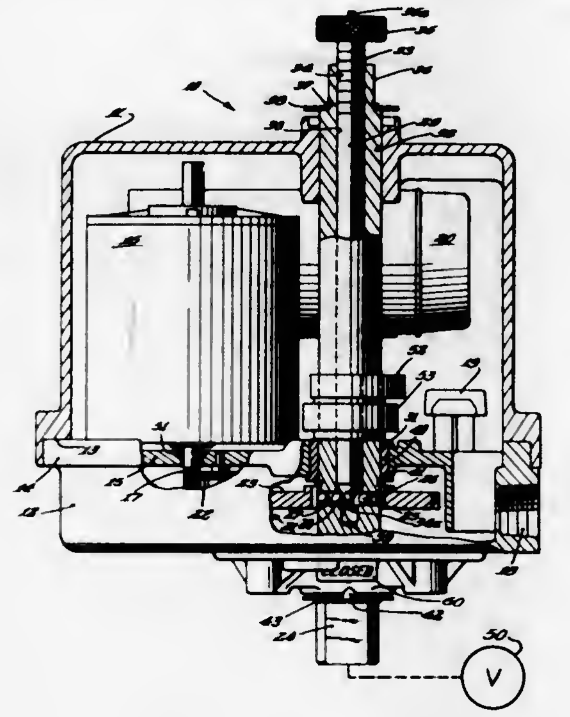
A valve control knob is provided with an adapter which has an inner sleeve portion that meshes with a splined valve stem. The inner sleeve portion has an enlarged peripheral wall section connected there to and spaced radially outward therefrom which mates with the neck of the control knob. A spring is connected to and extends through the peripheral wall portion to engage the knob sleeve to retain same on the adapter. An aperture is provided in the knob sleeve for access to the spring for removal of the knob from the adapter.

3,572,163
SELECTIVE ACTUATING MEANS FOR OPERATING A VALVE MANUALLY OR BY MOTOR

Malcolm D. Clark, Glasgow, Scotland, assignor to Raymond Control Systems Inc.
Filed Apr. 3, 1969, Ser. No. 813,119
Int. Cl. F16h *35/00;* **F16d** *19/00*
U.S. Cl. 74—625 **10 Claims**

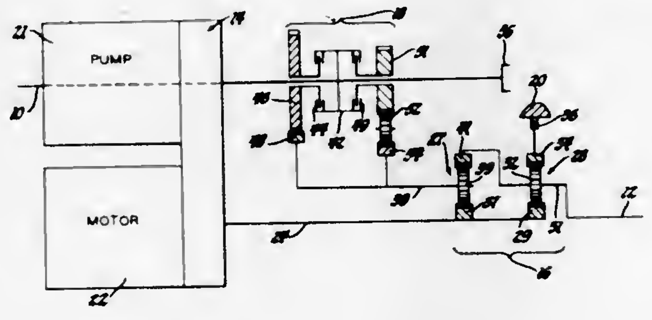
Valve actuating apparatus which is normally operated by motor may be operated manually by disengaging the

output of the motor from the valve and engaging the valve with a manually rotatable shaft. One embodiment of the invention utilizes a gear having a splined hub and a plurality of spheres which are positionable into and out of the splined hub to effect mechanical coupling between the motor and the associated valve, while a second embodiment employs a lever arrangement for axial displacement of the driving pinion of the motor from the gear train driven thereby to effect disengagement of the motor, the lever arrangement being actuated by linear displacement of a manually rotatable shaft which is also employed for manual operation of the valve.



3,572,164
HYDROMECHANICAL TRANSMISSION

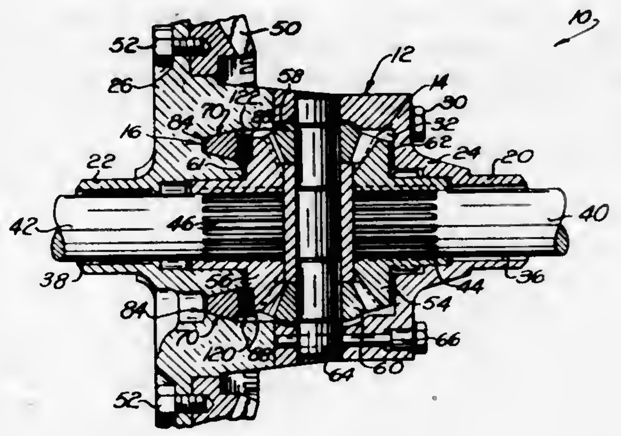
Marion D. Smith, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 19, 1969, Ser. No. 859,349
Int. Cl. F16h *47/04*
U.S. Cl. 74—687 **7 Claims**



A hydromechanical transmission having a variable ratio hydrostatic drive unit, two planetary gear sets and a plurality of friction drive establishing devices with one such device arranged in a simple direction maintaining gear train and another such device arranged in a simple direction reversing gear train and all the components combined to provide at least three different speed range drives with each drive established by engagement of only one friction drive establishing device and each such device speed synchronized for its engagement at a predetermined transmission input-output speed ratio.

3,572,165
CLUTCH ACTUATOR FOR DIFFERENTIAL

Daniel W. Roper, Rochester, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Mar. 25, 1969, Ser. No. 810,206
Int. Cl. F16h *1/44;* **F16d** *13/04*
U.S. Cl. 74—711 **3 Claims**



This disclosure relates to a drive mechanism including a clutch assembly which is operated by an actuator to interconnect driving and driven members when a predetermined speed of relative rotation is present between the driving and driven members. In the operated condition, the clutch assembly retards the relative rotation between the driving and driven members. The clutch assembly includes an annular, generally wedge shaped clutch element which is mounted for rotation with one of the driving and driven members. Upon operation of the actuator, a cam element presses surfaces on the clutch element axially against complemental clutch surfaces mounted for rotation with the other of the driving and driven members to thereby retard relative rotation between the members.

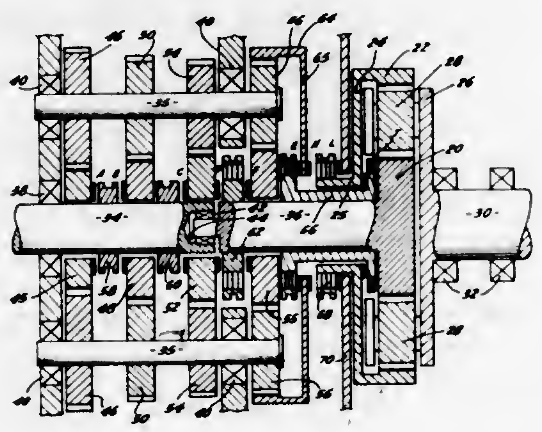
3,572,166
DUAL OUTPUT TRANSMISSION

Sidney A. Rains, Speedway, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed May 14, 1969, Ser. No. 824,398
Int. Cl. F16h *37/06*
U.S. Cl. 74—720.5 **28 Claims**

The dual output transmission shown has a range unit having a torque converter, lockup clutch and range multiratio gear unit and an output unit having two output multiratio gear units for driving two steer and vehicle brakes for retarding a dual output shaft either equally or selectively for driving and drive steering a tracked vehicle. The drive controls provide manual selection of drive ratios in the range and output gear units to provide a plurality of overall drive ratios. The steer control controls the output unit to provide drive brake steering, geared steering and pivot steering. The steer type control, i.e. land or water overcontrols the drive and steer controls to provide two overall drive ratio programs and two steering programs having different types of steering, one having geared steering and drive brake steering and the other having geared steering and pivot steering. The steer type control also over-controls the downshift inhibitor of the drive controls to reduce the speed at which downshifts are inhibited when the steer program includes pivot steering. The drive controls provide a positive neutral and engage the lockup clutch for a positive power take off drive in neutral.

3,572,167
TRANSMISSION COMBINING GEARSET WITH PLANETARY GEARING

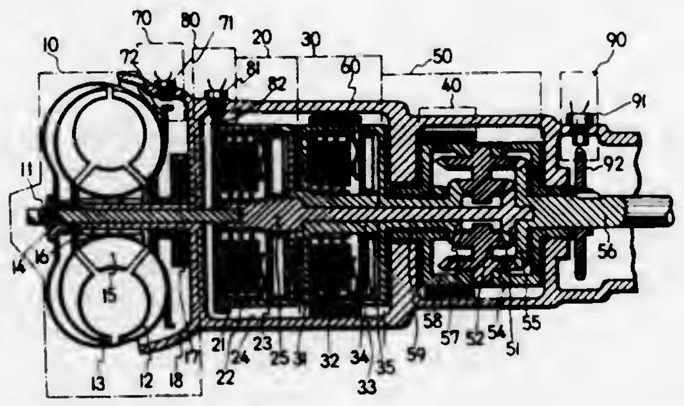
Walter F. Bosko, Garden Grove, Earl B. Muir, Palos Verdes Peninsula, and William E. Weseloh, Redondo Beach, Calif., assignors to White Motor Corporation
Filed Apr. 28, 1969, Ser. No. 819,722
Int. Cl. F16h *37/00*
U.S. Cl. 74—740 **27 Claims**



The transmission incorporates a first countershaft means together with a second countershaft means and combines a 3-speed main gear box with a 2-speed splitter and with planetary gearing to provide eighteen ideally spaced forward speeds and six reverse speeds with some of the gears used for transferring power in opposite directions selectively.

3,572,168
AUTOMATIC TRANSMISSIONS

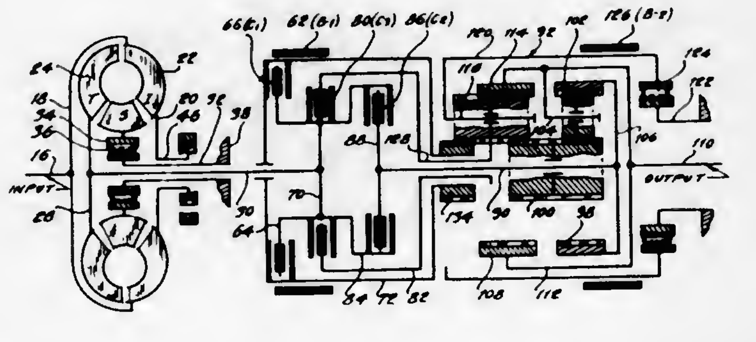
Takeaki Shirai, Nagoya-shi, Shigeru Sakakibara, Okada, Masaaki Noguchi, Nagoya-shi, and Masaharu Sumiyoshi, Toyota-shi, Japan; said Shirai assignor to Nippon Denso Kabushiki Kaisha and said Sakakibara, Noguchi, and Sumiyoshi assignors to Toyota Jidosha Kogyo Kabushiki Kaisha
Filed Sept. 5, 1969, Ser. No. 855,606
Claims priority, application Japan, Sept. 9, 1968, 43/64,809
Int. Cl. F16h *5/42*
U.S. Cl. 74—752 **10 Claims**



The present invention relates to a system including computer activated signals for controlling the activation in a vehicle of an automatic transmission incorporating a hydraulic torque converter, a gear transmission unit and friction engaging means for selecting the appropriate gear of the gear transmission unit which is to be activated by fluid under pressure, characterized by the utilization of a slip ratio computing means for generating an electric output signal when the ratio of revolving velocity of the output shaft of the vehicle engine (input shaft of the hydraulic torque converter) to the revolving velocity of the output shaft of the torque converter or the power driven shaft of the gear unit reaches or is within a predetermined value.

3,572,169
PLANETARY GEAR TRANSMISSION MECHANISM HAVING AN OVERDRIVE SPEED RATIO, A DIRECT-DRIVE RATIO AND MULTIPLE UNDERDRIVE RATIOS

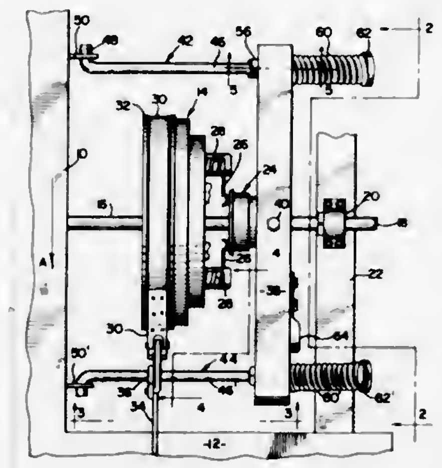
Alan R. Fisher, Highland Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 21, 1969, Ser. No. 878,720
Int. Cl. F16h *47/08, 57/10*
U.S. Cl. 74—763 **7 Claims**



A planetary gear system having compound planetary gearing including two simple planetary gear units capable of establishing two under-drive ratios, an overdrive planetary gear unit including gear elements that are common to one of the simple planetary gear units, and a simplified clutch-and-brake system for controlling the relative motion of the elements of the gear units to establish the forward drive ratios as well as a reverse speed ratio.

3,572,170
CLUTCH-BRAKE OPERATOR FOR FORWARD-REVERSE PLANET GEARS

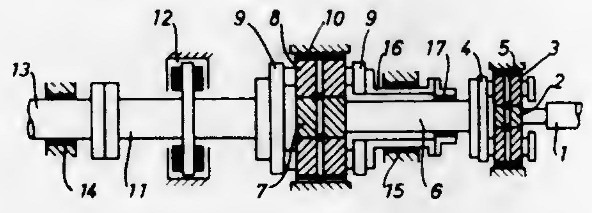
Donald K. Tashiro, Hamilton, Ontario, Canada, assignor to International Harvester Company, Chicago, Ill.
Filed Oct. 1, 1969, Ser. No. 862,854
Int. Cl. F16d *67/02*
U.S. Cl. 74—792 **6 Claims**



A control system for the conventional planetary gear transmission of a self-propelled agricultural vehicle wherein the clutch and brake assemblies of the transmission are operable to incur forward-neutral-reverse drive in response to movement of a control lever accessible to the operator. A control member is arranged to move axially in response to rotation thereof about the power input shaft to disengage the clutch assembly and thus incur neutral drive. Continued rotation of the control member actuates the brake assembly to incur reverse drive without further significant axial movement of the control member, thereby preventing overloading of the clutch assembly.

3,572,171
GEAR TRAIN WITH TWO EPICYCLIC GEARS CONNECTED IN SERIES

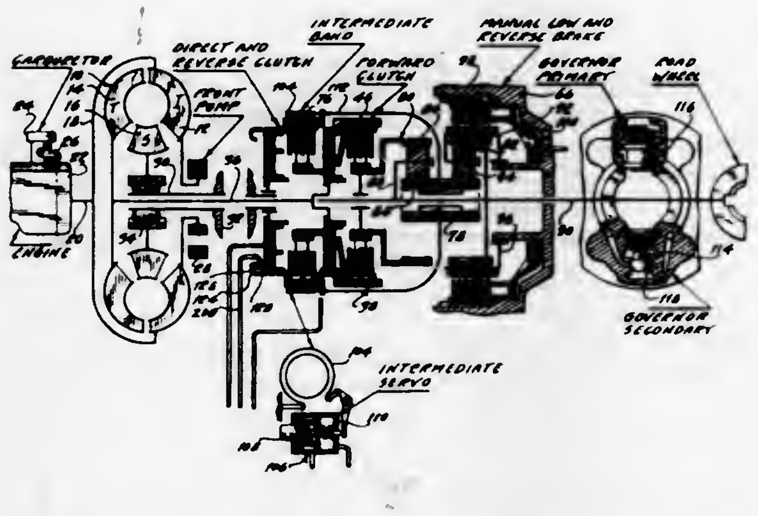
Per-Erik Arne Larsson, Finspong, Sweden, assignor to Stal-Laval Turbin AB, Finspong, Sweden
Filed Mar. 26, 1969, Ser. No. 810,520
Claims priority, application Sweden, Apr. 18, 1968, 5,161/68
Int. Cl. F16h *1/46, 1/48*
U.S. Cl. 74—801 **1 Claim**



A gear train particularly adapted for marine propulsion machinery and wherein said train is in two stages of epicyclic gearing connected in series. The first stage connects by a shaft to the sun wheel of the second stage. The second stage has a planet carrier supported by a journal bearing located between the two gearing stages, said bearing being disposed around the shaft that bears the sun wheel of the second stage. Another bearing encircles said shaft, the latter bearing being located between the journal bearing and the gearing that constitutes the first stage.

3,572,172
MULTIPLE RATIO TRANSMISSION WITH SPEED SENSITIVE SHIFT TIMING CONTROLS

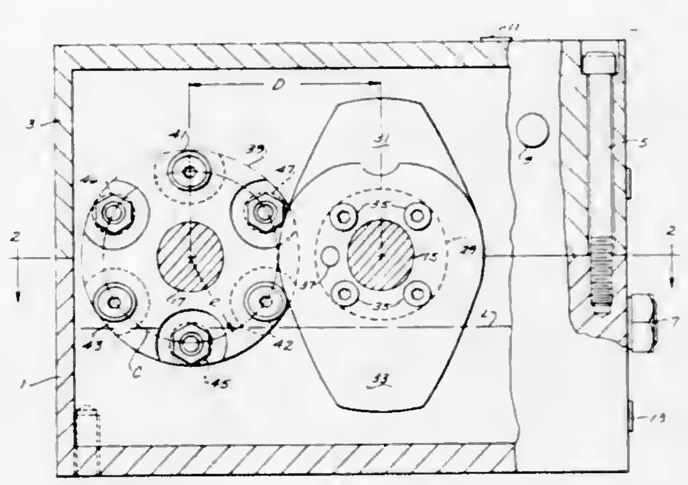
Po-lung Liang, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Feb. 24, 1969, Ser. No. 801,591
Int. Cl. B60k *21/10;* **F16h** *5/42*
U.S. Cl. 74—864 **13 Claims**



A multiple ratio planetary gear system wherein the intermediate ratio reaction element of the gear system is caused to rotate as a torque delivery member during low speed ratio operation and wherein automatic ratio changes are achieved by a valve system that senses the speed of that element as a friction brake is applied to the reaction element when the speed of the element approaches zero.

3,572,173
INDEXING DRIVE

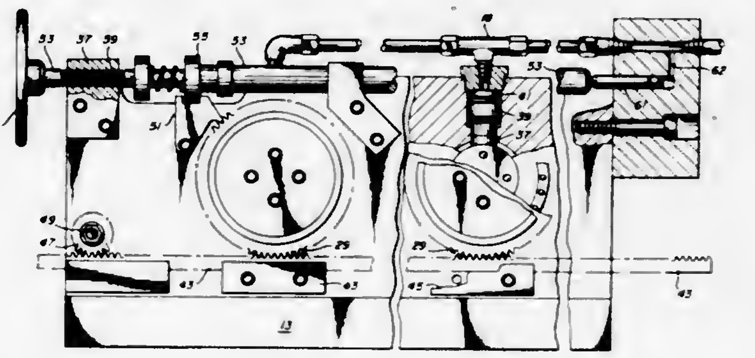
Duane W. Woltjen, Manchester, Mo., assignor to UMC Industries, Inc., St. Louis, Mo.
Filed Apr. 16, 1969, Ser. No. 816,494
Int. Cl. B23q *17/04*
U.S. Cl. 74—815 **5 Claims**



Driving and driven shafts are supported in bearings which are permanently spaced apart at a definitely fixed center distance. On the driven shaft is a first support in the form of a flange for a circle of cam-follower rollers. On the drive shaft is a second support in the form of a flange for a cam means which drive the follower rollers around said circle. Each roller is borne upon a stud which extends through a flanged bushing. Each bushing closely but rotatably and removably fits into a hole in said first support and itself has an eccentric hole therethrough. Each stud is located in one of these eccentric holes. Each stud also has a stop at one end for engagement with the flange of the bushing, and is threaded on its end opposite to receive a draw nut reacting against said first support for clamping the flange of the bushing thereto, thereby to hold the bushing in any selected angular position on the support. By loosening the nut the bushing is released for rotary adjustment of the position of the center line of the roller which it supports, whereby the radii of the centers of any or all of the rollers may be changed. Each and every bushing, stud or roller, if damaged, is replaceable in its support, the support being protected against damage so that its replacement is not necessary in such an event.

3,572,174
MULTIPLE WORK HOLDING INDEXING FIXTURE

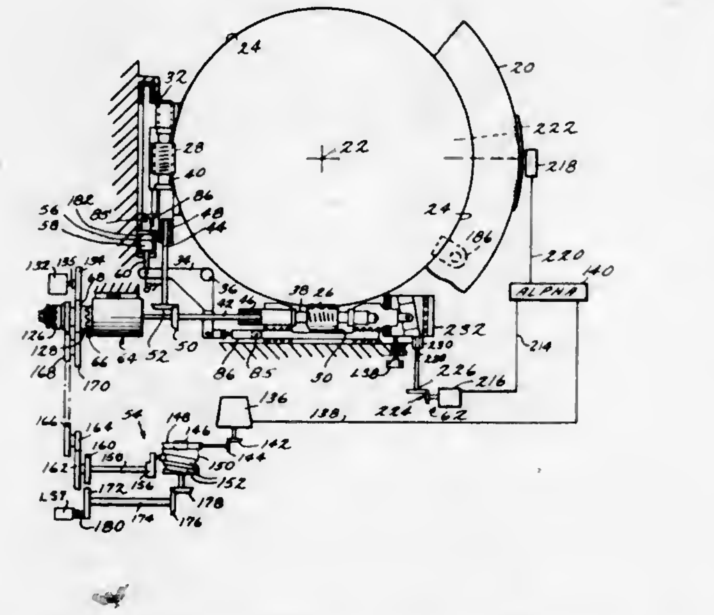
Charles M. Lynn, 3447 N. 53rd St., Phoenix, Ariz. 85018
Filed Mar. 24, 1969, Ser. No. 809,545
Int. Cl. B23b *29/24;* **F16h** *57/00*
U.S. Cl. 74—822 **4 Claims**



A multiple work holding indexing fixture is provided which can angularly orient a plurality of workpieces simultaneously for supporting and positioning the workpieces relative to a tool member for performing an operation thereon.

3,572,175
INDEXING MECHANISM

Thomas A. Deprez, Rochester, N.Y., assignor to The Gleason Works, Rochester, N.Y.
Filed Mar. 3, 1969, Ser. No. 803,752
Int. Cl. B23q *17/06*
U.S. Cl. 74—825 **14 Claims**

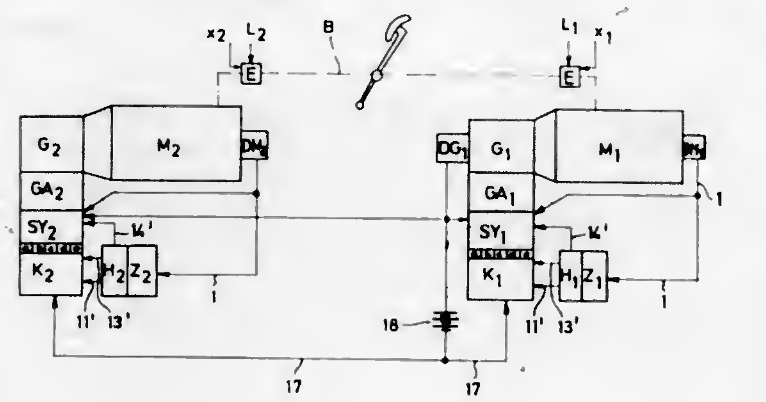


An electro-optical system is used for precisely controlling the position of a rotary member during intermittent indexing movements thereof. A linear grating or scale is arranged on the periphery of a rotary member and an electrical controller is operatively connected to a correction index motor for turning the rotary member in accordance with readings taken of the linear grating to effect corrective indexing of the rotary member after it has been initially partially indexed by a separate mechanical index drive.

There is also provided an anti-backlash feature, and an index lock-up device acting directly on the drive worm.

3,572,176
SYSTEM FOR GEAR-SHIFTING IN MOTOR VEHICLES

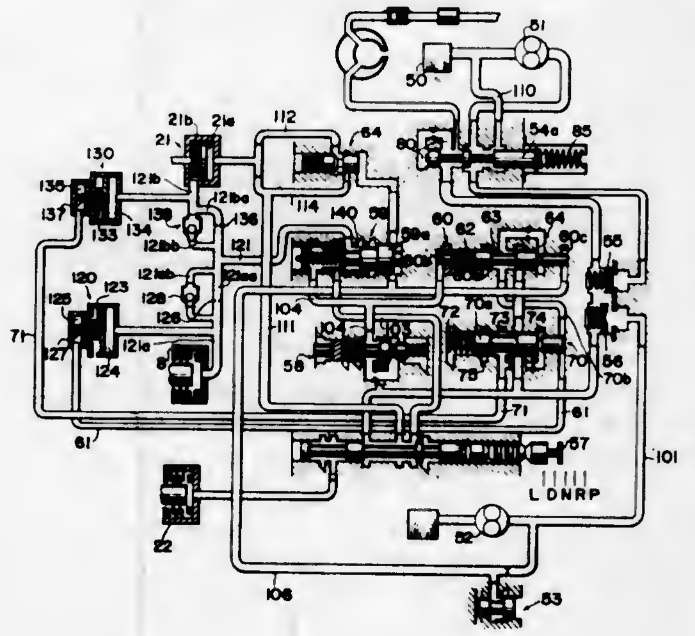
Benno Bildat, Obere Karlstr. 3, Erlangen, Germany
Filed Dec. 5, 1968, Ser. No. 781,393
Claims priority, application Germany, Dec. 7, 1967, P 16 55 194.3; Dec. 22, 1967, P 16 55 195.4
Int. Cl. B60k *21/00;* **F16d** *25/00, 67/06*
U.S. Cl. 74—847 **28 Claims**



The changing of gears in either manual or automatic transmissions for motor vehicles in which the wheels or wheel groups thereof and at least two engine transmission units are separately connected, with the engines being jointly controllable by the vehicle driver as regards the fuel supply, and the arrangement being such that the flow of force between at least one of the engines and one or more associated wheels is maintained without the employment of expensive and space requiring components.

3,572,177
AUTOMATIC TRANSMISSION

Tomoo Ishihara, Tokyo, Minoru Ohya, Aichi-ken, and Shin Itoh, Tokyo, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
Filed May 6, 1969, Ser. No. 822,158
Claims priority, application Japan, June 7, 1968, 43/39,076
Int. Cl. B60k *21/06;* **F16d** *67/04*
U.S. Cl. 74—868 **4 Claims**



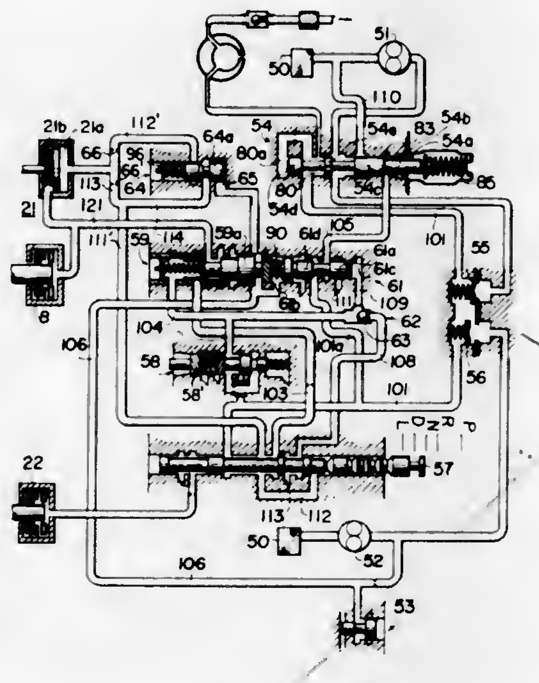
A fluid transmission wherein speed changes are carried out by a change in gearing which is accomplished by a pressure line supplying fluid pressure which acts on interlocked clutch and brake band elements. To avoid shock during the speed change, first and second accumulator arrangements are interposed in the pressure line. These accumulator arrangements include delay means whereby the release of one element is accomplished prior to the accomplishment of the engagement of the second element.

3,572,178
HYDRAULIC CONTROL SYSTEM OF AN AUTOMATIC TRANSMISSION

Seitoku Kubo, Toyota-shi, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed May 9, 1969, Ser. No. 823,382
Claims priority, application Japan, May 18, 1968, 43/33,414
Int. Cl. B60k *23/00*
U.S. Cl. 74—868 **2 Claims**

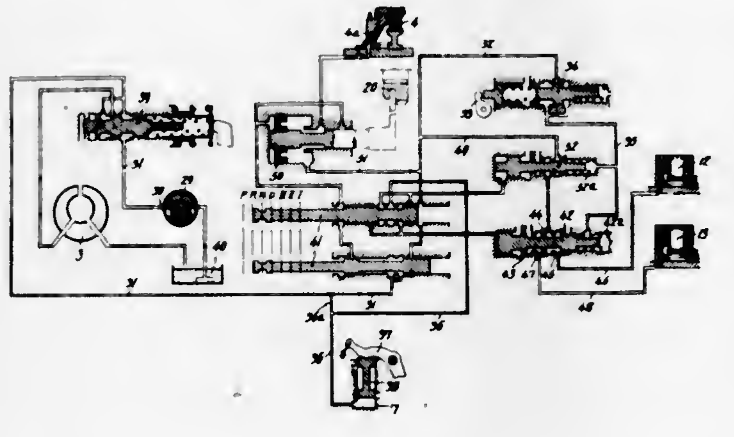
A change-over valve is provided responsive at one end thereof to an oil pressure proportional to engine throttle opening and at the other end thereof to an oil pressure proportional to actual car speed, the latter oil pressure being derived from a governor on the planetary output shaft. Under conditions of low car speed and high torque demand the throttle pressure is effective to move the change-over valve to the left thereby communicating the oil line supply pressure to a pressure regulator valve chamber thereby causing the pressure regulator valve to increase the oil line pressure supplied to the hydraulically operated clutches, brake bands, etc. As car speed increases, the governor pressure overcomes the throttle pressure and

moves the change-over valve back toward the right. This causes the oil line pressure to exhaust from the aforementioned regulator valve chamber thereby decreasing the oil line pressure supplied to the various hydraulically operated clutches, brake bands, etc. Operation of the manual valve from the DRIVE position to the LOW position is effective to render the change-over valve responsive to the oil line pressure rather than the throttle opening pressure.



3,572,179
AUTOMATIC TRANSMISSION APPARATUS

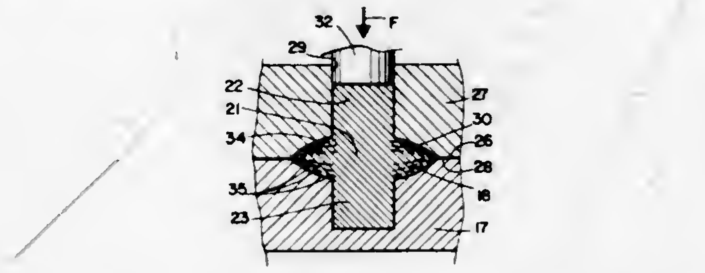
Akira Akima, Tokyo, and Kazuyoshi Yoshida and Tomio Oguma, Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 26, 1969, Ser. No. 802,602
Int. Cl. B60k *21/06*
U.S. Cl. 74—869 **8 Claims**



A valve is provided to control the selective supply of an operating pressure fluid to first and second friction clutches which respectively control the operation of low speed and a high speed transmission system of a speed change mechanism. The valve is displaceable between first and second positions and is subject to pressure fluid at its opposite ends, the pressure of the fluid at one end being related to engine output power and the pressure of the fluid at the other end being related to the speed of an output shaft of the transmission system. When the valve is in the first position, one clutch is activated whereas when the valve is in its second position the other clutch is activated.

3,572,180
METHOD FOR FORGING CUTTING WHEELS

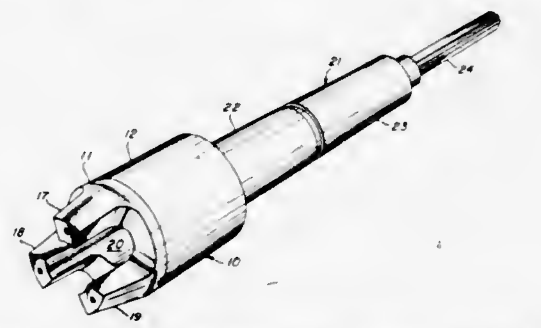
Alfred E. Beaumont, 5510 Melvin Ave., Tarzana, Calif. 91356
Filed Aug. 28, 1968, Ser. No. 756,054
Int. Cl. B21k *21/00*
U.S. Cl. 76—101 **1 Claim**



A cutter wheel is shaped by positioning a billet within a pair of mated dies and striking the billet with a punch. An intermediate zone of the billet is locally preheated so that upon impact from the punch, the intermediate zone material will bulge into a die cavity defined by die peripheries formed on the dies. As the intermediate zone billet material is forced into the die cavity, the metal grain lines are reoriented in radial directions so as to strengthen the edge to be ultimately used as a cutting edge.

3,572,181
ANGULARITY INDICATING DRILLING ATTACHMENT

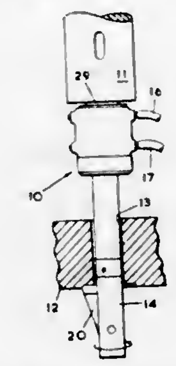
Martin S. Schlegel, 1212 E. Gardenia St., Phoenix, Ariz. 85020
Filed Sept. 6, 1968, Ser. No. 758,004
Int. Cl. B23b *49/00*
U.S. Cl. 77—55 **4 Claims**



An attachment for a drilling apparatus to maintain the drill at a pre-selected angle. Indicators, responsive to contact between the drilling attachment and the workpiece, verify angular alignment.

3,572,182
CUTTING TOOLS

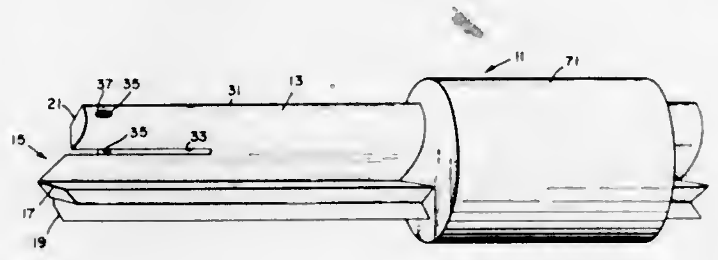
James Stewart MacDonald, Rugby, England, assignor to The English Electric Company Limited, London, England
Filed Sept. 3, 1968, Ser. No. 756,858
Claims priority, application Great Britain, Sept. 1, 1967, 40,015/67
Int. Cl. B23b *29/03*
U.S. Cl. 77—73.5 **8 Claims**



A simple back-spot facing tool has a fluid-pressure operated actuating member which retracts the cutter into the tool body and moves it into its angle cutting position, the thrust during cutting being transferred to the tool body through the actuating member.

3,572,183
STRAIGHT DRILL

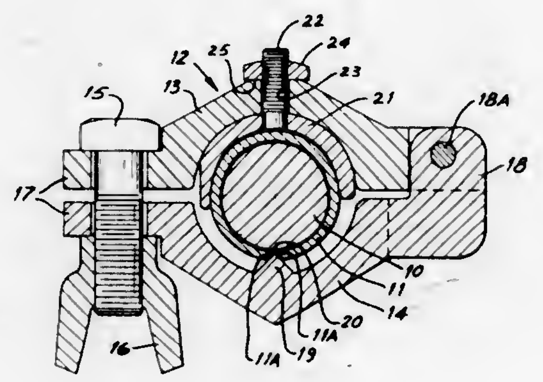
Gennaro Mellone, 3884 Shirley Ave., Lynwood, Calif. 90262
Filed June 26, 1968, Ser. No. 740,844
Int. Cl. B23b *51/00*
U.S. Cl. 77—67 5 Claims



A rotary drill for drilling holes in a workpiece whereby equal and balanced cutting pressure is applied by three separate cutting edges disposed at a cutting end of a solid elongated shank member in equally spaced angular directions around the drilling axis, each of the cutting edges being inclined and situated along the same conical rotation surface to generate adjacent annular zones of the conical surface.

3,572,184
TOOL FOR ADJUSTING TIE RODS

George Tocci, 240 Floral Ave., Plainview, N.Y. 11803
Filed Feb. 5, 1969, Ser. No. 796,776
Int. Cl. B25b *1/00*
U.S. Cl. 81—3 8 Claims

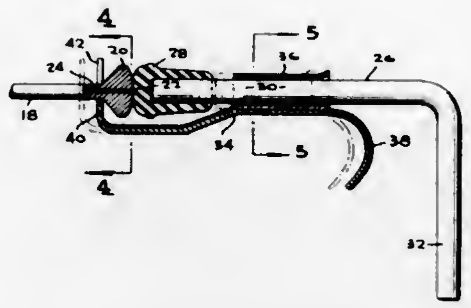


A tool for use in freeing and rotating threaded split sleeves of the type forming part of the adjustment means of a vehicular tie rod. The tool is in the form of a split nut, the two parts of which may be readily bolted around the split sleeve and is provided with an elongated wedge which forces the lips of the sleeve apart thereby freeing the sleeve for rotation.

3,572,185
TOOL FOR ACTUATING PRESSURIZING PUMP OF FUEL TANK

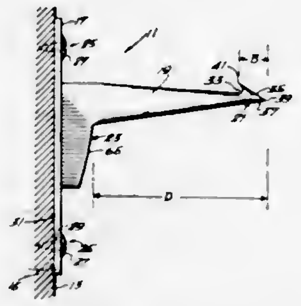
Richard L. Compton, 2025 N. Fremont, Springfield, Mo. 65803
Filed Mar. 12, 1969, Ser. No. 806,518
Int. Cl. B25b *11/00*
U.S. Cl. 81—3 8 Claims

A hand-held tool having an L-shaped handle supporting a reciprocable fork for engagement with the base of a knob on a plunger rod employed for pressurizing a fuel tank to grasp the knob between the fork and a seal means on the end of the handle which seals a vent opening in the knob to enable pressurization of the tank by manual reciprocation of the tool and rod.



3,572,186
FINGER TAB CAN CLOSURE OPENING PRONG MEANS

Grady Page Dillard, 16220 NW. 27th Court, Opa-Locka, Fla. 33054
Filed Dec. 15, 1969, Ser. No. 885,073
Int. Cl. B67b *7/36*
U.S. Cl. 81—3.3 7 Claims

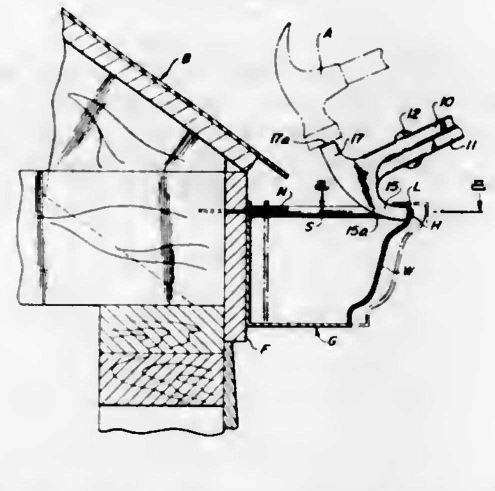


A can opening implement adapted to be stationarily mounted on existing support structure in a building for providing auxiliary can opening means for detaching the finger grip ring tab and score line demarcated closure section of a beverage can or the like. The can opening implement includes a prong-like body projecting rigidly horizontally, and includes a barb-like head portion supported on the distal end of the horizontally-projecting body. In using the implement, the beverage container is held in an upright disposition and is manipulated to engage the finger grip ring tab with the barbed head structure of the implement. The container is first thrust away from the user to engage the finger ring tab of the can closure with the barbed head of the implement, then the container is pulled downwardly and toward the user to peel away the closure section of the container top wall and to form an exit opening for the contents of the container.

3,572,187
PLIERS TOOL

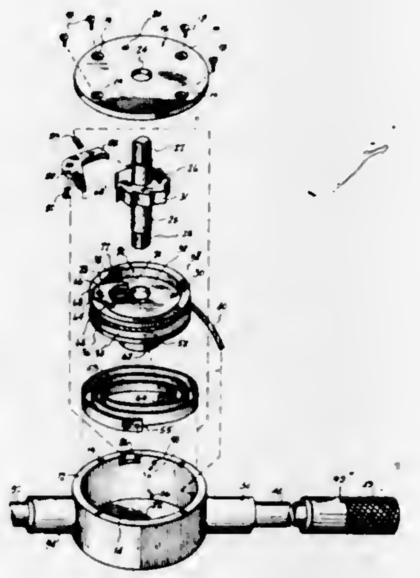
Emerson Glassburn, 1412 E. Hudson St., Columbus, Ohio 43211
Filed June 11, 1969, Ser. No. 832,127
Int. Cl. B25b *7/22*
U.S. Cl. 81—5.1 5 Claims

A pliers-type tool facilitating removal of rain gutters or eavestroughs from a building structure is provided which avoids damage to the gutter as a consequence of removing a securing nail. The tool comprises a pair of jaw assemblies formed on one end of a pair of pivotally connected handles. Each jaw assembly is relatively oriented to the other to form a striking surface readily contacted by a hammer when the opposite jaw assembly is in engagement with the gutter fastening nail.



3,572,188
HIGH SPEED RATCHET WRENCH

William S. Christian, Jr., Rte. 4, Lafayette, Ala. 36862
Filed May 21, 1969, Ser. No. 826,570
Int. Cl. B25b *13/46*
U.S. Cl. 81—57.46 10 Claims

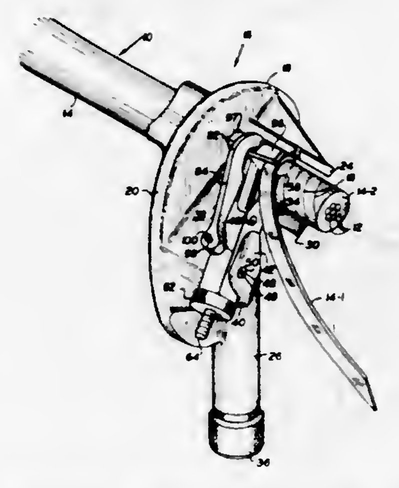


A ratchet wrench for high speed, low torque and low speed, high torque operation has a reel inside a casing rotatable on an axial shaft. A first pawl carried by the reel engages a ratchet wheel secured to the shaft to turn the same when the reel turns. A second pawl carried by the cover plate engages the ratchet wheel to turn the shaft when the casing is turned by radially-extending handles. A cable wound on the reel moves axially of the handle for fast turning the reel when a removable extension is pulled from one of the handles.

3,572,189
INSULATION JACKET SHAVING TOOL

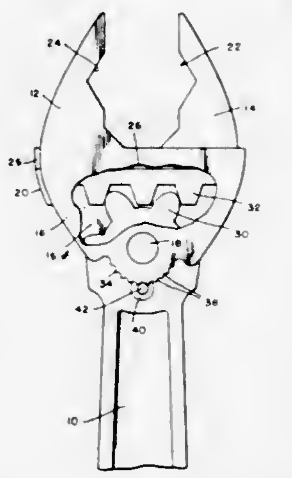
James J. Matthews, Hicksville, N.Y.
(Landing Hill Road, East Haddam, Conn. 06423)
Filed Nov. 26, 1968, Ser. No. 778,955
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 10 Claims

A tool is provided for shaving and stripping the impregnated outer layer from the insulating jacket of an electrical conductor cable in which the tool has a channel for receiving the insulated conductor cable, an adjustment for adapting the size of the channel to various different diameter conductor cables, an insulation shaving blade that is operable toward or away from the conductor cable to adapt to different diameters thereof, and a limiting element to limit the depth of blade penetration of the conductor cable.



3,572,190
RESILIENT SELF-ADJUSTING WRENCH

Ernest N. Oeland, Jr., West Covina, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 26, 1969, Ser. No. 853,019
Int. Cl. B25b *13/12*
U.S. Cl. 81—127 3 Claims

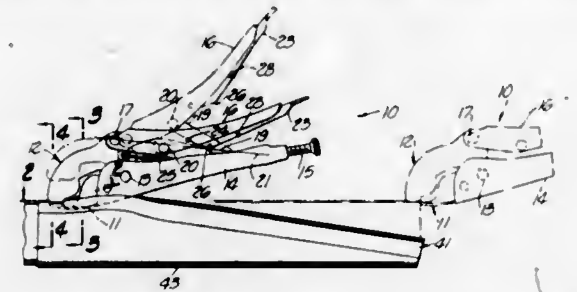


A self-adjusting wrench including a handle, a pair of jaws wherein one jaw is pivotally mounted to the upper end of the handle and the other jaw has a rack portion which is slidably mounted to the pivoted jaw, and the upper end of the handle having a pinion which meshes with the rack so as to open and close the jaws. The pivoted jaw has a body portion with an arcuate edge which has convolutions and a resilient insert is mounted in the handle adjacent these convolutions. A pin is mounted within the resilient insert and has an extension therebeyond which resiliently engages the edge of the pivoted jaw upon the convolutions so that pin action on the pivoted convolutions enables the user to preselect a spacing between the jaws and then obtain ratcheting operation when the wrench is applied to a nut.

3,572,191
SEAM CLOSING TOOL

Hans E. Bannies, Laguna Beach, Calif., assignor to Walter A. Plummer, Sherman Oaks, Calif.
Filed Apr. 29, 1968, Ser. No. 724,858
Int. Cl. B25b *7/12*
U.S. Cl. 81—367 12 Claims

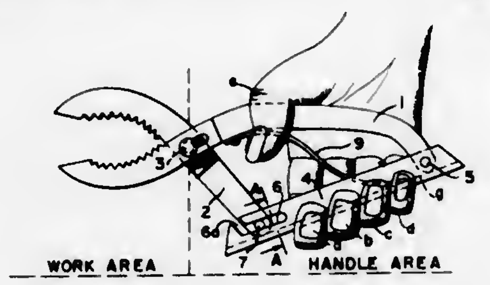
A plier-like closure tool for use in opening and closing seam-forming tape of the type having tongues and grooves along their juxtaposed faces shaped to interlock to form a separable seam as the tongues and grooves are pressed together from the remote surfaces of their overlapped edges. The tool jaws are specially contoured to embrace and retain the overlapped tape edges inproper position for



camming them into interlocking engagement and including means effective to hold the jaws in spaced-apart operating position. The tool includes adjustable means for accommodating the tool jaws to use with tapes of differing thicknesses.

3,572,192
SQUEEZE TYPE TOOLS

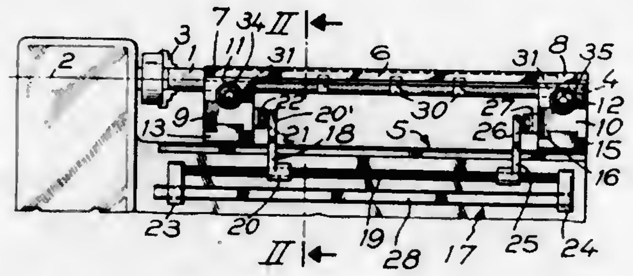
Stanley M. Juras, 67 Eggleston St.,
Uniontown, Pa. 15401
Filed May 10, 1968, Ser. No. 728,117
Int. Cl. B25b *7/12*
U.S. Cl. 81—383.5 **10 Claims**



A squeeze type tool having a pair of arms pivoted at a point intermediate their ends, so that a work area lies on one side of the pivot and a handle area lies on the other. One of the arms is relatively long when compared to the other and both arms cooperate with a third arm having one end pivotally connected to the extreme end of the long arm and having its other end slidably engaged with the short arm. This linkage permits the work area to be in full view of the operator when the tool is grasped in a natural manner with the thumb uppermost on the long arm and the fingers curling in efficient sequence on the third arm.

3,572,193
DEVICE FOR MACHINING A WORKPIECE ON A LATHE BY THE SIMULTANEOUS TRANSVERSAL FEEDING OF SEVERAL TOOLS

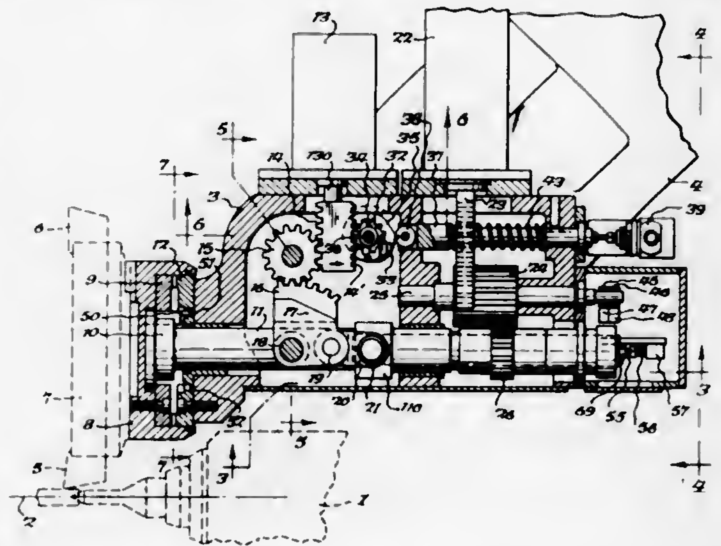
Jules Louis Jeanneret, 13–21 Rue Henri Gelin 79,
Niort, France
Filed July 15, 1968, Ser. No. 744,745
Claims priority, application France, July 21, 1967,
115,165
Int. Cl. B23b *21/00*
U.S. Cl. 82—25 **5 Claims**



Device for mounting on an automatic copying lathe for the simultaneous transverse feeding of several tools, comprising a longitudinally movable adjustable tool carrier which is transversely movable with respect to the axis of the piece by means of a mechanical transmission.

3,572,194
AUTOMATIC INDEXING TOOL BLOCK

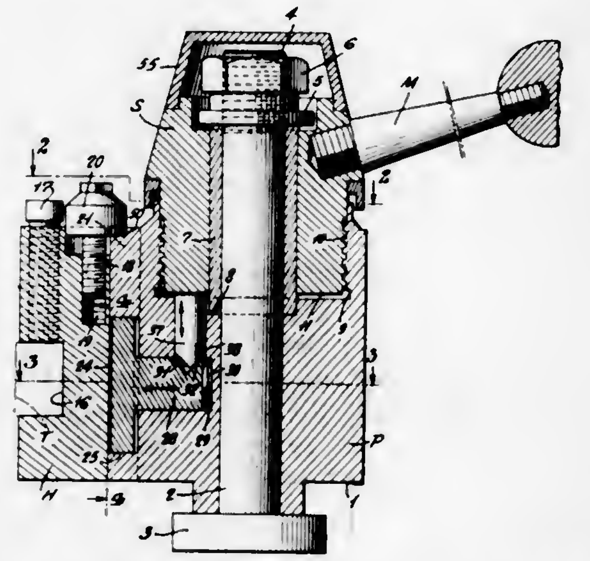
Constantine F. Cafolla, Waterloo, N.Y., assignor to Seneca Falls Machine Company, Seneca Falls, N.Y.
Filed Feb. 12, 1968, Ser. No. 704,878
Int. Cl. B23b *29/32*
U.S. Cl. 82—36 **8 Claims**



A clamping and index shaft is mounted for rectilinear reciprocal movement between extended and retracted positions and also for rotary movement between index positions. A tool block is mounted on the shaft for movement therewith between index position, and a coupling member is mounted on the shaft for movement therewith into and out of retracted position. Another coupling member engages the one to hold the shaft against indexing when the shaft is retracted. A motor is operable to move the shaft between extended and retracted positions, and another motor is operable to rotate the shaft by the index positions. The one motor is arranged in controlling relation to the other for indexing the shaft only upon movement out of retracted position, thereby disengaging the coupling members.

3,572,195
QUICK-CHANGE TOOLPOST

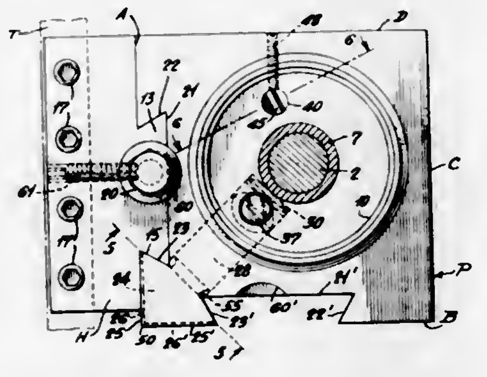
Eugene F. Gourley, Meadville, Pa., assignor to McCrosky Tool Corporation, Meadville, Pa.
Filed July 22, 1968, Ser. No. 746,529
Int. Cl. B23b *29/08*
U.S. Cl. 82—36 **12 Claims**



A toolpost adapted to be affixed to a lathe or similar machine, and embodying a clamping mechanism therein for quickly attaching and detaching a toolholder relative thereto, at a predetermined level, through the intermediary of vertically disposed complementary dovetail-shaped fittings on the toolholder and on at least one face of the toolpost, the latter of which includes a horizontally movable clamping member shaped essentially as a surface of revolution. In the illustrated embodiment of the invention, the latter comprises a disk-shaped outer portion, truncated along a vertical chord, and a suitably recessed cylindrical inner portion, the rapid and simple movement of which, in a to-and-fro direction, controls the clamping and releasing effects on the toolholder.

3,572,196
TOOLPOST

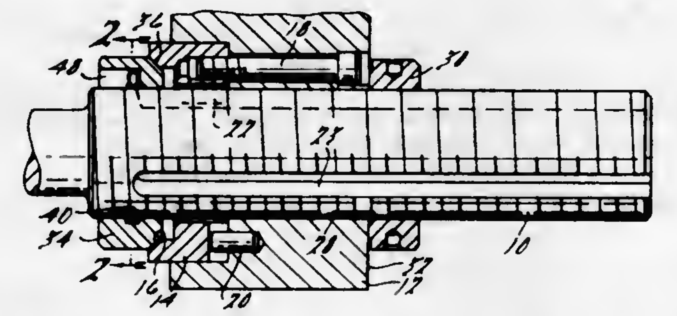
Eugene F. Gourley, Meadville, Pa., assignor to McCrosky Tool Corporation, Meadville, Pa.
Filed Nov. 20, 1968, Ser. No. 777,416
Int. Cl. B23b *29/24*
U.S. Cl. 82—36 **7 Claims**



A toolpost adapted to be affixed to a lathe or similar machine, and embodying a unitary clamping mechanism therein for quickly attaching and detaching a toolholder relative thereto, at a predetermined level, through the intermediary of a vertically disposed dovetail-shaped tenon on the toolholder interfitting selectively with a complementary dovetail-shaped mortise provided on each one of two faces of the toolpost arranged at right angles to each other. The unitary clamping mechanism includes a horizontally movable member provided on its outer portion with clamping components forming intermediate parts of each of the mortises on the toolpost, which upon actuation of the cylindrical inner portion of said member along an axis bisecting the right angle of the toolpost containing the mortises, effects a locking of the toolholder to the selected face of the toolpost by a rapid and simple to-and-fro movement of a handle which controls the clamping and releasing effects on the toolholder.

3,572,197
ADJUSTABLE TOOLHOLDER

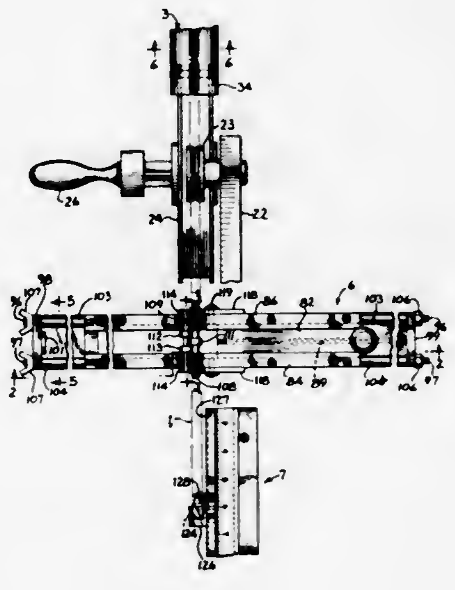
Robert M. Ortlieb, Southfield, Mich., assignor to Devlieg Machine Company, Royal Oak, Mich.
Filed Dec. 10, 1968, Ser. No. 782,654
Int. Cl. B23b *29/04*
U.S. Cl. 82—36 **6 Claims**



An adjustable tool supporting structure in which a threaded tool carrying shank is located along its thread axis on a supporting member by means of an adjusting collar. The collar as well as a locking nut are threaded onto the shank. The collar engages a seat on one side of the supporting member while the locking nut bears against the opposite side thereof. A special band is used to hold the collar in a desired position on the shank when the shank is not clamped on the supporting member.

3,572,198
APPARATUS AND METHOD FOR CUTTING STOCK MATERIAL

William J. Adlaf, North Riverside, Ill., assignor to Esterline Corporation, Broadview, Ill.
Filed Mar. 11, 1968, Ser. No. 712,153
Int. Cl. B23b *5/14, 3/04*
U.S. Cl. 82—47 **5 Claims**

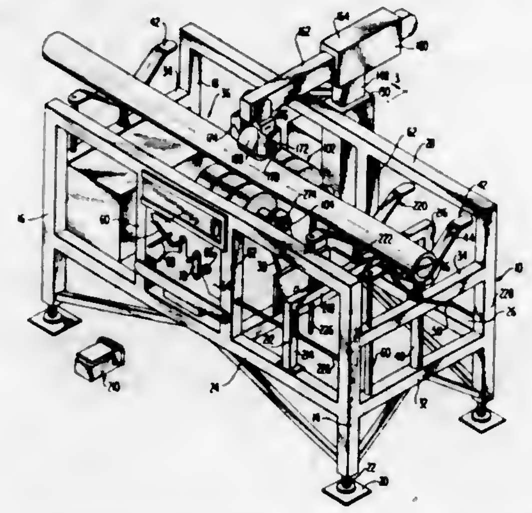


Apparatus for handling and cutting metal tubing comprises a reel upon which a coil of tubing may be placed and a device that straightens the tubing as it is withdrawn from the reel and is moved into an elongated housing that stores the straightened tubing. The tubing may then be advanced, as desired, through a fixture to cut off selected tube lengths from the supply. The housing keeps the remaining supply of tubing from being bent. The fixture supports the tubing for rotation about its longitudinal axis and includes a knife that is drawn over the tubing transversely thereof. The frictional engagement of the knife with the tubing rotates the latter and the disposition of the cutting edge of the knife is such as to increase progressively the depth of cut as the knife moves through a predetermined path.

3,572,199
PIPE FABRICATOR

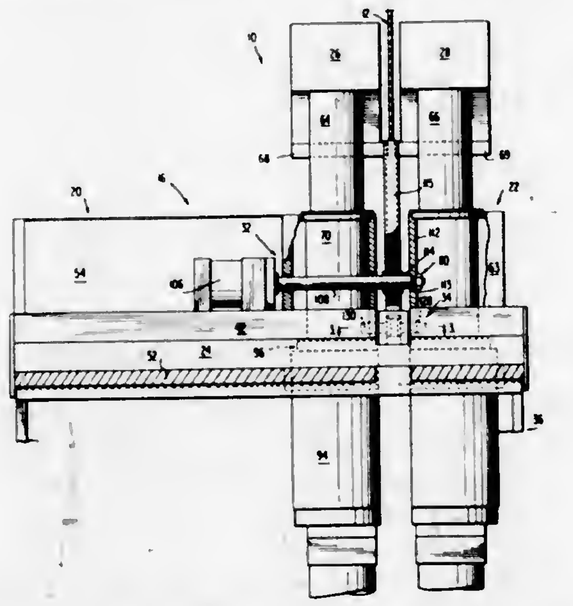
Charles R. Harden, 125 Stevens Creek Road, Augusta, Ga. 30907
Filed May 28, 1969, Ser. No. 828,505
Int. Cl. B23b *3/04, 3/22*
U.S. Cl. 82—101 **8 Claims**

A portable assembly for handling pipe sections to perform various fabricating operations thereon. The main frame includes adjustable support rolls which cradle a pipe section and impart rotation thereto and various attachments may be mounted on the frame for performing cutting and welding operations. A carrier post adjacent the rolls is selectively driven for raising and lowering motions and carries certain of the attachments, while a driven roll is provided with a power take-off to drive another attachment for holding two pipe sections in alignment and rotating them with respect to a welding device.



3,572,200
METHOD AND APPARATUS FOR SPREADING SEVERED PORTIONS OF A WORKPIECE

Rudolph L. Allison and Willy J. Goellner, Rockford, Ill.,
assignors to Paramount Textile Machinery Co.
Filed July 1, 1969, Ser. No. 838,220
Int. Cl. B26d *7/06, 7/02*
U.S. Cl. 83—27 **4 Claims**

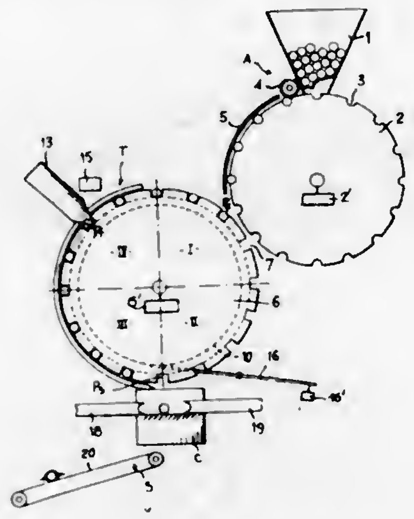


A method and apparatus for severing a workpiece with a cutting tool returnable through the kerf or cut made thereby characterized by the movement of the severed portions away from the kerf prior to the return of the cutting tool. At least one of the severed portions is subsequently restored to its initial position to facilitate measuring. When slides are employed for separating the severed portions of the workpiece, the severed workpiece portions may be clamped to these slides from two generally opposite directions.

3,572,201
MACHINE FOR PRODUCING TOOTHPICKS

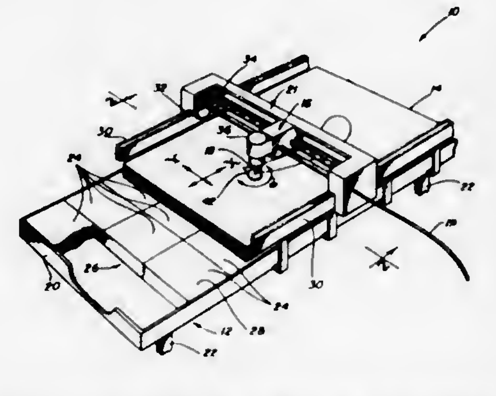
Soyez Roger, La Celle-sur-Loire, Nievre, France, assignor to Soyez Freres Donzy, Nievre, France
Filed Nov. 15, 1968, Ser. No. 776,164
Claims priority, application France, July 16, 1968, 159,394
Int. Cl. B26d *7/06;* **B23d** *21/02, 21/04*
U.S. Cl. 83—119 **23 Claims**

A machine for producing toothpicks from tubes of synthetic material comprising an automatic feeding and orienting mechanism for feeding individual tubes to a cutting device which acts to cut the point and heel of the toothpick to the required profile. An arrangement is provided for automatically transporting each formed toothpick from the cutting station to a wrapping device.



3,572,202
SHEET MATERIAL CUTTER WITH PRESSER PLATE UTILIZING PRESSURIZED AIR

Heinz Joseph Gerber and David R. Pearl, West Hartford, Conn., assignors to Gerber Garment Technology, East Hartford, Conn.
Original application May 5, 1969, Ser. No. 821,723. Divided and this application Mar. 26, 1970, Ser. No. 22,905
Int. Cl. B26d *1/10*
U.S. Cl. 83—146 **2 Claims**



Apparatus for cutting sheet material includes a cutting table having a material supporting surface and a cutter movable in the plane of such surface and having a blade engageable with the material spread thereon to cut such material as it is moved along a desired line of cut. A presser plate or foot located adjacent the blade applies a pressing force to the material at the cutting zone and includes openings facing the material from which pressurized air is emitted to exert a greater force on the material and/or to form an air cushion between the presser foot and the material to reduce friction.

3,572,203
COPYING MACHINE AND FEED APPARATUS THEREFOR

Edward Woodham, West Mersea, and Edward Charles Richard Scoffin, Colchester, England, assignors to E. N. Mason & Sons Limited, Colchester, England
Filed July 19, 1968, Ser. No. 746,067
Claims priority, application Great Britain, July 19, 1967, 33,259/67
Int. Cl. B65h *35/06*
U.S. Cl. 83—155 **23 Claims**

An apparatus for feeding an original and material to receive a copy thereof to copying means, comprising a severing device operative to cut off a length of the copy

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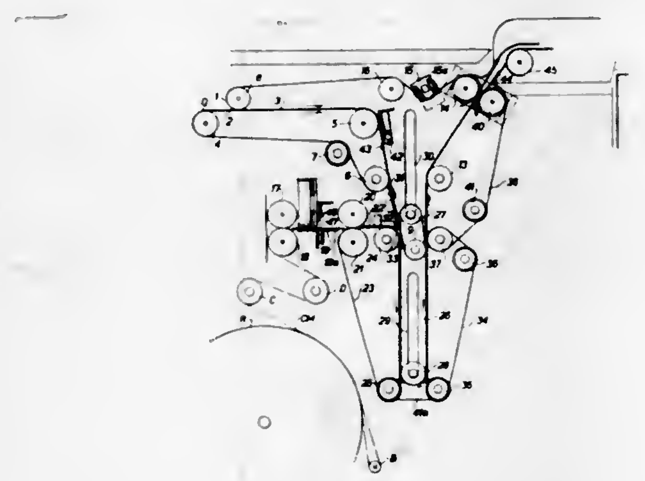
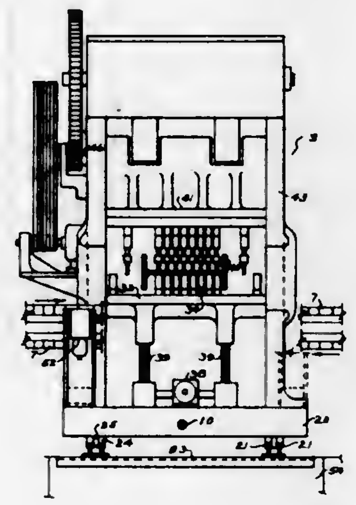
material determined by the length of the original. Trip mechanism may be provided operatable by the original to initiate the drive of the copy material; to stop the feed of such material and to set the severing device in operation, and a reservoir loop of copy material may be formed on the delivery side of the severing device or a loop of both original and copy material. The severing device preferably comprises a knife which has initial penetrating points and cutting edges which have a progressive action and has a spring produced cutting stroke.



3,572,204
HOLE PIERCING APPARATUS

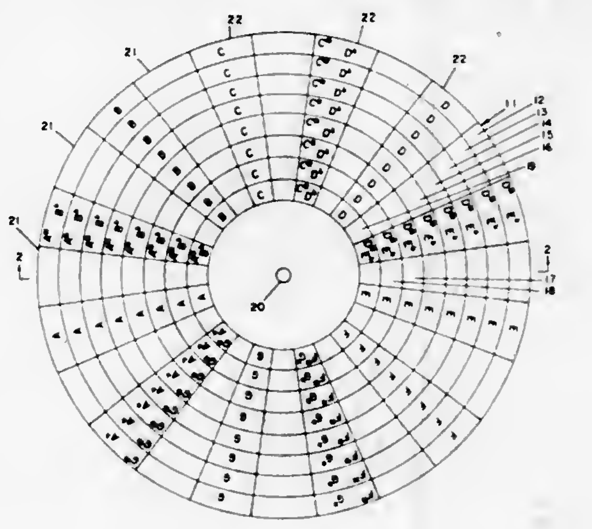
John R. McConnell, 148 Woodside Ave., Ridgewood, N.J. 07450
Filed Sept. 11, 1967, Ser. No. 666,829
Int. Cl. B26d *7/06*
U.S. Cl. 83—421 **3 Claims**



A punching apparatus is set forth herein for the simultaneous piercing of holes through the webs of structural beam shapes near each end comprising a fixed and a mobile end located dual punching unit. The mobile unit is wheel mounted on a track on a common longitudinal fabricating line for variable centre to centre spacing of the operating centres of the punching units for the punching-fabrication of beam members of variable effective lengths. The said mobile unit is pre-located by a powered threaded relocating shaft to produce in co-operation with the fixed unit groups of holes as required and indicated by length measuring dials at each end of the beam member. Dual transverse conveyor belts move the shape transversely under the operating heads of the punches, dual length-centering rams longitudinally locate the shape under the punching heads, dies on an elevating anvil raise the shape off the conveyors and selected upper located punches pierce the required holes. On retraction of the punches and dies the member is returned to the conveyors for forward progression to discharge as a completed member.

3,572,205
HARMONIC TEACHING DEVICE

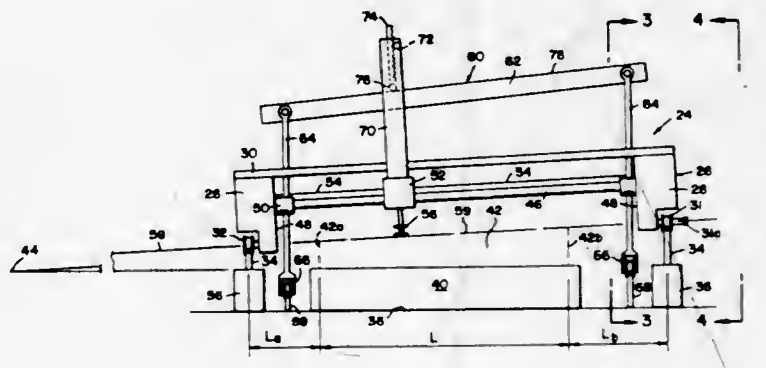
Lois G. Scholfield, 2109 Tawhee Drive, Madison, Wis. 53711
Filed July 7, 1969, Ser. No. 839,295
Int. Cl. G09b *15/02*
U.S. Cl. 84—474 **3 Claims**



A music transposition and harmonic-pattern construction device having a plurality of concentric disks of decreasing radii with the notes of the musical scale produced in chromatic order around the periphery of each disk. The notes on each disk may be separated by blank spaces. In use, the operator may dial a harmonic pattern for any musical key and the device will simultaneously present the same pattern for all other musical keys.

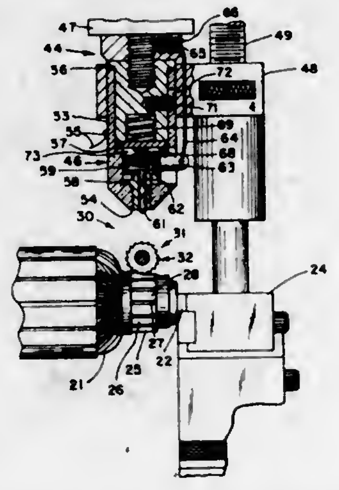
3,572,206
CONTOUR MILLING MACHINE

Tibor Eckstein and Henry H. Johnson, Oakland, Calif., assignors to Hexcel Corporation, Dublin, Calif.
Filed Apr. 1, 1969, Ser. No. 811,928
Int. Cl. B23c *1/16, 3/02*
U.S. Cl. 90—13 **14 Claims**



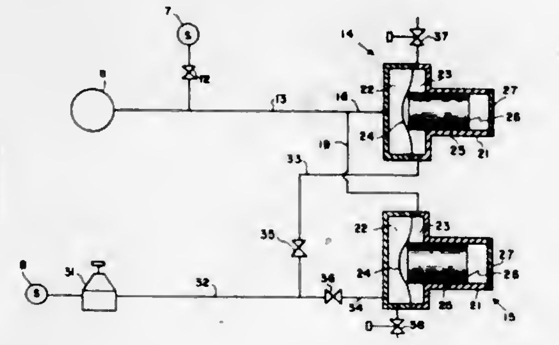
A milling machine for shaping contoured airfoil cores and the like which has a rotary cutter reciprocal in a first direction and movable in a second, transverse direction in incremental steps. Spaced apart cam plates engage cam followers which operate a control and positioning device which in turn continuously adjusts the angular inclination of the rotary tool axis during each reciprocating movement of the tool to maintain the cutting plane of the tool tangent to the contoured core surface. The tool is mounted to a milling head support structure that is tapered away from the core to prevent an interference between steeply angled core surfaces and the support structure and which is further constructed to permit pivotal movement of the rotary tool axis about its cutting point through an arc of 90°.

3,572,207
APPARATUS AND METHOD FOR AUTOMATICALLY INDEXING A WORKPIECE IN A MACHINE
Robert J. Fleming, West Yarmouth, Mass., assignor to Amdek Corporation, Sudbury, Mass.
Filed Feb. 14, 1969, Ser. No. 799,222
Int. Cl. B23c *3/30;* **B23f** *23/08;* **B24b** *19/00*
U.S. Cl. 90—15.1 **7 Claims**



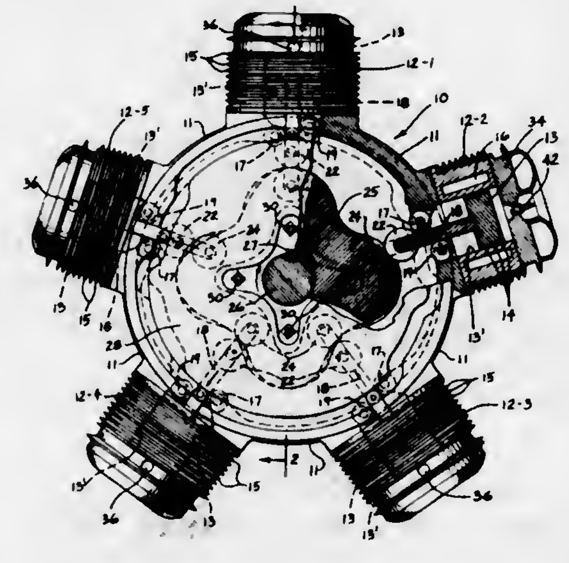
Relative movement between the tool of a machine and an electrically conductive workpiece, having at least one non-conductive area, is accomplished by a stepping motor controlled by an R.F. generator probe normally in intimate contact with the surface of the workpiece but retractable therefrom in a path normal thereto. Stepping advance continues so long as the R.F. energy is absorbed by the workpiece, but halts instantaneously and precisely when the probe senses the non-conductive area, which may be a void, slot, or insulative insertion. The workpiece is rotatable in V bearings by a flexible drive belt to yield in conformance with the tool path.

3,572,208
PNEUMATIC ANNUNCIATION SYSTEM
Richard C. Mott, Harwood Heights, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 30, 1968, Ser. No. 787,696
Int. Cl. F01b *25/26, 31/12*
U.S. Cl. 91—1 **8 Claims**



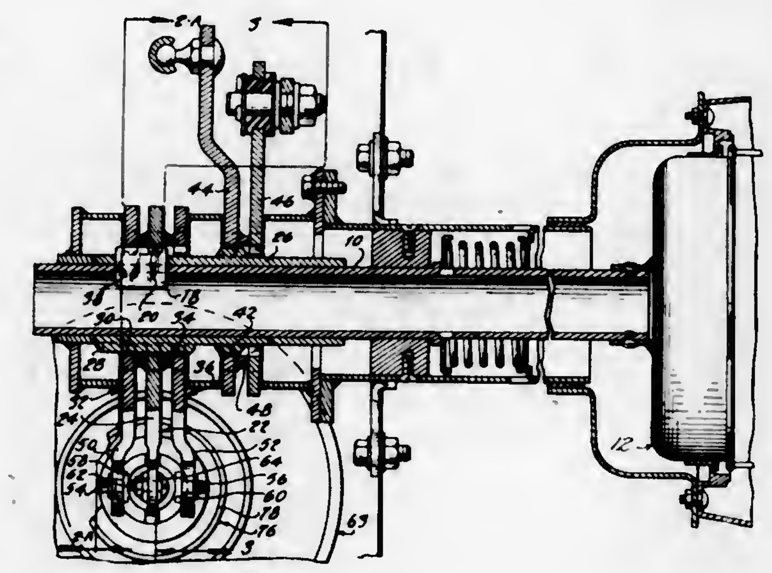
A pneumatic annunciation system that compares a thermostatic signal pressure with pre-selected high and low reference pressures and annunciates the surpassing of either reference pressure by the signal pressure. The reference pressures are derived from the output pressure of a pressure regulating valve, which also serves as a setpoint pressure. The system is aranged so that a predetermined interval is maintained between the reference pressures and the setpoint pressure when the pressure regulating valve is adjusted.

3,572,209
RADIAL ENGINE
Hal F. Aldridge, 25 Burton Ave. 27606; Hal L. Aldridge, 910 Northview St. 27610; and Edwin S. Aldridge, 23 Burton Ave. 27606, all of Raleigh, N.C.
Filed Nov. 28, 1967, Ser. No. 686,258
Int. Cl. F01b *1/06;* **F02b** *57/08*
U.S. Cl. 91—188 **4 Claims**



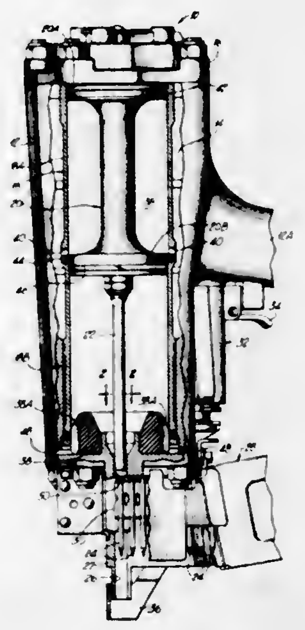
A radial type internal combustion engine having a cam drive wheel, radially disposed piston and piston rod assemblies, and separate and distinct roller bearings alternately supporting the piston rods during operation of the engine.

3,572,210
POWER BOOST SERVO IN A TRANSMISSION RATIO SELECTOR FOR TRANSMITTING FORCES FROM A PERSONALLY OPERABLE MEMBER TO DRIVEN ELEMENTS
David W. Barton, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 22, 1968, Ser. No. 769,583
Int. Cl. F15b *9/10;* **F16j** *9/00*
U.S. Cl. 91—376 **6 Claims**



A power boost mechanism for use in a transmission ratio selector comprising a personally operable shaft adapted for rotary and translatory movement by an operator, a pair of shift linkage members, clutch means for connecting selectively the personally operable shaft to each of the shift linkage members, a pressure operated servo piston connected mechanically to said shaft and valve means responsive to twisting movement of the shaft by the operator to distribute actuating fluid pressure to said servo thereby applying a pressure assist for effecting shifting movement of said shift linkage members.

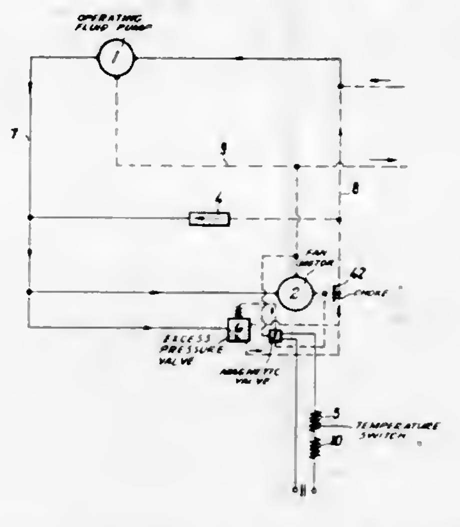
3,572,211
FASTENER DRIVING TOOL
Richard H. Doyle, Mount Prospect, Ill., assignor to Fastener Corporation, Franklin Park, Ill.
Filed Jan. 13, 1969, Ser. No. 790,761
Int. Cl. F01b *31/10;* **F15b** *15/17*
U.S. Cl. 91—417 **6 Claims**



The application discloses a pneumatic fastener driving tool having a blade actuating piston with an upper, greater diameter portion spaced from a lower, lesser diameter portion by a recessed area forming an air return space continuously supplied with compressed air to hold the piston in a normal position. The different diameter portions of the piston are slidable in corresponding diameter portions of a cylinder, and a resilient O-ring on the upper end of the lesser diameter portion of the cylinder seals against the lesser diameter piston portion in the normal position of the piston to seal the air return space from the lower end of the cylinder. The lesser diameter piston portion carries a nylon bearing which guides piston movement but permits air from the return space to blow by into the lower end of the cylinder when the piston is moved out of its normal position during a driving and return stroke.

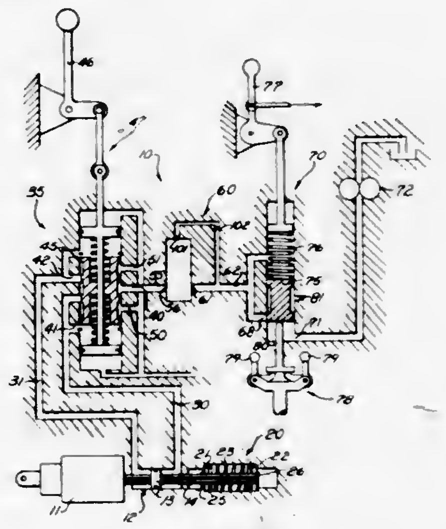
3,572,212
CONTROL DEVICE FOR HYDRAULIC VENTILATOR DRIVES
Franz Pigisch, Schockingen, Germany, assignor to Firma Suddeutsche Kuhlerfabrik Fr. Behr, Stuttgart-Feuerbach, Germany
Filed Mar. 12, 1969, Ser. No. 806,463
Claims priority, application Germany, Mar. 13, 1968, P 16 78 603.1
Int. Cl. F15b *21/04*
U.S. Cl. 91—419 **9 Claims**

A control means for hydraulic ventilator drives especially for regulating the temperature of the cooling fluid by means of a controlled ventilator regulator and an excess pressure valve and means for automatically changing the pressure at which the excess valve responds to the back pressure in the operating fluid circuit that depends on the speed or rate of travel, which means is primarily intended for ventilators in branch circuits and



includes a valve arrangement, such as magnetic valve means for optionally connecting or disconnecting the back pressure.

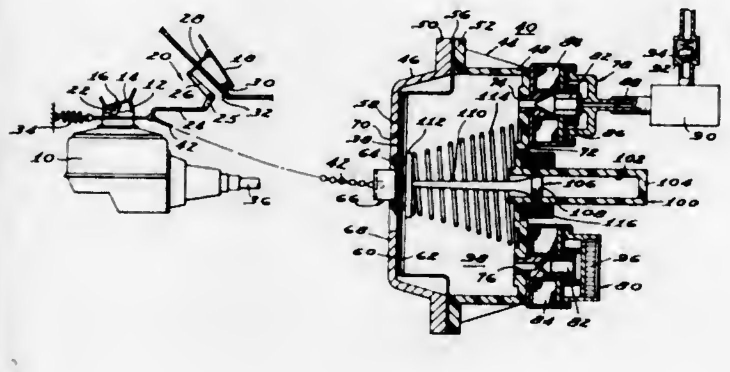
3,572,213
HYDROSTATIC CONTROL SYSTEM
Robert B. Lauck, Southfield, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed May 12, 1969, Ser. No. 823,819
Int. Cl. F15b *11/08*
U.S. Cl. 91—444 **5 Claims**

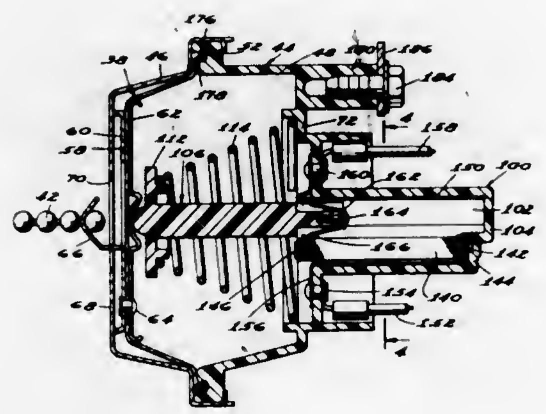


A hydraulic control system for a vehicle includes a master control valve which is operated by a manual control to control the flow of hydraulic fluid to a fluid pressure cylinder which operates to control the swash of the hydrostatic transmission. An anti-stall control is included in the system and operates to reduce the pressure in the pressure cylinder and thereby effect a de-swash of the hydrostatic transmission when the vehicle in which the system is incorporated encounters a stall condition. The system further includes a control for slowing the increase in pressure in the pressure cylinder after the stall condition has been alleviated.

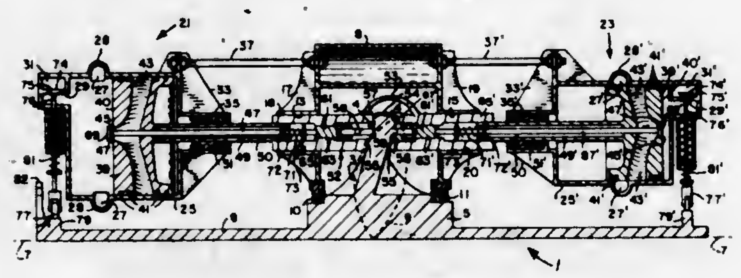
3,572,214
VACUUM MOTOR ADAPTED FOR USE IN A VEHICLE SPEED CONTROL MECHANISM
Gary F. Woodward, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 4, 1968, Ser. No. 781,170
Int. Cl. F15b *9/03, 9/09, 13/044*
U.S. Cl. 91—457 **7 Claims**

A vacuum motor which is especially adapted for use in a speed control mechanism for an automotive vehicle in which a flexible diaphragm is positioned in the housing of the motor and cooperates with the housing to form a chamber. Means are provided communicating with the chamber and the flexible diaphragm for applying a varying pressure to the chamber and hence the diaphragm so that the diaphragm is moved as a function of the pressure applied thereto. The diaphragm is adapted to be connected to a movable controller means for controlling the speed of the vehicle in accordance with the position of the diaphragm. Movable means are coupled to the diaphragm and are positioned within the chamber. The vacuum motor includes electrical circuit means and said movable means cooperates with the electrical circuit means for varying the value of a parameter of the electrical circuit means as a function of the position of the diaphragm and the movable means.



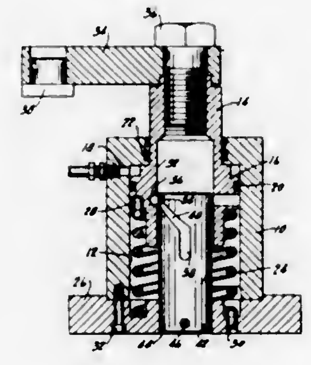


3,572,215
SINGLE ACTING STEAM ENGINE
Marion K. Harris, 14737 Charmeran Ave.,
San Jose, Calif. 95124
Filed June 26, 1969, Ser. No. 836,799
Int. Cl. F01b *13/04, 3/02;* **F15b** *15/22*
U.S. Cl. 91—480 **18 Claims**



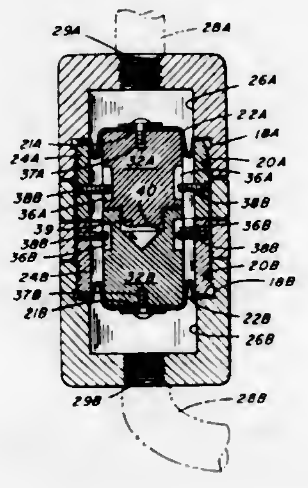
A single acting steam engine wherein means are provided for auxiliary exhaust through the piston when the auxiliary exhaust poppet is open and the auxiliary exchange passages of the piston register with the exhaust ports in the cylinder wall. The opening and closing of the auxiliary exhaust poppet are responsive to the rate of reciprocation of the pistons. A multiple of said engines may be utilized in combination to provide a multiple cylinder power plant. The engines may be adapted to drive a swash plate drive.

3,572,216
FLUID FORCE APPLYING DEVICE
Donald W. Seesody, Milwaukee, Wis., assignor to Applied
Power Industries, Inc., Milwaukee, Wis.
Filed Apr. 23, 1969, Ser. No. 818,692
Int. Cl. F01b *3/04;* **F16h** *25/08*
U.S. Cl. 92—33 **8 Claims**



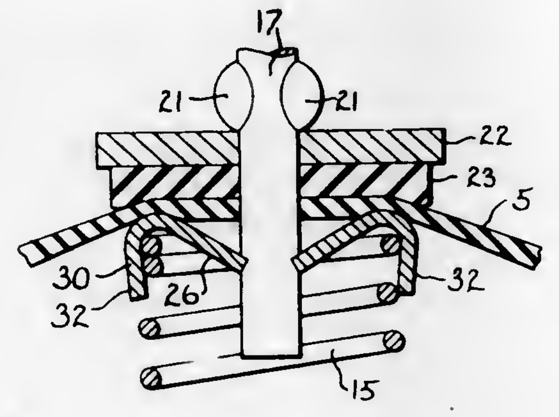
A work holding clamp in the nature of a self-contained hydraulic cylinder-piston unit in which one of the force applying members, for example the piston or ram, is rotatable and axially movable in its force-applying stroke.

3,572,217
COUPLING DEVICE FOR FLUID PRESSURE TRANSMISSION CONDUITS
Stuart E. Corry, 4511 S. Lewis Place,
Tulsa, Okla. 74105
Filed May 15, 1969, Ser. No. 824,890
Int. Cl. F01b *19/02*
U.S. Cl. 92—48 **7 Claims**



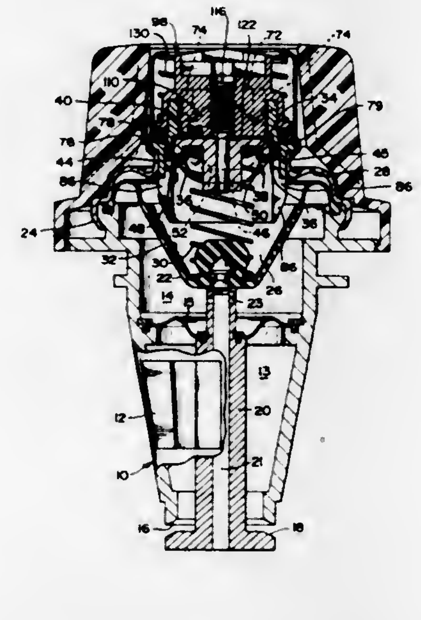
In a coupling device for fluid pressure transmission conduits, a first housing member connected to a first conduit and a second housing member connected to a second conduit are releasably joined. Each housing member contains a closed chamber having one end sealed by an impermeable membrane. Pressure in one of the closed chambers is imparted to the other chamber by means of a piston longitudinally slidable within the joined housing members and intermediate and contiguous with the impermeable membranes.

3,572,218
CONNECTING MEANS BETWEEN DIAPHRAGM AND ACTUATOR ROD
Herbert A. Gumtow, Brookfield, Wis., assignor to Briggs & Stratton Corporation, Milwaukee, Wis.
Filed Mar. 14, 1968, Ser. No. 713,209
Int. Cl. F01b *19/00*
U.S. Cl. 92—99 **2 Claims**



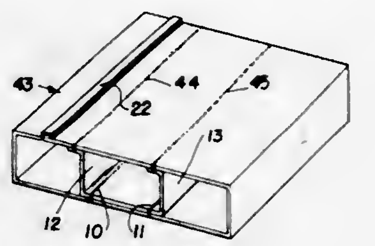
A hermetically tight connection between a flexible diaphragm and an actuator rod which passes through a hole in the diaphragm is provided by clamping the diaphragm between a washer which bears against a shoulder on the rod and a cup-shaped retaining member forced onto the rod and secured in place by fingers which bite into the rod. A coil spring seated in the cup-shaped retaining member biases the diaphragm in one direction.

3,572,219
MULTIPLE-CAM REGULATOR CONVERTER
Donald K. Murrell, Le Mirada, and Jay R. Katchka, Long Beach, Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Oct. 15, 1969, Ser. No. 866,493
Int. Cl. F16k *7/16*
U.S. Cl. 92—133 **16 Claims**



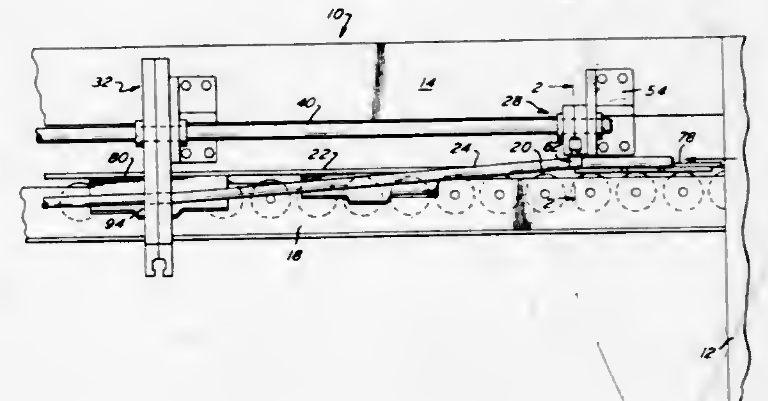
A pressure regulator changeover device having a two position adjustment in the form of a biased operator member movable along a cam surface to preclude any intermediate positioning thereof, and a low cam-angle double-action cam follower member operatively coupled to the biased operator member for setting the biasing means to one of two predetermined regulator settings.

3,572,220
PROCESS AND APPARATUS FOR THE CONTINUOUS MANUFACTURE OF INTERNALLY PARTITIONED TUBULAR LINERS
Robert W. Nerenberg, Middletown, Ohio, assignor to The Interstate Folding Box Company, Middletown, Ohio
Filed July 29, 1969, Ser. No. 845,712
Int. Cl. B31b *27/02, 27/74, 49/04*
U.S. Cl. 93—8 **6 Claims**



The continuous formation of tubular liners divided internally into three compartments by means of a single web of partition forming material.

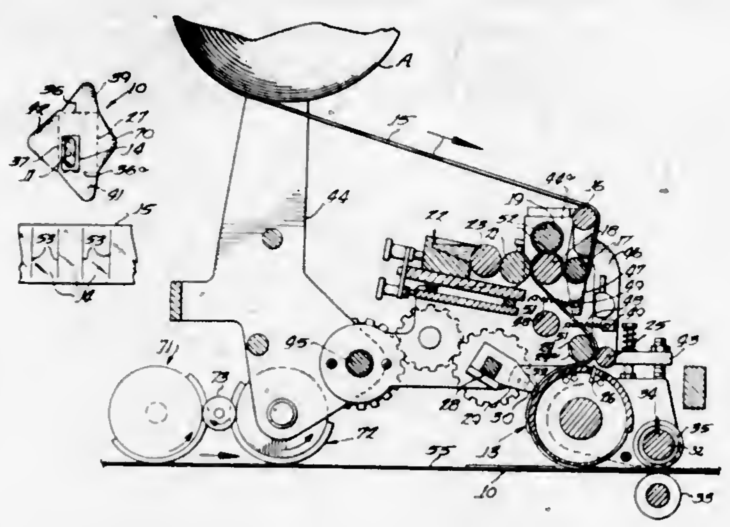
3,572,221
BOX BLANK FOLDER
Theodore Baum, Mount Laurel, N.J., assignor to Harris-Intertype Corporation
Filed July 18, 1968, Ser. No. 745,889
Int. Cl. B31b *1/36*
U.S. Cl. 93—52 **10 Claims**



A machine is disclosed for folding box blanks along a fold line and interconnecting the end panels of the box blank by gluing or taping. Means are provided to permit adjustment of a contact member while the machine is running so that the contact member engages the blank at substantially the same distance from a fold line to avoid blank distortion. Means are provided for simultaneously operating positioning means at spaced points along the contact member while the machine is running so that the optimum position for folding the blank may be achieved.

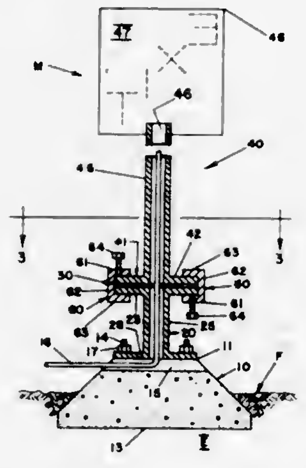
3,572,222
ATTACHMENT FOR A CONVENTIONAL NON-WINDOW ENVELOPE MACHINE
Ernst C. Sauerman, Chicago, Ill., assignor to Gaw-O'Hara Envelope Co., Chicago, Ill.
Filed Jan. 21, 1969, Ser. No. 792,443
Int. Cl. B31b *1/16, 1/82, 1/62*
U.S. Cl. 93—61 **6 Claims**

An attachment for a conventional non-window envelope machine for converting such machine into one in which a web of a patching material forming a window transparency is applied to a window envelope or a liner patch is applied to the interior of a non-window envelope, and in which feed of the patching material is automatically interrupted when there is an interruption in the supply of envelope blanks to each of which a patch is to be applied.



3,572,223
LATERALLY-DISENGAGEABLE HIGHWAY MARKER ASSEMBLY

Ralph L. Vierregger, 11664 Pierce, Omaha, Nebr. 68144
Continuation-in-part of application Ser. No. 674,261, Oct. 10, 1967. This application Aug. 26, 1969, Ser. No. 853,065
Int. Cl. E04h *12/00*
U.S. Cl. 94—1.5 7 Claims

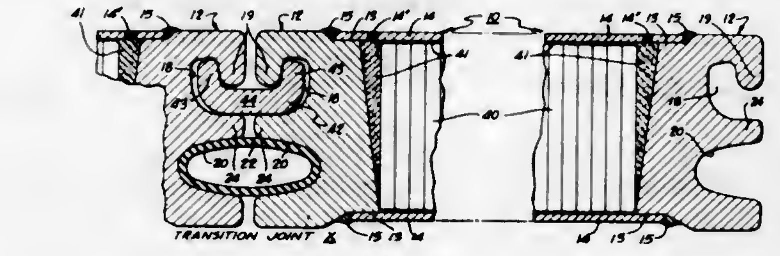


The invention relates to a laterally-disengageable upright highway marker assembly that is relatively uprightly stable yet that is adapted to laterally disengage from its lower earth anchoring portion upon the application of relatively low lateral forces to said highway marker assembly, so that when a motor vehicle accidentally strays from the highway and strikes the upright signpost portion of the marker assembly, the lofty signpost portion will readily laterally disengage from the earth anchoring portion so as to minimize the likelihood and severity of injury to the motor vehicle's occupants.

3,572,224
LOAD SUPPORTING PLANK SYSTEM

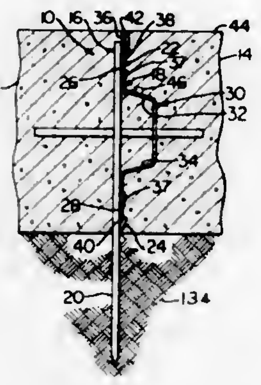
Robert E. Perry, Lafayette, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Oct. 14, 1968, Ser. No. 767,447
Int. Cl. E01c *5/00*
U.S. Cl. 94—13 18 Claims

This invention relates to an improved load supporting plank system comprised of a series of removably interlocked planks wherein the joints formed by the various marginal edges of the interlocked planks are provided with unique locking and sealing means to prevent the penetration of water and the like through the said joints and facilitate the installation of the system.



3,572,225
CONCRETE FORM

Duane C. Burton, 145 Mohawk Drive, Boulder, Colo. 80302
Filed June 5, 1968, Ser. No. 734,589
Int. Cl. E01c *11/02*
U.S. Cl. 94—17 14 Claims

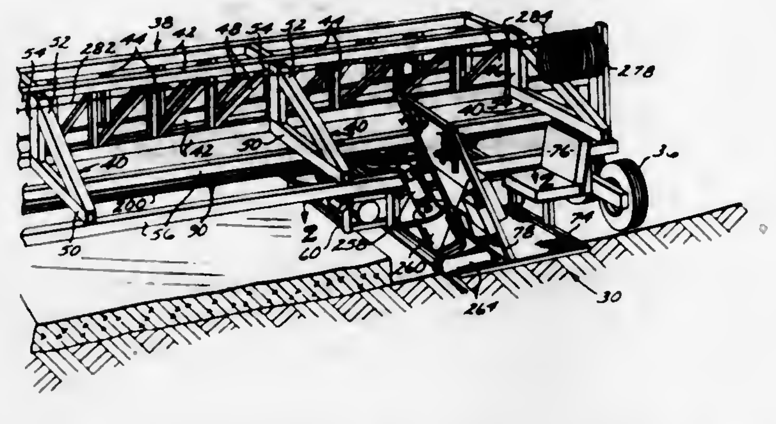


A concrete form used in forming a contraction joint between adjacent concrete slabs. The concrete form comprises a plurality of aligned stakes and an elongated relatively rigid sheet member. Each of the stakes has a generally vertically disposed body portion and at least a pair of said stakes has vertically spaced-apart support means disposed generally transversely to said body portion. The sheet member has an upper, longitudinally extending, generally planar portion and a longitudinally extending key deformation depending from said upper planar portion, said key deformation portion having first and second parts. The sheet member has vertically spaced-apart means engaging the support means of said stakes wherein the vertical distance separating the vertically space-apart means of said member is, prior to the mounting of said member upon said stakes, slightly different from the vertical distance separating the support means of said stakes whereby said first part of said key deformation is biasedly mounted relative to the second part and the means of said member cooperate with the support means of said stakes to prevent vertical movement of said member relative to said stakes.

3,572,226
APPARATUS FOR INSERTION OF TRANSVERSE JOINT FORMER MATERIAL

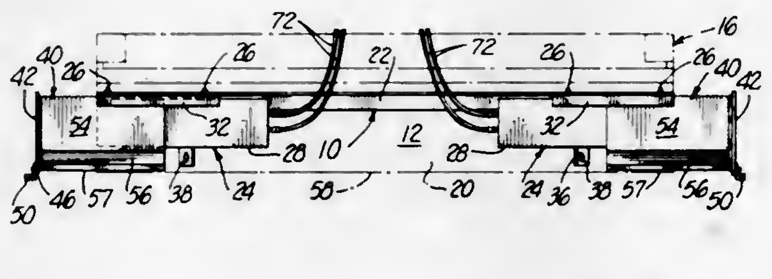
Donald W. Rasmussen, Downey, Calif., assignor to Edoco Technical Products, Inc., Long Beach, Calif.
Original application Mar. 27, 1967, Ser. No. 626,129, now Patent No. 3,478,655, dated Nov. 18, 1969. Divided and this application Aug. 21, 1969, Ser. No. 851,933
Int. Cl. E01c *19/00*
U.S. Cl. 94—39 5 Claims

An apparatus for doing work of various types upon a large expanse of plastic concrete, and particularly upon the side slope and bottom of a relatively large canal, the apparatus including an elongated frame for orientation transversely of the canal in overlying relation to the side slope and a portion of the canal bottom. The frame is transportable in successive movements along the canal for location over successive transverse sections, the frame supporting a self-propelled car movable along the frame and carrying support structure adapted to mount feeding apparatus for inserting joint former strip material in the concrete of the canal while it is in a plastic condition, or to mount smoothing apparatus for providing a trowel-like finish on the concrete.



3,572,227
SCREED EXTENSION DEVICE

Arne Poulsen, Clackamas, Oreg., assignor to Gerald C. Bower, Inc., Orange, Calif.
Filed Dec. 5, 1968, Ser. No. 781,474
Int. Cl. E01c *19/22*
U.S. Cl. 94—45 6 Claims

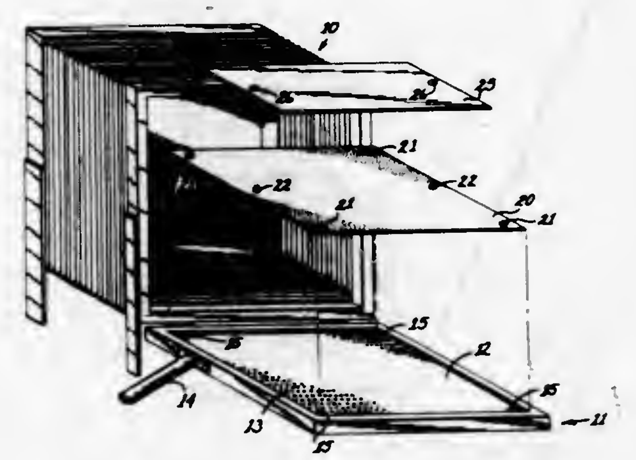


A screed extension device is disclosed for use in conjunction with machines for laying asphalt pavement. Such machines normally employ a hopper for holding hot asphalt located so as to discharge this material into a distribution chamber where the asphalt is distributed generally over the area to be paved. As the machine is moved a screed member at the rear end of the distribution chamber tends to strike off and level off the asphalt deposited through the action achieved in the distribution chamber. The screed extension devices of the invention act as part of such a paving machine so as to increase the dimensions of the distribution chamber and the screed member as the paving machine is operating so that areas of varying widths on each side of the paving machine may be paved.

3,572,228
PHOTOGRAPHIC FILM PREREGISTER SYSTEM FOR CAMERAS

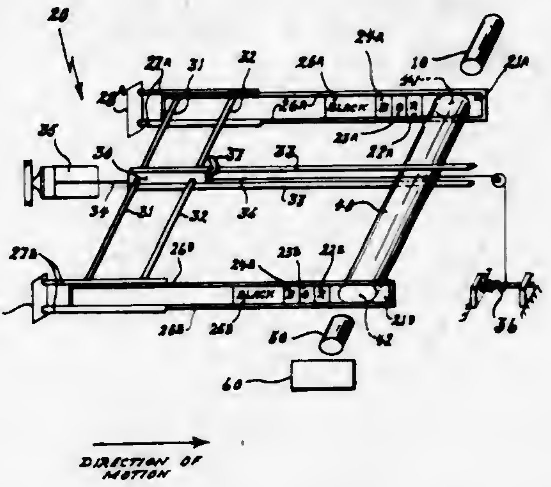
Norman A. Ternes, 387 Minnesota Ave., St. Paul, Minn. 55413
Filed Oct. 15, 1968, Ser. No. 767,642
Int. Cl. G03b *19/00*
U.S. Cl. 95—11 2 Claims

A plurality of pins fixedly attached to the film receiving surface of a camera having a vacuum back and a rigid screen having a plurality of holes therethrough positioned to cooperate with the pins to hold the rigid screen parallel and in juxtaposition to the film receiving surface of the camera back. The rigid screen has at least a pair of pins extending outwardly therefrom for receiving a prepunched sheet of photographic film thereon so that the holes in the film can be used as constant reference points for an exposure, or picture, on the film.



3,572,229
SPRING ACTUATED SEQUENTIAL COLOR FILTER FOR IMAGE TUBES

Edgar Hutto, Jr., Cherry Hill, and Patrick F. Joy, Jr., Bellmawr, N.J., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Sept. 20, 1968, Ser. No. 761,110
Int. Cl. G03b *33/08*
U.S. Cl. 95—12.2 1 Claim

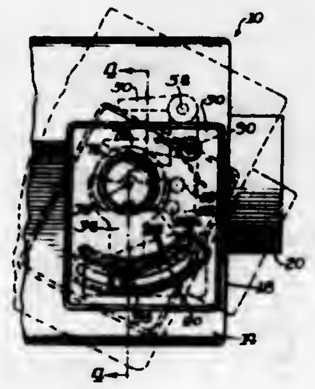


A method and an apparatus for taking color photographs of subjects at low light levels. Red, green and blue color filters are moved sequentially and linearly across the input face of an image intensifier tube. Simultaneously, red, green and blue color filters are moved sequentially and linearly across the output face of the image intensifier tube, in synchronization with the filters moving across the input face. An objective lens is forward of the filters moving across the input face and a relay lens is to the rear of the filters moving across the output face. The objective lens, the image intensifier tube, and the relay lens are co-axial, having the same optical axis. The filters are in planes perpendicular to said axis. Color film, behind the relay lens and perpendicular to its optical axis is used as the recording medium for the resultant intensified color image.

3,572,230

RANGE DETERMINING DEVICE WITH MANUALLY OPERABLE PENDULOUS MEMBER CONTROL

Stanley R. Freeland, Glenview, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed Aug. 28, 1968, Ser. No. 755,882
Int. Cl. G03b *3/02*
U.S. Cl. 95—44 **9 Claims**

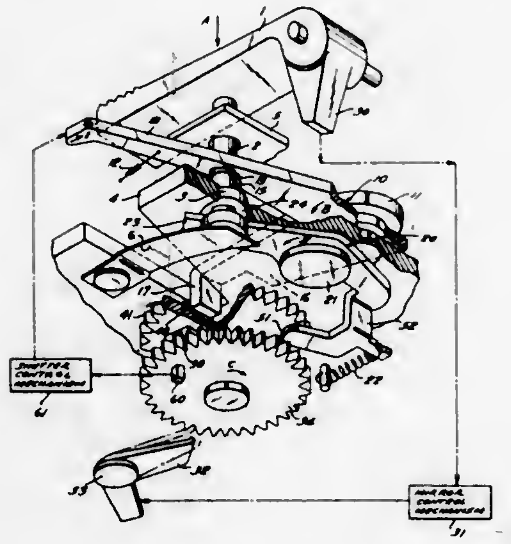


An improved objective focusing device for an optical instrument having a focusable objective and a freely swingable pendulous member which may assume an angular aspect corresponding to a focus distance. The objective is focused in response to a cam on the pendulous member. A manual control is connected to a driver which is selectively movable to engage and positively position the pendulous member. A holder prevents undue movement of the pendulous member and restrains the driver out of engagement for non-manual adjustment of the member.

3,572,231

DELAYED ACTION DEVICE FOR FOCAL PLANE SHUTTER CAMERA

Wolfgang Ort, Stuttgart-Bad Cannstatt, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 25, 1968, Ser. No. 747,591
Int. Cl. G03b *9/32*
U.S. Cl. 95—57 **7 Claims**

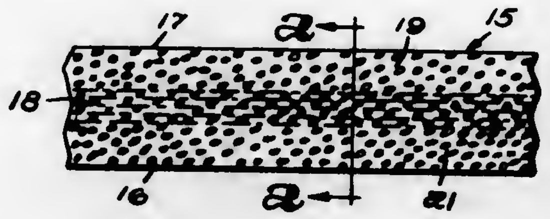


A photographic camera has a locking mechanism to prevent the second curtain of a delayed action two-curtain shutter from returning to its inoperative position until actuation of the first curtain shutter is completed. The locking mechanism is released by a gear member operating with the first shutter curtain.

3,572,232

PHOTOGRAPHIC FILM PROCESSING MATERIAL

Alvin Cronig, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.
Filed Apr. 1, 1968, Ser. No. 717,647
Int. Cl. G03d *9/00*
U.S. Cl. 95—89 **6 Claims**

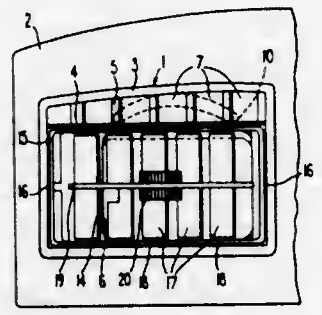


A photographic film processing material which comprises a sorbent compressible matrix with an applicator surface to contact exposed film. The applicator surface has open pores communicating with interior portions of the matrix where a viscous liquid photoprocessing reagent is impregnated into the matrix. The matrix has a boundary layer disposed between the interior portion and the applicator surface which is substantially free of processing reagent. Processing is accomplished by contacting the applicator surface with the exposed film surface and applying pressure thereto which forces the processing reagent from the matrix and onto the film.

3,572,233

VENTILATION AND DEFROST-AIR-DUCT-OUTLET FOR AUTOMOBILES

Alfons Bar, Russelsheim am Main, and Wolfgang Jobst, Pfungstadt, Germany, assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 19, 1969, Ser. No. 877,898
Claims priority, application Germany, Dec. 3, 1968, P 18 12 283.3
Int. Cl. F24f *7/04*
U.S. Cl. 98—2 **2 Claims**



A ventilation and defrost air-duct-outlet comprises a first duct part connectable to a heated air supply, a second duct part connectable to a fresh air supply; and an outlet louvre assembly having fixed louvres opposite the first duct part, and having opposite the second duct part a rectangular frame containing louvres pivotable about an axis transverse to the axis of the louvres. The louvres in the frame are connected for simultaneous pivoting by a web at right angles to the louvres.

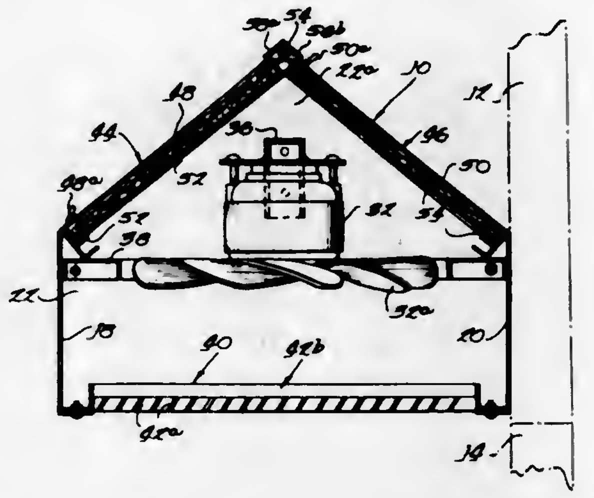
3,572,234

AIR SCREEN APPARATUS WITH FILTER REMOVAL MEANS

Edward P. Schoenthaler, Clarendon Hills, Ill. (4225 Saratoga, Downers Grove, Ill. 60515)
Filed Apr. 24, 1969, Ser. No. 818,955
Int. Cl. F24f *9/00*
U.S. Cl. 98—36 **11 Claims**

The air screen apparatus is mounted in juxtaposition with respect to a structure having an opening. Fans propel

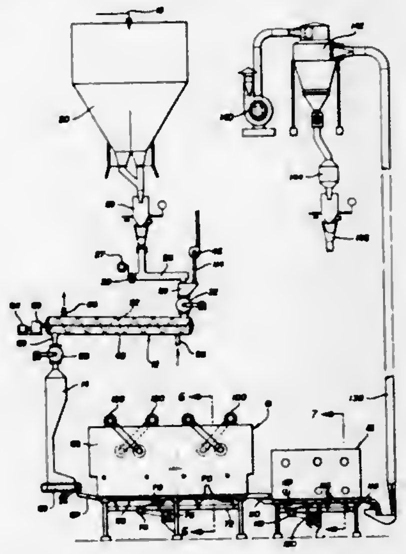
the air, louvers direct the air across the opening, and a pair of filter panels disposed upstream from the fans are angularly spaced with respect to each other and with respect to the air stream. A member disposed between the panels is movable between a first position wherein it covers the inner edges of the panels and permits withdrawal of the first panel and a second position wherein it permits withdrawal of said second panel.



3,572,235

CONTINUOUS COFFEE ROASTING APPARATUS

Lee Nutting, Berkeley, George S. Chong, Kensington, Jarrott T. Miller, San Mateo, and John G. McChesney, Tiburon, Calif., assignors to Hills Bros. Coffee Inc., San Francisco, Calif.
Filed Apr. 1, 1969, Ser. No. 811,718
Int. Cl. A23f *1/02*
U.S. Cl. 99—236 **7 Claims**



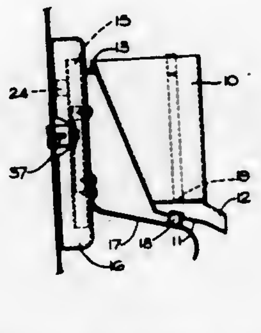
Apparatus for the continuous roasting of coffee beans including an elongated pressure vessel having a conveyor for moving the coffee beans through the pressure vessel during a pretreating stage. An impression plate together with directed streams of high velocity roasting gases against the plate to form a fluidized bed for the roasting of the coffee beans. After roasting a conveyor removes the roasted coffee beans from the fluidized bed for cooling.

3,572,236

TEA DISPENSING MACHINE

John Alfred Greaves, Dudley, and Trevor David Illman, Warley, England, assignors to Fisholow Products Limited, Tipton, England
Filed Nov. 5, 1968, Ser. No. 773,449
Int. Cl. A47j *31/00*
U.S. Cl. 99—289 **6 Claims**

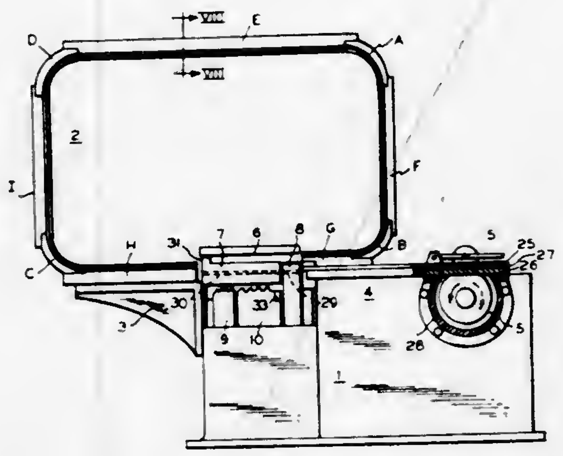
A tea dispensing machine which includes a receiver containing a filter element, means for delivering tea leaves and hot water to said receiver when it is in an upright position, means for inverting the receiver after the tea flavouring has been absorbed by the hot water which passes to a delivery station and means for applying an impact to the inverted receiver to dislodge spent tea leaves from the filter element. The receiver is then returned to its original upright position.



3,572,237

STRAP GUIDE YOKE FOR AN AUTOMATIC STRAPPING MACHINE

Yasumori Kurihara, Kawasaki, Japan, assignor to Ikegai Tekko Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 13, 1968, Ser. No. 775,417
Claims priority, application Japan, Nov. 22, 1967, 42/97,932, 42/97,933
Int. Cl. B65b *13/04*
U.S. Cl. 100—26 **4 Claims**



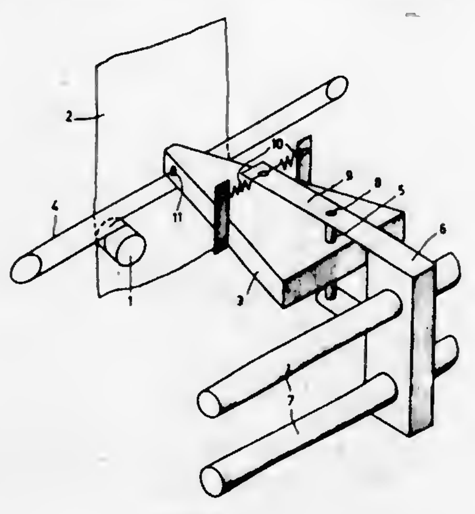
A strap guide yoke formed into a loop is constructed from a channel member having a pair of leg portions of generally U-shape cross section. Such channel member is provided over the length of each end faces of said leg portions thereof with one or more flexible members of long and narrow flat shape which are arranged in series in a manner as to permit the same to be partially renewed at least, and said channel member is formed into a unit by detachably assembling a plurality of respective quadrants and straight arms in a predetermined order.

3,572,238

PRINT-HEAD DRIVE

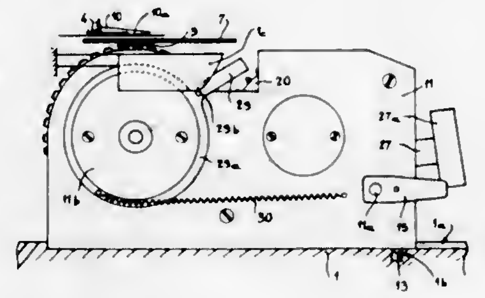
Adolf Andersen, Bremen, Germany, assignor to U.S. Philips Corporation
Filed Nov. 12, 1968, Ser. No. 774,699
Claims priority, application Germany, Nov. 15, 1967, P 16 11 474.2
Int. Cl. B41j *1/08, 1/56*
U.S. Cl. 101—93 **1 Claim**

A print head drive for transforming a cable or band transmission to a step-by-step motion. The cable or band transmission imparts an oscillatory motion to a slide element on which a print head is pivotally mounted. The movement of the print head is limited to step-by-step increments by restraining springs.



3,572,239
DRUM SERIES PRINTING WHEELS AND SETTING MEANS THEREFOR

Robert Grenier, Lyon, France, assignor to Societe Rhodanienne de Mecanographie, Lyon, Rhone, France
Filed Dec. 12, 1968, Ser. No. 783,319
Int. Cl. B41j *1/24, 1/26*
U.S. Cl. 101—99 **6 Claims**

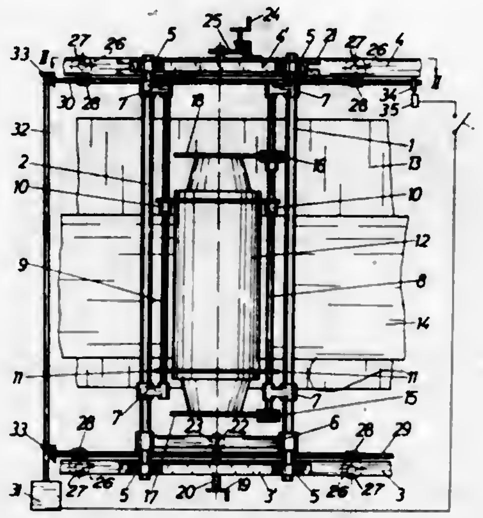


The printing cylinder comprises a number of co-axial successive discs provided with peripheral teeth, each carrying a type. The setting of the discs is effected by means of a single toothed wheel slidably and rotatably mounted on a shaft parallel to the common axis of the discs so as to be brought into meshing engagement with any of them. The printing cylinder also comprises drums bearing removable printing blocks retained in depressions of the drums by a stationary outer casing having an aperture along the printing line of the cylinder. The cylinder is carried by a frame movable on the base of the pressing means of the apparatus between a printing position under the said pressing means, and a fully exposed composing position.

3,572,240
CYLINDRICAL PRINTING SCREEN SUPPORTING MEANS IN ROTARY SCREEN PRINTING MACHINES

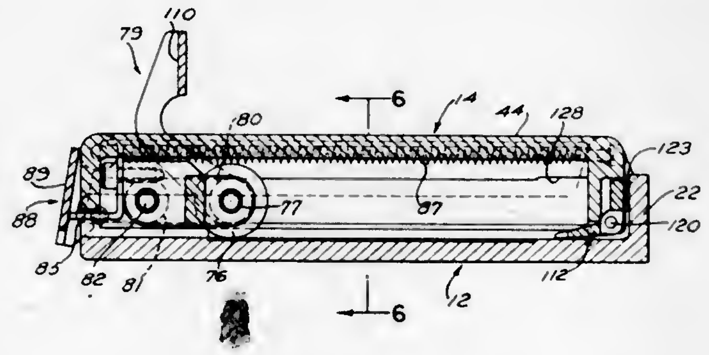
Walter Böhm, Kirchbichl, Austria, assignor to Peter Zimmer, Kufstein, Austria
Filed Feb. 26, 1968, Ser. No. 708,318
Claims priority, application Austria, Mar. 2, 1967, A 2,001/67
Int. Cl. B41f *13/12, 15/10*
U.S. Cl. 101—116 **10 Claims**

A screen assembly for rotary screen printing machines having a pairs of parallel carriers extending transversely above the printing blanket in order to receive machine elements for the bearing or guiding support for drive of each of the cylindrical printing screens mounted between each pair of carriers. The pairs of carriers are adjustable on the machine frame in both a transverse direction and a slightly angular longitudinal direction along one side, in a pivotal or rotative manner relative to a vertical pivot axis at the other or opposite side of the machine frame.



3,572,241
IMPRINTING DEVICE

John E. Waterman, Chepachet, R.I., assignor to The Entwistle Company, Providence, R.I.
Flied Sept. 22, 1969, Ser. No. 859,770
Int. Cl. B41f *3/04*
U.S. Cl. 101—269 **18 Claims**

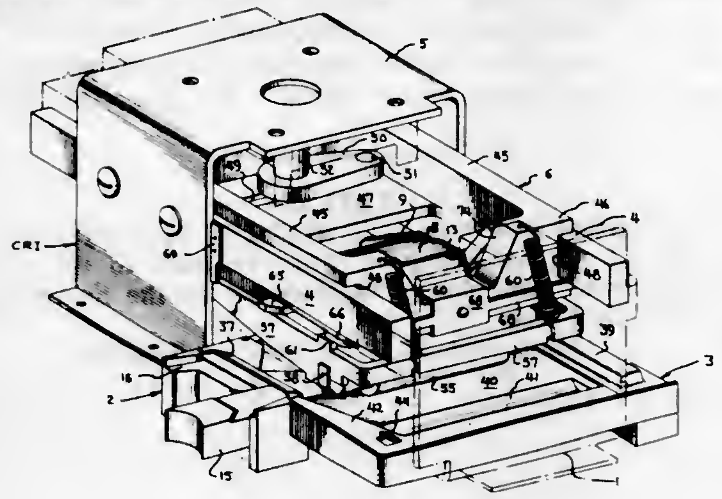


An imprinting device for transferring indicia from an embossed printing plate to a paper form, the device being portable in use in that it is sufficiently small enough to be carried in the hand or pocketbook of the user or in a holster on the user, and that includes a transfer roller assembly and a carriage that is readily movable in the imprinting operation, and that further includes a clamp for locating the paper form in the imprinting position when the cover of the device is latched to the base thereof.

3,572,242
CARD READER IMPRINTER

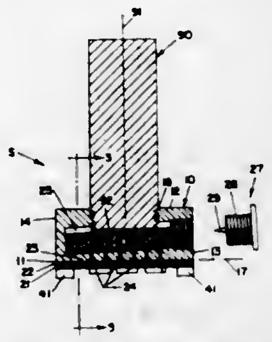
Lindsay Carlton Friend, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Continuation of application Ser. No. 545,391, Apr. 26, 1966. This application July 14, 1969, Ser. No. 849,229
Int. Cl. B41f *3/04*
U.S. Cl. 101—269 **11 Claims**

A card reader imprinter comprises reading means for electrically reading coded information on a data card, printing means for printing printable information on the data card onto a card to receive the printable information, and carrying means carrying the printing means and for operating the reading means.



3,572,243
SELF INKING HAND STAMP WITH RUPTURABLE INK CARTRIDGE MEANS

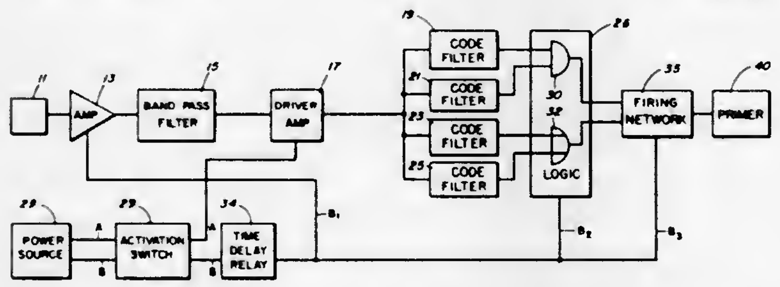
Victor P. Gronau, P.O. Box 276, Battle Creek, Nebr. 68715
Filed Nov. 6, 1969, Ser. No. 870,558
Int. Cl. B41k *1/52*
U.S. Cl. 101—327 **10 Claims**



This invention provides a hand stamp imprinting device of the general class comprising a hand manipulatable block-like body having a longitudinally extending forward-side onto which is attached at least one longitudinally extending inkable indicia strip. The block-like body is internally provided with at least one closeable cavity adapted to receive therein a cartridge supply of ink which is permanently rupturable in situ whereby ink will flow from the cavity through suitable conduit means to the inkable indicia strip at the imprinting device forward extremity.

3,572,244
UNDERWATER FIRING DEVICE

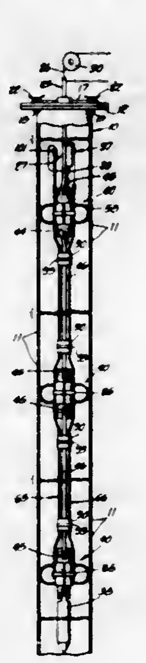
Bruce D. Garber, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 20, 1967, Ser. No. 655,720
Int. Cl. F42b *22/04, 22/38*
U.S. Cl. 102—18 **5 Claims**



A miniature underwater firing device which can be carried by a swimmer and be set off by remote acoustic coded signals. A receiver circuit comprising a hydrophone, amplifiers, a band pass filter, parallel connected narrow band code filters, logic circuitry and an acoustic relay connected in the signal path.

3,572,245
APPARATUS AND METHOD OF CONDUCTING STRING SHOT OPERATIONS

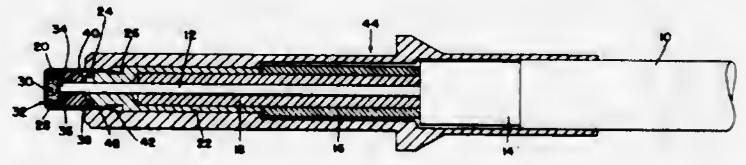
Bobby W. Grayson, 7306 Pembroke Ave., Oildale, Calif. 93308
Filed Apr. 10, 1970, Ser. No. 27,214
Int. Cl. F42b *7/00*
U.S. Cl. 102—20 **32 Claims**



String shot apparatus and method of servicing perforated well casing using one or more explosive cords supported along a wire line and equipped with discriminator means for detonating the cords independently or in groups at the operator's option. The wire line includes centralizers designed to be quickly assembled to and detached from the line as well as means for securing the explosive cord to the line in a desired degree of tautness. The explosive cord includes means for eliminating stretch and preferably embodied therein to safeguard against its elongation by frictional or other forces encountered during the servicing operation. A readily opened and closed blowout protector is securable across the well head to seal the well closed about the wire line to avoid a blowout if the servicing operation releases high subsurface pressures into the well.

3,572,246
DETONATING FUZE SYSTEM

George F. Hare, Feasterville, and Bruce W. Travor, Holland, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Oct. 23, 1968, Ser. No. 770,029
Int. Cl. F42b *3/10*
U.S. Cl. 102—27 **2 Claims**

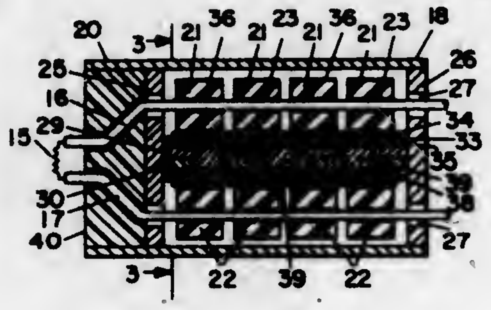


A mild detonating fuze system having an assured continuity of shockwave propagation. The core portion of a stripped end of a mild detonating cord, protruding from the end of a ferrule, is embedded in a high explosive filler within a booster shell cup that is secured to the ferrule.

3,572,247

PROTECTIVE RF ATTENUATOR PLUG FOR WIRE-BRIDGE DETONATORS

Theodore Warshall, 34 Stonehenge Road,
Morristown, N.J. 07960
Filed Aug. 29, 1968, Ser. No. 756,230
Int. Cl. F42b *3/12*
U.S. Cl. 102—28 21 Claims

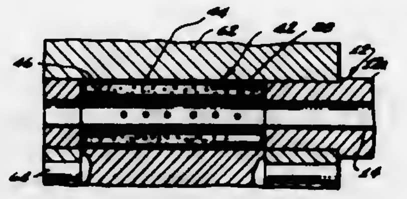


The plug portion of a wire-bridge detonator is replaced with a filter of the same physical shape and size. The input conductors for the bridge wire are each surrounded by a series of closely spaced ferrite beads. A conductive shield plate is provided between the conductors from which the ferrite beads are insulated by a strip of ceramic material on each side of the shield plate. The plug is provided with end shields of conducting material and an outer shield casing which may be of steel or other conducting material. The ferrite beads and the ceramic strips provide the inductive and capacitive elements of an RF filter or attenuator on the input conductors which operates to absorb stray radiated electromagnetic energy that might be picked up by these conductors, and prevents this energy from passing through to the bridge wire which might thus be prematurely fired thereby.

3,572,248

AMMUNITION FOR HIGH FIRING RATE HYPERVELOCITY GUN

David Dardick, Palos Verdes Estates, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Original application Sept. 1, 1967, Ser. No. 665,155. Divided and this application Jan. 28, 1969, Ser. No. 794,697
Int. Cl. F41f *1/00;* **F24b** *5/20*
U.S. Cl. 102—39 2 Claims

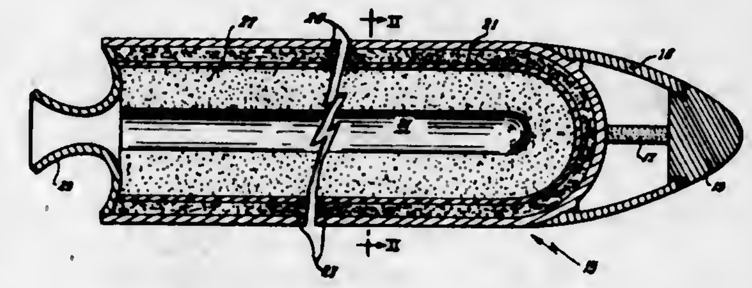


Booster ammunition for a high firing rate hypervelocity gun having at least one barrel, a primary breech mechanism at the breech end of the barrel for successively transporting primary ammunition rounds to and firing each round in firing position to effect forward propulsion of its projectile through the barrel, and at least one secondary breech mechanism located at a booster station along the barrel forwardly of the primary mechanism for successively transporting the booster ammunition rounds to firing position simultaneously with the primary rounds in such manner that the propellant charge in each booster round is exposed to and ignited by the propellant gas generated by the corresponding fired primary round upon forward travel of its projectile through the respective booster station, thereby to increase the propellant gas pressure behind the projectile and accelerate the latter through the barrel.

3,572,249

HIGH EFFICIENCY ROCKET MUNITION

Dale M. Davis, Freeport, Fla., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Sept. 11, 1968, Ser. No. 760,396
Int. Cl. F42b *13/28, 15/24*
U.S. Cl. 102—49.3 2 Claims

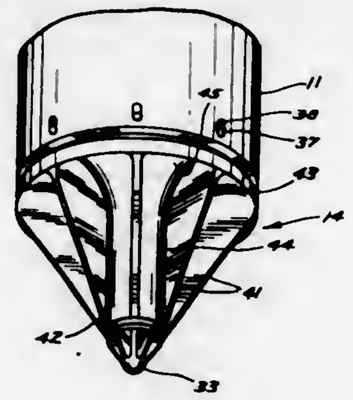


A high efficiency rocket munition which utilizes the motor case as the warhead fragmentation case. The warhead explosive is installed inside the motor case and protected from the motor heat by a thin insulator. The lethality of the rocket munition is increased by the use of unburned portion of the rocket motor as an explosive in the event impact before burn-out and the stability of the spin stabilized rocket is increased by distributing the weight so that the axial moment of inertia is increased while the lateral moment of inertia is decreased.

3,572,250

CONE FOR AEROBALLISTIC MEMBER

Marshall S. Kriesel, St. Paul, and John D. Akerman, Minneapolis, Minn., assignors to Aerospace Systems Company, Minneapolis, Minn.
Filed Mar. 10, 1969, Ser. No. 805,636
Int. Cl. F42b *15/00*
U.S. Cl. 102—53 8 Claims



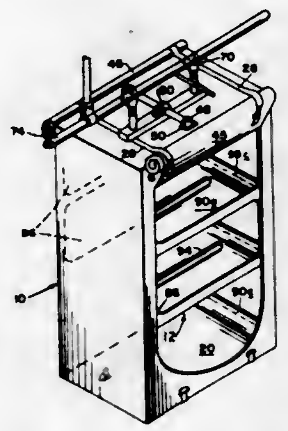
An aeroballistic missile having a cone or penetrating end member that is designed to provide for an effective multiple cone index to permit the aeroballistic member to penetrate soft and hard earth at substantially the same velocity and still to obtain substantially the same penetration.

In addition, the cone includes shock absorbing members which absorb impact loads when the cone strikes the earth to protect the pay load in the aeroballistic member.

3,572,251

MERCHANDISE CARRIER BAG

Richard B. Johnson, North Linthicum, Md., assignor to Aerojet-General Corporation, El Monte, Calif.
Filed Apr. 25, 1968, Ser. No. 724,209
Int. Cl. B61b *3/00;* **B65d** *85/18;* **E01b** *25/22*
U.S. Cl. 104—89 10 Claims

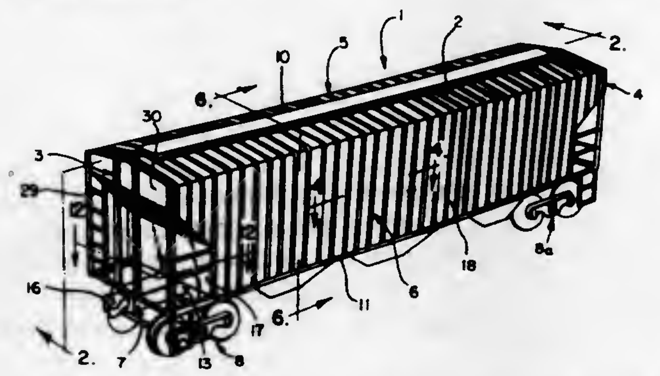


This invention relates to carrier bags for conveying systems as used in clothing warehouses and dry cleaning plants, laundries, and in other facilities. A collapsible carrier is provided optionally useable for garments hanging full-length therein or for flat work articles placed on shelves therein. The particular feature of the invention resides in an arrangement wherein the shelves are carried by an inner bag carried within the outer bag. The inner bag being foldable into the upper portion of the outer bag so as to leave the entire volume of the outer bag available for full-length hanging of garments.

3,572,252

COVERED RAILWAY HOPPER CAR

Kenneth P. Coover, Highland, Ind., and William Van Der Sluys and Herbert S. Wille, Homewood, Ill., assignors to Pullman Incorporated, Chicago, Ill.
Filed Jan. 2, 1968, Ser. No. 695,220
Int. Cl. B61d *17/08, 17/16, 7/02*
U.S. Cl. 105—248 23 Claims



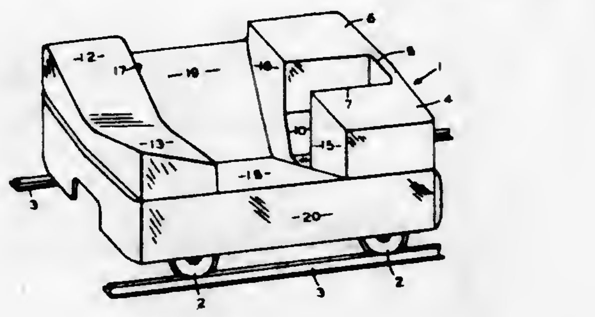
A railroad hopper car comprising integral roof and side structures of extruded aluminum welded to compartment structures of extruded aluminum to define a plurality of hatch-type hopper areas, each of the structures being a unit sheet with perpendicularly projected stiffeners to define the side sheeting and sideposts, the structures being held together by weldments and wherein there is also provided extruded bolster structure and draft sill construction at the ends of the car center sill.

3,572,253

GT EXPRESS CAR

Charles L. Roeder and William W. Klemme, Milwaukee, Wis., assignors to Rex Chainbelt Incorporated, Milwaukee, Wis.
Filed Aug. 7, 1969, Ser. No. 848,304
Int. Cl. B60p *3/00*
U.S. Cl. 105—367 6 Claims

The body of a car of a baggage transporting system is formed as a molded shell that is contoured to provide a longitudinal shallow V-bottom trough sloping downwardly from the rear to the front of the car to receive duffel bags, hooded golf club bags and similar generally cylindrical luggage and an intermediate section having vertical transverse walls and floor portions sloping downwardly

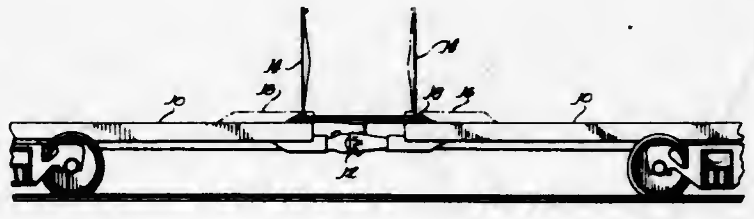


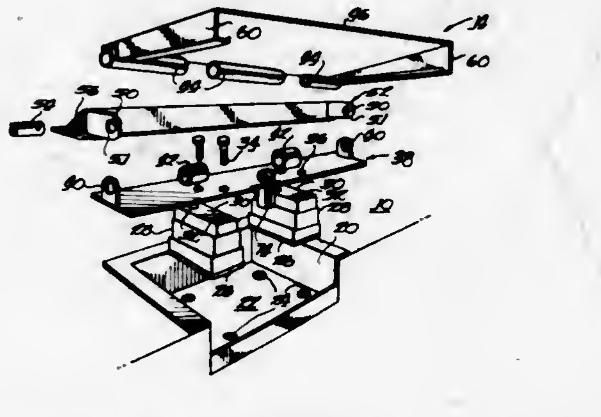
from the sides of the car and generally normal to each other for receiving and supporting the bottom and one end of suitcases and similar articles. The contours are such that luggage of either type may be discharged by tipping the car through an angle of 60° to 70° about a longitudinal axis.

3,572,254

BRIDGE PLATE CONSTRUCTION

Richard E. Slager, Prospect Heights, Ill., assignor to United States Gypsum Company, Chicago, Ill.
Filed Dec. 16, 1968, Ser. No. 784,098
Int. Cl. B61d *3/00;* **B65j** *1/10*
U.S. Cl. 105—458 3 Claims

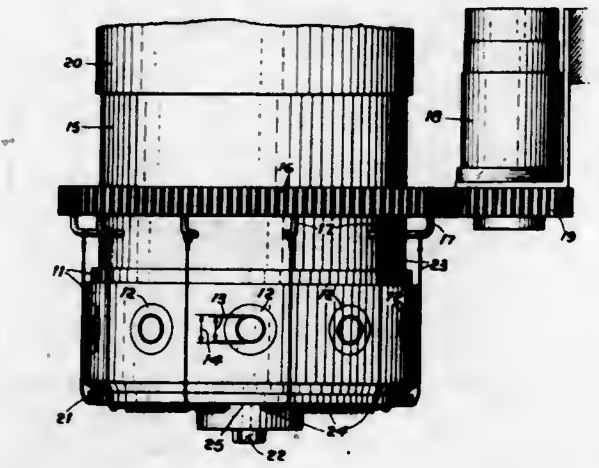




A bridge plate adapted to span the interval between two railway flatcars or the like when in a lowered horizontal position is pivotally mounted on an end corner portion of each of such cars. The bridge plate pivotally engages a hinge plate which is secured to a resilient mounting anchored to a suporting flatcar surface. The resilient mounting enables the bridge plate and connected hinge plate to rotate while such plate is in a horizontal lowered position, as when the two cars negotiate a curved track section.

3,572,255
FOOD PRODUCT FORMING APPARATUS

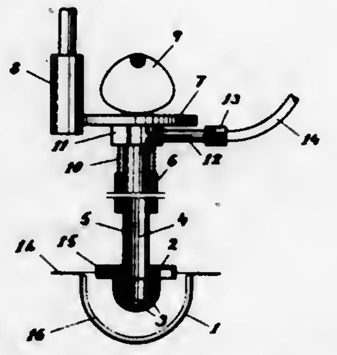
Robert G. Hall, Memphis, Tenn., Hubert E. Tobey, Maywood, N.J., and Daniel D. Korzekwa and Charles R. Dilday, Memphis, Tenn., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed May 19, 1969, Ser. No. 825,880
Int. Cl. A21c *11/16*
U.S. Cl. 107—14 **10 Claims**



The food product forming apparatus consists of an annular ring in which are positioned a number of extruding dies. The tubular product which is extruded from the dies is cut to a given length by a number of wires passing across the face of the dies.

3,572,256
CONFECTIONERY ARTICLE MOULD

Sven Birger Westin, Skarsgatan 74, Goteborg, Sweden
Filed July 1, 1968, Ser. No. 741,504
Int. Cl. A23g *7/00*
U.S. Cl. 107—8 **5 Claims**

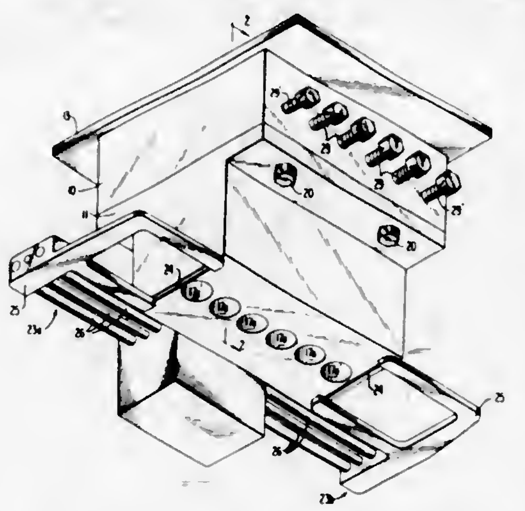


For moulding shell-like articles of confectionery the molten confectionery material is sprayed onto the walls of an open mould by means of a nozzle, which is reciprocable towards and away from the mould and which preferably also is rotatable during the spraying operation. In order to prevent confectionery material from flowing over the rim of the mould and onto the portions of the mould plate surrounding the mould proper the nozzle, about level with the rim of the mould, is provided with a shield, which deflects the droplets of confectionery material moving upwards.

3,572,257
APPARATUS FOR EXTRUSION OF ICE CREAM

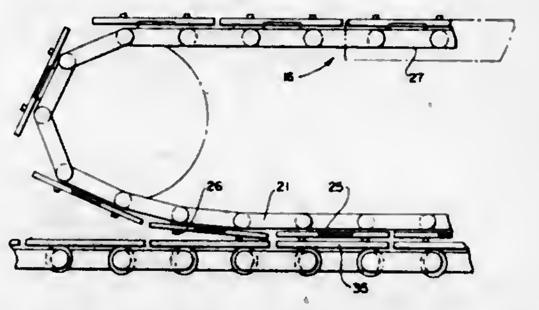
Ronald E. Minor and Sidney B. McMillion, Richmond, Va., assignors to Eskimo Pie Corporation, Richmond, Va.
Filed Nov. 13, 1968, Ser. No. 775,340
Int. Cl. A21c *11/16*
U.S. Cl. 107—14 **10 Claims**

An apparatus for manufacturing in quantity, pellets of ice cream and other frozen dessert confections of uniform size by continuously extruding lengths of the dessert in the form of a congealable mass from a plurality of orifices in a single extruder head and periodically severing the extruded lengths to form the individual pellets, each orifice being provided with means for adjusting the rate of flow of the congealable mass from the orifice.



3,572,258
OVEN WITH SPACED CONFRONTING CONVEYORS

Frank P. Tangel, Oakland, N.J., assignor to Buitoni Foods Corporation
Filed May 9, 1969, Ser. No. 823,390
Int. Cl. A21b *3/00*
U.S. Cl. 105—57 **8 Claims**

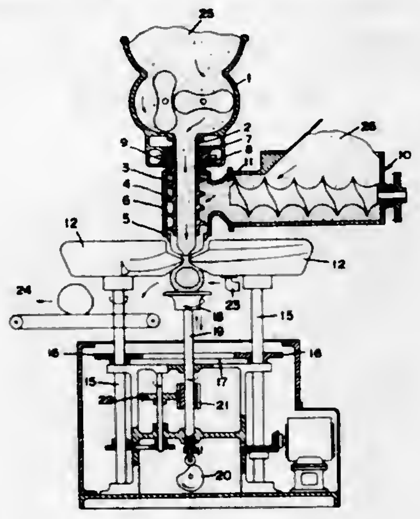


An oven having heaters, and a pair of conveyors having runs in confronting relation; the upper run of the lower conveyor is supported by rails, each conveyor comprising a plurality of platens, with the platens of the upper conveyor's lower run being maintained in spaced relation to the platens of the lower conveyor's upper run by platen-carried elements which extend between the platens of the two conveyors, thereby providing a predetermined spacing between the platens of the two conveyors and providing for transfer of a part of the weight of the upper conveyor platens into the lower conveyor platens, and thence into supports which extend beneath the upper run of the lower conveyor.

3,572,259
APPARATUS FOR MOLDING ELASTIC DOUGH MATERIALS FROM BAR SHAPES INTO SPHERICAL SHAPES

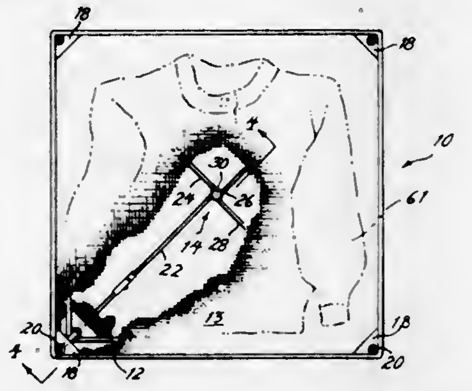
Torahiko Hayashi, 23 Nozawa-cho, Utsunomiya-shi, Japan
Continuation-in-part of application Ser. No. 719,465, Apr. 8, 1968. This application July 8, 1969, Ser. No. 839,908
Int. Cl. A21c *11/20*
U.S. Cl. 107—68 **9 Claims**

Apparatus for molding an elastic, malleable material such as bread dough, from a single or double layered bar into a plurality of single or double layered balls by a means for stabilizing the bar as it is fed vertically downwardly between the peripheral edges of a pair of horizontally disposed cutters.



3,572,260
GARMENT DRYING APPARATUS

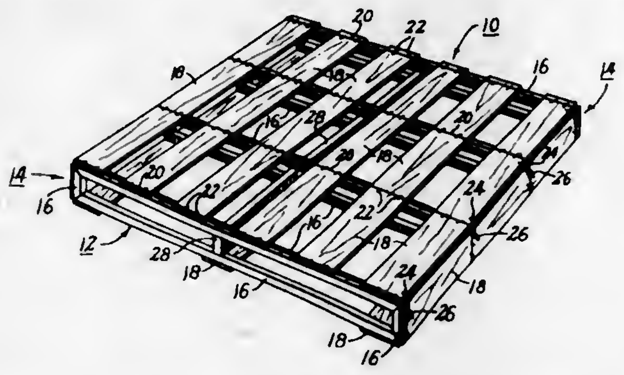
David Lehrman, Cheltenham, Pa., assignor to The Ironees Company, Philadelphia, Pa.
Filed Jan. 14, 1969, Ser. No. 790,949
Int. Cl. A47f *7/00*
U.S. Cl. 108—24 **12 Claims**



Garment drying apparatus is provided, comprising collapsible hingedly interconnected support arms, and a flexible, foraminous garment supporting member, coupled to distal upper ends of the support arms. In one form of the apparatus, a pair of foraminous members are provided, coupled to the support arms in spaced relation to facilitate simultaneous drying of more than one garment.

3,572,261
WIREBOUND PALLET

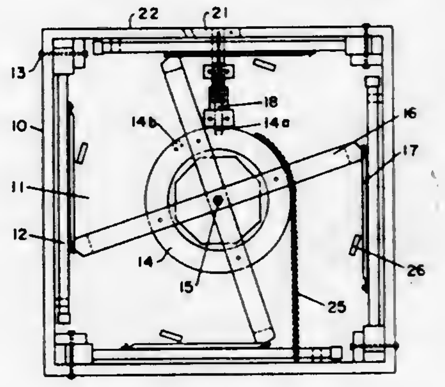
Kimon F. Vasiliou, Covent Station, N.J., assignor to Stapling Machines Co., Rockaway, N.J.
Filed June 26, 1969, Ser. No. 836,864
Int. Cl. B65d *19/18*
U.S. Cl. 108—57 **3 Claims**



Wirebound pallet for fork-lift trucks comprising a shell having four sides formed by cleats extending transversely of the fork-lift tines and having mitered ends which abut at the corners to form spaced, open cleat frameworks, slats extending perpendicularly to the cleats and abutting their outer surfaces, binding wires encircling the shell in line with the cleats and being secured by staples, with loop fasteners securing the two ends of each binding wire together, and a stringer extending parallel to the slats and abutting the inner surfaces of the cleats of the wide upper and lower sides of the shell along its center line.

3,572,262
FOLDING TABLE

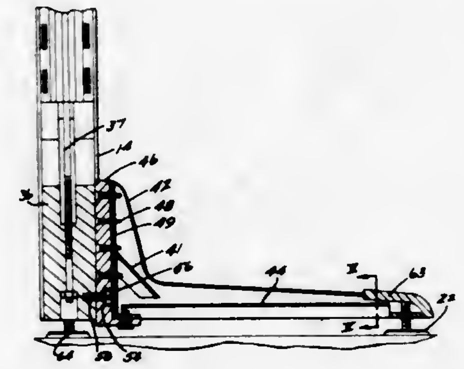
Leon S. Jones, 1204 N. Church St., Richland Center, Wis. 53581
Filed Feb. 20, 1969, Ser. No. 801,059
Int. Cl. A47b *3/00*
U.S. Cl. 108—126 **1 Claim**



A folding table having operating means connecting all four folding legs for simultaneously controlling the movement thereof. A disk is rotatably centrally mounted on the underside of the table top and carries radially spaced arms that are linked to the folding legs by braces for extending and folding the legs in response to the rotation of the disk. A manual control lever operates a retractable spring-biased locking pin to lock the legs in open and closed position. A spring rotates the disk to its open position for automatically extending all four legs when the locking pin is retracted. Stabilizing wedges engage the disk arms when thetable legs are extended.

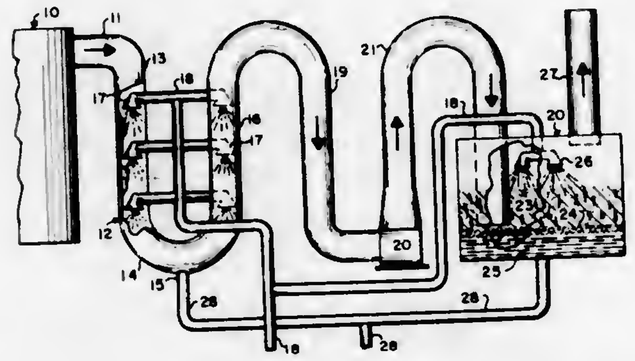
3,572,263
FURNITURE CONSTRUCTION

Robert L. Propst, Ann Arbor, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.
Filed June 13, 1968, Ser. No. 736,857
Int. Cl. A47b *5/02*
U.S. Cl. 108—152 **3 Claims**



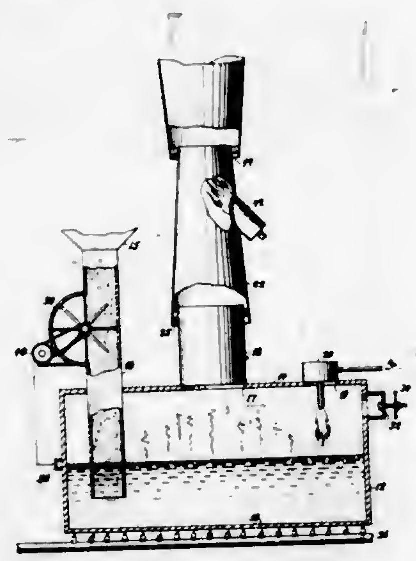
This disclosure relates to a furniture construction having a plurality of vertically disposed space divider components which are rigidly secured together by connector post structures. The divider has a stabilizer means in the form of brackets at the floor to counterbalance modular units which can be supported by the post structures. The bracket member is attached to the post structure through a supporting bar and a screw, the head of which screw is positioned in a slot in the supporting bar between the post structure and the bracket member. Means are provided on the radial edges of the screw for turning the screw to attach the bracket construction to the bottom portion of the connector post structure. The same bracket is interchangeably useable as a support for cantilevered furniture components mounted on the space divider.

3,572,264
METHOD AND APPARATUS FOR REMOVING SMOG AND SMOKE
Joe F. Mercer, 302 E. Wallace St.,
Gonzales, Tex. 78629
Filed Sept. 11, 1969, Ser. No. 857,127
Int. Cl. F23g *3/00*
U.S. Cl. 110—8 **4 Claims**



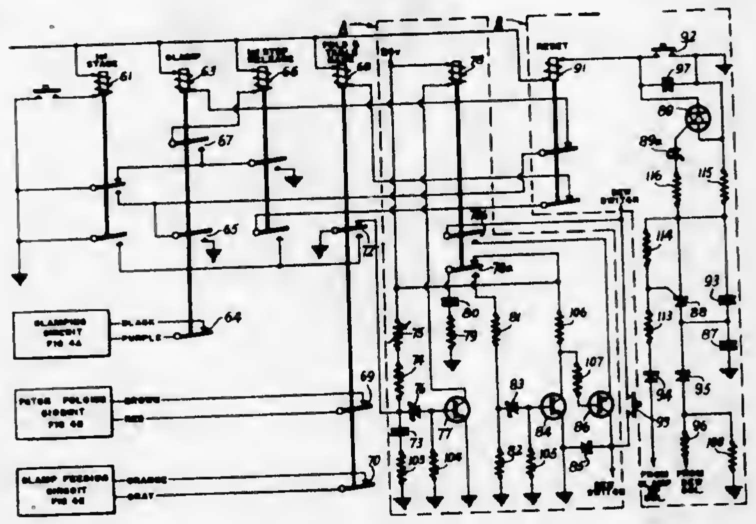
An improved method and apparatus for receiving the effluent or smoke discharge from a smoke stack or incinerator and removing visible smoke and suspended particles by washing and filtering the products of burning including a method of re-circulating the burned gases from the cleaning process into the combustion chamber.

3,572,265
PLASTIC BURNER
Richard F. Stockman, Friendship, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Feb. 3, 1970, Ser. No. 8,162
Int. Cl. F23g *7/00*
U.S. Cl. 110—18 **6 Claims**



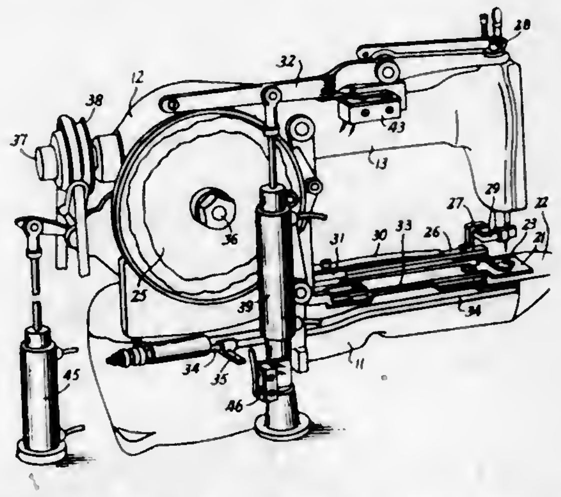
The method of and apparatus for incinerating a meltable plastic material by means of first reducing the plastic to a liquid, heating the liquid to vaporization, and then burning the fumes that are given off from the surface of the liquid before they may be exhausted to the surrounding atmosphere.

3,572,266
CONTROL DEVICE FOR REECE POCKET WELTING MACHINE
Rodney W. Champney, El Paso, Tex., assignor to Farah Manufacturing Company, Inc., El Paso, Tex.
Filed July 29, 1969, Ser. No. 845,711
Int. Cl. D05b *3/10*
U.S. Cl. 112—65 **6 Claims**



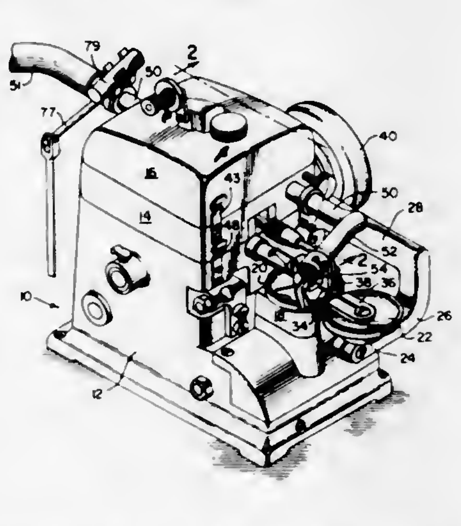
An improved control device has been provided for a sewing machine used to sew welts or piping such as for pants back pocket and button hole piping. The pocket welting machine is commonly known as a Reece pocket welting machine and is provided with control devices which require considerable skill from an operator. The novel circuit control device is a combination of a relay circuit and appropriately co-acting delay and control circuits which eliminate a number of operator controlled machine events and provide for improved sequencing. Production rates obtainable with the thus modified machines have been outstanding.

3,572,267
SEQUENCING DEVICES FOR TICKET TACKER SEWING MACHINES
Aubrey G. Beazley, El Paso, Tex., assignor to Farah Manufacturing Company, Inc., El Paso, Tex.
Filed Apr. 1, 1969, Ser. No. 811,714
Int. Cl. D05b *3/12, 69/20*
U.S. Cl. 112—67 **1 Claim**



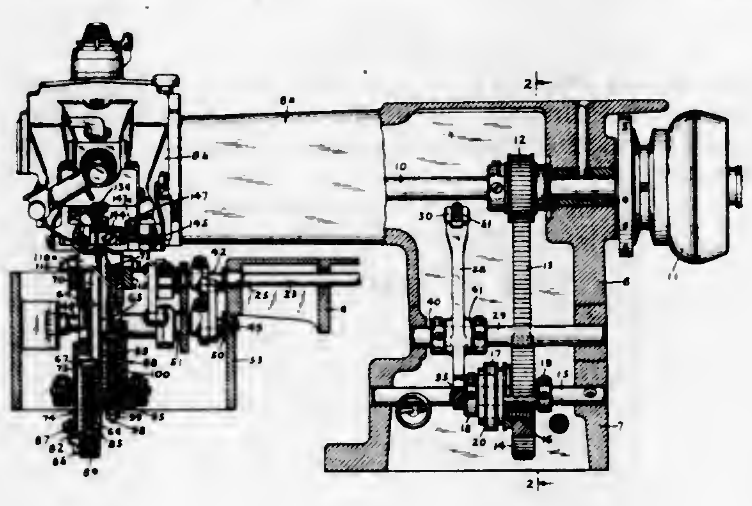
A sewing machine has been provided with improved sequencing means for sewing a material such as a garment tag to a fabric. The sewing machine which conventionally has means for lifting a presser foot from its normal down position, means for initiating a stitching cycle, means for sewing said predetermined number of stitches and means for terminating the stitching cycle is modified with a combination comprising means for holding the presser foot in an automatically disengaged up-position; and means for initiating a stitching cycle and which last means comprise (a) means for deactivating the means for holding said presser foot in the up-position; and (b) means for sequentially interlocking: a presser foot engaging means; with the stitch sewing means; with the stitching cycle terminating means. The stitching cycle terminating means include means for reactivating the means for holding the presser foot in the up-position.

3,572,268
FUR SEWING MACHINE
Fred L. Olday, 505 Bogart Place, Scranton, Pa. 18503
Filed Aug. 22, 1969, Ser. No. 852,413
Int. Cl. D05b *35/00, 23/00*
U.S. Cl. 112—149 **11 Claims**



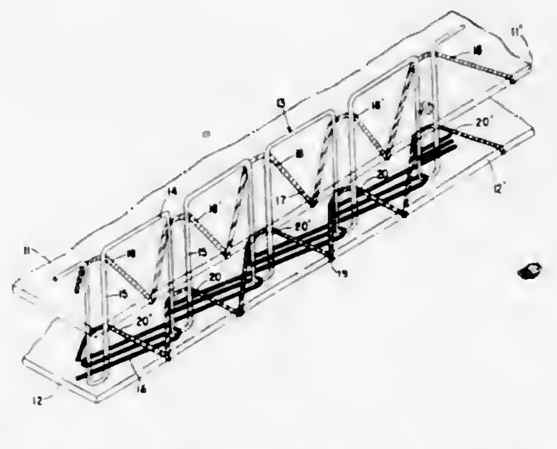
An improved apparatus for guiding strips of fur to the feed mechanism of a fur sewing machine. The apparatus is arranged to maintain a guide shoe in a variably positioned medial plane between a feed wheel pair and also within the medial plane to assure a uniform depth of fur skin taken up by a seam formed between strips to be sewn together. Also, the guide mechanism employs a combined air nozzle and guiding blade which is adjustable to account for an imbalance of hair extending from the edges of the fur strips on the seam.

3,572,269
BLINDSTITCH SEWING MACHINE
Roy W. Fletcher, Riverdale, and Anthony D. Forte, Chicago, Ill., assignors to Union Special Machine Company, Chicago, Ill.
Filed Dec. 3, 1969, Ser. No. 881,738
Int. Cl. D05b *1/24*
U.S. Cl. 112—178 **15 Claims**



A blindstitch sewing machine having a work supporting member which is retained in a fixed position during operation of the machine. The machine is provided with a pair of node forming elements arranged side by side in the work supporting member of the machine. These node-forming elements are simply reciprocated toward and away from the work and are adapted to produce nodes in the work being stitched at slightly different regions of the stitch forming zone of the machine. The node-forming elements are shifted in opposite directions in relation to each other, so that at one time one node-forming element will be active while at another time the other node-forming element will be active. For operating the node-forming elements by the main drive shaft of the machine a rotary eccentric member is provided which is driven at half the angular speed of the main drive shaft. This permits the shifting of one node former into active position and the other node former out of active position during one cycle of operation of the machine, whereas the reverse situation takes place on the next cycle of operation of the machine. No movement is imparted to the node forming elements in or opposite to the direction of movement of the work being stitched; the only movement of each node-forming element being perpendicular to the path of movement of the work in the stitch forming zone. Feed rollers are mounted on the work supporting member of the machine, with their axes perpendicular to the line of stitch formation. These feed rollers serve to urge the work upwardly in two different but adjacent regions toward a fixed presser foot.

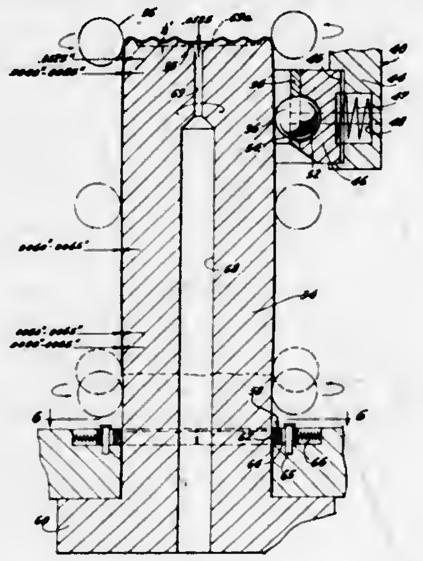
3,572,270
STITCHED SEAMS
Stanley J. Ketterer, Morris Plains, N.J., assignor to The Singer Company, New York, N.Y.
Filed Oct. 28, 1969, Ser. No. 870,043
Int. Cl. D05c *17/00*
U.S. Cl. 112—433 **4 Claims**



A stitched seam in which a single row of securing stitches parallel to the edges of two plies of fabric also anchors a pair of edge covering threads each extending about the edge of a respective one of the plies of fabric.

3,572,271
FABRICATION OF CAN BODIES WITH INTEGRAL BOTTOM WALLS
Ermal C. Fraze, Dayton, Ohio, assignor to Dayton Reliable Tool & Mfg. Company, Dayton, Ohio
Filed May 23, 1968, Ser. No. 731,592
Int. Cl. B21d *51/00*
U.S. Cl. 113—120 **11 Claims**

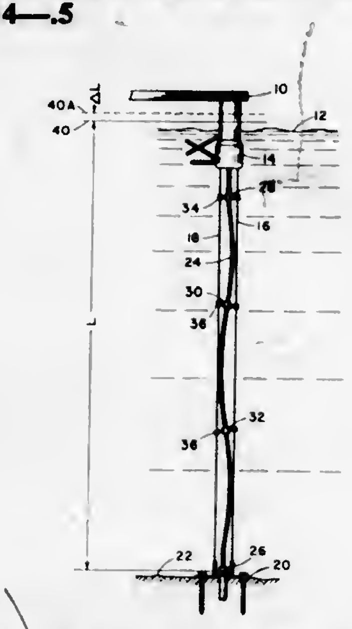
To produce a cylindrical can body, a sheet metal blank of an initial thickness substantially greater than the desired wall thickness of the can body is positioned with a central portion of the blank between two cooperating dies of substantially the diameter desired for the can body and the two dies compress the central portion of the sheet metal blank across its thickness to thin the central portion of the blank by radial extrusion of surplus metal. The consequent radial displacement of metal distorts the blank to an intermediate configuration of a receptacle having a conical circumferential wall with the axial dimension of the receptacle substantially short of the axial dimension desired for the finished can body. The receptacle is placed on a mandrel that conforms to the inside dimensions of the desired can body for the purpose of carrying out a spinning operation that not only thins the circumferential wall of the receptacle and shapes the circumferential wall to the cylindrical configuration of the mandrel but also increases the axial dimension. This spinning operation is carried out by rolling means, such as ball means, which is moved helically around the mandrel.



3,572,272

MOORING SYSTEM USING CABLES AND BUCKLED RISER PIPE

David A. Dixon and Kenneth A. Blenkarn, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.
Filed Mar. 5, 1969, Ser. No. 804,590
Int. Cl. B63b *35/44;* **E02b** *17/00;* **E21b** *15/02*
U.S. Cl. 114—.5 8 Claims

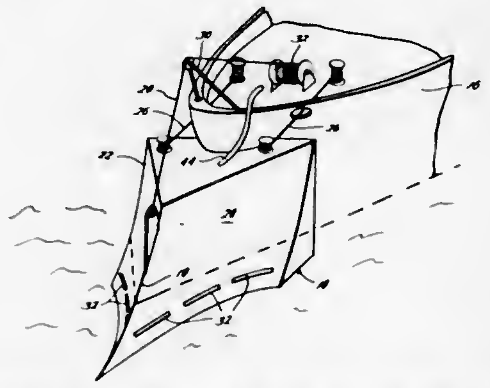


This invention relates to a mooring system for a floating structure. Special buoyancy chambers support the structure, including a work deck, above a body of water. The structure is connected to anchors at the floor of the body of water by elongated members such as cables and pipes having different elongations per unit of stress. The main anchoring load is carried by the cables and the pipes are used primarily in drilling operations or for transporting petroleum from an underwater well. Because of wave action, the floating platform is subject to vertical heave forces. The maximum vertical stress applied to the cables causes them to elongate a length ΔL. The riser pipe is installed under sufficient compression so that it is in a buckled configuration when the floating structure is in a neutral position. The length of the buckled riser pipe exceeds the vertical distance from the buoyancy means to the well head by an amount equal to the maximum ΔL of the cable. As the vertical distance increases by ΔL, the buckled riser will straighten, rather than elongate, without a change in axial force. Thus the basic load-carrying member remains the cable. In a preferred embodiment the cable is slideably connected to the points along the buckled riser pipe corresponding to the nodes of the buckled configuration.

3,572,273

APPARATUS FOR BREAKING A LAYER OF ICE ON A BODY OF WATER BY REPETITIVE COMBUSTIVE EXPLOSIONS

Charles D. Wood, San Antonio, Tex., assignor to Southwest Research Institute, San Antonio, Tex.
Filed Aug. 6, 1969, Ser. No. 847,904
Int. Cl. B63b *35/08*
U.S. Cl. 114—40 13 Claims

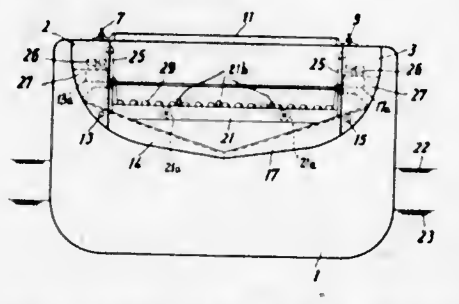


An apparatus to break the ice on bodies of water to allow passage of vessels by providing a movable buoyant body having a face for contact with the ice and a plurality of exhaust openings in the face and positioned below the waterline of the body with each exhaust opening connected to a combustion chamber for applying the combustion energy from a hydrocarbon fuel directly to the ice for breaking and melting the ice. A plurality of exhaust openings in the hull of an ice-breaker adjacent the bow with a normally closed combustion chamber connected to each opening. A buoyant pontoon non-rigidly attached to the bow of a ship and having a front face extending downwardly and outwardly to slide under layers of ice with a plurality of exhaust openings for providing a combustive explosion directed against the ice and having valve means normally closing the combustion chamber for preventing water entering therein but opening on a predetermined pressure buildup in the chamber.

3,572,274

CARGO SHIP

Georg Brauer, Werner Quade, Gerhard Chone, and Ernst Jurgensen, Hamburg, Germany, assignors to Blohm & Voss AG and Demag-Kampnagel G.m.b.H., both of Hamburg, Germany
Filed Feb. 24, 1969, Ser. No. 801,318
Claims priority, application Germany, Feb. 23, 1968, P 15 56 460.0
Int. Cl. B63b *35/44*
U.S. Cl. 114—43.5 32 Claims



A barge carrier vessel wherein two rearwardly extending stern beams support an inflatable pontoon for lifting or lowering of barges. The pontoon is movable between loading and stowed positions by seaway compensating winches or cylinders. A portal crane is mounted on the deck for movement lengthwise of the hull to transport barges onto and from the pontoon when the latter is held in stowed position.

3,572,275

METHOD OF RAISING A SUNKEN VESSEL

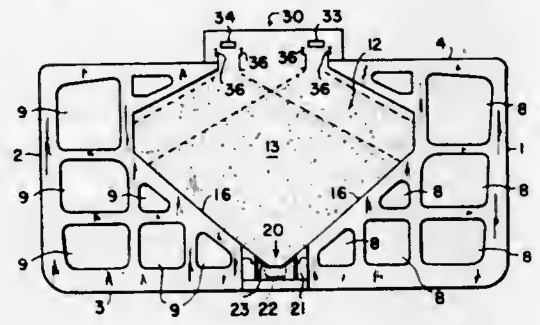
Fritz Kramer, 60—11 Broadway, Woodside, N.Y. 11377; Heinz Baumann, Zuckerfabrikstr. 3, Frankenthal, Germany; and Wilhelm Bauer, Kallenbergstrasse 21, Essen, Germany
No Drawing. Filed Jan. 10, 1969, Ser. No. 790,466
Int. Cl. B63c *7/12*
U.S. Cl. 114—50 5 Claims

A sunken vessel is raised by injecting into the vessel a sufficient amount of urea-formaldehyde resin foam generated under water at the level of the vessel from an aqueous urea-formaldehyde precondensate solution, a solution of a curing agent containing a surfactant, and compressed air. The solutions and the air are pumped to the injection site under a pressure higher than the hydrostatic pressure at the site.

3,572,276

SELF-LOADING AND UNLOADING VESSEL

Ole Skaarup, Greenwich, Conn. (℅ Skaarup Shipping Corp., 21 West St., New York, N.Y. 10006)
Filed Apr. 14, 1969, Ser. No. 815,908
Int. Cl. B63b *25/02*
U.S. Cl. 114—73 5 Claims



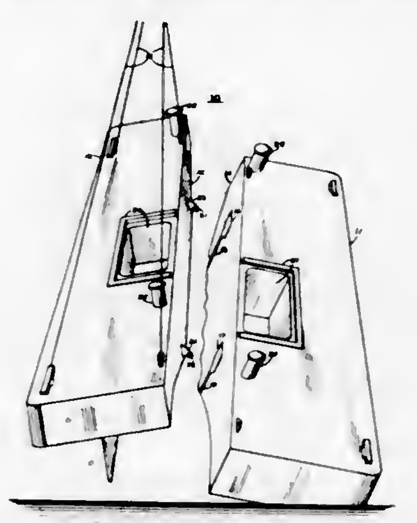
A self-loading and unloading dual cargo vessel for carrying a fluid cargo and a particulate bulk cargo. The vessel comprises marginal fluid cargo holds and a central bulk cargo hold therebetween. The bulk cargo hold has inclined lower sides which converge to deliver the bulk cargo to an unloading conveyor system. There is at least one longitudinal loading trench in the uper deck over the bulk cargo hold spanning substantially the entire fore and aft dimensions of the hold. A mobile and reversible conveyor is positioned over the trench and extends over approximately one-half the length of the trench. The mobile conveyor is positionable to deliver bulk cargo over substantially any longitudinal position in the hold. A loading device comprising at least one hopper is located amidships or in another suitable position for feeding the mobile conveyor. The mobile conveyor and trench are permanently enclosed.

3,572,277

LENGTHWISE DIVISIBLE BOAT

Sigurd Schousboe, Olympia Fields, Ill., assignor to Material Service Corporation, Chicago, Ill.
Filed Mar. 28, 1969, Ser. No. 811,313
Int. Cl. B63b *3/08*
U.S. Cl. 114—77 8 Claims

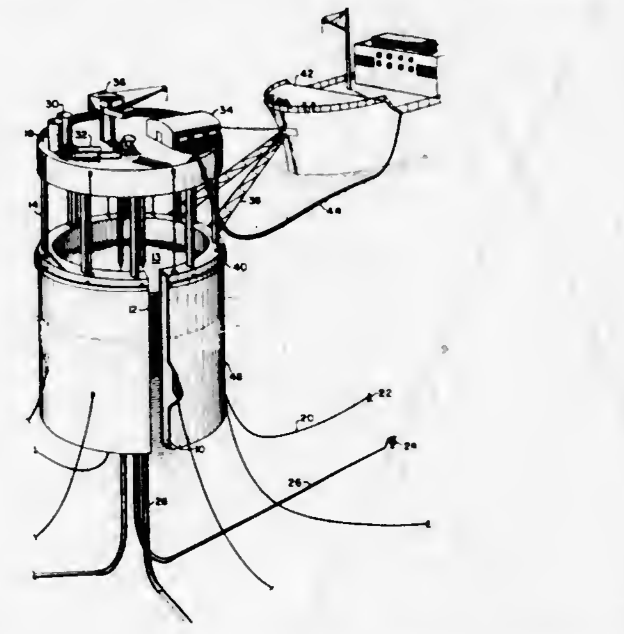
A boat is provided which is divisible into two or more separately buoyant sections lengthwise. These sections are connected by means of a mating ball and channel connecting device in opposing walls of the sections, and posts at the top of the walls which bear the main load in tension. The sections are designed to cant outwardly from each other when separate so that most of the load when connected is borne by the posts at the top.



3,572,278

FLOATING PRODUCTION PLATFORM

Richard P. Knapp and Kenneth T. Koonce, Houston, Tex., assignors to Esso Production Research Company
Filed Nov. 27, 1968, Ser. No. 779,407
Int. Cl. B63b *35/44*
U.S. Cl. 114—.5 13 Claims



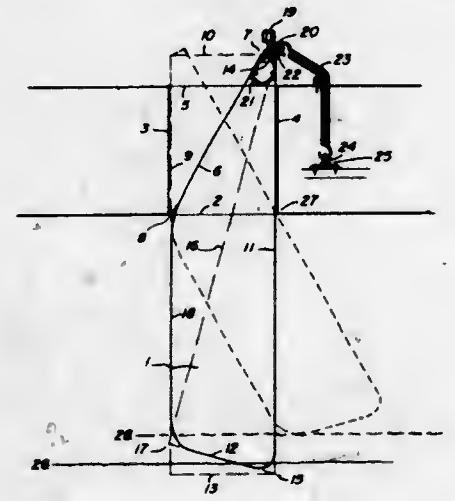
Apparatus including a substantially vertical annular buoyancy chamber formed by concentric cylindrical shells, the interior surface of which forms a cylindrical storage chamber that is open at its lower end. A plurality of circumferentially spaced vertical support members are mounted on the upper end of the buoyancy chamber and support a deck. The deck is adapted to have production equipment and tanker mooring apparatus mounted on it. The buoyancy chamber and associated structure may be moored to a submerged bottom.

3,572,279

SHOCK-AND-DIG-RELIEVING DAGGERBOARD

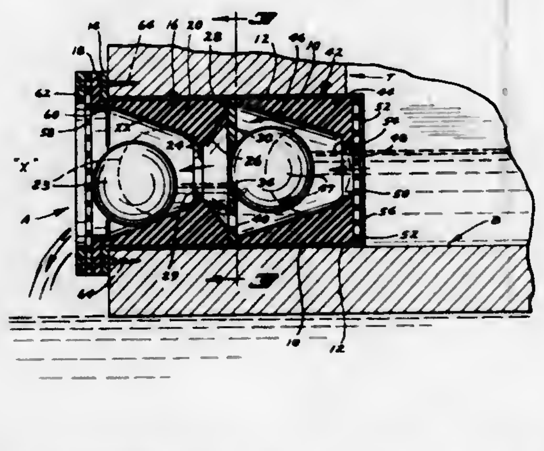
Ernest Clyde Smoot, Jr., 6218 Dustin Drive, Richmond, Va. 23226
Filed Mar. 11, 1969, Ser. No. 806,081
Int. Cl. B63b *41/00*
U.S. Cl. 114—132 8 Claims

Daggerboard so shaped, mounted within and correlated with the boat well, that the board in response to impingement of its lower end with the bottom submerged beneath the water, or with a solid fixed object, automatically pivots about a transverse axis fixed with the well, to thereby decrease the normal maximum projection of the board. Yielding means continuously urges the board into normal operating position. The board may also be manually elevated out of the well for all positions of pivoting thereof about the aforesaid axis.



3,572,280
AUTOMATIC BOAT BAILER

Donald A. Monson, 439 Coventry Road,
Hoyt Lakes, Minn. 55750
Filed Feb. 6, 1969, Ser. No. 796,999
Int. Cl. B63b *13/00*
U.S. Cl. 114—184 6 Claims

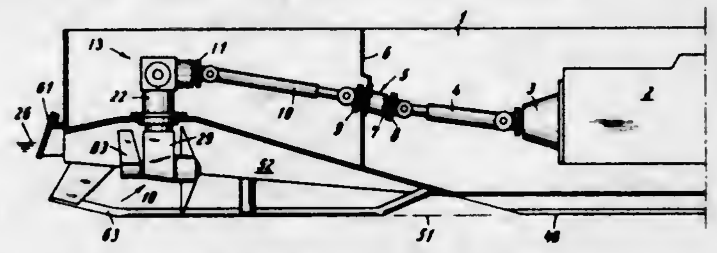


A device for automatically bailing water from a boat including a body member having a frusto-conical cavity in which is positioned a valve ball, said cavity open at its outer and inner ends, the inner opening having a valve seat for receiving the valve ball to close off the inner opening and means for maintaining the valve ball in the cavity.

3,572,281
WATERCRAFT

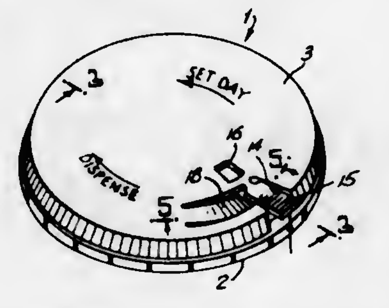
Josef Becker, Oberspay (Rhine), Germany, assignor to Schottel-Werft Josef Becker KG., Oberspay (Rhine), Germany
Filed Dec. 23, 1968, Ser. No. 785,904
Claims priority, application France, Dec. 26, 1967,
133,733
Int. Cl. B63h *5/08, 1/14*
U.S. Cl. ~~115~~—37 12 Claims

A watercraft having a pair of substantially parallel, longitudinally arranged, recesses or tunnels positioned below the waterline in the after portion of its hull and a suitably driven propeller located within each recess and mounted for pivoting around a vertical axis. Flaps close the after end of said recesses when the craft is operating in reverse and the engine is preferably placed forwardly of the forward end of said recesses.



3,572,282
TABLET DISPENSER WITH CIRCULAR TABLET CHANNEL

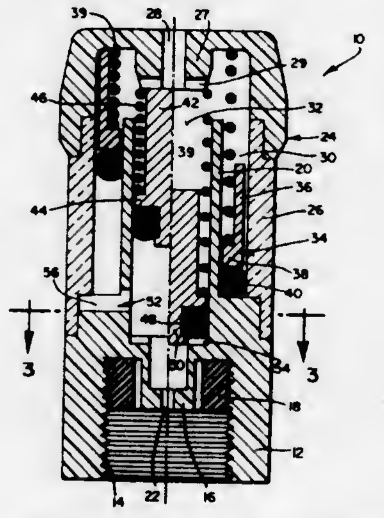
Dirk Tump, Lebanon, and Charles M. Huck, Bound Brook, N.J., assignors to Ortho Pharmaceutical Corporation
Filed Apr. 4, 1969, Ser. No. 813,576
Int. Cl. G09f *9/00*
U.S. Cl. 116—121 3 Claims



A calendared tablet dispenser is provided in which the tablets are contained in a continuous circular tablet channel. By virtue of a downward extending projection secured to the cover, rotation of the cover with respect to the base in the counter-clockwise direction causes the tablets to move in that direction in the tablet channel. Means are provided to prevent movement of the tablets in the channel in the counter-clockwise direction. In use, the cover is rotated with respect to the base in the counter-clockwise direction to align the indicia of time representing the day on which the first tablet is to be taken with the tablet access aperture. In dispensing of the tablet, the cover is rotated in the clockwise direction.

3,572,283
TIRE PRESSURE INDICATOR

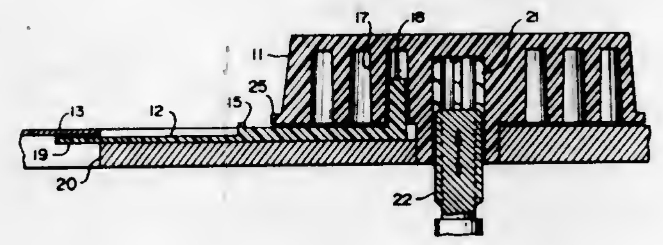
Robert B. Ashman, St. Louis, Mo., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed July 15, 1969, Ser. No. 848,390
Int. Cl. B60c *23/06*
U.S. Cl. 116—34 4 Claims



A cap type tire pressure indicator comprises a valving piston which when pushed up by air pressure permits air pressure to communicate to a second chamber wherein the air pressure holds up an indicating piston. When the tire pressure drops, the valving piston lowers to valve off passage to the second chamber permitting the indicating piston to drop to a visible position to indicate inadequate pressure in the tire.

3,572,284
CONTROL KNOB ASSEMBLY

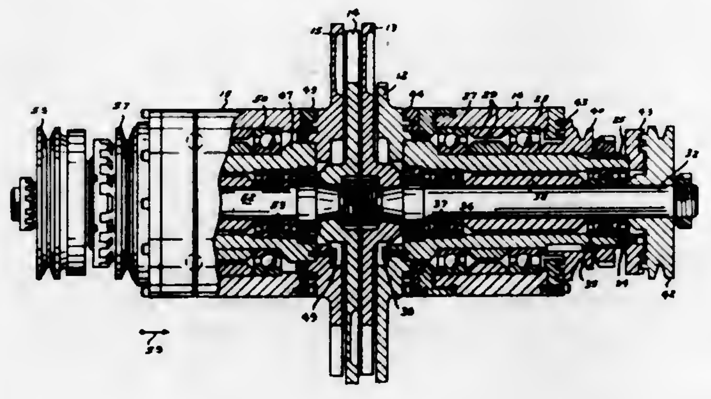
William D. Rattan, Paramount, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 15, 1969, Ser. No. 884,809
Int. Cl. G09f *9/00*
U.S. Cl. 116—124 5 Claims



A control knob assembly is disclosed wherein rotational movement of the control knob effects radial movement of a cooperating indicator. The knob is provided with a spiral channel in its undersurface for receiving a leg of the L-shaped indicator. The longer leg of the indicator extends radially outward from the control knob axis through a slot in the assembly housing. Hooks integral with the housing are adapted to grip a peripheral flange on the knob to retain the dialed position. At least one of the hooks is provided with a convex dimple which cooperates with corresponding concave dimples about the periphery of the knob to provide a "click" indicative of an incremental change in the control knob setting. The knob is further provided with a spline or keyway arrangement which accommodates axial movement of the stem.

3,572,285
WIDE BAND SIREN SYSTEM

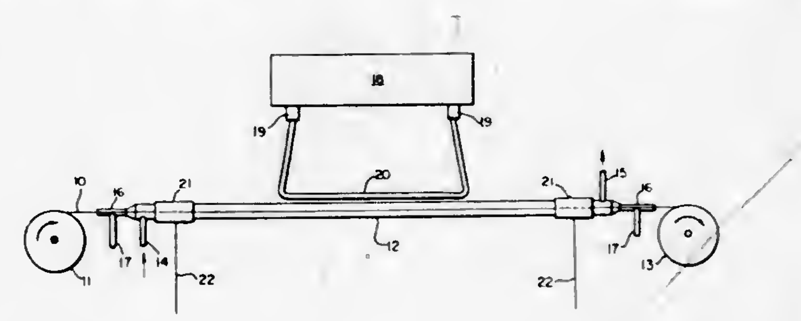
Howard F. Wolfe, Kettering, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
Filed Nov. 5, 1969, Ser. No. 874,167
Int. Cl. G01k *7/00*
U.S. Cl. 116—147 3 Claims



A wide band noise source having four siren rotor blades positioned in close proximity to each other and supported within two ring support members which are secured to a base support member. The two outer rotor blades are each supported on journal members in two bearings in the ring support members. The two center rotor blades are supported on shaft journal members in four bearings supported within the journal members for the two outer rotor members. The journal members for the four rotors have pulleys keyed to them so that the four rotors can be driven through V-belts by four electric motors. Labyrinth seals are provided to keep dust particles and dirt away from the bearings.

3,572,286
CONTROLLED HEATING OF FILAMENTS

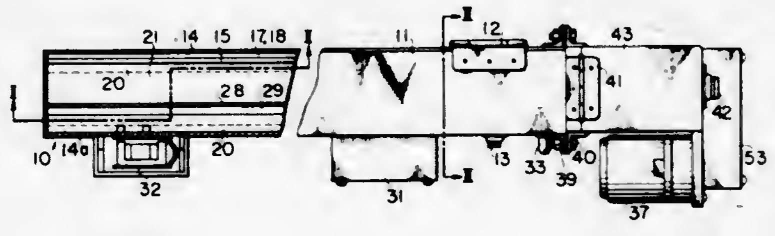
Harry B. Forney, Hopewell, Va., assignor to Texaco Inc., New York, N.Y.
Filed Oct. 9, 1967, Ser. No. 673,570
Int. Cl. C23c *11/00*
U.S. Cl. 118—49.5 3 Claims



Electrically conductive filaments are heated by establishing in a section of the filament a standing half wave of high frequency current by subjecting the section to be treated to the action of a radio frequency electromagnetic field and controlling the distribution of temperature in such section by adjustment of the parameters of the radio frequency field. The apparatus is useful in the provision of controlled temperature profiles in selected sections of a conductive filament.

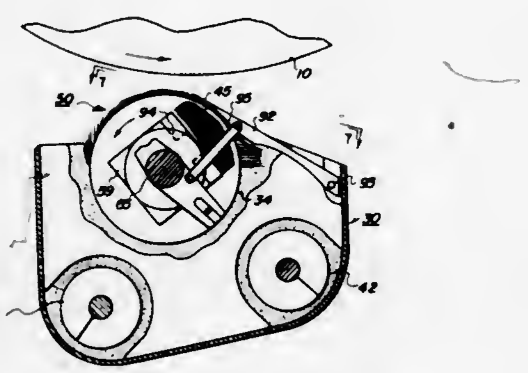
3,572,287
APPARATUS FOR POWDER SPRAYING

Shiro Saito, Tokyo, Japan, assignor to Nikka Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 14, 1968, Ser. No. 775,835
Claims priority, application Japan, Nov. 16, 1967, 42/73,754, 42/73,755; Nov. 22, 1967, 42/74,721
Int. Cl. B05b *5/02*
U.S. Cl. 118—629 9 Claims



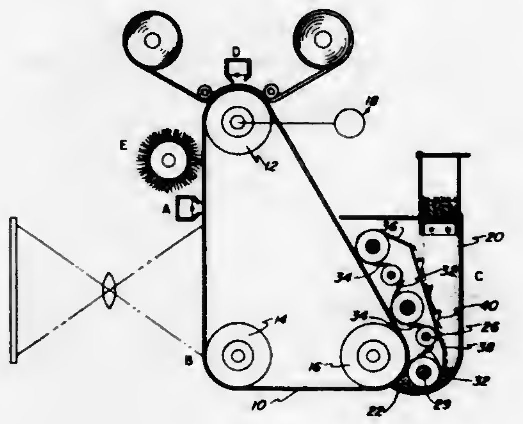
An elongated square-shaped fluidizing case contains an outlet for the powder to be sprayed, a vertical weir board and a horizontal porous rectifying board. An air chamber for introducing compressed air into a powder layer is located below the rectifying board, and a fluid chamber communicating with the outlet is provided above the rectifying board. A device for feeding a fixed amount of powder continuously to the fluid chamber is connected with the fluidizing case. When the powder is fed into the fluid chamber, the air blowing from the air chamber forms a fluidized bed of powder. The powder elutriated from the fluidized bed is ejected by the air through the outlet to be sprayed upon the surface of the object being treated.

3,572,288
DEVELOPMENT APPARATUS
Lyman H. Turner, Pittsford, N.Y., assignor to
Xerox Corporation, Rochester, N.Y.
Filed Aug. 7, 1968, Ser. No. 750,851
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **4 Claims**



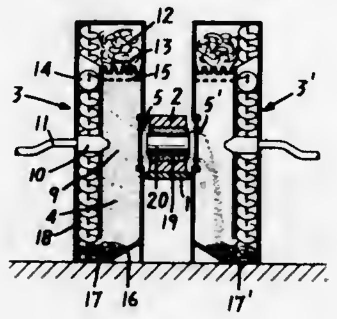
Apparatus to control the stopping and starting function of a magnetic brush developing system in which the magnetic brush is rapidly brought in and out of operative contact with an image bearing photoconductive surface.

3,572,289
MAGNETIC BRUSH DEVELOPMENT APPARATUS
John Maksymiak, Penfield, N.Y., assignor to
Xerox Corporation, Rochester, N.Y.
Filed Sept. 23, 1968, Ser. No. 761,723
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **5 Claims**



Xerographic apparatus for the magnetic brush development of latent electrostatic images with a two-component magnetic developer. The apparatus includes a plurality of rollers with magnetic fields extending therefrom positioned adjacent a latent electrostatic image bearing surface to be developed with their axes of rotation parallel to each other. Drive means are provided to rotate each roller in a direction opposite to each adjacent roller. In this manner, alternate rollers function as magnetic brush developing rollers while the intermediate rollers function as developer transport rollers to magnetically transport the developer from one developing roller to the next. When a sump of developer is provided adjacent the lowermost roller, gravity may be utilized to return developer from the uppermost roller to the sump. Baffles may also be employed to cross-mix developer returning to the sump.

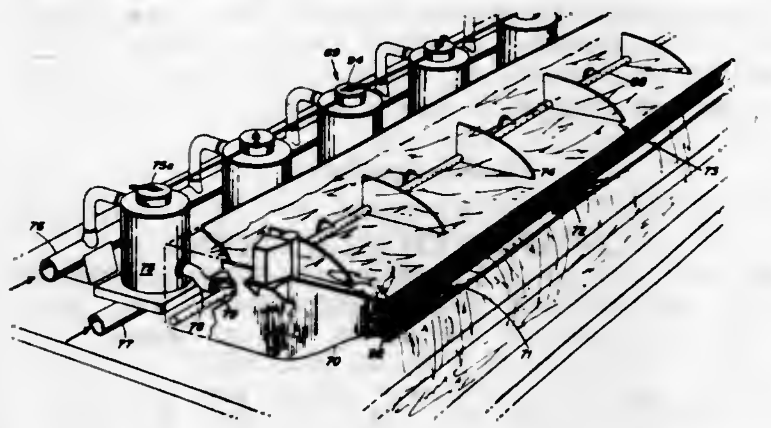
3,572,290
APPARATUS FOR INSULATING SLOTS IN STATORS AND ROTORS OF ELECTRICAL ROTARY MACHINES
Erik Frede Christiansen, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark
Original application Jan. 30, 1964, Ser. No. 341,257. Divided and this application Jan. 10, 1968, Ser. No. 696,855
Claims priority, application Germany, Feb. 1, 1963, D 40,803
Int. Cl. B05c *5/00*
U.S. Cl. 118—641 **8 Claims**



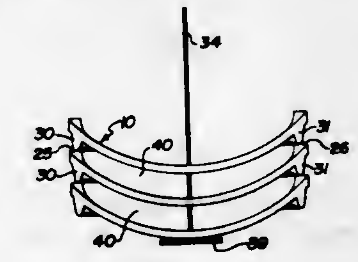
Apparatus for coating winding slots of electrical motor cores such as stators or rotors with streams of insulating particles developed externally of an area in which the unit to be insulated is disposed and applying the coating particles only on desired surfaces of the slots being coated without contamination of the atmosphere in which the unit being coated is disposed so that there is substantially no deposition of insulating particles on surfaces other than those being coated. Particles are suspended in a chamber and then subjected to gas flow through the chamber and an outlet shutter or mask so that the insulating particle streams of different cross sections are formed sequentially as the gas flow leaves the chamber and enter the area in which the core being coated is displaced. The area and atmosphere in which the core is disposed is thus free of particles except for the streams of particles passing through the area in the slots. Excess particles leaving the slots are recovered in a second chamber outside of the area in which the core is disposed. The second chamber is opposite to and spaced from the first-mentioned chamber and the core is disposed therebetween. A reverse flow of insulating particle streams can be applied from the second chamber and recovery of excess material made at the first chamber.

3,572,291
METHOD AND APPARATUS FOR GROWING FISH
Patrick Edgar Cavanagh, Toronto, Ontario, Canada, assignor to Premium Iron Ores Limited, Toronto-Dominion-Dominion Centre, Toronto, Ontario, Canada
Filed Feb. 24, 1969, Ser. No. 801,505
Claims priority, application Canada, Dec. 16, 1968, 37,983
Int. Cl. A01k *61/00*
U.S. Cl. 119—3 **9 Claims**

The following specification discloses a fish selected environmental control for growing fish to increase the rate of growth. Fish are moved there in production stage and subjected to a range of environmental values of which they are observed to select the optimum. The particular production stage is then adjusted in its environment to correspond.

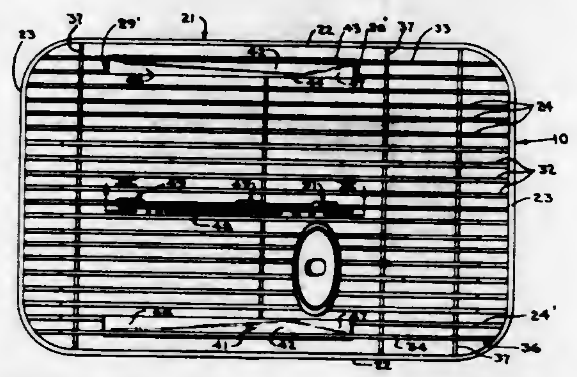


3,572,292
ARTIFICIAL OYSTER CULTCHES
Daniel B. Quayle, Nanaimo, British Columbia, and Trevor P. Clark, North Vancouver, British Columbia, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
Filed June 27, 1969, Ser. No. 837,088
Int. Cl. A01k *61/00*
U.S. Cl. 119—4 **9 Claims**



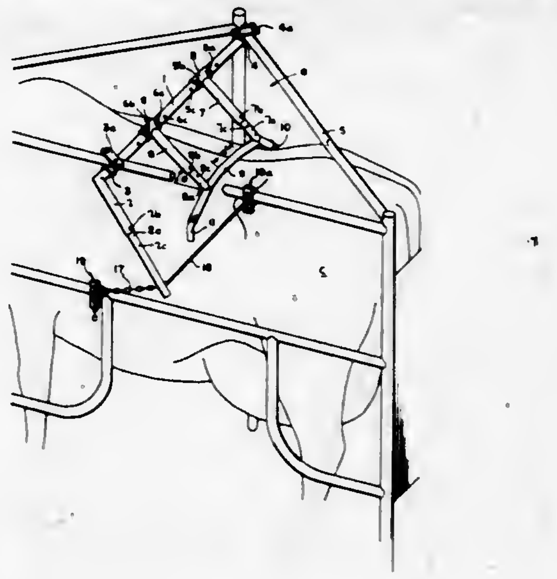
An artificial oyster cultch made up of a thin body of any desired shape, having opposite face sides with bearing surface means on one side, and spacer means projecting from the opposite side thereof and adapted to bear against the bearing surface means of the body of another cultch when the cultches are operatively placed together. The bearing surface means and the spacer means are positioned to keep most of the cultch bodies separated from each other when they are in operative positions, usually in a vertical column including a plurality of cultches held together on a wire or string.

3,572,293
ANIMAL FEEDER
Frederick N. Schroen, Portage, Mich., assignor to Unifab Corporation, Kalamazoo, Mich.
Filed Feb. 19, 1969, Ser. No. 800,678
Int. Cl. A01k *1/00*
U.S. Cl. 119—18 **7 Claims**



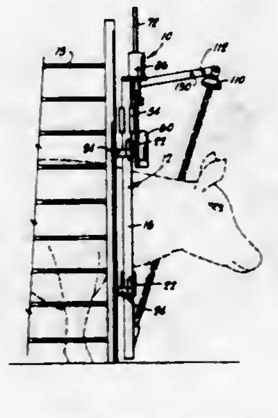
A nestable tray for placement over the top of a container for animals, said tray being adapted for holding articles within reach of the animals in the container. The tray has an elongated trough which projects down into the container and the end plates of the trough are inclined to the vertical to permit a nesting of one of said trays within another. A center plate is provided for dividing the trough into two compartments, said plate being pivotable to a position parallel with one of the walls of the trough so as to permit nesting of said trays.

3,572,294
COW CONTROLLER
Wallace L. Baker, Rte. 3, Box 9, Burley, Idaho 83318
Filed Apr. 5, 1968, Ser. No. 719,175
Int. Cl. A01j *1/00, 3/00*
U.S. Cl. 119—27 **7 Claims**



A device wherein positive pressure is applied in the sway of the back of an animal to prevent arching of the back to thereby prevent kicking and sidewise movement of the animal. The pressure bar is curved so as to fit the contour of the back but with a special straight portion to effectively engage the backbone. A spring is utilized to normally retain the pressure bar in an inoperative position and an opposed chain is used for adjustable hold-down whereby the device can be quickly engaged and disengaged. The pressure bar assembly is positioned at an angle to the animal in the operative position to prevent overcenter travel and resultant loss of positive pressure. Adjustments are provided to make rough adjustments for different size animals.

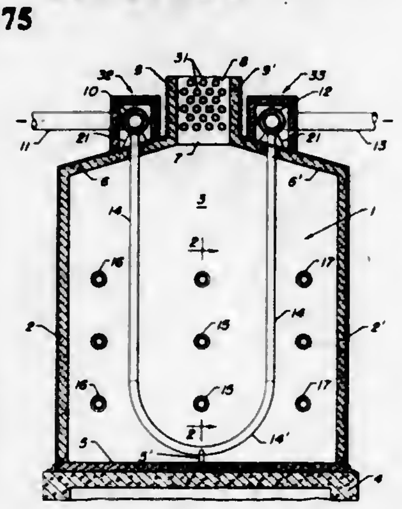
3,572,295
ANIMAL SECURING GATE
Cecil L. Tansel, Rte. 4, Box 165,
Chandler, Okla. 74834
Filed Oct. 6, 1969, Ser. No. 864,137
Int. Cl. A01k *29/00;* **A61d** *11/00*
U.S. Cl. 119—98 **7 Claims**



The present invention relates to an animal securing gate adapted to be installed on a stock chute and the like. The gate basically comprises a rectangular frame having means for engaging the lower portion of an animal's neck attached thereto. A movable frame including a neck depressing member positioned in vertically opposed relation to said means for engaging the lower portion of the animal's neck is slidably attached to the frame, and electric means are provided for automatically releasing the movable frame when an animal extends its head and neck through the gate thereby forcing the animal's neck into engagement with the means for engaging the lower portion thereof and securing the animal in the gate.

3,572,296
LOW PRESSURE DROP HEATER FOR FLUIDS

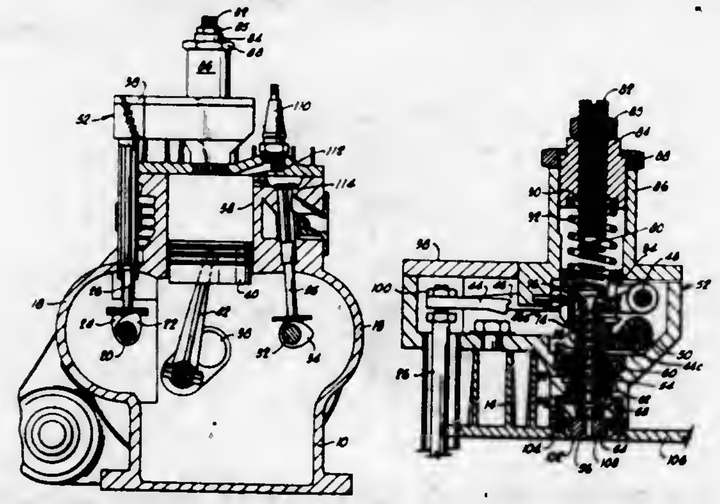
Don B. Carson, Mount Prospect, and Marion W. Barnes, Glenview, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed July 25, 1969, Ser. No. 844,837
Int. Cl. F22b *21/30*
U.S. Cl. 122—275 **7 Claims**



A heater for fluids which provides a low pressure drop for fluid flow by having a plurality of spaced apart U-shaped conduits positioned across the heating zone to connect in a parallel flow manner between spaced, longitudinally extending headers. Preferably, long flame burners provide radiant heating to each side of each leg of the U-shaped conduits by having at least three lines of burners to introduce heating from each end of the heating chamber such that flame and hot gases will provide radiant heat to the opposing inner faces of the U-shaped conduits as well as to the sides facing the side walls of the heater.

3,572,297
HYDROGEN FUELED INTERNAL COMBUSTION ENGINE

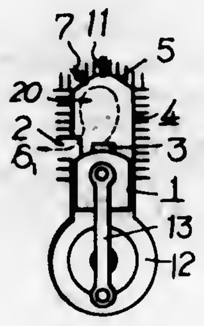
Richard G. Murray, Perkins, Okla., assignor to Roger J. Schoeppel and Roger C. Allen, Stillwater, Okla.
Filed Jan. 26, 1970, Ser. No. 5,791
Int. Cl. F02b *1/10, 3/04, 43/12*
U.S. Cl. 123—1 **21 Claims**



This invention relates to an internal combustion engine operated by direct injection of hydrogen into the cylinders thereof. Hydrogen is mixed with a portion of the air in the cylinders to form a combustible mixture which is ignited and burned concurrently with injection over a portion of the expansion stroke and in some cases a portion of the compression stroke. Dual poppet valves are used for injecting the hydrogen and are timed to open and close in response to sensed engine operating parameters.

3,572,298
STRATIFIED CHARGE ENGINE

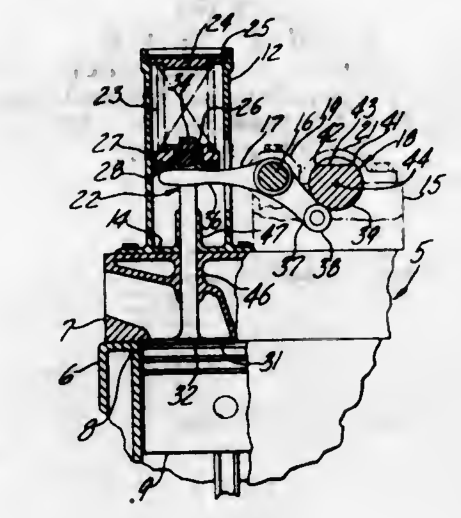
Shigeru Onishi, 31–13 Higashiyama 3-chome, Kanazawa-shi, Ishikawa-ken, Japan, and Saburo Yui, 12–7 Himonya 3-chome, Meguru-ku, Tokyo, Japan
Filed Jan. 6, 1969, Ser. No. 789,227
Claims priority, application Japan, Jan. 8, 1968, 43/599; Jan. 11, 1968, 43/1,083; Feb. 16, 1968, 43/9,413; June 10, 1968, 43/39,424; July 27, 1968, 43/52,757
Int. Cl. F02b *72/00*
U.S. Cl. 123—32 **8 Claims**



An internal combustion engine of the stratified charge type wherein the purification of the exhaust fan from the combustion chambers is provided with elimination of noxious components in the emissions thus attaining improved ignitability and combustibility particularly for betterment of performance and durability in full load operation.

3,572,299
VALVE-ACTUATING TRAIN FOR MACHINERY HAVING A CYCLICLY OPERATED POPPET VALVE

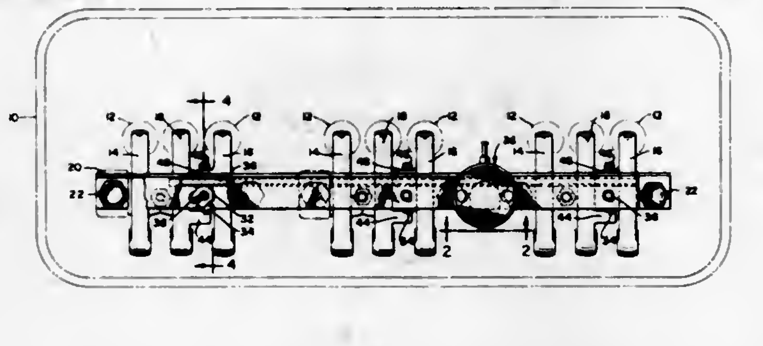
Thomas J. Lester, Moreland Hills, Ohio, assignor to Lester Industries, Inc., Bedford Heights, Ohio
Filed Dec. 15, 1969, Ser. No. 885,151
Int. Cl. F01l *1/30, 1/08*
U.S. Cl. 123—90.25 **14 Claims**



An engine, especially of the internal-combustion valve-in-head type, wherein a valve controlling cam and a cam follower of a valve train act positively on the valve to hold it closed against a seat facing inwardly of the combustion chamber except when the cam rotates through a minor portion of each revolution to release the remainder of the valve train for valve opening whereupon a spring or other resilient means forces the valve open.

3,572,300
ENGINE BRAKE

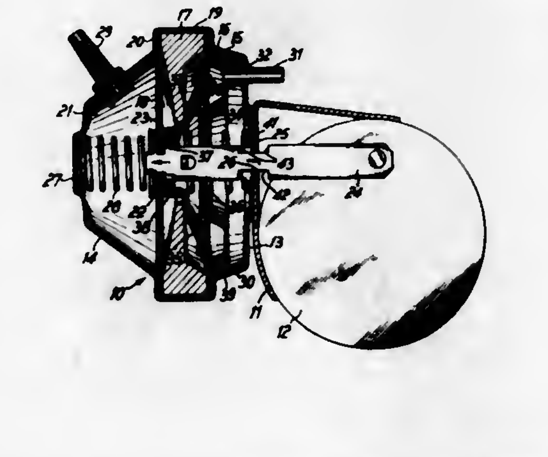
Francis W. Stager and Robert N. Minor, Stafford Springs, Conn., assignors of a fractional part interest to Thomas Minor, Crystal Lake, Conn.
Filed May 23, 1969, Ser. No. 827,227
Int. Cl. F02d *9/00*
U.S. Cl. 123—97 **15 Claims**



A control for converting a power producing internal combustion engine into a power absorbing air compressor is disclosed. The control includes rotatable cams positioned between injector rocker arm actuating bosses and corresponding structure on the exhaust valve rocker arms. Flexible coupling is provided between the individual cams and the actuating mechanism whereby rapid response of the control is achieved and movement of the cams into and out of operative position is achieved at the proper times through a mechanism which remembers the desired operative mode.

3,572,301
VACUUM ADVANCE MECHANISM FOR IGNITION DISTRIBUTORS OF INTERNAL COMBUSTION ENGINES

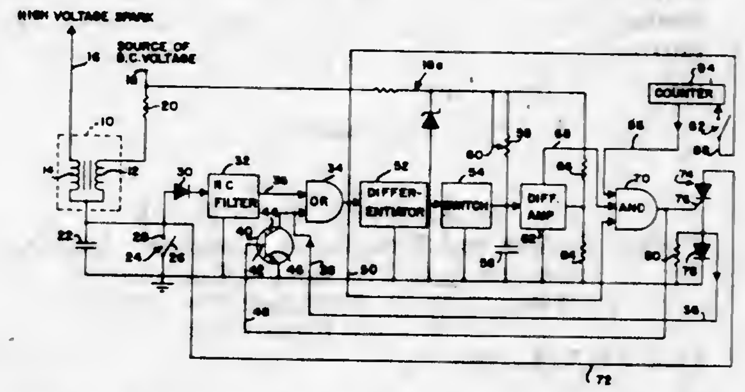
Harald Kalippke, Hohenacker, Eduard Lochbrunner, Immenstadt, Wolfgang Krill, Stuttgart, Leo Steinke, Hegnach, and Wilfried Julicher, Stuttgart, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Dec. 26, 1968, Ser. No. 787,021
Claims priority, application Germany, Jan. 5, 1968, P 16 01 425.8
Int. Cl. F02p *5/10*
U.S. Cl. 123—117 **16 Claims**



A vacuum advance mechanism for the breaker plate in the ignition distributor of an internal combustion engine comprises a housing defining two suction chambers each flanked by a separate diaphragm. One of the chambers is connected with a first region of the intake manifold where the suction increases when the engine operates at partial load, i.e., when the spark should be advanced. The other chamber communicates with a second region of the intake manifold where the suction increases during idling or coasting of the engine. The diaphragms which respectively flank the one and the other chamber move or effect movement of the breaker plate in the ignition distributor in opposite directions when the suction in the respective chambers increases.

3,572,302
INTERNAL COMBUSTION ENGINE SPEED LIMITING APPARATUS

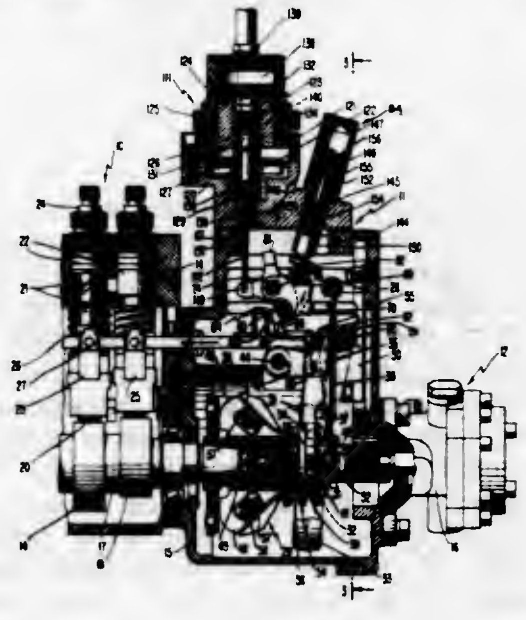
Donald L. Wollesen, San Jose, Calif., assignor to ARE Incorporated, San Jose, Calif.
Filed Apr. 16, 1969, Ser. No. 816,647
Int. Cl. F02p *9/00;* **H02p** *3/00;* **H02h** *3/00*
U.S. Cl. 123—118 **16 Claims**



A thyristor in parallel with the ignition timing switch of an internal combustion engine is turned on to prevent ignition sparks at the desired limiting speed. Timing is provided by fixed duration pulses having a time duration equal to the time between ignition sparks at the limiting speed. The effects of ignition timing switch contacts bouncing are prevented by the thyristor shorting out the bouncing contacts and dwell time is increased to near the theoretical maximum by allowing current flow to the ignition coil by way of the thyristor when the ignition timing switch contacts are open and after the ignition spark occurs.

3,572,303
FUEL INJECTION PUMP

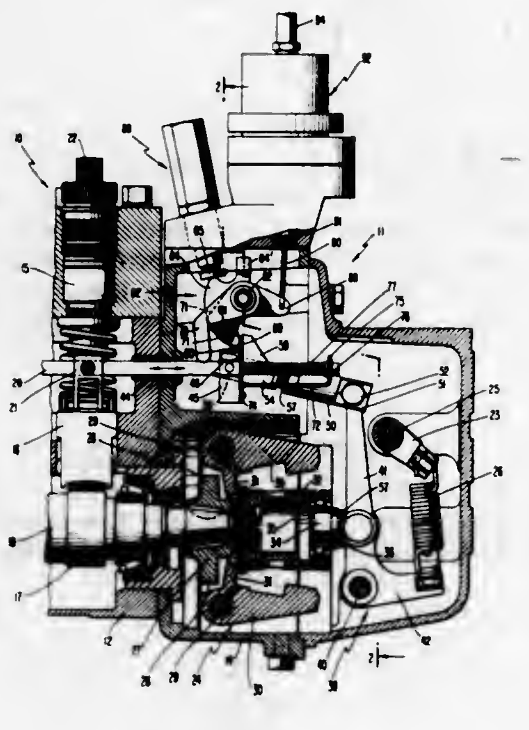
Philipp Becker, Sidney, and Harlan I. Fuller, Bainbridge, N.Y., assignors to The Bendix Corporation
Filed Aug. 22, 1968, Ser. No. 754,686
Int. Cl. F02d *31/00*
U.S. Cl. 123—140 **21 Claims**



A fuel injection pump for an engine wherein the rate of fuel delivery is determined by a governor acting upon a movable pump controlling member in opposition to a heavy spring variably tensioned by the engine throttle. The pump includes a jointed lever interposed between the movable member and the pump control rod, the jointed lever being rigid in the fuel quantity increasing direction and foldable in the other, fuel quantity-decreasing direction against the opposition of a small spring. A second, rigid lever, connected to move synchronously with the jointed lever, cooperates with a maximum fuel stop lever and a boost rack control lever. In a first disclosed embodiment, the jointed lever and the rigid lever are separate, but both are driven by the movable member. In a second disclosed embodiment, the jointed lever is formed in part of a portion of the rigid lever.

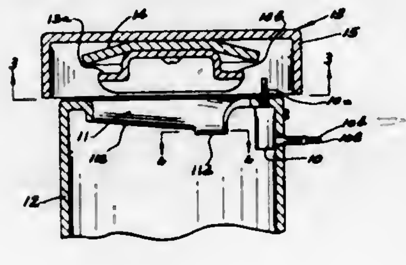
In both the first and second embodiments, provision is made for temporarily disabling the maximum fuel stop lever when the engine is to be started, so that excess fuel may be supplied to the engine. In a third disclosed embodiment, the control rod for the engine is automatically moved to its excess fuel position when the engine stops, so that the control rod of the pump is in position for the restarting of the engine.

3,572,304
FUEL INJECTION PUMP
Philipp Becker and Douglas A. Luscomb, Sidney, N.Y., assignors to The Bendix Corporation
Filed Sept. 27, 1968, Ser. No. 763,068
Int. Cl. F02d *1/04*
U.S. Cl. 123—140 **7 Claims**



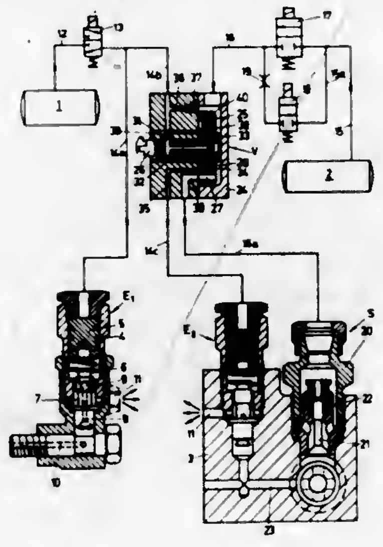
A fuel injection pump wherein the rate of fuel delivery is determined by a pump control rod which is adjusted by a governor acting upon a movable pump controlling member in opposition to a heavy spring variably tensioned by the engine throttle. The pump includes a connecting unit interposed between the pump control rod and a linkage extending from the movable member, the connecting unit having a slide which is connected to the control rod by spring means whereby the latter transmits motion from the slide to the control rod in the fuel quantity increasing direction while permitting motion of said rod in fuel decreasing direction relative to the slide. Means rigidly connected to the linkage ahead of the slide cooperates with a maximum fuel lever. Means rigidly connected to the control rod, but yieldably connected to the slide through said spring means, selectively cooperates with a fuel shut off lever and with a boost rack control lever, whereby both such latter levers need overcome only said spring means in order to move the control rod in its fuel decreasing direction. The pump is also provided with means for temporarily disabling the maximum fuel stop lever and the boost rack control lever when the engine is to be started, so that excess fuel may be supplied to the engine.

3,572,305
ENGINE IGNITION INTERRUPTING SAFETY DEVICE FOR FUEL TANK COVERS
Edward L. Moragne, 4723 Nenana, Houston, Tex. 77035
Filed May 4, 1970, Ser. No. 34,026
Int. Cl. B60k *15/04, 27/08;* **F02p** *11/00*
U.S. Cl. 123—146.5 **6 Claims**



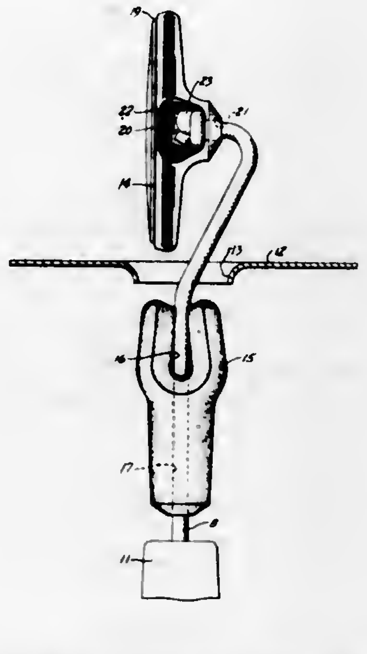
An explosion-proof microswitch is mounted in the filling pipe leading to a gasoline storage tank. A mechanical plunger extends away from the microswitch where it is adapted to be engaged by a tank cover which is removably secured to the filler pipe opening. When the gas tank cover is in its fully closed position, the plunger of the microswitch is depressed to close an electrical circuit forming a part of the ignition circuit of an internal combustion engine. When the tank cover is off or incompletely secured to the filler pipe, the microswitch contacts are open to prevent operation of the engine.

3,572,306
COMPRESSED-AIR STARTER WITH WATER DRAINAGE ARRANGEMENT
Paul Hurlimann, Zurich, Switzerland, assignor to Nova-Werke, Ferber & Wran, Zurich, Switzerland
Filed May 8, 1969, Ser. No. 823,014
Claims priority, application Switzerland, May 10, 1968, 6,989/68
Int. Cl. F01l *13/08;* **F02n** *17/00*
U.S. Cl. 123—179 **2 Claims**



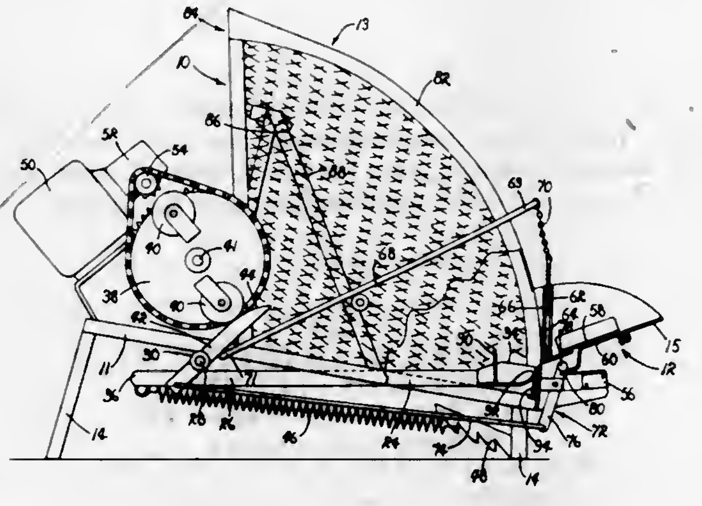
A source of air compressed at a relatively low pressure is connected to the pneumatically operated drain valves in the cylinder heads, by means of a series of special passageways in the distributor.

3,572,307
HANDLE FOR PULL ROPE ENGINE STARTER
Joseph R. Harkness, Germantown, and Gordon D. Kelly, Elm Grove, Wis., assignors to Briggs & Stratton Corportation, Wauwatosa, Wis.
Filed Jan. 27, 1969, Ser. No. 794,129
Int. Cl. A47b *95/02*
U.S. Cl. 123—185 **5 Claims**



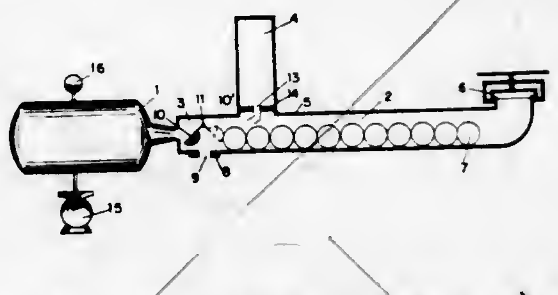
A T-shaped handle attached to the pull rope of a rewind type engine starter comprises separably nested inner and outer sections, the latter being capable of deformation into a shape permitting it to be passed through a hole only large enough to accommodate the smaller rigid inner section when the sections are separated but still connected with the rope.

3,572,308
SPRING ACTUATED CENTRIFUGAL TYPE BALL THROWING DEVICE
Leonard G. Smith, 2325 Elton Ave., Bakersfield, Calif. 93306
Filed May 15, 1969, Ser. No. 825,008
Int. Cl. F41b *3/02*
U.S. Cl. 124—7 **7 Claims**



A device for throwing a ball mechanically to an animal or person. The preferred embodiments of the invention include a throwing arm resiliently mounted in a housing. The housing has an inlet door and an outlet door. An electric drive motor is provided to cock the throwing arm against a spring to a position where the ball is received from the housing inlet. The housing inlet also has a weight actuated switch which senses the presence of the ball in the inlet and starts the electric motor to cock the throwing arm. After the throwing arm is cocked, it is released to the urging of the spring which rapidly drives it to an uncocked position, propelling the ball out of the housing outlet.

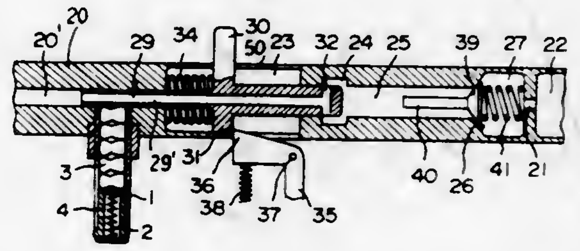
3,572,309
AIR GUN
Waldemar Teixeira de Freitas, Rua Rodrigo Silva 26, Sao Paulo, Brazil
Filed July 24, 1967, Ser. No. 655,634
Claims priority, application Brazil, July 22, 1966, 181,497
Int. Cl. F41b *11/02*
U.S. Cl. 124—11 **4 Claims**



Air gun for scaring birds and other undesirable creatures, comprising an elongated reservoir wherein a plurality of balls is stored and which can be pressurized. The balls are expelled one by one when the air pressure in the reservoir attains a value capable of forcing one ball through an orifice in the reservoir wall, overcoming the resisting frictional force between the orifice and the ball. Either the balls or the orifice wall can be made elastic or deformable while the other element is made relatively rigid or non-deformable.

In a portion of the reservoir, vertically aligned above said orifice, is a paddle member which is kept sideways by the jet of air which operates the gun, upon the passage of a ball through said orifice. The reservoir is associated with an auxiliary reservoir, by way of a narrow passage, for alternatively storing and delivering an amount of air which assists in forcing one ball at a time through said orifice.

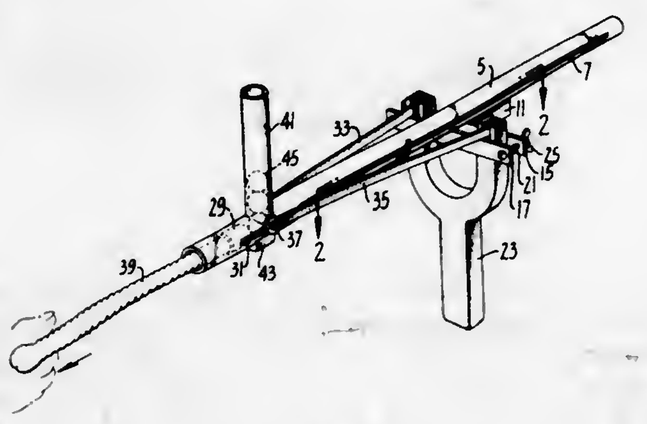
3,572,310
COMPRESSED GAS GUN AND VALVE THEREFOR
Kensuke Chiba, 8, 2-chome, Yotsuya, Shinjuku-ku, Tokyo, Japan
Filed Jan. 28, 1969, Ser. No. 794,669
Claims priority, application Japan, Feb. 2, 1968, 43/66,741; Mar. 27, 1968, 43/19,436
Int. Cl. F41b *11/06*
U.S. Cl. 124—11 **6 Claims**



A gas operated gun with a barrel defining a rearward extension including a widened portion accommodating a bolt and a valve. The bolt is spring urged to open the valve at the end of the extension which in turn allows compressed gas to return the bolt to a forward position. At the return position of the bolt, a gas passage extending through the bolt is opened and allows the gas to expel a pellet from the barrel. A magazine for the gun is an elongated container accommodating a stack of pellets, and has a resilient tongue for inserting into the housing enclosing the barrel; the tongue normally holds the topmost pellet in the magazine; but when inserted in the housing, the tongue is cammed outwardly to release the topmost pellet.

3,572,311
BOW OR SLING SHOT WITH TUBULAR DETACHABLE PROJECTILE GUIDE MEANS

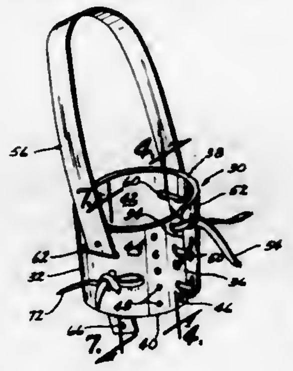
Roger T. Baer, 138 McCormick St.,
Santa Cruz, Calif. 95060
Continuation-in-part of applications Ser. No. 696,921, Jan. 10, 1968, and Ser. No. 744,283, June 11, 1968. This application July 31, 1969, Ser. No. 857,261
Int. Cl. F41b *7/00, 15/00*
U.S. Cl. 124—20 5 Claims



A clamp-on device which can be added to an ordinary bow or sling shot having a longitudinally slotted barrel for greater accuracy and having a magazine so that a large number of shots can be fired in quick succession. The slotted barrel has a projectile impact head member positioned in the barrel. The impact head is connected to a resilient member which abuts a projectile. When the head is cocked and released the projectile will be propelled through the barrel due to the force developed by the resilient member.

3,572,312
ARCHERY BOW WITH SLING ATTACHMENT

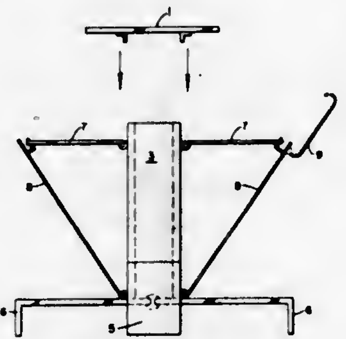
Merle L. Foster, 401 School, Iowa Falls, Iowa 50126
Filed Mar. 26, 1969, Ser. No. 810,478
Int. Cl. F41b *5/00*
U.S. Cl. 124—23 6 Claims



An archery bow with a sling. The sling includes an adjustable sleeve which is adapted to be detachably secured to the bow below the bow hand receiving area. An adjustable wrist strap assembly is secured to and extends upwardly and rearwardly from the sleeve and is adapted to extend over the wrist area of the shooter's bow arm to steady and stabilize the bow during the use thereof.

3,572,313
CHARCOAL COOKING "VERTA GRILL"

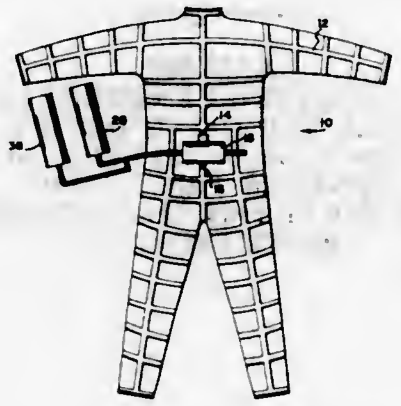
Louis J. Ciancaglini, 4231 SW. 41st St.,
West Hollywood, Fla. 33023
Filed Sept. 17, 1968, Ser. No. 761,401
Int. Cl. A47j *37/00;* **F24b** *3/00;* **F24c** *1/16*
U.S. Cl. 126—9 1 Claim



A portable foldup charcoal grill comprised of a vertical firebox with grid members, reflective side plates, and support legs pivotally attached to the firebox. The side plates are adapted to cover the grid members and firebox side walls when in an inward fold position.

3,572,314
HEATED DIVING SUIT

Walter Dorwin Teague, Jr., Nyack, N.Y., assignor to Columbia Gas System Service Corporation, New York, N.Y.
Filed Sept. 5, 1968, Ser. No. 757,683
Int. Cl. A61f *7/06*
U.S. Cl. 126—210 6 Claims

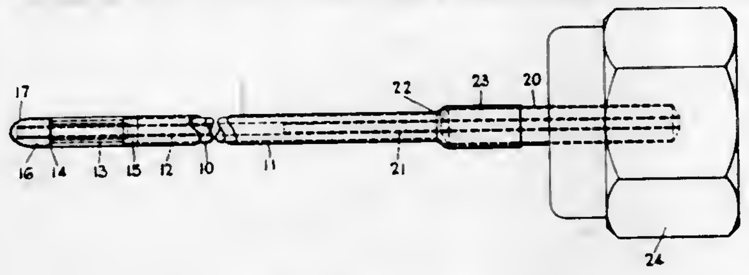


A diver's suit including a tube network throughout the suit and a heating system employing a heating unit to heat a heat-conducting fluid, such as water, which is then circulated through the tube network to warm the diver.

3,572,315
INTRAVASCULAR CATHETER WITH GAS-PERMEABLE TIP

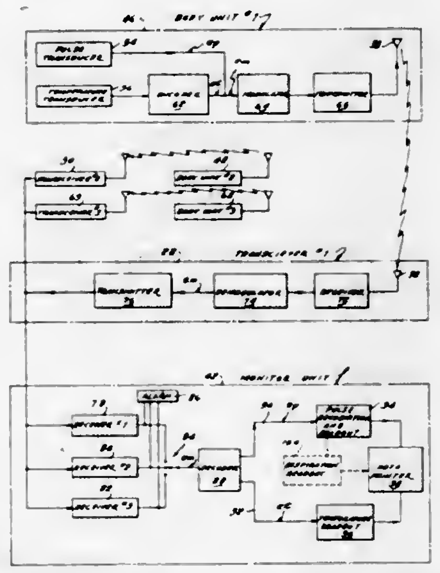
John S. Cullen II, 138 Wesley Ave.,
Buffalo, N.Y. 14214
Filed Nov. 26, 1968, Ser. No. 778,977
Int. Cl. A61b *5/14;* **A65m** *25/00;* **G01n** *33/16*
U.S. Cl. 128—2 5 Claims

Apparatus for extracting gaseous components from a liquid for analysis. A catheter having a semi-permeable membrane at its leading end is inserted into the blood stream of a patient, the membrane being permeable to gases contained in whole blood but impermeable with respect to the blood itself. The opposite end of the catheter is connected to analysis apparatus, such as a mass spectrometer, and subatmospheric pressure means induces gaseous flow from the blood stream through the membrane and into the catheter and through the analysis apparatus.



3,572,316
PHYSIOLOGICAL SIGNAL MONITORING SYSTEM

Joseph H. Vogelman, Roslyn, Robert S. Coe, Tuxedo Park, Kenneth B. Hoyt, Peekskill, and Bernard Feinerman, Suffern, N.Y., assignors to Chromalloy American Corporation, West Nyack, N.Y.
Filed Feb. 23, 1968, Ser. No. 707,680
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 14 Claims

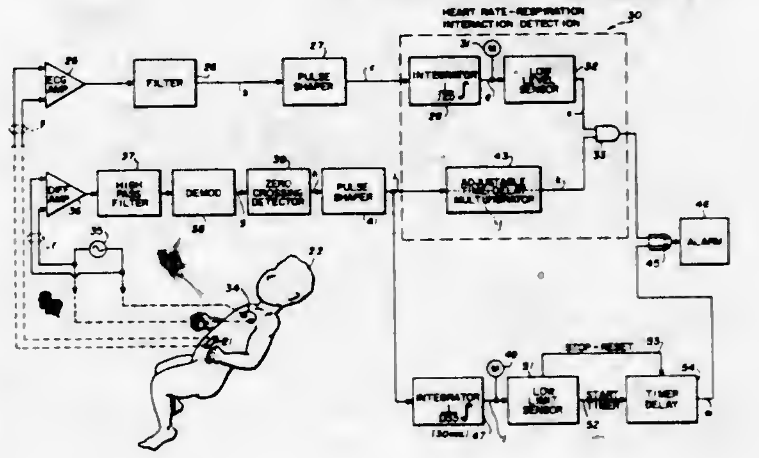


In one embodiment, the monitoring system is used in a hospital to transmit, to a central monitoring station, signals representing physiological parameters such as pulse rates, temperatures, and respiration rates of a number of patients located in different hospital rooms. The system includes a plurality of small units each worn on the wrist of a patient. Each wrist unit includes transducers for detecting physiological parameters without penetrating the patient's skin, and an F-M wireless transmitter for broadcasting the physiological signals developed by the transducers. The system also includes a plurality of local transceivers each of which receives physiological signals transmitted from one of the wrist units. The transceiver re-transmits the physiological signals over ordinary wiring or signal lines already installed in the hospital for carrying other electrical signals or energy. At the monitoring station, the output signals from the various transceivers are sampled sequentially, and the pulse, temperature and respiration information are displayed and printed for review by medical personnel.

3,572,317
RESPIRATORY DISTRESS MONITOR

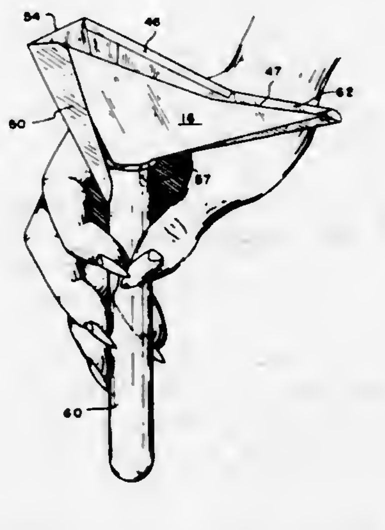
Gerald James Wade, Clifton, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Oct. 2, 1968, Ser. No. 764,448
Int. Cl. A61b *5/02, 5/08*
U.S. Cl. 128—2.05 17 Claims

A technique for monitoring respiratory distress in newborns by deriving electrical representations of respiratory and heart beat activity and relating the derived data to detect the presence of a condition of respiratory distress. Supplemental apparatus is used in combination with the above technique to detect a respiratory distress condition not denoted by the related interaction, by measuring the respiratory rate over a selected time period and noting the duration of persistency of a relatively low respiration rate.



3,572,318
URINE SPECIMEN COLLECTION AID

Thomas N. Garland, Denver, Colo., assignor to Carol A. Wendt, Leon T. Howard, James R. Snedeker, Whitney B. Siebert, Robert F. Fiori, Robert E. Wallace, Darell W. Blair, Norman D. Paschall and Pearl M. Blakeney, fractional part interest to each
Continuation of application Ser. No. 656,229, July 26, 1967. This application Apr. 30, 1970, Ser. No. 31,843
Int. Cl. A61b *10/00;* **E03d** *13/00*
U.S. Cl. 128—2 9 Claims



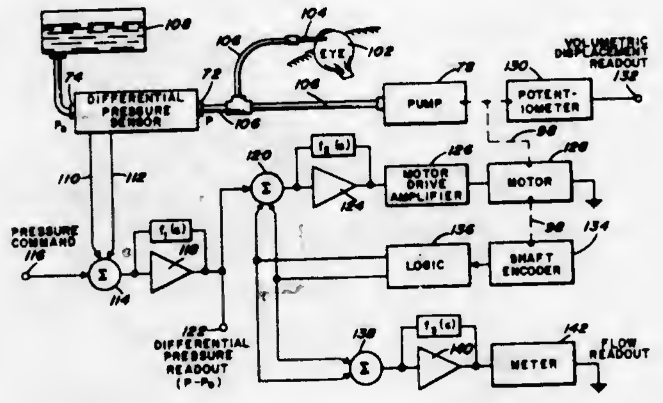
A disposable aid used to assist in the collection of urine specimens for medical analysis. The device is a collapsible funnel structure contoured to fit against the human body, having a stabilizer flap for attaching and positioning the device in the mouth of a container during the taking of a specimen.

3,572,319
INTRAOCULAR PRESSURE CONTROL SYSTEM

Harold R. Bittner and Ray E. Digman, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of Health, Education, and Welfare
Filed May 23, 1969, Ser. No. 827,307
Int. Cl. A61b *3/16*
U.S. Cl. 128—2 10 Claims

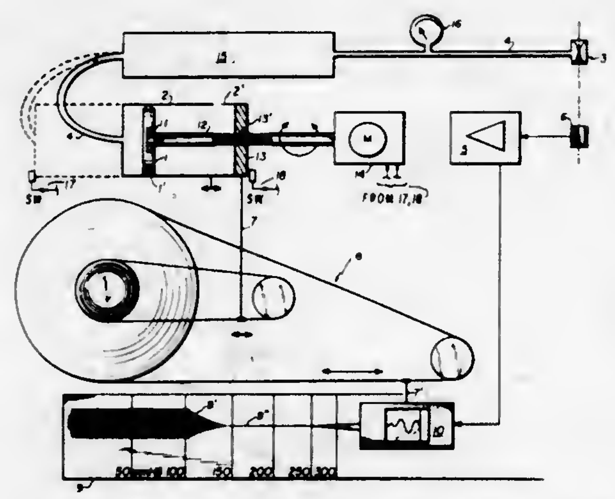
A system for controlling fluid flow into or out of the eye while observing the effect on intraocular pressure.

A needle is inserted into the eye, and an accurately calibrated pressure feed system injects or withdraws the fluid, while instantaneous readout capabilities give volumetric displacement of fluid, and pressure within the eye.



3,572,320
APPARATUS FOR BLOOD PRESSURE MEASUREMENT

Marcel Gerold, Binningen, and Hansjörg Tschirky, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Apr. 26, 1968, Ser. No. 724,370
Claims priority, application Switzerland, May 12, 1967, 6,789/67
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 **7 Claims**

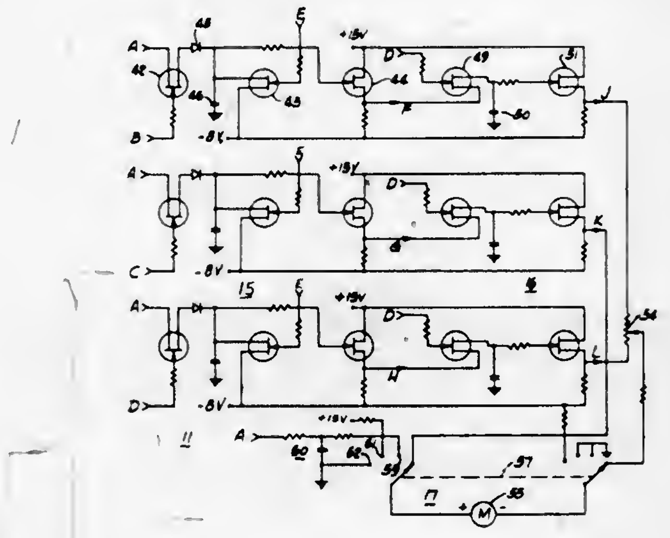


An apparatus for measuring blood pressure and heart rate in small animals comprising a pneumatic sleeve connected to a pressure generator and a piezoelectric pulse pickup attached via an amplifier to a galvanic recorder including a movable recording head, the pressure generator including a piston pump consisting of a piston and a cylinder (either the piston or the cylinder being displaceable) and a duct connecting the cylinder with the pneumatic sleeve. By way of transmission means fastened to the displaceable part of the piston pump, the recording head is synchronously displaced therewith for displacement over a recording paper for recording purposes.

3,572,321
ELECTROCARDIOMETER

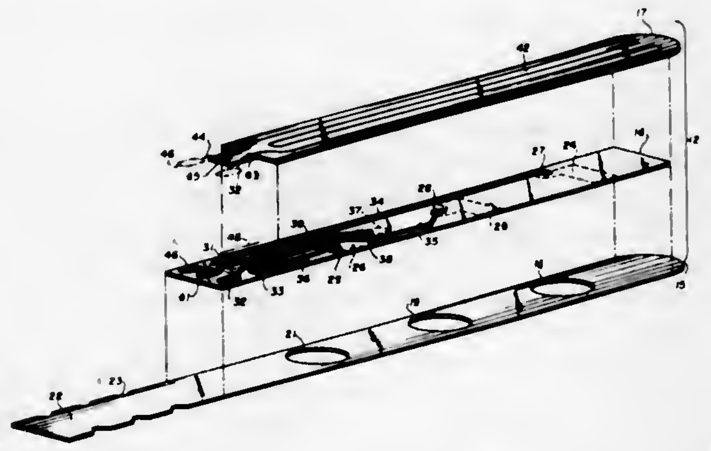
Daniel K. Bloomfield, Cleveland, and Harrison A. Zieske, Mentor, Ohio, assignors to Frigitronics Inc.
Filed Apr. 1, 1969, Ser. No. 812,167
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **18 Claims**

An electrocardiometer permits a rapid check, in the order of 15 seconds time, of the condition of a person's electrocardiogram by utilizing a single pair of leads connected across the heart to obtain the voltage of the QRS wave and the T wave. The voltages are compared and when the T wave peak amplitude is less than approximately sixteen percent of the QRS wave peak amplitude, an indicating means is provided to indicate this faulty condition.



3,572,322
TRANSDUCER ASSEMBLY

Gerald James Wade, Middletown, Conn., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Oct. 11, 1968, Ser. No. 766,688
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **5 Claims**

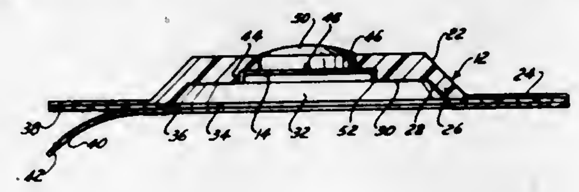


An integrated transducer assembly adapted to be held against a body surface for instrumentation-patient interface, having a flexible printed circuit member to which is bonded and electrically connected transducers for sensing physiologic functions and providing electrical output signals representative of the physiologic parameters of at least respiratory activity and heart activity.

3,572,323
DISPOSABLE ELECTRODE WITH A METALLURGICALLY-BONDED, SILVER-SILVER CHLORIDE SENSING ELEMENT

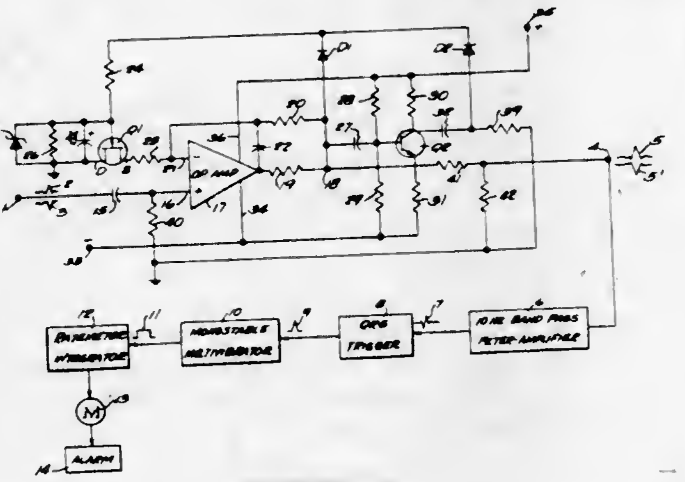
Frank L. Yuan, Wayland, Mass., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed Jan. 3, 1969, Ser. No. 788,828
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **6 Claims**

A disposable electrode is provided for biological and medical use comprising a sensing element housing formed of an insulating material and having surfaces thereon adapted to receive and retain a sensing element and a sensing element. The sensing element comprises a uniformly thick flat layer of silver to which a uniformly thick flat layer of silver chloride is metallurgically bonded.



3,572,324
AUTOMATIC GAIN CONTROL FOR A CARDIAC MONITOR

Vern R. Petersen, Brookfield, Wis., assignor to General Electric Company
Filed Apr. 1, 1969, Ser. No. 812,138
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **2 Claims**

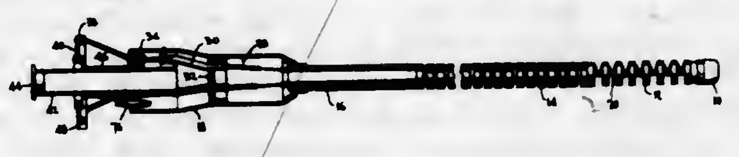


Positive or negative going ECG signal waveforms are amplified in a differential-operational amplifier with negative feedback. The feedback circuit of the amplifier includes the drain-to-source path of a field effect transistor. A capacitor connected between the gate and drain has a voltage on it which automatically controls the gain of the amplifier by controlling the conductivity of the transistor. The single polarity control voltage is obtained either directly from the output of the amplifier or from an inverting transistor stage depending on whether the input signal is positive or negative. The amplifier output is held within a narrow amplitude range and is a faithful reproduction of the input signal. The output signal drives a cardiac ratemeter or other device.

3,572,325
FLEXIBLE ENDOSCOPE HAVING FLUID CONDUITS AND CONTROL

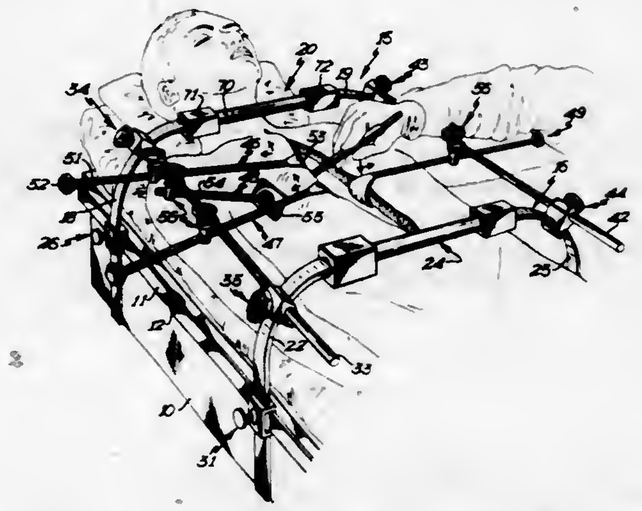
Seymour Bazell, Chicago, Ill., William E. Reynolds, Western Springs, N.J., Anatoli Brushenko, Elmhurst, and Donald A. Pontarelli, Chicago, Ill., and Bergein F. Overholt, New York, N.Y., assignors to the United States of America as represented by the Secretary of Health, Education, and Welfare
Filed Oct. 25, 1968, Ser. No. 770,537
Int. Cl. A61b *1/06, 1/30;* **F11l** *11/18*
U.S. Cl. 128—6 **13 Claims**

An endoscope having a flexible distal end portion comprising a distal tip and plurality of articulated segments, a less flexible central portion, a rigid proximal end, a control assembly operated at the proximal end and including control wires passing through the apparatus to the distal tip, and a fiber bundle optical system. A conduit for supplying water and air and an aspiration conduit may also be provided within the endoscope.



3,572,326
CHEST WALL RETRACTOR

Nathan Kenneth Jensen, Medicine Lake, Minn., assignor to Medic Made, Inc., Minneapolis, Minn.
Filed May 6, 1968, Ser. No. 726,734
Int. Cl. A61b *17/02*
U.S. Cl. 128—20 **10 Claims**



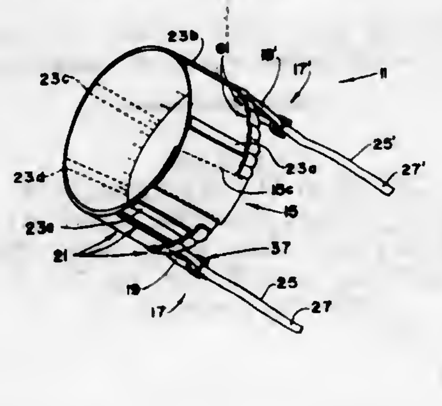
A surgical retractor having a plurality of inverted U-shaped supports having their lower ends adapted to be secured to the side rails of an operating table, a pair of bars secured to the curved portions of the U-shaped supports, one on each side of the table, and retracting elements adjustably secured to the bars and adapted to engage the opposite edge portions of a surgical incision to exert counteracting forces on the body of the patient, the radius of curvature of the U-shaped supports approximating the distance between the outer extremities of the ribs and the vertebral column of a human of typical dimensions so that upon adjustment of the bar outwardly, the chest wall, in the case of a chest incision, is moved upwardly and outwardly. A pusher member may also be mounted on one of the bars to hold a portion of the body inwardly while the portion adjacent the incision is being pulled out by the retractor. The U-shaped supports each have a removable link member to permit the introduction of surgical coverings, these link members also being adapted to support a retractor or other surgical implement.

3,572,327
UNIVERSAL TRACTION BELT MEANS

Leander D. Beard and Robert J. Boggs, Memphis, and John R. Treace, Germantown, Tenn., assignors to Richards Manufacturing Company, Memphis, Tenn.
Filed July 3, 1968, Ser. No. 742,278
Int. Cl. A61h *1/02*
U.S. Cl. 128—75 **3 Claims**

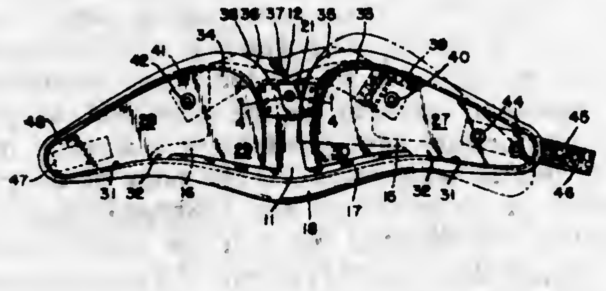
Pelvic traction belt means is disclosed which is adapted for use with existing traction weight means. The traction belt means includes a belt body having "Velcro"-type fastening means for fastening the belt body about the waist of a patient and includes bridle means adapted for interconnecting the belt body and the existing weight means.

The bridle means has at least one U-shaped strap-like yoke member having a pair of end portions adapted to be detachably engaged by "Velcro"-type fastening means to the belt body. A series of gather-like loops are arranged along the lower outside portion of said belt body and a selected pair of the loops are adapted to receive the opposite end portions of the U-shaped yoke member as the yoke member end portions are being supported by a "Velcro"-type fastening means on the belt body. The belt body is provided with resiliently stiff stay members arranged in the body and provides reinforcing means for reinforcing the flexible movement of the belt body. A selected pair of loops embracing the opposite end portions of the yoke member and the reinforcing means of the belt body are simultaneously coactingly operative for preventing peeling disengagement of the "Velcro" fastening means and disengagement of the yoke from the belt body.



3,572,328
CERVICAL COLLAR

John L. Bond, North Wilkesboro, N.C. 28659
Filed Dec. 11, 1968, Ser. No. 782,865
Int. Cl. A61h *1/02*
U.S. Cl. 128—75 **10 Claims**

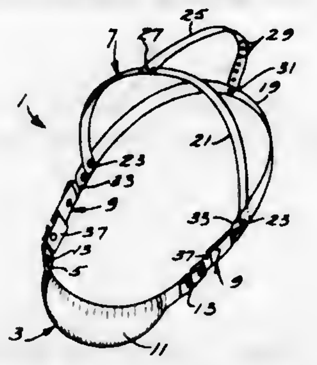


An adjustable flexible cervical collar in which laterally spaced-apart flanking sheets are secured to a front sheet with the inner ends of the flanking sheets being freely extending toward each other and the outer ends of said flanking sheets extending beyond the front sheet to form a neck-encircling collar with means on the front sheet for releasably fastening the inner ends of the flanking sheets in vertical displaced positions relative to each other and to the front sheet with means for cooperatively cradling the chin of a wearer supported by the upwardly extending sections of the flanking sheets.

3,572,329
CHIN STRAP

Irvin S. De Woskin, St. Louis, Mo., assignor to Orthoband Company, Inc., St. Louis, Mo.
Filed May 1, 1968, Ser. No. 725,720
Int. Cl. A61f *5/08*
U.S. Cl. 128—76 **8 Claims**

An adjustable chin strap for orthodontic and cosmetic use, the chin strap comprising a thermoformable plastic cup for engagement with the chin of the wearer. The cup is relatively rigid, having integral flexible straps extending from its ends for connection to adjustable elastic traction bands. These bands interconnect the cup straps with a headgear adapted to be worn on the head.



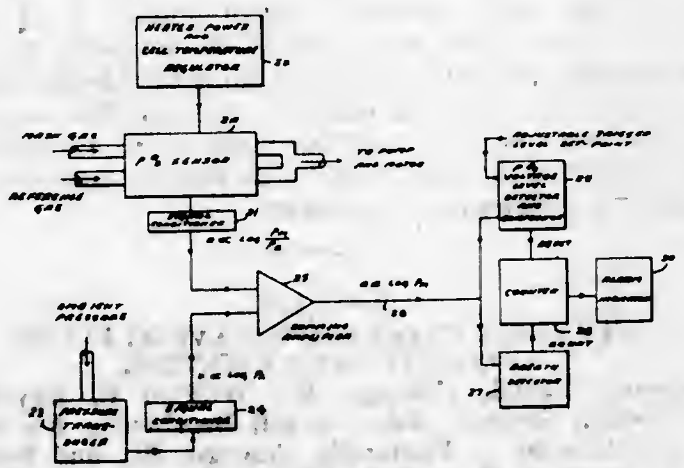
3,572,330
METHOD OF TREATING WOUNDS AND IMMOBILIZING INJURED BODY MEMBERS WITH A FOAMED RESIN

Robert J. Gander, White House, N.J., assignor to Johnson and Johnson
No Drawing. Original application Feb. 28, 1963, Ser. No. 261,824, now Patent No. 3,419,506. Divided and this application Aug. 6, 1968, Ser. No. 765,727
Int. Cl. A61f *5/04;* **A61l** *15/01, 15/07*
U.S. Cl. 128—90 **4 Claims**

In a method for the treatment of wounds protective coatings are prepared in place by ejecting onto the surface to be protected a foamed resin from a pressurized container in which the resin is in solution in a liquid propellent of the group trichlorofluoromethane, dichlorofluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,1-difluoro-1-chloroethane, vinyl chloride, and dimethyl ether. The pressurized composition prior to ejection is in the form of a highly viscous solution suspension of film-forming resin and finely divided filler. The foamed resin can also be applied directly to an injured body member to form an immobilizing cast.

3,572,331
IMPENDING HYPOXIA DETECTION AND WARNING SYSTEM FOR AIRCRAFT PERSONNEL

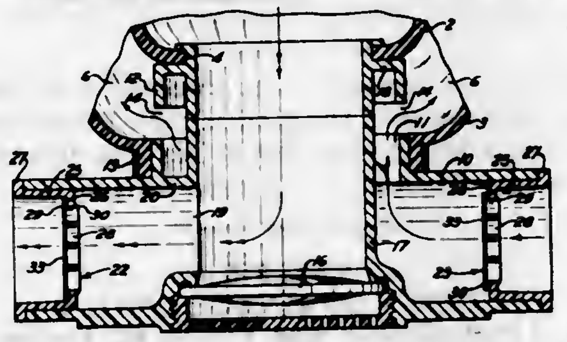
Abbott T. Kissen, 1727 Parkhill Drive, Dayton, Ohio 45406
Filed June 25, 1969, Ser. No. 843,901
Int. Cl. A62b *9/00*
U.S. Cl. 128—142 **5 Claims**



Each breath of the subject is monitored by a dry electrolyte oxygen partial pressure (pO_2) sensing cell having millisecond response characteristics. An electronic circuit responsive to the oxygen sensor counts breaths exhibiting maximal partial pressure of oxygen values below an electronically preset equivalent partial pressure of oxygen, and after a predetermined number of successive counts an alarm circuit is energized until the oxygen partial pressure rises above the predetermined level.

3,572,332
COMBINATION VALVE AND SPEAKING DIAPHRAGM UNIT

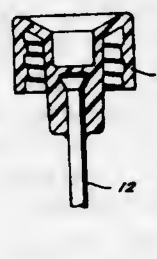
Layton A. Wise, Washington, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Apr. 29, 1969, Ser. No. 820,070
Int. Cl. A62b *7/00*
U.S. Cl. 128—142.4 **5 Claims**



A tubular member adapted to extend across the front of a breathing mask is provided in its front and back with central openings. The back opening is formed for connection to the inlet of the mask, but a speaking diaphragm is mounted in the front opening. An exhalation tube, the front end of which is connected to the tubular member around the front opening, extends through the back opening for connection to the outlet of a nose cup in the mask. Inhalation and exhalation valves are mounted in opposite ends of the tubular member, and the portion of the exhalation tube inside that member communicates only with the exhalation valve. Inhalation is through the space between the exhalation tube and the tubular member, while exhalation is through the exhalation tube.

3,572,333
OBTURATOR

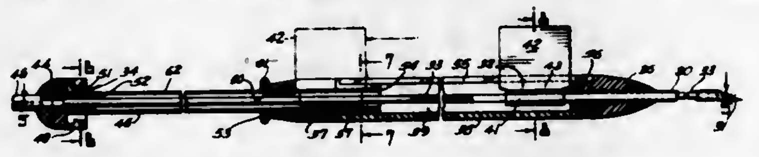
Franz H. Hubert, Carlstadt, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed Oct. 14, 1968, Ser. No. 767,331
Int. Cl. A61m *5/00, 25/00*
U.S. Cl. 128—214.4 **4 Claims**



A disposable plastic obturator which is adapted to occlude the entire bore of a catheter. The obturator includes an elongated stem having an enlarged head at one end which is encapsulated in a surrounding hub. The stem and hub are assembled by initially positioning the stem head against a shoulder in the bore of the hub, and then deforming an annular lip in the hub bore to overlie the top of the stem head.

3,572,334
INTRAVENOUS CATHETER PLACEMENT UNIT

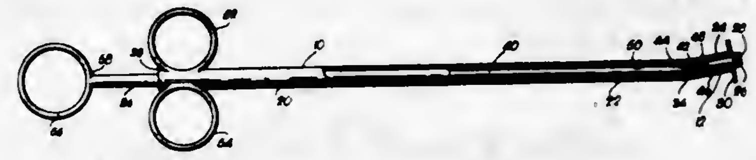
DeWitt R. Petterson, North Brunswick, N.J., assignor to Johnson & Johnson
Filed Nov. 27, 1968, Ser. No. 779,340
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **5 Claims**



An intravenous catheter placement unit wherein the catheter passes through a hollow pointed needle which is fully retractable into a housing which holds the needle and the needle point firmly in position longitudinally and laterally with respect to the catheter so that the catheter cannot move into injurious contact with the sharp edges of the needle point. The needle is inserted into the vein or other body cavity and retracted into the housing under the direct control of the same needle control means held by the operator. In its preferred form, the catheter is connected to catheter control means comprising an elongated catheter protector mounted to slide axially in the housing to control the advancement of the catheter through the needle. When the catheter is fully advanced and the needle is fully retracted, the catheter, needle and protector all are telescoped, one inside the other, within the housing and locked in position to provide a stable unit. No parts are removed and no extra parts are needed to operate and use the unit of this invention.

3,572,335
CERVICAL IMPLANT METHOD AND DEVICE

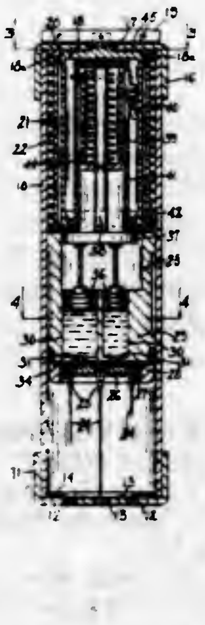
Ralph R. Robinson, P.O. Box 668, Middlesboro, Ky. 40965
Filed Jan. 10, 1969, Ser. No. 790,272
Int. Cl. A61m *5/00*
U.S. Cl. 128—217 **4 Claims**



A device having an elongated outer tube housing an inner tube which presents a sharpened end exteriorly of the outer tube adapted for penetrating the tissues of the uterus, there being a plunger extending into the opposite end of the outer tube for ejecting a pointed capsule containing a diffusible contraceptive ingredient into said tissues. Stop means are provided on the device for limiting the penetration of the inner tube into the uterus.

3,572,336
SYRINGE

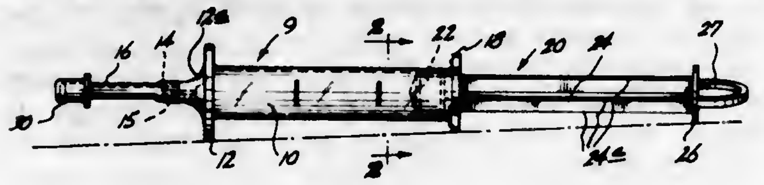
Daniel R. Hershberg, 72 Edgecomb St., Albany, N.Y. 12209
Filed Apr. 30, 1968, Ser. No. 725,369
Int. Cl. A61m *5/20*
U.S. Cl. 128—218 **21 Claims**



This invention is directed to an automatic syringe which includes a first spring biased subassembly for inserting a needle into a patient and also includes second spring biased subassembly for automatically injecting the fluid after the needle has been inserted.

3,572,337
SYRINGE FOR ORAL ADMINISTRATION OF MEDICINE

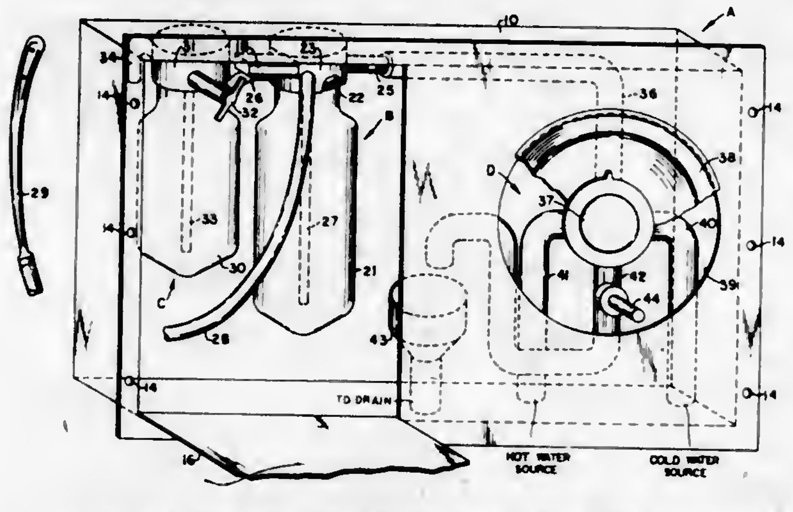
George J. Schunk, 3265 Azalea Drive S.,
Salem, Oreg. 97302
Filed Dec. 26, 1968, Ser. No. 786,923
Int. Cl. A61j *7/00*
U.S. Cl. 128—222 **7 Claims**



A syringe for the oral administration of medicine for infants and children including an elongated hollow barrel terminating at one end in a flexible tip for insertion into the mouth. A lip abutment skirt projecting radially from the barrel is adapted to fit against the child's lips and prevent them from passing over the barrel with the syringe in place. The tip, with the syringe in place, projects within the buccal pouch. Fexibility in the tip permits it to conform to the curvature of the inside of the cheek. The tip is not so long as to reach the trachea should the tip be improperly positioned over the tongue. A removable cap fits over the flexible tip, and the syringe when rested on a horizontal surface assumes a position inclining upwardly toward the tip.

3,572,338
MIXING AND DELIVERY APPARATUS

Leo E. Murray, Jr., 2035 Main St.,
Fortuna, Calif. 95540
Filed Feb. 27, 1968, Ser. No. 708,654
Int. Cl. A61m *3/00*
U.S. Cl. 128—229 **5 Claims**

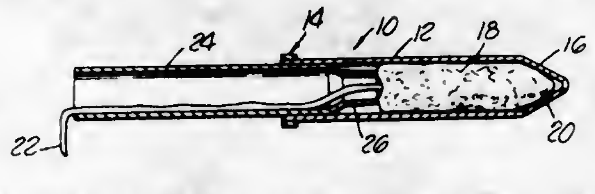


A mixing and delivery apparatus including a chamber for mixing fluids, at least one of which is being introduced under pressure. Syphon means are provided in fluid communication with the chamber to deliver fluid overflowing therefrom. Means are also provided to allow for the automatic emptying of the chamber upon termination of pressurized fluid introduction.

3,572,339
REINFORCED HYGIENIC MEDIUM APPLICATOR TUBES

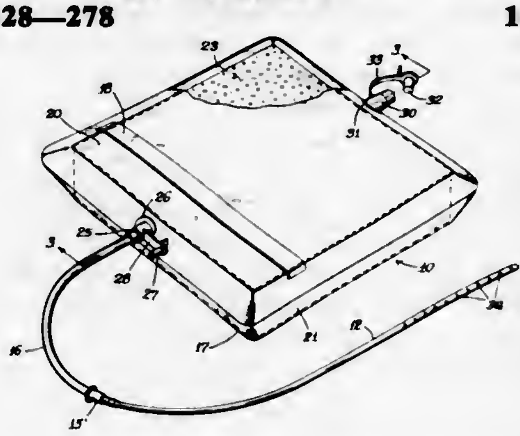
Joseph A. Voss, 1223 Race St., Apt. 902, Denver, Colo. 80206, and Carl W. Johnson, Neenah, Wis.; said Johnson assignor to said Voss
Filed May 10, 1968, Ser. No. 728,290
Int. Cl. A61m *7/00*
U.S. Cl. 128—260 **9 Claims**

A tubular, hygienic medium applicator device including a thin-walled, ring-reinforced external tube. The reinforcing ring is a laminated structure composed of five concentric plies including three plies of paper surrounding a ply of electrically conductive foil coated on its inner surface with a ply of thermoplastic resin material. In the fabrication of the reinforced tube, the ring is telescoped over the exterior surface of the external tube flush with the rear edge thereof. The ring is then bonded in place by inductively heating the foil to heat the thermoplastic resin and fuse the resin to the tube surface.



3,572,340
SUCTION DRAINAGE DEVICE

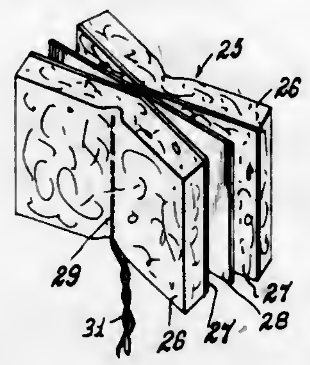
John K. Lloyd, Skokie, and Phillip H. Darling, Lake Zurich, Ill., assignors to The Kendall Company, Boston, Mass.
Filed Jan. 11, 1968, Ser. No. 697,074
Int. Cl. A61m *1/00*
U.S. Cl. 128—278 **16 Claims**



A portable, disposable, sterile suction drainage device for extraction and collection of body fluids from wounds. The device includes a fluid-collecting pump unit attachable to the patient's body and comprising a resiliently compressible open-cell foam pad encased within a collapsible container, to which is connected suitable tubing for insertion into a body wound. The pump unit is activated by manually squeezing the container to compress the foam pad and collapse the container, and then releasing the container so as to permit the resilient force of the foam pad against the container walls to expand the container, thereby creating suction within the container which draws the body fluids from the wound through the tubing into the container.

3,572,341
CATAMENIAL TAMPON

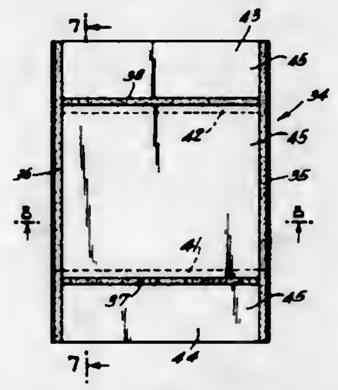
Jacob A. Glassman, 1680 Meridian Ave.,
Miami Beach, Fla. 33160
Filed Feb. 20, 1969, Ser. No. 800,983
Int. Cl. A61f *13/20*
U.S. Cl. 128—285 **2 Claims**



An externally waterproofed catamenial tampon comprised of a laminated structure which is highly compressed in its tail portion so as to resist free flow of waste fluids and including deodorant impregnated interleaves.

3,572,342
DIAPER

Julius Lindquist, Somerville, and Robert J. Trewella, North Brunswick, N.J., assignors to Johnson & Johnson
Filed Jan. 19, 1968, Ser. No. 699,097
Int. Cl. A61f *13/15*
U.S. Cl. 128—287 **5 Claims**



Diapers are prepared in which a seal is provided between the surface of the diaper and the body of the infant wearing the same to prevent leakage between the diaper and the infant. The seal is formed of resilient hydrophobic polymer foam which is secured to the upper surface of the diaper. By placing hydrophobic resilient strips along each side of the diaper on the surface which is adjacent the child when the diaper is in place leakage from the edge of the diaper is controlled.

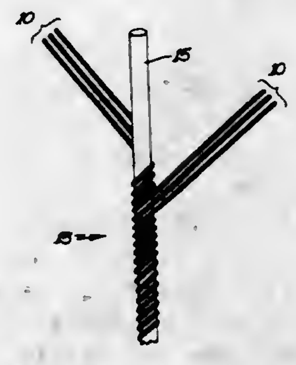
3,572,343
SUTURE WITH WOUND HEALING FILAMENT

Winfred Hirsch, Plainview, N.Y., assignor to Edward Weck & Company, Inc., Long Island City, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 531,768, Mar. 4, 1966. This application June 19, 1968, Ser. No. 738,098
Int. Cl. A61l *17/00*
U.S. Cl. 128—335.5 **14 Claims**

A suture and ligature material useful in accelerating the healing of wounds comprising twisted or braided filaments (a) of pure aluminum and stainless steel or (b) of pure magnesium and stainless steel filaments.

3,572,344
ELECTRODE APPARATUS WITH LEAD CONSTRUCTION

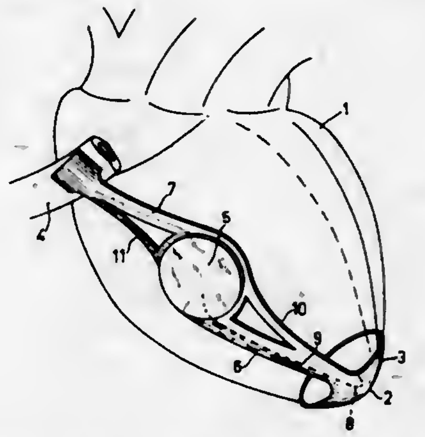
Lee R. Bolduc, St. Louis Park, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Dec. 31, 1968, Ser. No. 788,197
Int. Cl. A61n *1/04*
U.S. Cl. 128—418 **8 Claims**



Electrode apparatus for implantation in the body and having at least one electrode at one end, and at least one electrical conductor at the other end for connection to a source of electrical signal. The electrode and conductor are interconnected by a flexible electrical conductor lead that has a nonconductive core around which are wrapped a plurality of conductor strands. Each strand comprises an electrical conductor strip wrapped around a separate non-conductive core. The strands and strips are helically wound around their respective core, and the windings are spaced one from the other.

3,572,345
STRAP FOR A HEART STIMULATOR

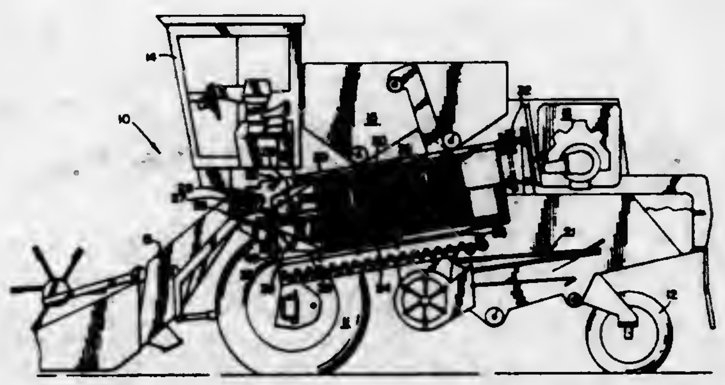
Michel Joseph Auphan, Neuilly, France, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 27, 1969, Ser. No. 794,065
Claims priority, application France, Feb. 28, 1968, 141,591
Int. Cl. A61h *31/00;* **A61n** *1/36*
U.S. Cl. 128—418 **3 Claims**



A supporting strap of a synthetic resin for fastening an oscillating heart stimulator in the human body, said strap surrounding the stimulator and being provided with prolongations, which are divided and extend in opposite directions, each pair of prolongations having their free ends interconnected for being fastened to a stationary organ and an organ moving rhythmically with the heart-beat respectively.

3,572,346
END FEED ARRANGEMENT

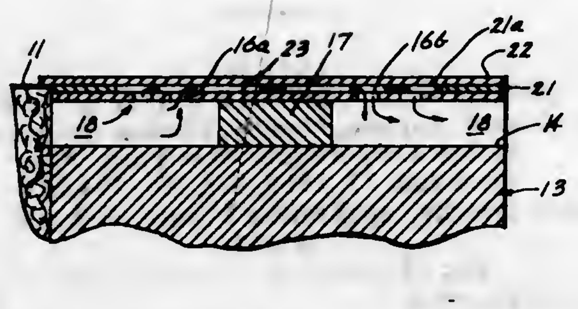
William H. Knapp, Davenport, Iowa, and Caroll Q. Gochanour, Moline, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Oct. 8, 1969, Ser. No. 864,847
Int. Cl. A01f *12/18*
U.S. Cl. 130—27 **9 Claims**



A threshing machine having an elongated threshing cylinder through which crops are axially fed. A rotor mounted within the threshing cylinder having impeller blades at the grain entry end. The impeller blades having a flat planar portion, a scoop portion including a swept back leading edge, and detachable wear members. A horizontal feed plate located at the grain entry end of the threshing cylinder at an elevation corresponding to the swept back leading edge of the impeller blades.

3,572,347
TOBACCO SMOKE FILTER

Joseph H. Sherrill, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed June 30, 1969, Ser. No. 837,668
Int. Cl. A24d *1/04;* **A24f** *13/06, 1/16*
U.S. Cl. 131—10.5 **5 Claims**



A filter for a cigarette is provided which includes an elongated core piece having an elongated flute formed in the exterior thereof and a first web of sheet material provided with a perforation. The first web encompasses the core piece so that the perforation is aligned and in communication with a first passageway formed by the flute. The encompassing first web carries a plastic mass which is disposed adjacent the perforation and fills a portion of the flute so as to form a smoke barrier in the first passageway. A second web of sheet material is provided which encompasses the first web; corresponding portions of the webs are disposed in spaced relation and form a second passageway. The smoke upon circulating successively through the passageways is caused to pass through the perforation at a high velocity and impinge upon a surface forming the succeeding passageway.

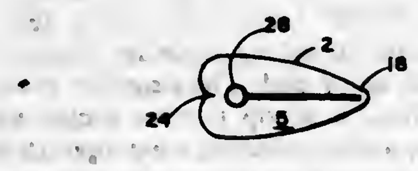
3,572,348
TOBACCO COMPOSITION

Vello Norman, Chapel Hill, and Thomas Blair William, Andrew George Kallianos, and James Davis Mold, Durham, N.C., assignors to Liggett & Myers Incorporated, New York, N.Y.
No Drawing. Filed Aug. 1, 1968, Ser. No. 749,324
Int. Cl. A24b *15/02*
U.S. Cl. 131—17 **12 Claims**

A smoking preparation comprising tobacco and a zeolite material which effects a decrease in the amounts of polycyclic aromatic compounds produced from the pyrolytic reactions of tobacco, the zeolite material being of the Y-type structure, preferably at least partially exchanged with zinc ions or containing metallic palladium, or at least partially exchanged with zinc ions and containing metallic palladium, or is partially polyvalent zinc cation exchanged and partially decationized and contains metallic palladium.

3,572,349
COSMETIC APPLICATOR AND REMOVER

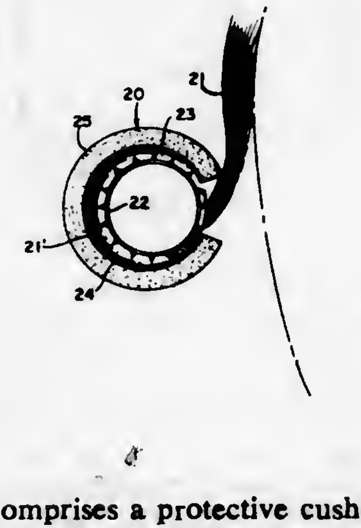
John Whittier Slemmons, 19142 Glen Albyn, Orange, Calif. 92667
Continuation of application Ser. No. 587,060, Oct. 17, 1966. This application May 23, 1969, Ser. No. 830,201
Int. Cl. A45d *40/26*
U.S. Cl. 132—88.7 **11 Claims**



The application discloses a pad of material for applying cosmetic substances to the facial area, particularly around the eyes and for removing the cosmetics. The pad is capable of being divided into two portions so that eyelashes can be gripped between the portions for the effective removal of eyelash cosmetics.

3,572,350
HAIR CURLER PROTECTIVE DEVICE

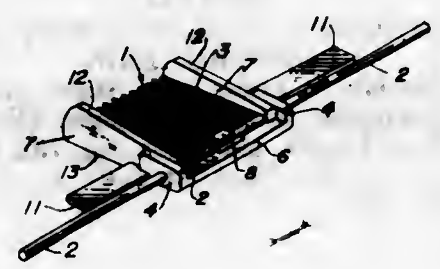
Gail A. Adams and Paul B. Adams, both of 316 Cornell, Grand Forks, N. Dak. 58201
Filed Jan. 6, 1969, Ser. No. 789,325
Int. Cl. A45d *2/02*
U.S. Cl. 132—39 **2 Claims**



The invention comprises a protective cushioning device for a hair curler, said device having a resilient C-shaped inner sleeve and a C-shaped spongeous outer sleeve attached thereto, said device being adapted to be slipped over the curler when the curler is wound onto a person's hair to provide a protective cushion between the operator's head and the curler when the operator's head is resting upon a pillow.

3,572,351
CONTROLLED COMB FOR HAIR CUTTING

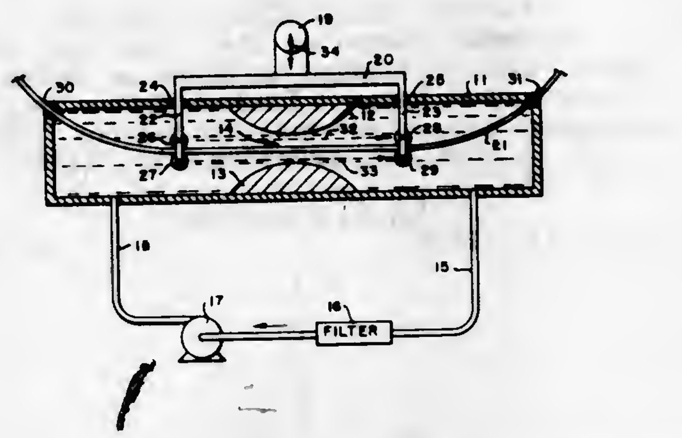
Mayne A. Perry, 629 Elizabeth St., San Francisco, Calif. 94114
Filed Mar. 5, 1969, Ser. No. 804,393
Int. Cl. A45d *24/36*
U.S. Cl. 132—45 **6 Claims**



The comb controls the length of haircut so as to cut the hair to uniform length at a gradual taper. The comb is fixed on a pin or bar which is journalled in a frame. The frame has parallel sides along each end of the comb parallel with the tines of the comb, and a cross-connecting member adjacent the bar. The top edges of the sides are inclined according to the desired taper of haircutting. An abutment tongue on the bar is extended so as to abut against the adjacent cross-member of the frame and to hold the comb raised at the level of the top edges of the sides. Ears extended from the sides of the parallel frame members are finger rests when the bar is manipulated for holding the frame against the head.

3,572,352
SONIC CAVITATIONAL APPARATUS FOR CLEANING STRIPS OF MATERIAL

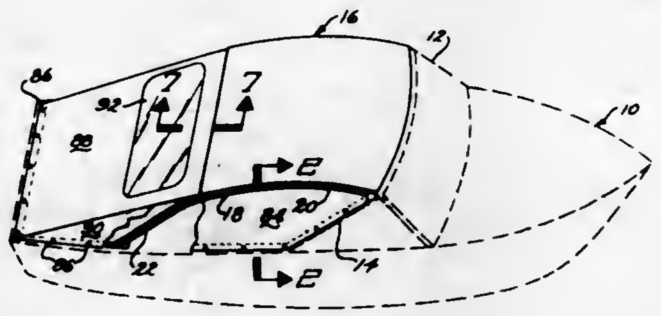
Dirk C. A. Koopman, La Jolla, Calif., assignor to Shell Oil Company, New York, N.Y.
Filed Oct. 24, 1968, Ser. No. 770,173
Int. Cl. B08b *3/10*
U.S. Cl. 134—122 **2 Claims**



A vessel is provided with a restricted passageway therein through which strips of material and cleaning fluid are simultaneously passed as resonant vibrations are applied to the strip of material.

3,572,353
CONVERTIBLE TOPS FOR BOATS

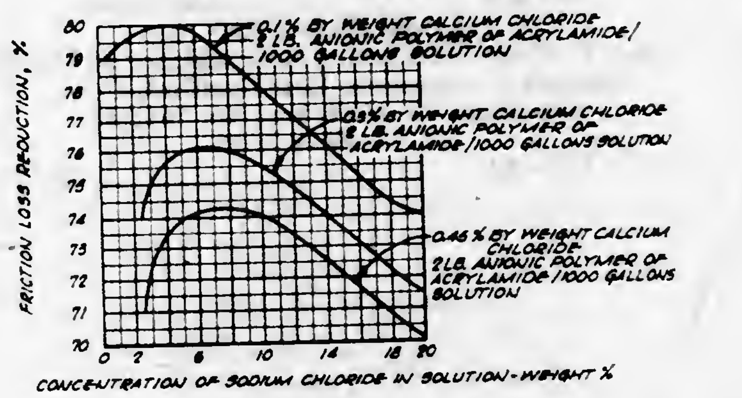
Howard H. Pinkley, 5725 Edgewater Drive Toledo, Ohio 43613
Filed Apr. 1, 1969, Ser. No. 811,966
Int. Cl. B63b *17/02, 19/00*
U.S. Cl. 135—6 **18 Claims**



A convertible top for boats and the like having a deck or support structure surrounding a passenger compartment and preceded by a windshield. Removable side rails extend from the top side edge of the windshield over the passenger seating area, and then downwardly to the deck. A cross bar extends between the rear of the front generally horizontal portion of the side rails. Sheet material extends between the side rails, with the front end thereof secured to the windshield, and the rear end thereof secured to the cross bar. The sheet material can be slid rearwardly and gathered adjacent the cross bar, or in some instances, the cross bar and the sheet material is slid forwardly and gathered adjacent the windshield. In either case, the material is stored in an elevated position above the heads of seated passengers. The canopy may also include a second section of sheet material extending between the cross bar, and the rear of the passenger compartment. In one embodiment of the invention, the side rails can be slid downwardly and rearwardly from their normal elevated position to a position adjacent the deck to serve as hand rails.

3,572,354
METHOD OF REDUCING FRICTION LOSSES IN THE FLOW OF AQUEOUS FLUIDS

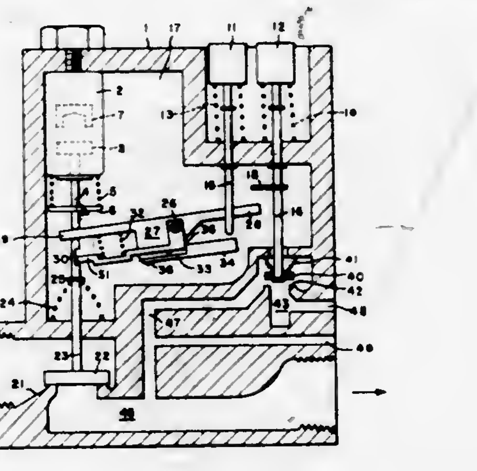
John M. Tinsley and William T. Malone, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Nov. 21, 1969, Ser. No. 878,794
Int. Cl. F17d *1/16*
U.S. Cl. 137—13 **10 Claims**



The present invention relates to an improved method of reducing friction losses in the flow of aqueous fluids containing alkaline-earth metal ions, such as the brines commonly used in fracturing oil, gas and water well formations. By the present invention quantities of a monovalent alkali metal salt and an anionic water soluble polymer of acrylamide are added to the aqueous fluid in particular amounts of each, and the resulting mixture is flowed through the conduit.

3,572,355
PUSHBUTTON OPERABLE GAS VALVE COMBINATION

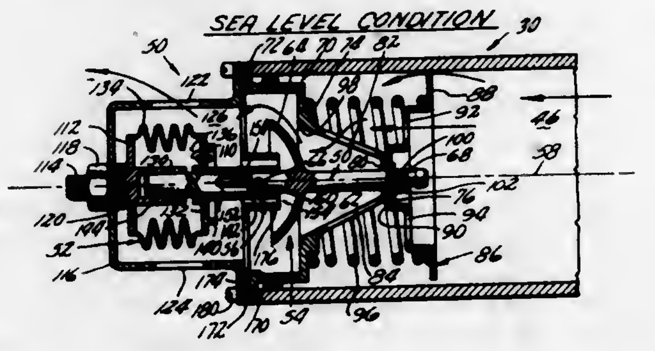
Nico Van der Linden, Emmen, Netherlands, assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 13, 1968, Ser. No. 783,679
Claims priority, application Germany, Mar. 30, 1968, P 17 78 129.2
Int. Cl. F23n *5/10*
U.S. Cl. 137—66 **9 Claims**



A safety gas valve of the type using a thermocouple, heated by a pilot burner, to energize a magnet that is adapted to hold a valve in its open position but is incapable of opening the valve. The valve is manually opened by a first plunger acting upon a pair of latch-together levers which operably engage the valve. A second manually operable plunger is arranged to unlatch the levers to permit the valve to be biased to its closed position. The parts are so arranged that the valve cannot again be moved to its open position until the magnet is deenergized. The safety valve controls gas flow not only to a main burner but to a pilot burner and a controller valve which, in turn, controls gas flow to a pressure operated valve in series with the safety valve. The first plunger operates an interrupter valve in series with the controller valve to prevent gas flow to the pressure operated valve during the resetting operation of the safety valve.

3,572,356
RELIEF VALVE WITH ALTITUDE COMPENSATION

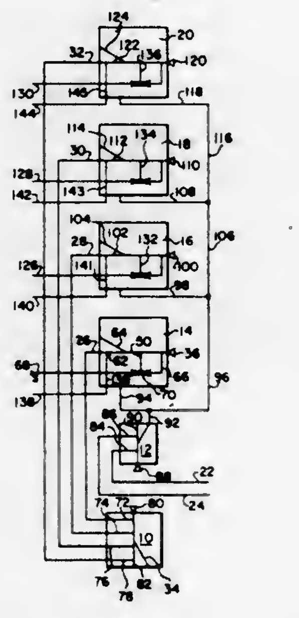
James C. Pinto, Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 23, 1968, Ser. No. 761,783
Int. Cl. F02c *7/06*
U.S. Cl. 137—81 **11 Claims**



A relief valve of the pressure responsive poppet type which is connected to an altitude responsive bellows so as to be held open by the collapsed bellows at sea level and so as to be divorced from the operation of the bellows and act as a true pressure responsive poppet valve independent of the bellows during altitude operation.

3,572,357
ENGINE MONITORING SYSTEM EMPLOYING FLUIDIC CIRCUITRY

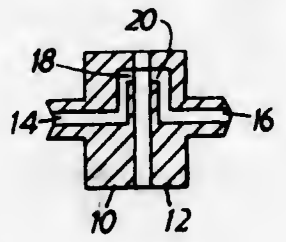
Daniel W. Philbrick, Phoenixville, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 10, 1968, Ser. No. 782,695
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 **10 Claims**



A monitoring system employing interconnected fluidic logic elements operatively associated with a plurality of pneumatic transmitters that sense the condition of safety parameters of a gas engine. Logic elements include a first and second fluidic amplifier and a series of fluidic sensors using the back pressure principle to selectively deflect a power stream between two output channels. The first amplifier combines the outputs of the series of sensors into a single output signal, while the second amplifier enables lock-out signals to be imposed on the circuit.

3,572,358
FLUIDIC FREQUENCY SENSORS

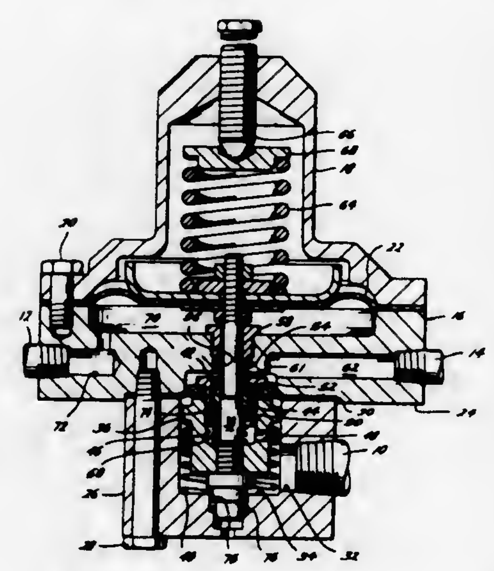
John Christopher Hammond Davis and Guy Edward Davies, Taplow, England, assignors to British Telecommunications Research Limited, Taplow, England
Continuation-in-part of application Ser. No. 774,924, Nov. 12, 1968. This application Feb. 17, 1969, Ser. No. 799,725
Int. Cl. F15c *4/00*
U.S. Cl. 137—81.5 **10 Claims**



Apparatus for determining the difference between the speeds of rotation of two bodies or between the frequencies of two pressure signals comprises means for producing a jet of fluid arranged to rotate in phase with one of the bodies or one of the pressure signals. Either a receiver or a second jet of fluid is arranged to rotate in phase with the other body or pressure signal. In the case of the rotating receiver, an output pulse is produced by the receiver when it is in alignment with the jet and this occurs once during each relative rotation period. In the case of the second rotating jet of fluid, the two jets are arranged to interact once during each rotation period and, when interacting, to direct a combined jet into a stationary collector which is so positioned that it cannot receive a signal from either jet alone.

3,572,359
PRESSURE RESPONSIVE VALVE

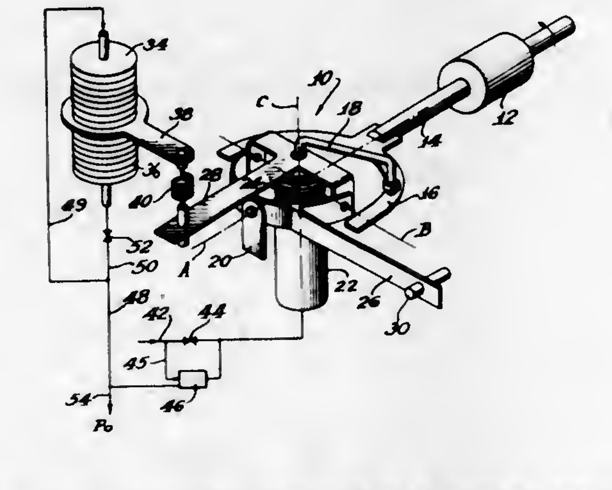
Irvin B. Weise, Bellaire, Tex., assignor to Anderson, Greenwood & Co., Bellaire, Tex.
Filed Aug. 5, 1968, Ser. No. 750,349
Int. Cl. F16k *31/12*
U.S. Cl. 137—85 **15 Claims**



An improved pilot valve having a discharge valve seat, a movable inlet valve seat which is connected to pressure responsive members, and a valve member adapted to engage both seats, wherein movement of the inlet valve seat affects the unseating of the valve member from only one of said valve seats at a time so that fluid flows through the pilot valve only when the controlled pressure between the valve seats is being changed. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,572,360
PNEUMATIC CONTROLLER

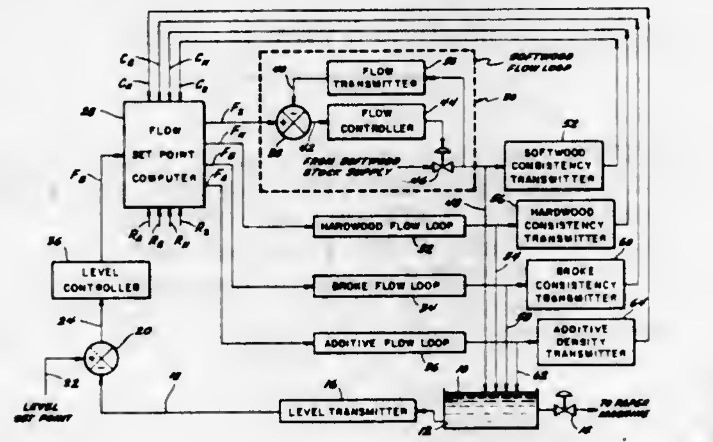
Sheldon G. Lloyd and Jerry B. Trottmann, Marshalltown, Iowa, assignors to Fisher Governor Company
Filed July 25, 1969, Ser. No. 845,023
Int. Cl. F15b *5/00;* **G05d** *16/00*
U.S. Cl. 137—86 **13 Claims**



A pneumatic controller comprising a gimbal assembly having first and second levers each pivotal about an axis. A flapper rotatable about the axis of the first lever cooperates with a nozzle rotatable adjustably about a third axis. The three axes are arranged substantially at right angles to one another.

3,572,361
APPARATUS FOR BLENDING STOCK FOR A PAPER MACHINE

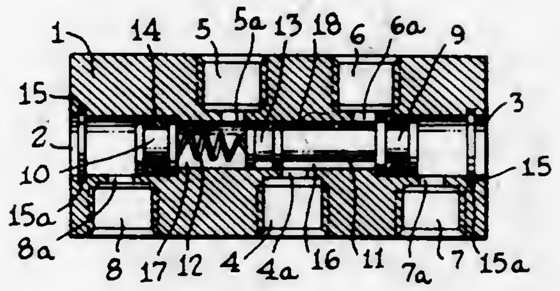
Robert J. Terhar and Ronald E. Knoerzer, Beloit, Wis., Marion A. Keyes, South Beloit, Ill., and Robert A. Beachler, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed Aug. 28, 1968, Ser. No. 755,904
Int. Cl. G05d *11/035*
U.S. Cl. 137—92 **5 Claims**



An apparatus in which a plurality of stock materials are blended to provide the furnish to a paper machine. A consistency measuring device for each stock material along with a level controller for the furnish blending tank provide signals to a computer which determines desired flow rates for the various stocks. Controllers then regulate the flow rate to the blending tank for each stock in response to the computed flow rate.

3,572,362
SELF-RECIPROCATING FOUR-WAY VALVE

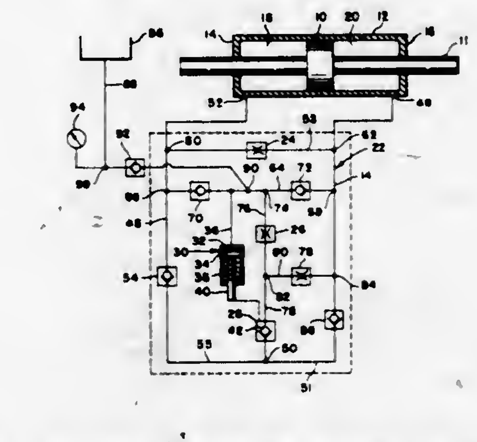
Richard S. Paulinkonis, 6660 Greenbriar Drive, Cleveland, Ohio 44130
Filed June 19, 1969, Ser. No. 834,774
Int. Cl. F15b *11/08, 13/042*
U.S. Cl. 137—102 **1 Claim**



A four-way valve accomplishes reciprocating action for a sequential cylinder feeding and exhaust by the working fluid supplied. The working fluid pressure exerts a force upon the surfaces of the internally moving parts of the valve, and facilitates their shift in a self-regulated fashion when force outbalance permits, and independent of external means. The moving parts within said valve proper comprise a sleeve of dual piston construction provided with seals and interconnected through an elastic link with a free floating piston, all responsive to the pressure affect of the working fluid, and instrumental in the sequential return of the moving parts to the original position, facilitating a self-reciprocating action of the four-way valve, subject to the present invention.

3,572,363
FLUID FLOW CONTROL DEVICE

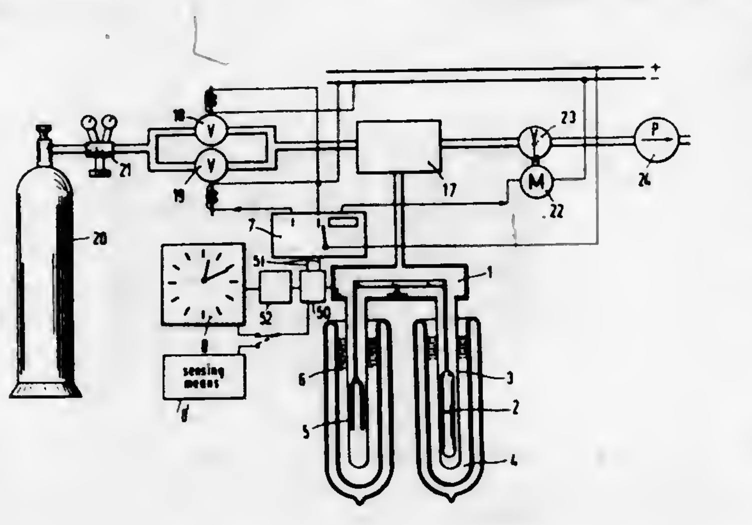
Donald E. Roach, Port Huron, Mich., assignor to McDowell-Wellman Engineering Company, Cleveland, Ohio
Filed Apr. 25, 1969, Ser. No. 819,183
Int. Cl. F16d *57/00*
U.S. Cl. 137—109 **18 Claims**



There is provided a fluid flow control device which is particularly useful in hydraulic shock absorber or damping devices and characterized by a circuit attachable to a system where fluid moves under pressure in either of two directions. This circuit includes a pair of constrictions of considerably different resistance to fluid flow in parallel with each other. By-pass means are provided in conjunction with one constriction which functions to render the other constriction inoperative when predetermined pressure conditions exist.

3,572,364
APPARATUS FOR THE MEASUREMENT, AUTOMATIC CONTROL AND PROGRAM CONTROL OF THE GAS PRESSURE IN A RECEIVER

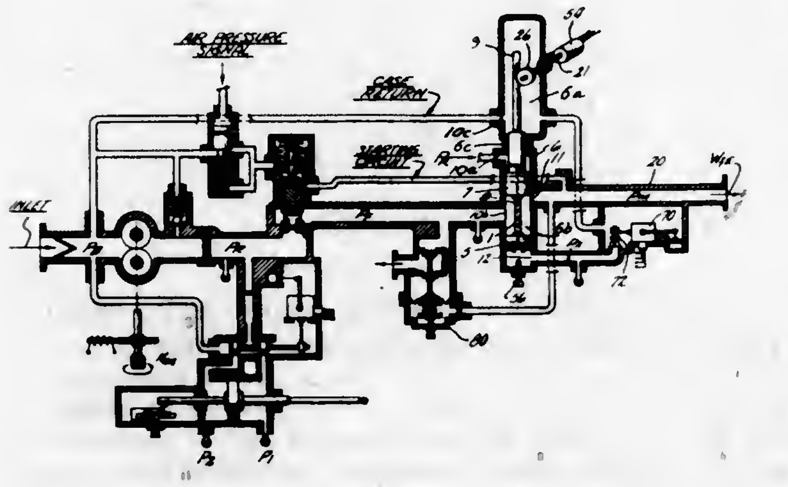
Erich Robens and Gerd Sandstede, Frankfurt am Main, and Reinhard Theodor Gast, Berlin, Germany, assignors to Sartorius Werke G.m.b.H., Gottingen, Germany
Filed Apr. 11, 1968, Ser. No. 720,734
Claims priority, application Germany, Apr. 12, 1967, S 109,298; Apr. 13, 1967, S 109,306
Int. Cl. G05d *11/00;* **G01l** *7/00*
U.S. Cl. 137—110 **12 Claims**



An electronic vacuum microbalance system comprises a lift-producing member which is responsive to the gas pressure in a gas receiver and a pressure-setting stepping mechanism to control the capacity of said microbalance system. A pulse generator is connected to said stepping mechanism and operable to initiate stepping movements of said mechanism. A control system establishes and maintains in the receiver a pressure which corresponds to the setting of said stepping mechanism and includes gas valve means adapted to control the gas pressure in said receiver and an electric controller operatively connected to the microbalance system and to the gas valve means and adapted to control the gas valve means in response to the output of the microbalance system.

3,572,365
MAIN FUEL METERING VALVE

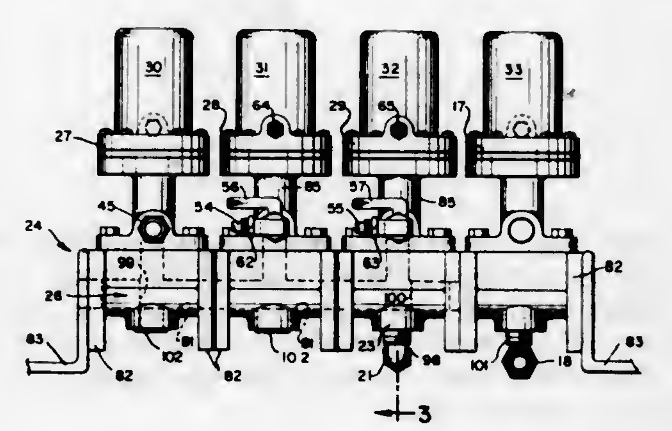
Albert H. White, Wethersfield, Conn., assignor to Chandler Evans, Inc., West Hartford, Conn.
Filed May 19, 1969, Ser. No. 825,548
Int. Cl. F16k *31/42*
U.S. Cl. 137—117 **6 Claims**



A main metering valve for a fuel system having a spool including first and second spaced lands slideably mounted in a housing. A bore, containing a restriction, passes through the spool and the lands to communicate fuel, of a regulated pressure, adjacent the outboard face of the first land, to the outboard face of the second land. The pressure of the communicated fuel adjacent the outboard face of the second land is controlled by a torque motor. An inlet port, located intermediate the lands, admits fuel from a segment of a main fuel supply line which flows outwardly from an outlet port adapted to be partially covered by the first land. A feedback potentiometer sends a signal which is compared with an input command signal for generating an error signal to the torque motor. A constant differential pressure is maintained between the inlet and outlet ports so that fuel flow is a function of spool position.

3,572,366
CONTROL VALVES FOR SUPPLYING PAINT IN PAINT SPRAY INSTALLATIONS

Richard F. Wiggins, Fairfield, Conn., assignor to The Gyromat Corporation, Stratfield, Conn.
Continuation-in-part of application Ser. No. 440,736, Mar. 18, 1965. This application Oct. 20, 1967, Ser. No. 676,824
Int. Cl. F16k *51/00*
U.S. Cl. 137—240 **3 Claims**

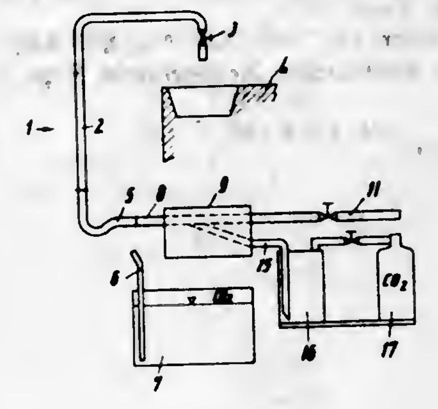


This invention is concerned with control valves for supplying paint to paint spray installations utilizing a plurality of different color paints. The control valve may be adapted to various systems by utilizing a disclosed flow housing which forms an elongated flow passageway when a number of valves are assembled. The control valve may also be adapted to recirculate paint during periods of valve inactivity to prevent clogging due to the solidification of stagnant paint. The control valve of the invention includes structural innovations, such as manual means for activating a disabled valve. The invention is also directed to a system for automatically purging the installation when the paint supply to a valve is cut off.

3,572,367
DEVICE AND PROCESS FOR PURIFYING OR RACKING APPARATUS FOR LIQUIDS, ESPECIALLY OF TAPPING EQUIPMENT

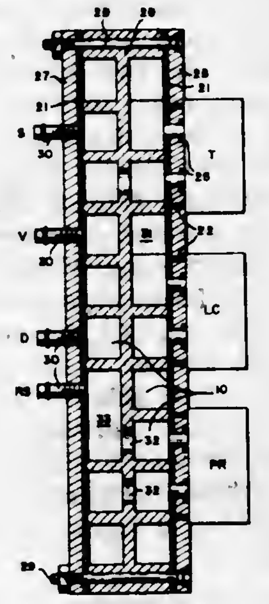
Walter Reich, 13 Auf'm Schif, D 5122 Kohlscheid, Germany
Filed Aug. 26, 1968, Ser. No. 755,358
Claims priority, application Germany, Aug. 26, 1967, P 16 07 988.2
Int. Cl. F16k *19/00*
U.S. Cl. 137—240 **8 Claims**

There is disclosed a method of purifying and flushing a beverage dispensing tap line involving alternately connecting the line with the beverage source or a purifier and flushing line connection, and when so connected with the last mentioned line controlling it to deliver into the tap line a purifying medium through an aspirating action, or by gas pressure action, followed by a cutting off of purifier introduction and resorting solely to a flushing action. Several embodiments of devices for practicing this method are disclosed.



3,572,368
PNEUMATIC CONTROL SYSTEM MANIFOLD MEANS

Frank A. Bullmer, Des Plaines, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Sept. 2, 1969, Ser. No. 854,389
Int. Cl. F15c *1/06*
U.S. Cl. 137—269 **8 Claims**

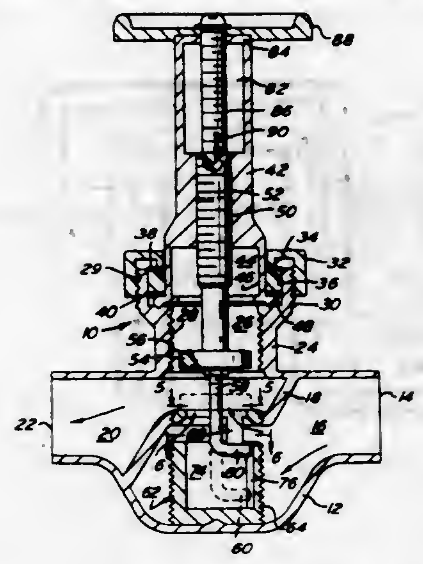


A pneumatic control system manifold assembly for the mounting and interconnecting of pneumatic control devices comprising a waffle-like grid, gaskets, a top plate, a bottom plate and connectors. The grid has on either face a full pattern of hollow cells separated by thin walls which may be removed to provide passageways for both lateral and vertical fluid flow. The cells on either side of the grid are sealed by gaskets which are disposed between the grid and the top and bottom plates thus providing a simple, inexpensive and highly flexible means for the mounting and interconnection of pneumatic control devices eliminating the need for external tubing connections between the devices.

3,572,369
REMOVABLE SEAT ENGAGING ELEMENT

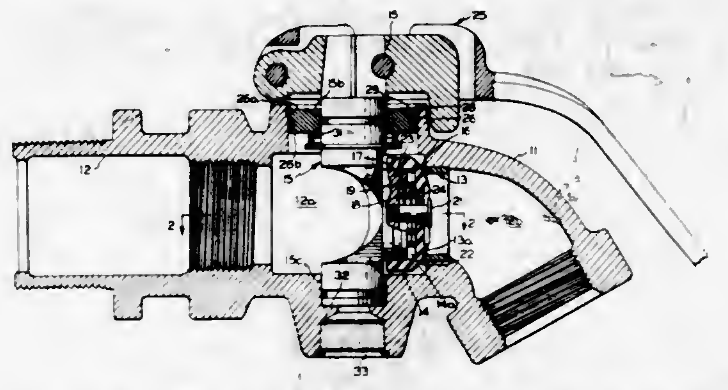
William C. Kaufman, 35 Moredon Road, Philadelphia, Pa. 19115
Filed Feb. 7, 1969, Ser. No. 797,474
Int. Cl. F16k *1/44, 43/00*
U.S. Cl. 137—315 **10 Claims**

A valve is disclosed which permits a sealing element on a flow control member, such as a washer, to be removed for repair or replacement while allowing flow between the inlet and outlet chambers of the valve, thereby preventing the necessity of shutting off flow during such replacement.



3,572,370
BALL TYPE VALVE

Thomas H. Engle, Cape Vincent, N.Y., assignor to General Signal Corporation
Filed Oct. 16, 1969, Ser. No. 866,966
Int. Cl. F16k *5/20*
U.S. Cl. 137—315 **8 Claims**



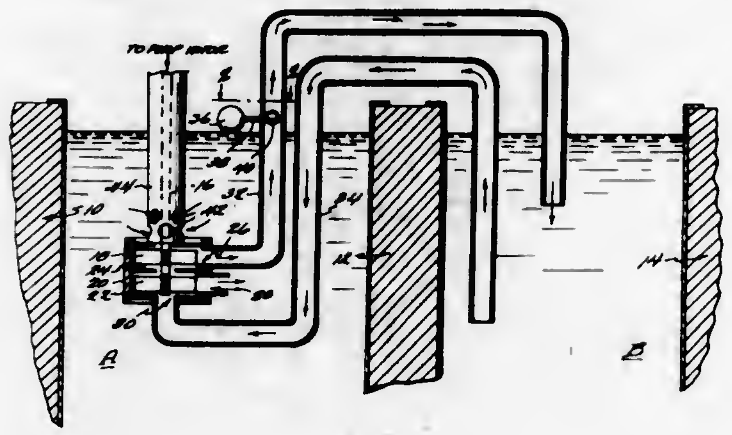
Ball type valve particularly suited for use as an angle cock in railway air brake systems. The valve is characterized in that the spherical head:

(a) is the deformable valving element subject to wear and can be replaced easily without using special tools or requiring removal of the valve from the line;
(b) is uniformly compressed around the zone of contact with the seat in the closed position;
(c) may be balanced with respect to the pressures at both sides of the seat; and
(d) translates along its own centerline and pivots about an axis eccentric to the center of the seat so that it rotates on the seat for an initial phase of its opening movement and separates from the seat during the final phase of such movement.

3,572,371
TEMPERATURE CONTROL SYSTEM FOR A LIQUID BATH

Richard L. Bergen, Marietta, Ohio, assignor to Forma Scientific, Inc., Marietta, Ohio
Filed Jan. 6, 1969, Ser. No. 789,231
Int. Cl. F16k *33/00;* **F28d** *7/00*
U.S. Cl. 137—398 **14 Claims**

An arrangement for precisely controlling the temperature of a bath. A heat exchanger tank is positioned adjacent the bath. A double pump is immersed in temperature-controlled liquid within the tank. One pump is of the suction type, and the other is a pressure pump. An open-ended conduit extends from each of the pumps into the bath such that as the pumps are driven, liquid circulates between the tank and the bath. A level control device in the tank maintains its volume constant. In this manner the temperature of the liquid in both the tank and the bath is controlled.



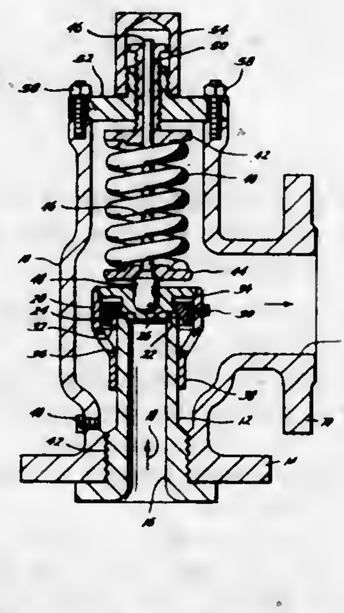
3,572,372
ADJUSTABLE SAFETY RELIEF VALVE

Richard S. Moore, Houston, Tex., assignor to Sage Fabricating, Inc., doing business as Sage Engineering and Valve Company, Houston, Tex.

Continuation-in-part of application Ser. No. 820,387, Apr. 30, 1969. This application July 14, 1969, Ser. No. 841,509

Int. Cl. F16k *17/04*

U.S. Cl. 137—477 **18 Claims**



An improved safety relief valve of the type having a housing defining an enclosure for the valve; a cylindrical orifice member secured at one end to and within the housing for fluid communication with a vessel the pressure of which is to be regulated, said orifice member having an axial bore for flow of fluid therethrough; a disk coaxial with the orifice member for normal sealing engagement therewith; a perforated sleeve secured to the disk for guiding the disk about the orifice member; and spring means operatively associated with the disk to maintain it in normal sealing relation with the orifice member but yieldable to unseat the disk upon exposure of the disk to a predetermined pressure from the vessel.

3,572,373
PRESSURE-REGULATING VALVE

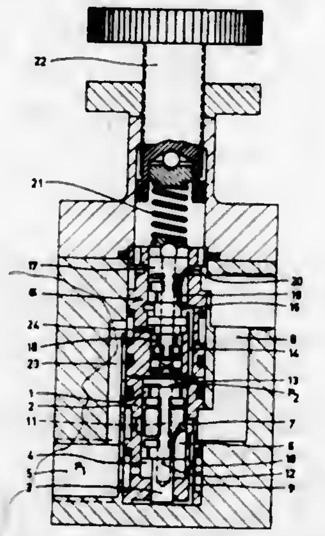
Hillebrand Johannes Josephus Kraakman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,446

Claims priority, application Netherlands, Sept. 18, 1968, 6813311

Int. Cl. F16k *17/10*

U.S. Cl. 137—491 **2 Claims**



A pressure-regulating valve for a hydraulic medium in which a valve body is axially movable in a cylinder. Fluid is active on the front side of the valve body and fluid having an adjustable control pressure is active on the rear side of the valve. The fluid on the front side is the medium to be regulated. The two sides of the valve body communicate with each other through a restriction. The outer circumference of the valve body comprises at least one adjustable outlet port for the fluid with the pressure to be regulated. The front side of the regulating valve communicates with an annular chamber which is formed in a spring-loaded control valve which comprises at least two valve parts movable in a cylinder and having different outside diameters. One wall of the annular chamber is formed by an annular surface of the valve part situated at right angles to the center line of the valve and having the larger outside diameter, said valve part comprising a further annular chamber which communicates through a duct with the space behind the regulating valve. The outer circumference of said valve has at least one outlet port of a controllable size.

3,572,374
PRESSURE-REGULATING VALVE

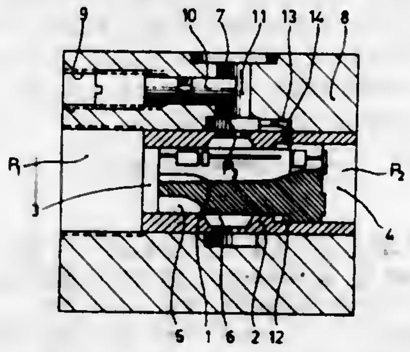
Hillebrand Johannes Josephus Kraakman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,424

Claims priority, application Netherlands, Sept. 18, 1968, 6813308

Int. Cl. G05d *16/00*

U.S. Cl. 137—494 **5 Claims**



The invention relates to a pressure-regulating valve to adjust at a desirable value a pressure of a hydraulic medium to be regulated, said valve comprising a valve body,

which is axially movable in a cylinder, the space in the cylinder on the front side of the valve body communicating with the hydraulic medium the pressure of which is to be regulated, and a control force of an adjustable value acting upon the rear side of the valve body.

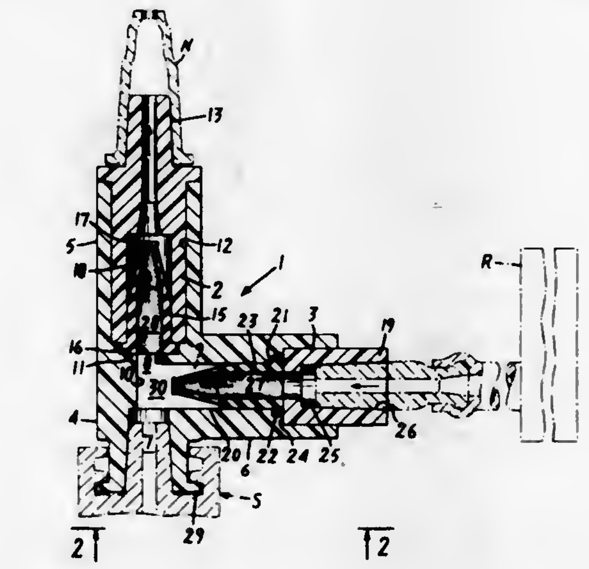
3,572,375
TWIN VALVE T-CONNECTOR

David Rosenberg, 12 Francis Court, Glen Cove, N.Y. 11542

Continuation-in-part of application Ser. No. 643,083, June 2, 1967. This application Mar. 5, 1968, Ser. No. 710,609

Int. Cl. F16k *15/14*

U.S. Cl. 137—512 **17 Claims**



A twin valve T-connector is provided, for use with syringes and like injecting devices for use in the administration of medicaments, to supply or withdraw fluids in a volume greater than the capacity of the syringe.

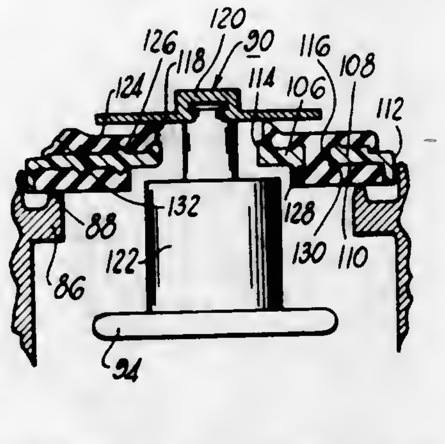
3,572,376
POPPET VALVE

Gunther Pfeifer, Elyria, Ohio, and Richard H. Rosback, South Bend, Ind., assignors to The Bendix Corporation

Filed July 31, 1968, Ser. No. 749,093

Int. Cl. F16k *15/18, 17/04*

U.S. Cl. 137—512.2 **5 Claims**



A poppet valve for a servomotor in a power braking system. The valve stem of the poppet valve has a small diameter which loosely extends through an opening in the housing connecting the control chamber with the atmospheric chamber. A disc-shaped reinforced member has a central opening loosely surrounding the valve stem. A peripheral skirt encloses a rubber material attached to the inner and outer surfaces of the reinforcing member. A cap member attached to the valve stem permits a spring operatively connected to a flange section of the stem to seat the cap member on the reinforcing member while the reinforcing member is seated on the opening in the housing. Upon application and release of the brakes, the valve stem will correspondingly move the reinforcing member with the rubber-like surfaces away from the openings to permit communication of atmospheric pressure to the control chamber where a conduit carries this pressure to a power chamber which operates the servomotor. After the reinforcing member has been unseated, the peripheral skirt will provide a bearing surface to guide the inner surface into seating alignment with the opening in the housing while the central opening in the reinforcing member will permit lateral movement with respect to the valve stem to assure seating of the cap member.

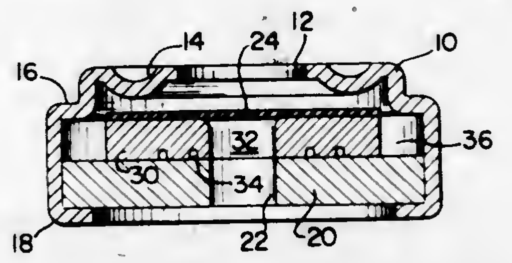
3,572,377
CHECK VALVE WITH RESTRICTED BYPASS FLOW

Marvin M. Graham, San Pedro, and Lauren D. Haskins, Long Beach, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Original application June 6, 1968, Ser. No. 734,926. Divided and this application Mar. 12, 1970, Ser. No. 18,860

Int. Cl. F16k *15/02*

U.S. Cl. 137—513.7 **8 Claims**



A fluid flow check valve including a casing having a flow aperture on each end, a floating valve member preventing a free fluid flow in one direction through one end and permitting a free fluid flow through the other end; a restricted fluid flow bypasses the valve member to permit a restricted flow when the valve member is in its flow preventing position.

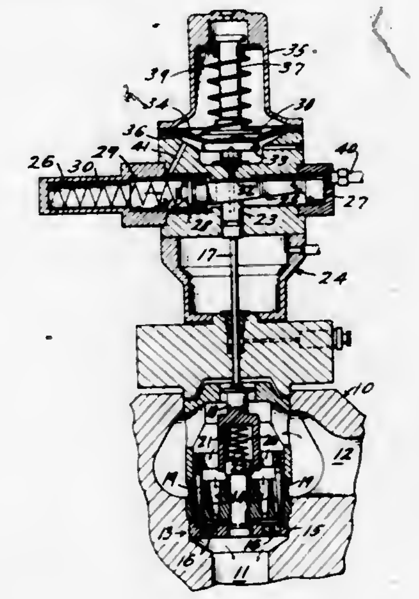
3,572,378
COMPRESSOR VALVE UNLOADING DEVICE

William F. Hartwick, Mount Vernon, and Scott C. Mickle, Fredericktown, Ohio, assignors to Cooper Industries, Inc., Mount Vernon, Ohio

Filed Jan. 5, 1970, Ser. No. 644

Int. Cl. F16k *31/524*

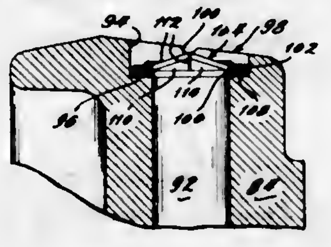
U.S. Cl. 137—523 **9 Claims**



A suction valve unloader for reciprocating compressors to selectively hold open the suction valves to unload the compressor. The device includes an unloader pin mechanically biased to force open and hold the suction valve and a mechanically biased wedge for locking the pin in this position to resist fluid forces against the valve held in open position. Control air pressure is used to move the wedge to unlocked position and to raise the unloader pin so that the valves may resume normal operation. In a preferred embodiment, failure of the control air pressure will cause the unloader pin to assume its locked position to unload the compressor.

3,572,379
BEARING VENT CONSTRUCTION AND PROCESS OF MANUFACTURING THE SAME

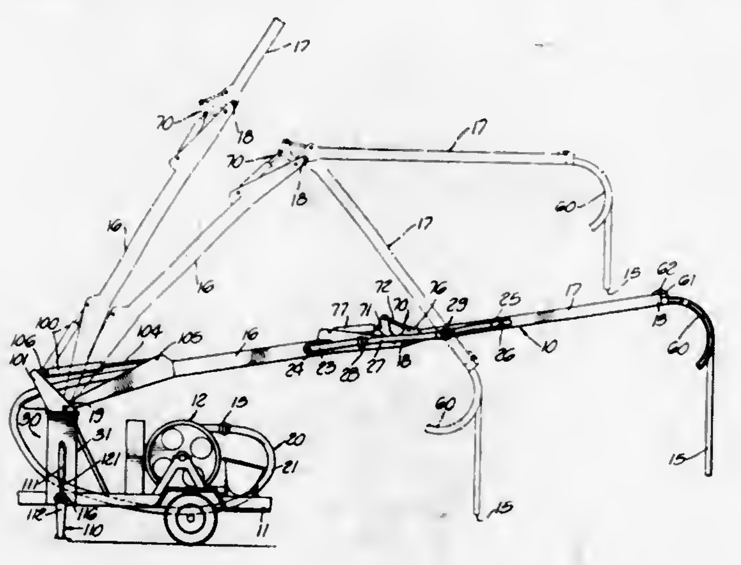
Emil J. Popa and Dennis Lee Otto, Canton, Ohio, assignors to The Timken Company, Canton, Ohio
Continuation-in-part of application Ser. No. 592,612, Nov. 7, 1966. This application Feb. 19, 1969, Ser. No. 814,872
Int. Cl. F16k *15/00;* **F16c** *33/78*
U.S. Cl. 137—525.1 **15 Claims**



A railway car bearing vent formed from a moldable elastomeric material and having a membrane through which a hot knife is passed to form slits therein. The hot knife overcures the material in contact with it so that the edges of the slits will not rebond during operation. Thus, pressure changes in the bearing during and after operation are relieved without allowing the entry of foreign matter into the bearing or without interfering with proper lubrication of the bearing assembly.

3,572,380
CONCRETE PUMP BOOM

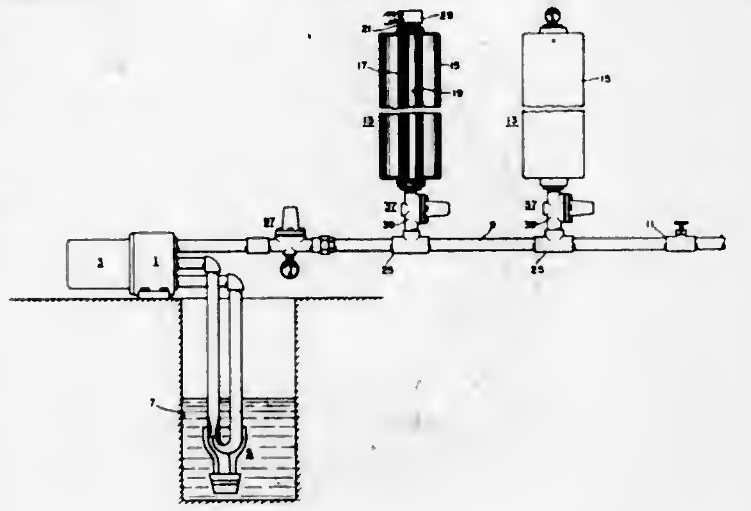
Robert E. Jackson, Newport Beach, and Raymond E. Decker, Riverside, Calif., assignors to Challenge-Cook Bros., Incorporated, City of Industry, Calif.
Filed Oct. 8, 1968, Ser. No. 765,782
Int. Cl. B67d *5/36, 5/60, 5/64*
U.S. Cl. 137—565 **16 Claims**



An articulated and hydraulically operated boom includes pivotally connected boom segments to support a conduit which communicates concrete pumped from a concrete pump to any selected location above and below ground level within a predetermined radius. One of the boom segments is pivotally and rotatably secured to a portable chassis which includes a plurality of outriggers to provide stability during the pumping operation.

3,572,381
PUMP PRESSURE SYSTEM

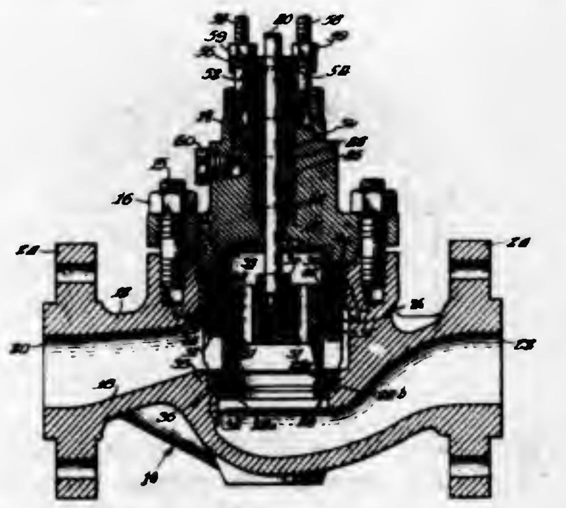
Floyd M. Nash, Little Rock, Ark., assignor to Jacuzzi Bros. Incorporated
Filed May 26, 1969, Ser. No. 827,855
Int. Cl. E03b *11/16;* **F04b** *49/08*
U.S. Cl. 137—568 **5 Claims**



A pump pressure system controlled by a pressure switch to establish a pressure range of operation, has its pressure tank or equivalent, valve controlled to open for filling, at approximately the maximum pressure of said pressure range, whereby to minimize cycling operations of the pump, while at the same time, improving pressure delivery to service.

3,572,382
SINGLE-PORTED DOUBLE-SEATED VALVE MECHANISM

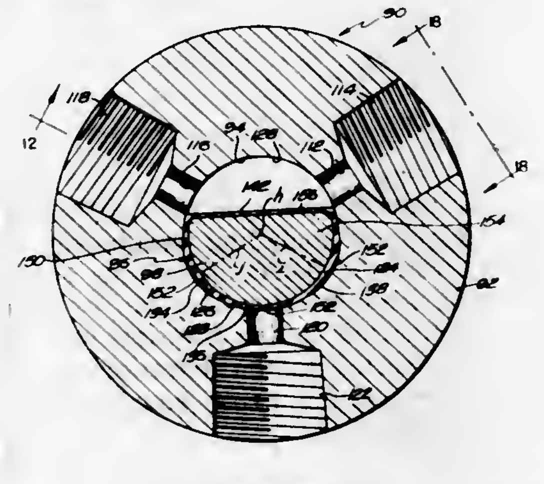
Fred J. Luthe, 102 Columbus Drive, Marshalltown, Iowa 50158
Filed Jan. 31, 1969, Ser. No. 795,496
Int. Cl. F16k *39/02*
U.S. Cl. 137—625.35 **13 Claims**



A single-ported double-seated valve mechanism including a valve plug adapted to engage a first valve seat for terminating fluid flow through a flow passage in a valve body means and second valve seat means cooperating with the valve plug to seal only when the valve plug is in the closed position against the first valve seat means. The valve mechanism is designed so that no seat-to-seat spacing adjustments are required, there is no sliding seal friction of the second seat means against the valve plug to adversely affect the positioning of the valve plug, a minimum of stem force is needed to shut off the valve plug bubble-tight and the valve seat means can be readily replaced.

3,572,383
PLUG VALVE WITH RESILIENT AND DEFORMABLE PERIPHERAL LOBES ON VALVE MEMBER

Angelo Natalizia, Smithfield, R.I., assignor to Grinnell Corporation, Providence, R.I.
Filed Sept. 13, 1968, Ser. No. 759,548
Int. Cl. F16k *5/04, 5/18*
U.S. Cl. 137—625.47 **24 Claims**

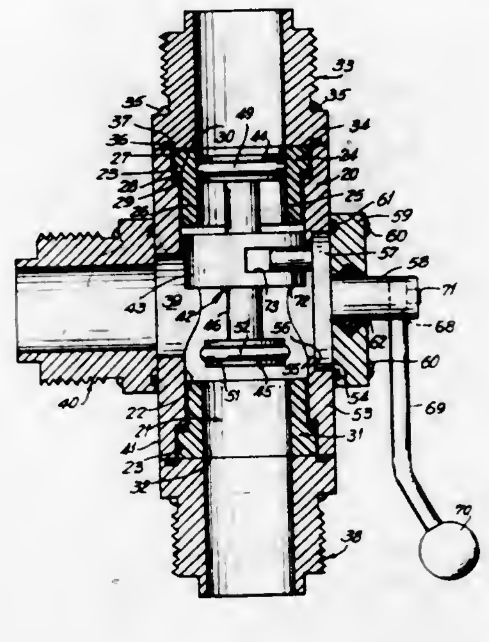


An inexpensive, simple but highly reliable and long life plug valve, which provides an excellent seal and is highly resistant to leakage even at sustained high temperatures but which is quite easy to turn, comprising a valve body, which has a generally cylindrical cavity with circumferentially spaced inlet and outlet ports and one or more circumferentially spaced longitudinal recesses or reliefs in the peripheral wall thereof, and a generally cylindrical valve member of a resilient and deformable material having a rigid stem embedded therein and one or more longitudinally extending resilient and deformable peripheral lobes. The peripheral cavity wall peripherally encloses the valve member and both are generally coaxial. The width, length and depth of the elongated recesses or reliefs are at least as great as the width, length and depth of the elongated lobes. The valve member rotates within the cavity, with the peripheral cavity wall acting as a bearing therefor, from a first position, in which the valve member is compressed laterally between the cavity wall with at least one of the lobes squeezed tightly against the cylindrical portion (seat) of the cavity wall around a port (preferably the downstream outlet port) to tightly seal the port, to a second position in which communication is provided between the ports through the valve and in which the lobe is rotated into the recess to thereby permit the lobe to become relaxed. The lobe peripheries and floors of the recesses are arcuate. The resilient and deformable lobes provide excellent sealing and the recesses for receiving the lobes facilitate assembling and turning of the valve member and minimize wear.

3,572,384
TWO-WAY VACUUM VALVES

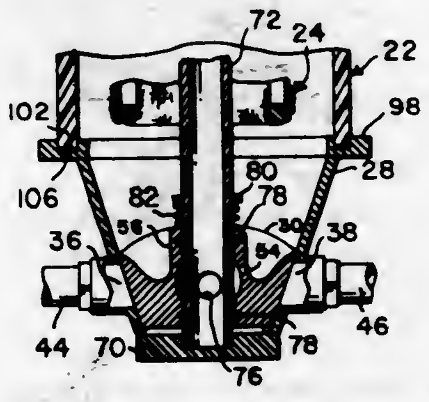
Ivor John Taylor, 560 Riverside Drive, Apt. 6G, New York, N.Y. 10027
Filed June 20, 1968, Ser. No. 738,513
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.5 **8 Claims**

The invention relates to two-way valves of a type suitable for use in high vacuum systems. A double acting piston element reciprocates in a cylindrical bore of the valve casing. The piston element has reduced diameter shank portions and O-rings contained within end discs. This shape permits optimum pumping speed through the valve. The piston forms a vacuum seal within detachable end sleeves withdrawable from the valve casing, the sleeve construction enabling high quality vacuum sealing under conditions of extensive use. Reciprocal motion of the piston element is obtained from a rotary movement of an actuating spindle with crank disc. The crank disc is located within a recess in the valve casing to allow absorption of operating stresses by the valve casing and permit the construction of an efficient vacuum sealing arrangement for the spindle. A crank pin and external stops system enables locking of the valve in its operating positions, and an arrangement permitting locking in an intermediate operating position (with all ports mutually closed) is also presented.



3,572,385
VALVE

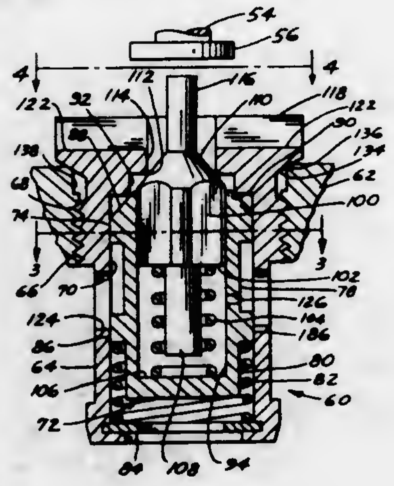
William A. Acosta, 5160 Butler Pike, Lafayette Hill, Pa. 19444
Original application Apr. 15, 1966, Ser. No. 542,835, now Patent No. 3,421,630. Divided and this application Sept. 18, 1968, Ser. No. 760,498
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.47 **4 Claims**



A valve comprising a hollow body and a plug rotatably mounted therein. The body includes at least two spaced ports. The plug includes two spaced channels which are rotatable into and out of alignment with said ports for opening and closing the valve.

3,572,386
MULTI-STAGE POWER VALVE ASSEMBLY

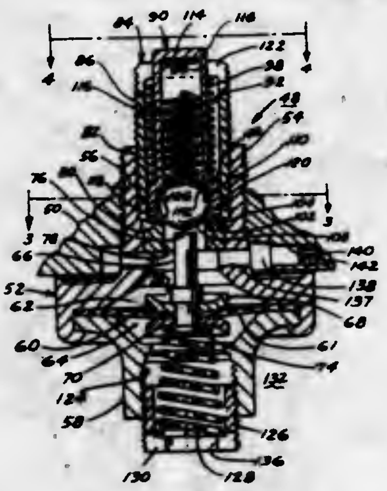
Harry A. Sherwin, 11724 Amel Drive,
Warren, Mich. 48093
Filed Dec. 13, 1968, Ser. No. 783,562
Int. Cl. F16k *11/14*
U.S. Cl. 137—630.22 **3 Claims**



A power valve assembly has a housing with first and second concentrically formed valve seats therein and contains first and second telescoping valve members adapted to respectively cooperate with the first and second seats for controlling flow of fuel therethrough; a first spring tends to move the valves away from each other while a second spring functions to resiliently urge both valves against their respective seats.

3,572,387
MULTISTAGE POWER VALVE ASSEMBLY

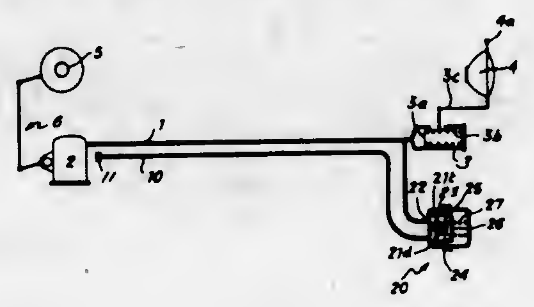
David L. De Martelaere, 20142 N. Larkmoor, Southfield, Mich. 48076, and Walter F. Dziedzic, 6368 Beechton, Detroit, Mich. 48210
Filed Dec. 16, 1968, Ser. No. 783,827
Int. Cl. F16k *11/14*
U.S. Cl. 137—630.22 **4 Claims**



A power valve assembly has a housing with first and second concentrically formed valve seats therein and contains first and second generally telescoped valve members adapted to respectively cooperate with the first and second seats for controlling flow of fuel therethrough; a first spring tends to move the valves away from each other while a second spring functions to resiliently urge both valves against their respective seats.

3,572,388
HYDRAULIC TRANSMISSION UNITS

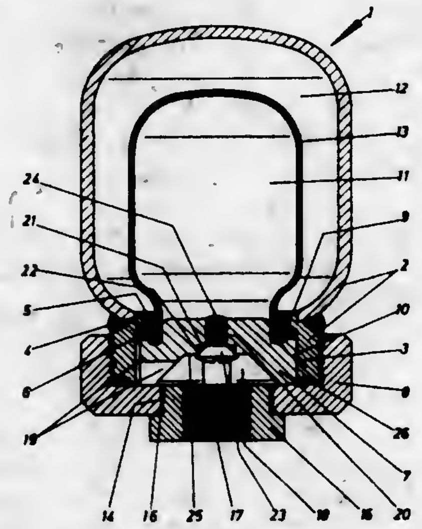
Albert d'Heurle, Plessis-Robinson, France, assignor to Cibie-Aingers, Bobigny, France
Filed June 11, 1969, Ser. No. 832,397
Claims priority, application France, June 14, 1968, 154,943
Int. Cl. F16l *55/04;* **F15b** *15/17*
U.S. Cl. 138—26 **5 Claims**



A hydraulic transmission unit for orientating the headlamp of a vehicle and including parallel hydraulic transmission and hydraulic detection circuits connected to a compensator device consisting of a pair of chambers, one of which is connected to the transmission circuit while the other is connected to the detection circuit whereby variations in temperature cause equal variations in the volumes of the chambers.

3,572,389
HYDRO-PNEUMATIC PRESSURE RESERVOIR

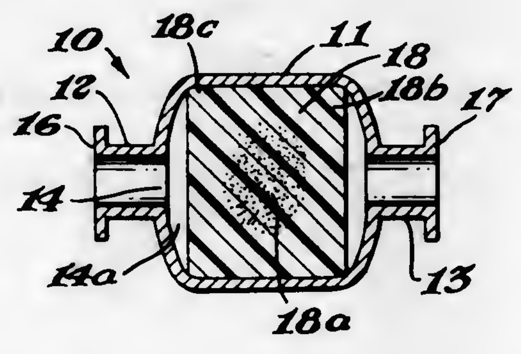
Walter Wieland, Buderich, Germany, assignor to Langen & Co., Dusseldorf, Germany
Filed Aug. 14, 1969, Ser. No. 850,163
Claims priority, application Germany, Aug. 17, 1968, P 17 51 917.4
Int. Cl. F16l *55/04*
U.S. Cl. 138—30 **2 Claims**



A hydro-pneumatic pressure reservoir in which the housing thereof is provided with an aperture and a movable pliant wall or partition divides the interior of a housing into an outer liquid chamber and an inner gas chamber. The wall is maintained in a liquid and gas type relationship between a clamping ring and a cover which tightly seals the aperture of the housing. The cover is provided with a gas inlet hole having a closure for filling the gas chamber as well as a liquid connection with the liquid connection being in communication with the liquid chamber via channels in the cover and passages between the clamping ring and the housing.

3,572,390
SELECTIVELY POROUS BODIES AND METHOD FOR THE PREPARATION THEREOF

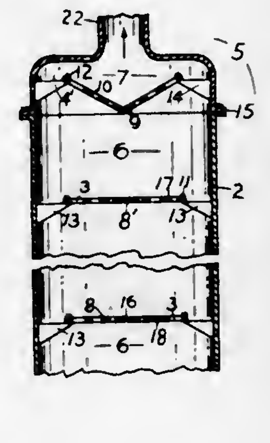
Wallace T. McMichael, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Original application Nov. 21, 1966, Ser. No. 595,934, now Patent No. 3,519,708, dated July 7, 1970. Divided and this application Mar. 26, 1969, Ser. No. 840,565
Int. Cl. F15d *1/02*
U.S. Cl. 138—41 **6 Claims**



Flexible open celled foam is impregnated with a hardening resin and a portion of the foam collapsed to form a solid portion and the hardening resin cured to produce selectively porous bodies.

3,572,391
FLOW UNIFORMIZING BAFFLING FOR CLOSED PROCESS VESSELS

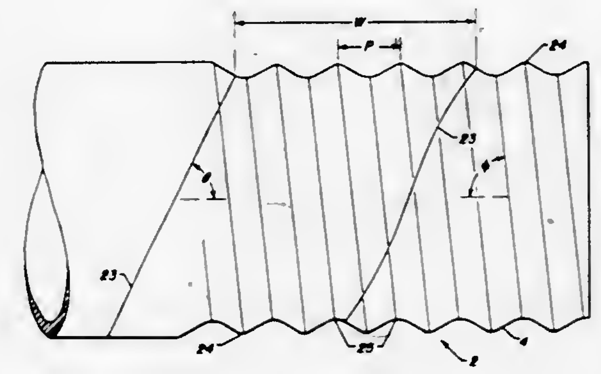
A. Adler Hirsch, 141 Norwood St.,
Shreveport, La. 71105
Continuation-in-part of application Ser. No. 600,878, Dec. 12, 1966. This application July 10, 1969, Ser. No. 840,717
Int. Cl. F15d *1/02*
U.S. Cl. 138—40 **10 Claims**



Within closed flow vessels velocity is greatest at the center and decreases toward the walls. This non-uniformity predominates more with laminar flow than with turbulent flow. Near the outlet a directional effect further funnels flow centerward. Both of these short-circuiting actions are corrected by regulating hydraulic resistance transversely as by a series of orified guidance baffles having ratio of open area per unit gross area of continguous surface increasing with radial distance from axis of flow or sets of stacked meshed discs of different diameters. These favor the distal flow lines. Best control at the outlet is by a contoured shape pointing against the direction of flow.

3,572,392
THREADED FILAMENT WOUND PIPE AND THE METHOD OF MANUFACTURE THEREOF

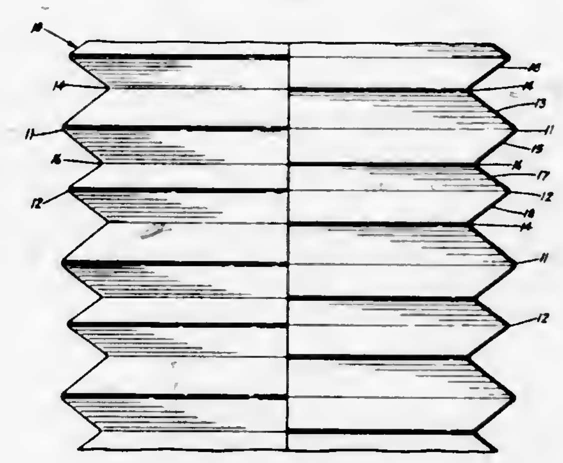
Jack Lowrie McLarty, Milwaukee, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed July 9, 1969, Ser. No. 840,403
Int. Cl. F16l *9/16*
U.S. Cl. 138—109 **11 Claims**



An improved threaded filament wound pipe and the method of manufacture thereof. The improvement comprises helically winding resin impregnated fiberglass filaments upon a mandrel knurled at the ends in the form of helical threads. The helical winding pitch is greater than the thread pitch. As a result, the fiberglass filaments alternately deviate in radial disposition with respect to the pipe axis, thereby forming both interior and exterior pipe threads at the ends of the finished pipe.

3,572,393
COLLAPSIBLE CORRUGATED TUBE

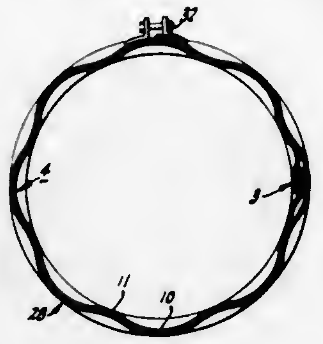
Gerald A. Eisert, Hastings, Minn., assignor to Central Research Laboratories, Inc., Red Wing, Minn.
Filed Oct. 27, 1969, Ser. No. 869,516
Int. Cl. F16l *11/00*
U.S. Cl. 138—121 **8 Claims**



A collapsible and extensible corrugated cylindrical tube characterized by having alternating convolutions staggered so as to permit maximum collapsibility of the tube without materially reducing maximum extensibility of the tube. Alternating outer convolutions of lesser diameter nest between alternating outer convolutions of greater diameter when the tube is in collapsed state. Alternating inner convolutions of greater diameter nest between inner convolutions of lesser diameter when the tube is in collapsed state. The tube structure is particularly useful in collapsible boots for the slave arms of remote-control master-slave manipulators. By means of the collapsible structure, reduction in range of operation of the arm due to the boot can be materially lessened.

3,572,394
LOCK SEAM FOR HELICAL CORRUGATED PIPE

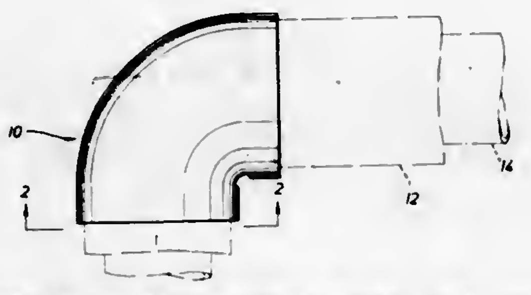
Paul K. Davis, Alameda, Calif., assignor to Pacific Roller Die Co., Inc., Hayward, Calif.
Filed Nov. 19, 1968, Ser. No. 777,066
Int. Cl. F16l *9/06, 9/16*
U.S. Cl. 138—154 **4 Claims**



A seam formed of interlocked opposite marginal side edge portions of a longitudinaly corrugated, relatively thick, strip helically curled into corrugated pipe, which seam is within the outside and inside diameters of the pipe and the bounds of a standard corrugated coupling.

3,572,395
PROTECTIVE ELBOW

Noah J. Burns, Jr., Beaumont, Tex., assignor to Trend Products, Inc.
Filed Dec. 23, 1968, Ser. No. 786,289
Int. Cl. F16l *11/00*
U.S. Cl. 138—162 **7 Claims**



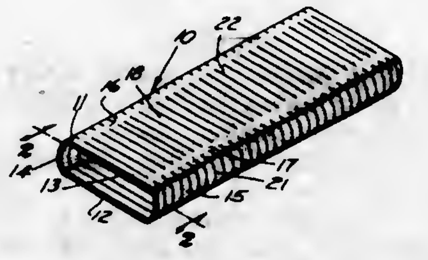
For use in protecting pipes which are covered with insulation and exposed to the outdoor climate, an elbow fitting which includes an upper portion and a lower portion which are joined together having an interlocking means along the respective edges of the two portions which interlock on being urged together, the interlocking means including a pair of spaced and parallel protruding lips providing a relatively deep slot therebetween, and a number of serrations formed at various areas in the slot to enable the lips to lock one with the other when the two portions of the elbow are brought together.

3,572,396
RUBBER BAND STACK AND METHOD AND APPARATUS FOR ITS MANUFACTURE

Henry R. Hoffman and Harry L. Sidenstick, Cincinnati, Ohio, assignors to Kett Tool Co., Cincinnati, Ohio
Filed Sept. 17, 1968, Ser. No. 760,200
Int. Cl. F16l *9/12, 9/22*
U.S. Cl. 138—178 **4 Claims**

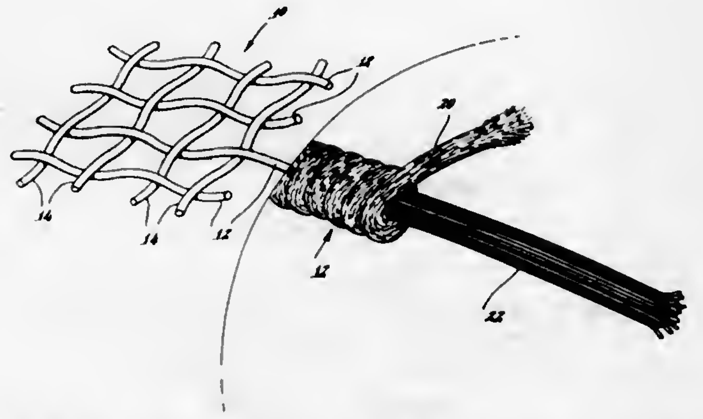
A rubber band assembly for use in a machine for automatically wrapping a band around an article, the rubber band assembly comprising an elongated rubber tube which is slit transversely to define individual bands. The individual bands are temporarily attached to one another by two uncut hinge portions which controls pivotal movement of the endmost band as it is pivoted 90° in the automatic wrapping machine.

Also disclosed are an apparatus and method for forming the band assembly from an uncut tube. During the cutting operation, the tube is flattened and compressed by a platen which also carries a depending knife. The knife cooperates with a planar anvil provided with two spaced, longitudinal slots. A portion of the rubber tube is forced into each of the slots by the platen and remains uncut by the knife to form the two spaced interconnecting hinge portions between individual bands.



3,572,397
NONCOMBUSTION-SUPPORTING FABRIC

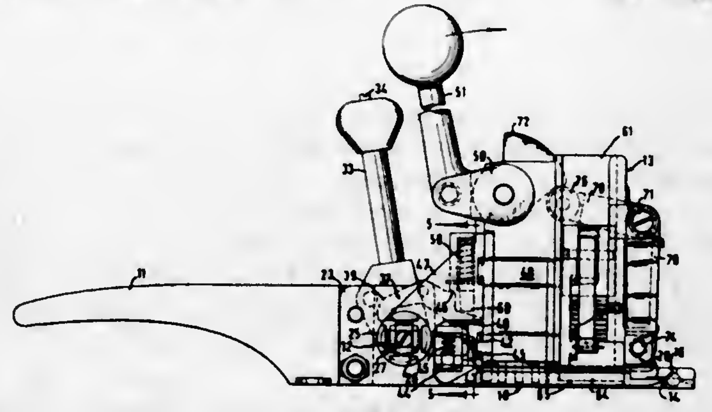
Dennis T. Austin, Hogansville, Ga., assignor to Uniroyal, Inc., New York, N.Y.
Filed Dec. 27, 1968, Ser. No. 787,368
Int. Cl. D03d *15/00*
U.S. Cl. 139—426 **9 Claims**



A fabric which will not support combustion is woven of warp and filling threads which consist of a mixed nylon and asbestos fiber yarn wrapped about glass filaments. The asbestos fiber content of the yarn is at least 85% by weight, and the balance is a nylon fiber of a special high temperature resistant variety such as Nomex. The resulting fabric will not support combustion, even in an environment of pure oxygen at pressures greater than atmospheric.

3,572,398
TOOLS FOR BANDING PACKAGES, PARCELS OR THE LIKE

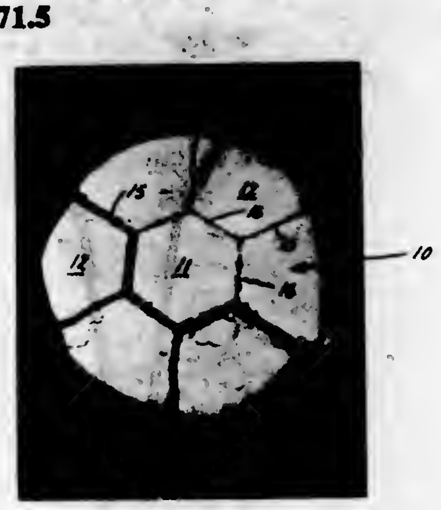
Robert D. Sansum, Harpenden, England, assignor to Gerrard Industries Limited, London, England
Filed May 9, 1969, Ser. No. 823,294
Int. Cl. B21f *9/02*
U.S. Cl. 140—93.4 **14 Claims**



A tool for securing together by means of a seal the ends of a flexible band put around a package makes use of the movement of the sealing head away from the base of the tool necessary to disengage the sealing head from the closed seal to release tension in the part of the band between the seal and the band supply and then to sever the band. To avoid fibrillation, tension is released before severing by arranging the cutter to be moved by a part of a pawl after the pawl has been disengaged from a ratchet maintaining tension.

3,572,399
STRANDED TUNGSTEN WIRE INCANDESCENT LAMP FILAMENT

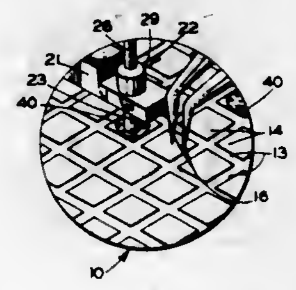
John L. Walter, Scotia, N.Y., and Kenneth S. G. Pertwee, South Euclid, Ohio, assignors to General Electric Company
Original application Aug. 5, 1966, Ser. No. 570,602, now Patent No. 3,509,411. Divided and this application Nov. 29, 1968, Ser. No. 779,822
Int. Cl. B21f *7/00*
U.S. Cl. 140—71.5 **3 Claims**



A tungsten wire incandescent lamp filament is disclosed which has a much greater resistance to failure than conventional filaments, particularly under repetitive shock loads. The improved filament is manufactured by spirally twisting a plurality of round tungsten wires around a round central tugnsten wire and drawing through a die to reduce the effective transverse dimension of the composite to form a composite body having a circular cross-section with the central strand having a polygonal cross-section having a plurality of planar surfaces corresponding in number to the outer strands, the outer strands having corresponding planar surfaces in areal engagement with the planar surfaces of the central strand and planar surfaces in areal engagement with adjoining outer strands.

3,572,400
DISPENSING OF FLUIDS TO SMALL AREAS

Bernard G. Casner, Emmaus, and Ray T. Goulstone and Peter R. Hance, Allentown, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Aug. 31, 1967, Ser. No. 664,703
Int. Cl. B67c *3/28*
U.S. Cl. 141—1 **29 Claims**

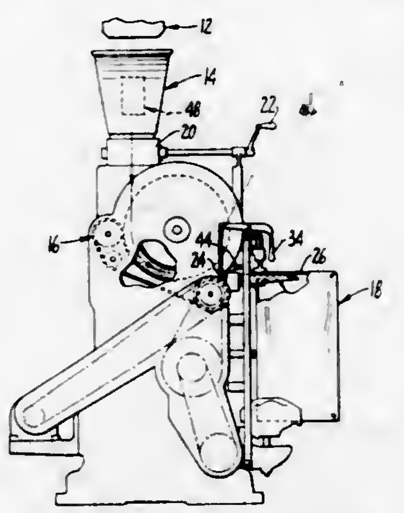


In the manufacture of a number of small parts, selected areas of the surface of a sheet are inspected and defective areas are magnetically identified with a specially formulated, relatively high viscosity magnetic fluid. The sheet is then divided into a number of small parts and those parts formed from defective areas of the sheet are magnetically separated from the remaining parts.

In this method, air pressure is applied to a free piston located within the barrel of a pen that forces the magnetic fluid through the capillary tip of the pen onto the selected surface areas. Methods and apparatus are provided for controlling the size and shape of the magnetic mark.

3,572,401
BAG FILLER

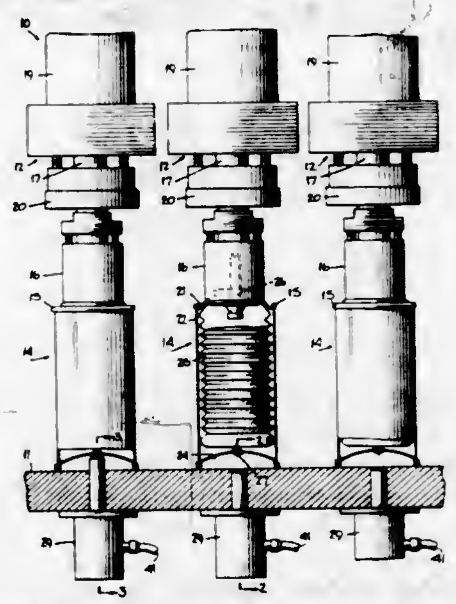
Theodore J. Nelson, Crockett, and Joseph J. Cuzic, Walnut Creek, Calif., assignors to California and Hawaiian Sugar Company
Filed Aug. 22, 1969, Ser. No. 852,248
Int. Cl. B65b *3/10*
U.S. Cl. 141—67 **4 Claims**



A device for packing bags tightly with sugar or similar materials wherein an airblast is provided to at least partially open the bag and the pre-weighed load of material being put in the bag is divided into increments, one of which is added rapidly while the bag is being shaken and the second of which is added at a slower rate. Normally the first increment is about 90 to 95% of the total material while the second increment is 5 to 10% of the total.

3,572,402
FILLING METHOD AND APPARATUS

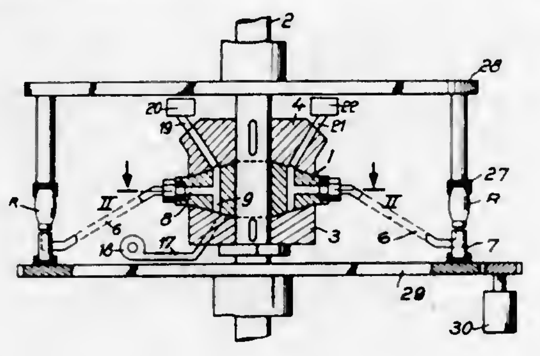
Raymond W. Beffel, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.
Continuation-in-part of application Ser. No. 743,745, July 10, 1968. This application June 26, 1969, Ser. No. 839,137
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—3 **11 Claims**



Method of and apparatus for charging aerosol containers having a propellant charging valve in the base by securing the container in its upright position to a spinner table adapted to support the container, rotating said container while introducing a predetermined quantity of product down through the top of the container, and by introducing a predetermined quantity of propellant up through a filling platform and in through the base of the container.

3,572,403
PACKAGING MACHINE FOR PRODUCTS UNDER PRESSURE

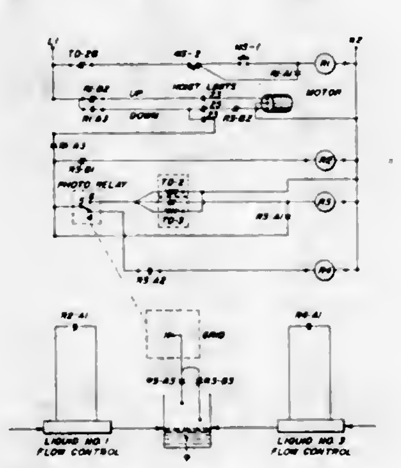
Robert Angue, Antibes, France, assignor to A.T.A.D.-Approvisionnement - Transport - Aerien - Distribution, Paris, France
Filed Apr. 23, 1968, Ser. No. 723,546
Claims priority, application France, Apr. 24, 1967, 103,950
Int. Cl. B65b *31/00*
U.S. Cl. 141—62 **2 Claims**



A device for sterilizing containers and packaging sterized products in the sterilized cointainers under pressure that includes a rotatable drum which cooperates with a fixed distributor body. Conduits through the distributor body connect the sterilizing means and product sources, including such devices as pressurized tanks and a vacuum pump, with registering ducts in the drum. These ducts which rotate with the drum register in succession with each of the supply conduits of the distributor body during a revolution of the drum. Conduits connected on one end with the ducts within the drums are connected on their other ends through valve means with the containers to be sterilized and filled. The containers are mounted on a device which rotates with the drum.

3,572,404
APPARATUS FOR METERING LIQUIDS TO TANK COMPRISING LEVEL SENSING CONTROLS

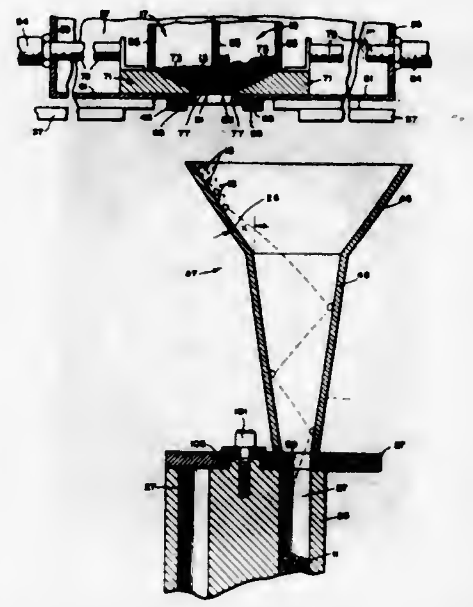
William Woodrow Allison and James A. Farmer, Fort Worth, Tex., assignors to American Cyanamid Company, Stamford, Conn.
Filed Apr. 8, 1969, Ser. No. 814,337
Int. Cl. B65b *1/30;* **B61c** *3/02*
U.S. Cl. 141—95 **3 Claims**



Level sensing probes, lowered to respective different levels in a tank, control flow of liquid to the tank in measured volumes determined by liquid level in the tank. First liquid fills tank to lower probe level whereupon automatically first liquid feed is stopped and second liquid feed is started and continued until liquid reaches upper probe level whereupon automatically all feed is stopped and probes are raised away from liquids. Relay circuits for automatic control and hoisting apparatus are detailed.

3,572,405
APPARATUS FOR BLENDING PARTICLES

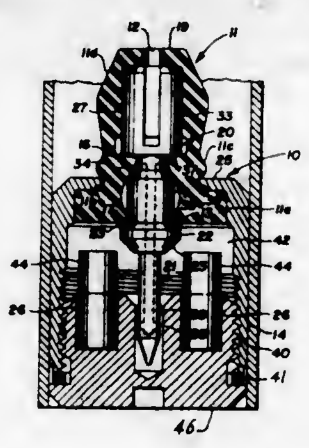
Philip T. Mattson, Jr., La Jolla, and Dennis W. Stevens, San Diego, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed June 6, 1968, Ser. No. 735,119
Int. Cl. B65b *1/02, 3/02*
U.S. Cl. 141—105 **10 Claims**



Particles of at least two groups are fed at predetermined rates of flow to impinge on a deflecting surface means which causes the particles to blend uniformly as they fall into a cavity in which the blended particles are shaped into an article. The particles of the respective groups are blended uniformly even though the particles may be unequal in size and density and the ratio of the respective particles in the article is varied considerably from a one to one ratio.

3,572,406
LIGHTER CHARGING VALVES

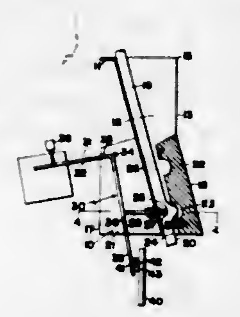
John R. Snyder, Euclid, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Aug. 5, 1968, Ser. No. 750,146
Int. Cl. F16k *15/20*
U.S. Cl. 141—349 **4 Claims**



A lighter charging valve for regulating the introduction of pressurized gaseous fuel into a gas-type cigarette lighter. A resilient valve body is attached to a bushing, the latter of which being attached to the cigarette lighter case. The resilient valve body has a fluid flow passage extending therethrough. A valve insert assembly is disposed within the resilient valve housing and includes a first and a second valve head for sealing against corresponding first and second valve seats within the resilient valve body. Pressurized gaseous fuel is introduced into the lighter by axially moving the valve insert and the pressurized gaseous fuel through a central bore in the valve insert to an exit between the first and second valve seats. The first valve is unseated from said first valve seat by the axial movement thereby permitting the introduction of the gaseous fuel into the lighter housing; the second valve and valve seat are in sealing engagement precluding the escape of the gaseous fuel to the exterior of the lighter. A storage area within the charging valve is also provided for the retention of replacement flints.

3,572,407
FLUID DISPENSING SHUT OFF VALVE ASSEMBLY

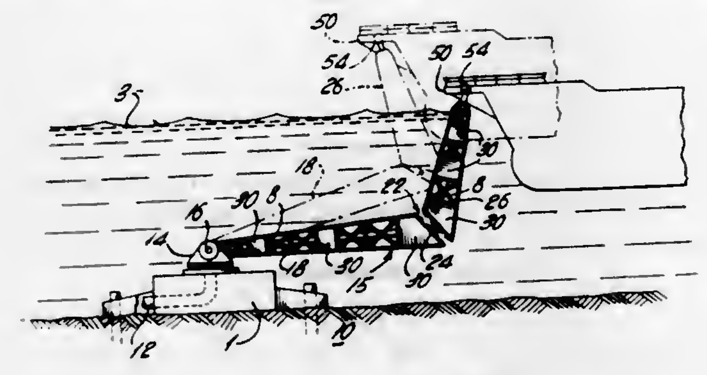
Clifford Delorme, St. James, Manitoba, Canada, assignor to Arnett Company Limited, Winnipeg, Manitoba, Canada
Filed Dec. 30, 1968, Ser. No. 787,739
Int. Cl. B65b *3/00, 3/06;* **B67c** *3/00*
U.S. Cl. 141—362 **10 Claims**



A channel runs through the dispensing head and carries the rubber dispensing tube and a guide supports a plate shut off valve which is actuated by a weight cooperating with a release plate. The plate shut off engages the rubber tube and squeezes it shut into a semi-cylindrical recess.

3,572,408
COMBINED SHIP MOORING AND LOADING-UNLOADING DEVICE

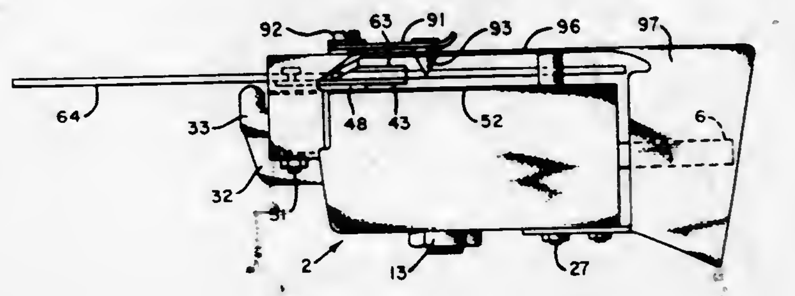
Walter R. Hnot, Mountainside, N.J., assignor to Esso Research and Engineering Company
Filed Apr. 29, 1968, Ser. No. 725,081
Int. Cl. B63b *21/00*
U.S. Cl. 141—387 **9 Claims**



An improved offshore ship mooring and ship loading-unloading structure comprising an arm having a first portion mounted for universal rotation at one extremity and having hingedly secured at its other extremity for limited pivotal movement, a second portion. A cargo carrying conduit located within said first and second portions and having at its free end means for securement to a ship whereby the mooring and cargo transfer structure are contained within a unitary structure.

3,572,409
SABER SAW

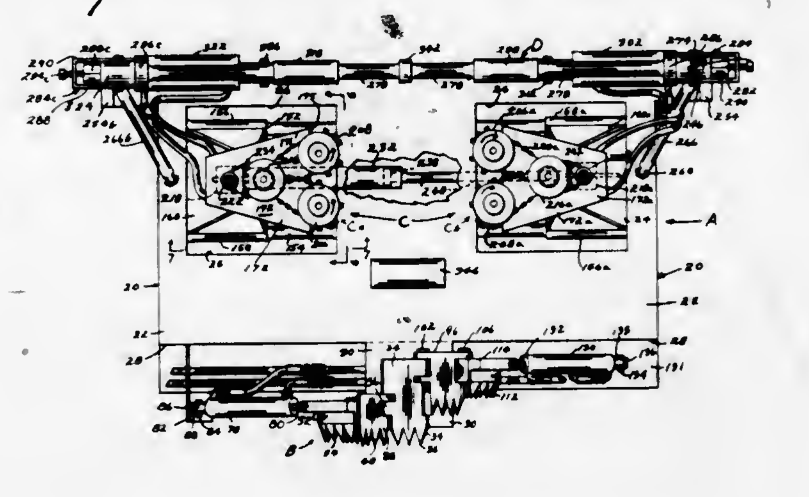
Simon J. Hoffman, 13115 E. Jefferson St., Detroit, Mich. 48215
Filed Dec. 13, 1967, Ser. No. 690,265
Int. Cl. B27b *19/08*
U.S. Cl. 143—68 **7 Claims**



A saber saw device for attachment to a standard drill motor converts the rotary motion of the drill motor to reciprocating motion of a saw blade. The blade is locked to the reciprocable mechanism in a manner to prevent inadvertent disengagement of the blade while the saw is in operation. The blade and reciprocable mechanism are compatibly designed so that either a single ended or double ended blade may be mounted on the driving mechanism.

3,572,410
DEVICE FOR DELIMBING AND CUTTING A FELLED TREE

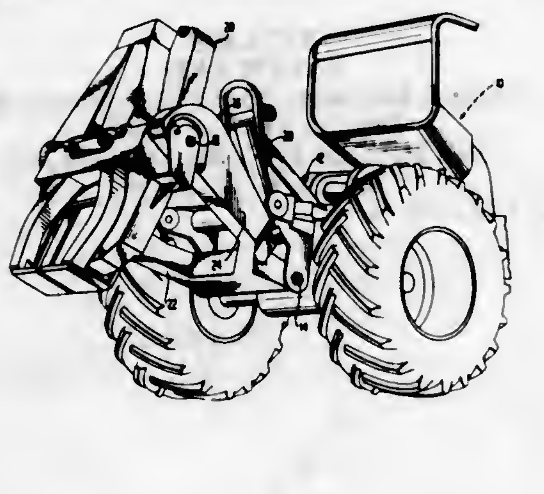
Charles E. McElderry, % Mack Welding Company, Inc., 9206 Grand Ave. Place, Duluth, Minn. 55808
Filed Dec. 4, 1968, Ser. No. 781,148
Int. Cl. A01g *23/02*
U.S. Cl. 144—3 **7 Claims**



A support means, a tree delimber unit having articulated arcuate limb cutting blades for placement about a felled tree, a pair of tree cutting blades in alignment with the articulated blades together with gripping rollers positioned on the support means intermediate of and in alignment with the articulated limb cutting blades and the tree cutting blades for gripping and moving a felled tree through said limb cutting blades and to the tree cutting blades.

3,572,411
TREE HARVESTER

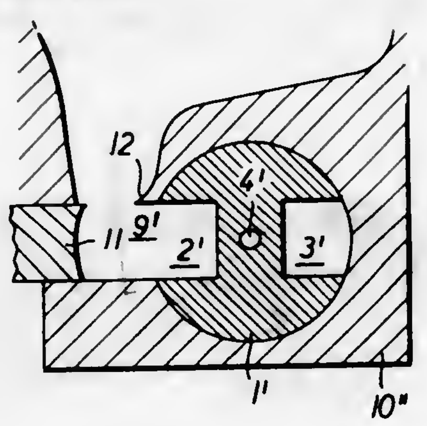
Samuel J. Coughran, Jr., Cedartown, Ga., assignor to Rome Industries, Incorporated, Cedartown, Ga.
Filed Dec. 10, 1968, Ser. No. 782,626
Int. Cl. A01g *23/02*
U.S. Cl. 144—3 **11 Claims**



A self contained cutter assembly mounted on a tractor vehicle includes a pair of pivoted arms which act not only as a back up for the guillotine shear blade but also as gripping or jaw elements for grasping a tree after it is felled. The cutter assembly is mounted for rotation to allow it to act either as a cutting device or as a grappling device in various positions. The felling, cutting to lengths and topping operations as well as handling, bunching and skidding may all be performed by the device, requiring but a single operator to perform these functions.

3,572,412
APPARATUS FOR COMMINUTING FOODSTUFFS

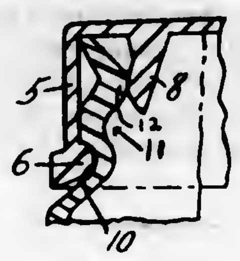
Toni Reifenhauser, Burglahr, Westerwald, Germany
Filed Aug. 19, 1968, Ser. No. 753,509
Int. Cl. B26d *4/34*
U.S. Cl. 146—78 **7 Claims**



A comminuting apparatus for meat or other foodstuffs comprises a magazine which is indexible about a horizontal axis and is provided with two axially parallel open-ended chambers one of which assumes a material-receiving position when the other assumes a material-discharging position and vice versa. A plunger expels material from that chamber which dwells in discharging position whereby such material moves into the range of knives provided at one axial end of the magazine and serving to comminute the material to form cubes or blocks. At the same time, the other chamber receives fresh material by way of a feed which may include a funnel provided on or in the housing for the magazine or a pivotable carriage which can dump the contents of dollies or like conveyors through an elongated axially parallel inlet of the chamber in receiving position.

3,572,413
CONTAINER AND SNAP-ON COVER

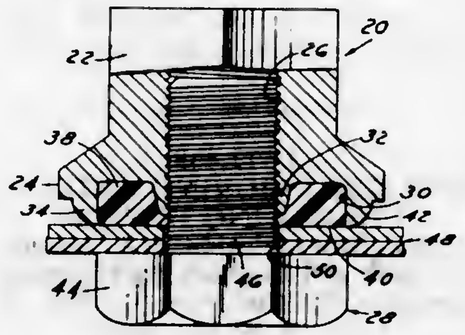
Jay G. Livingstone, 715 W. Market St., Akron, Ohio 44303
Continuation of application Ser. No. 768,214, Oct. 11, 1968, which is a continuation of application Ser. No. 665,482, Sept. 5, 1967, which in turn is a continuation-in-part of application Ser. No. 545,676, Apr. 27, 1966. This application June 19, 1969, Ser. No. 866,404
Int. Cl. B65d *23/00, 41/16*
U.S. Cl. 150—.5 **13 Claims**



A plastic container with an opening at the top and bulging inwardly adjacent its top, as in a neck or spout or the like is provided with a snap-on skirted cover, usually an ordinary cap but it may be a shaker top, etc. Different depending annular tongue means on the fitment are disclosed for pressing outwardly at the bulge of the fitment to enlarge and/or lengthen the spout and press it into sealing contact against either the skirt or top of the cover, or both. The container need not extend to the inside of the top of the cover.

3,572,414
LOCKING FASTENER

George R. Onufer, Bloomfield Hills, Mich., assignor to Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N.Y.
Filed Apr. 7, 1969, Ser. No. 813,971
Int. Cl. F16b *39/284*
U.S. Cl. 151—19 **3 Claims**

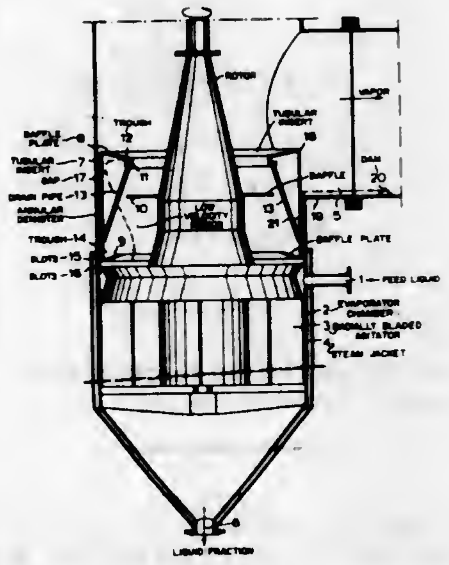


A locking fastener such as a nut or washer having an aperture receiving a male threaded fastener, such as a bolt or screw, an annular chamber encircling the aperture, and a deformable, substantially incompressible annular insert received within the chamber, biasing the inner wall of the chamber into locking engagement with the male threaded fastener.

3,572,415
INSTALLATION FOR TREATING LIQUIDS

Gerard L. M. Voncken, Munstergeleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
Filed Jan. 13, 1969, Ser. No. 790,636
Claims priority, application Netherlands, Jan. 11, 1968, 6800384, 6800385
Int. Cl. B01d *1/22*
U.S. Cl. 159—6 **6 Claims**

A film evaporator is disclosed in which at least the topmost of the baffles for separating entrained liquid particles from the vapor discharge is provided with a guide surface leading to a trough. Drain pipes leading obliquely downwardly from the trough convey the collected liquid to an area of sufficiently low gas velocity as to allow the liquid to flow to the condensate discharge port. Some of the baffles are located on a concentric insert having an upper end located above the base of the vapor discharge line. As a further measure, a dam is then provided in the base of the vapor discharge line.



3,572,416
STIMULATION OF PRODUCING WELLS

Wilson L. Kinney, Findlay, Ohio, and Walter B. Kirk, Jr., Robinson, Ill., assignors to Marathon Oil Company, Findlay, Ohio
No Drawing. Filed Nov. 6, 1969, Ser. No. 874,670
Int. Cl. E21b *43/27*
U.S. Cl. 166—307 **24 Claims**

Hydrocarbon production from a producing well in fluid communication with a hydrocarbon-bearing subterranean formation is improved by injecting sequentially into the formation 1–500 gallons of acid per vertical foot of hydrocarbon-bearing formation, 0.1–10 volumes of water per volume of acid and 1–500 gallons of micellar dispersion per vertical foot of hydrocarbon-bearing formation and then displacing the acid and micellar dispersion out into the formation with a drive fluid, preferably a hydrocarbon drive fluid in an oil-wet formation. Thereafter, the producing well is permitted to reproduce. The acid and micellar dispersion can remain in contact with hydrocarbon-bearing formation up to about six hours before being displaced out into the formation.

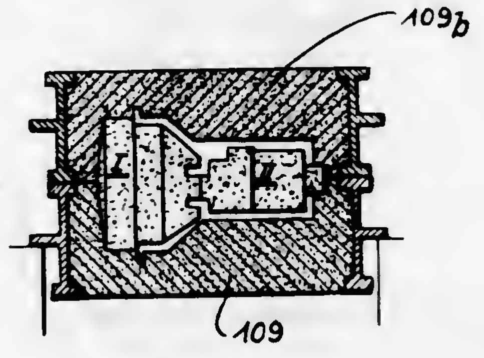
3,572,417
METHOD FOR CASTING METALS IN FOAMED INORGANIC REFRACTORY MOLDS

Marco Wismer, Gibsonia, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Nov. 2, 1967, Ser. No. 680,031
Int. Cl. B22c *1/22;* **B29d** *27/04;* **C04b** *35/10*
U.S. Cl. 164—43 **29 Claims**

This invention relates to casting or molding metals wherein the mold comprises a refractory inorganic oxide foam which has been formed by heating a filled organic foam at a temperature and for a time sufficient to substantially decompose the organic binder to a carbonaceous state, or, alternatively, to substantially completely consume the organic binder to form a refractory inorganic foam.

3,572,418
METHOD FOR ASSEMBLING MOLDING FLASKS WITH SAND CORES

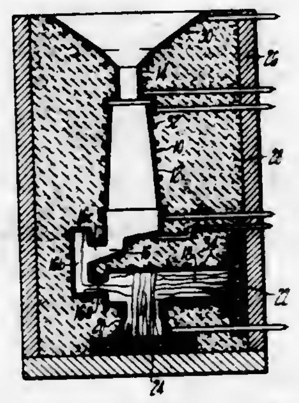
Hans-Dieter Keller, Todenhausen, and Horst Henkel, Friedensdorf, Biedenkopf, Germany, assignors to Fritz Winter Eisengiesserei oHG, Allendorf, Germany
Filed May 3, 1968, Ser. No. 726,490
Claims priority, application Germany, May 5, 1967, W 43,924
Int. Cl. B22c *9/10, 17/08*
U.S. Cl. 164—28 **9 Claims**



Green sand cores are formed in lower parts of core boxes and are thereupon pivoted through 90 degrees about horizontal axes to setting positions. The upper halves of the lower core box parts are thereupon removed and the drag of a molding flask is placed over the cores. The cores are inverted with the drag so that their prints rest in the drag and a cope is placed on top of the drag.

3,572,419
DOUBLY-ORIENTED SINGLE CRYSTAL CASTINGS

Robert B. Barrow, Cheshire, Conn., Barry J. Piearcey, Brixham, Devon, England, and Larry W. Sink, Milwaukie, Oreg., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 13, 1969, Ser. No. 806,874
Int. Cl. B22d *25/06*
U.S. Cl. 164—60 **10 Claims**

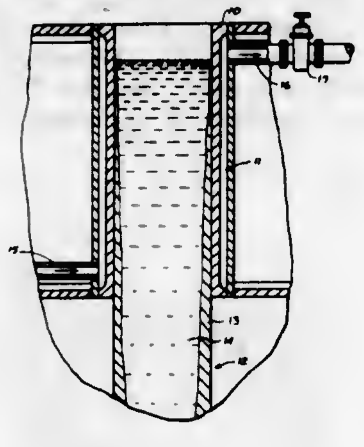


An apparatus and method by which to produce single crystal parts in which the orientation of the dendritic growth within the crystal in two planes at right angles to one another is described. In effect this produces an orientation in all three right angle planes of the cast article.

3,572,420
METHOD FOR MOULD COOLING IN CONTINUOUS CASTING

William H. Summers, Hampton Hall, near Malpas, England, assignor to Concast AG, Zurich, Switzerland
Filed Feb. 21, 1968, Ser. No. 707,060
Claims priority, application Switzerland, Feb. 24, 1967, 2,846/67
Int. Cl. B22d *11/00*
U.S. Cl. 164—82 **3 Claims**

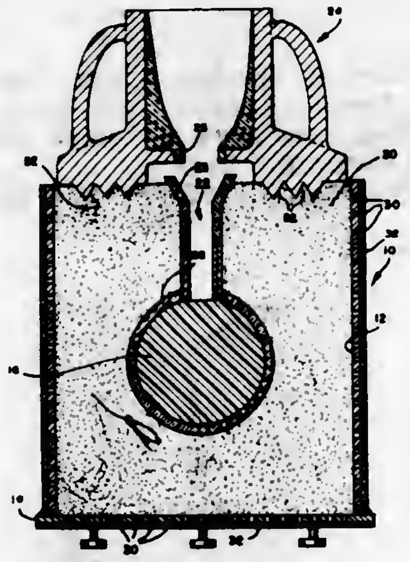
This is a method of controlling the cooling of a continuous-casting mould in which a coolant such as water is



circulated through the hollow interior of the mould wall from an inlet at the bottom to an outlet at the top. In accordance with this method a counter-pressure is applied to the coolant by regulating the out-flow.

3,572,421
AIR BREATHING FLASK FOR FOUNDRY MOLDS

Charles C. Mezey, Lake Orion, and Angelo Paoli, Troy, Mich., assignors to Full Mold Process, Inc., Lathrup Village, Mich.
Filed Dec. 11, 1967, Ser. No. 689,363
Int. Cl. B22c *7/00*
U.S. Cl. 164—237 6 Claims

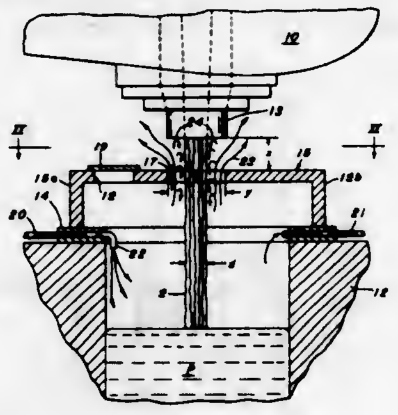


Disclosed herein is a flask and pouring apparatus for casting molten metals using vaporizable patterns wherein the flask has air breathing walls that are provided with a permeable layer, slotted vents, or screen vents.

3,572,422
APPARATUS FOR SHROUDING A POURING STREAM AND MOLTEN CASTING SURFACE WITH A PROTECTIVE GAS

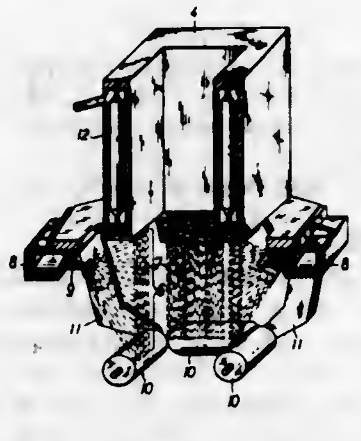
Richard E. Lyman, Homewood, Ill., assignor to United States Steel Corporation
Filed Dec. 10, 1968, Ser. No. 782,578
Int. Cl. B22d *11/00*
U.S. Cl. 164—273 3 Claims

A method and apparatus for shrouding a stream of molten metal and the casting meniscus with a protective gas as the metal is poured from a nozzle into a mold. Apparatus includes an enclosure at the top of the mold and means for injecting gas into the enclosure at a location remote from where the stream enters. Enclosure has a restricted opening at the top through which stream enters and gas escapes to envelop stream.



3,572,423
COOLING DEVICE FOR CASTINGS IN CONTINUOUS CASTING INSTALLATIONS FOR HEAVY METALS OR ALLOYS THEREOF, PARTICULARLY STEEL

Klaus Bick, Paderborn, Wolfgang Weinreich, Schloss Neuhaus, and Lothar Harmsen, Paderborn, Germany, assignors to Paderwerk Gebr. Benteler, Schloss Neuhaus, Kreis Paderborn, Germany
Filed Sept. 25, 1968, Ser. No. 762,481
Claims priority, application Austria, Oct. 2, 1967, 8,926/67
Int. Cl. B22d *11/12*
U.S. Cl. 164—283 11 Claims



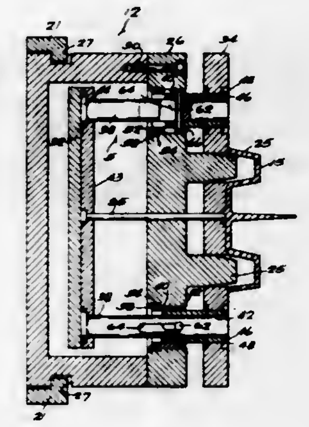
A cooling device for castings in continuous casting installations for heavy metals or alloys thereof, particularly steel, which comprises a copper casting die serving as continuous mold to the interior of which a coolant is admitted for indirectly cooling a casting. A cooling section is formed by spraying nozzles following the casting die and serving for directly spraying the coolant onto the casting. This cooling section substantially consists of at least one water chamber equidistantly surrounding the casting and connected to at least one row of flat jet nozzles which are formed and arranged in such a manner that they spray flat jets of high kinetic energy onto the surface of the casting. These jets are intended continuously to extend axially along the entire length of said cooling section and substantially spaceless join up with each other in the area of impingement on the surface of the casting.

3,572,424
DOUBLE ACTING EJECTING MECHANISM

John R. Byrne, 1519 Prospect St.,
Watertown, Wis. 53094
Filed Sept. 5, 1968, Ser. No. 757,568
Int. Cl. B22d *17/22*
U.S. Cl. 164—347 10 Claims

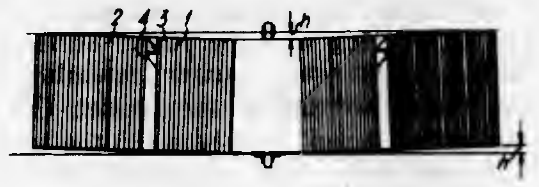
Disclosed herein is a mold or die having double acting thrust transmitting stripping and knock-out devices

each of which includes a thrust pin having a slot with a laterally offset notch, a first sleeve mounted on said thrust pin and having an angularly disposed slot, a second sleeve concentrically mounted on said first sleeve and having a slot with a laterally offset notch, and a lock pin arranged in the slots to lock the first sleeve either to the thrust pin or to the second sleeve depending on the position of the lock pin in the notches of the slot.



3,572,425
ROTARY REGENERATIVE HEAT EXCHANGERS

Herbert Brandt, Rothemuhle, and Gerhard Kritzler, Freudenberg, Germany, assignors to Apparatebau Rothemuhle, Brandt & Kritzler, Westphalia, Germany
Filed Oct. 9, 1969, Ser. No. 865,053
Claims priority, application Germany, Feb. 13, 1969, P 19 07 073.6; Feb. 24, 1969, P 19 09 101.1; Great Britain, May 9, 1969, 23,850/69
Int. Cl. F28d *19/04*
U.S. Cl. 165—9 12 Claims

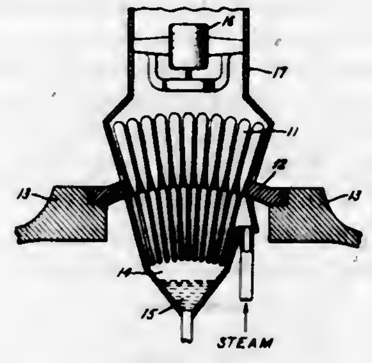


A rotary regenerative air preheater has, when cold, non-planar axial end faces of the regenerator mass, preformed so that upon thermal deformation in use they attain a substantially planar condition. The preheater has independently movable annular portions, for use in situations where a large regenerator is needed. Specific interengaging members between the two concentric portions are shown, including one wherein a projection on one portion enters into a recess in the side wall of the other portion.

3,572,426
UNDERWATER HEAT EXCHANGE SYSTEM

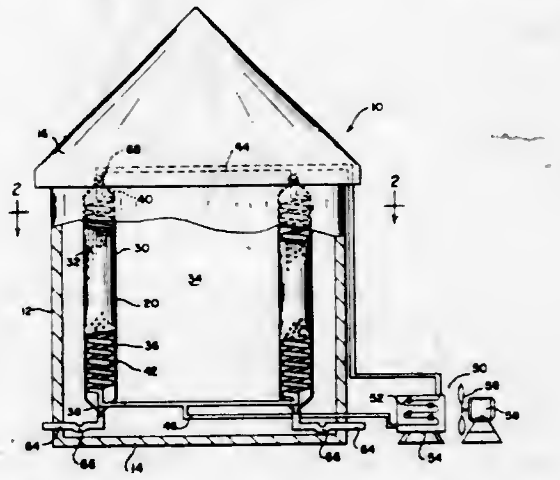
Russell N. Edwards, Cincinnati, Ohio, assignor to General Electric Company
Filed Oct. 5, 1967, Ser. No. 673,051
Int. Cl. F28d *5/00*
U.S. Cl. 165—47 5 Claims

A safe, efficient and simple system for transferring heat from within an underwater vehicle to the surrounding water environment comprises an array of sealed tubes passing through the outer skin of the vehicle and protruding into the water surrounding the vehicle. Each of the tubes is designed to withstand the pressure of the underwater environment. Each tube contains a heat exchange medium having a high heat of vaporization operating at a pressure such that it will transfer heat by vaporizing and condensing.



3,572,427
GRAIN DRYING SYSTEM

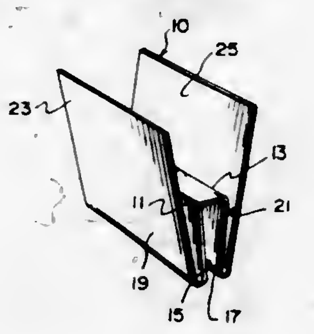
James F. Buffington, Plymouth, Ind. 46563
Filed Jan. 14, 1969, Ser. No. 791,058
Int. Cl. F21b *29/00*
U.S. Cl. 165—61 11 Claims



A grain drying apparatus in which a plurality of stacks are disposed in a grain storage compartment. The stacks contain coils for cooling or heating fluid, and the side walls of the stacks are perforated to permit a flow of air from the stored grain into the space around the coils. The conduits connecting the cooling and heating means to the stack selectively make the coils thereof heating or cooling coils, and some of the stacks cool while other of the stacks heat.

3.572,428
CLAMPING HEAT SINK

Anthony T. Monaco, Skokie, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 29, 1969, Ser. No. 795,018
Int. Cl. H01l *1/12*
U.S. Cl. 165—80 3 Claims

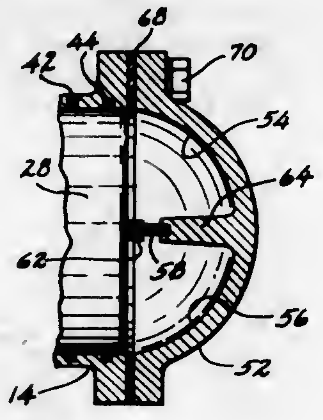


A clip-on heat sink for use with thermo-pad type transistors is made in the form of a unitary piece of heat-conductive, black-anodized spring aluminum folded on itself approximately at its center to provide an opening which fits over the transistor and tightly engages the transistor in heat conductive relationship. The portions of the spring material extending away from the bight formed by the fold converge to form clamping jaws, with the material at the ends of the jaws being bent back to extend in substantially parallel planes along each of the converging portions beyond the bight formed by the fold at the center of the spring to provide a pair of gripping extensions which can be relatively moved toward and away from one another to spread the jaws apart to enable placement of the heat sink clip over the transistor.

3,572,429

HEAT EXCHANGER

Royse Myers, 4118 Hounds Trail, Racine, Wis. 53402
Filed Jan. 13, 1969, Ser. No. 790,669
Int. Cl. F28f *9/00*
U.S. Cl. 165—82 **1 Claim**

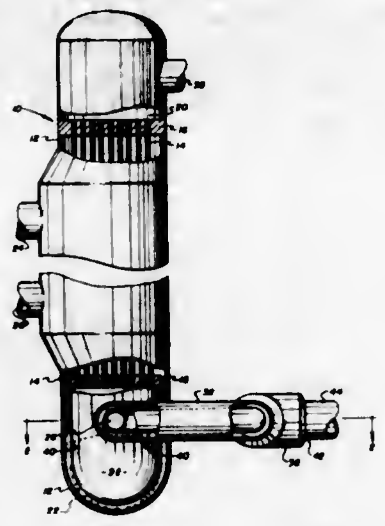


A heat exchanger comprising a shell, surrounding a core-unit consisting of parallel tubes supported by axially-spaced headers. One header is fixed axially, while the other header is free to shift axially in the shell in response to temperature fluctuations. The bonnet closing one end of the shell is provided with a diametrically-positioned resilient sealing member which engages the surface of the axially-free header to provide a pair of chambers in the bonnet, and to prevent fluid from passing from one chamber to the other. Means is also provided to indicate instances of leakage between the mutual peripheries of the shell and the axially-free header.

3,572,430

FLOATING HEAD HEAT EXCHANGER

Howard O. Charnock, Jr., Chatsworth, Calif., assignor to North American Rockwell Corporation
Filed Apr. 1, 1969, Ser. No. 812,212
Int. Cl. F28f *3/00*
U.S. Cl. 165—82 **11 Claims**

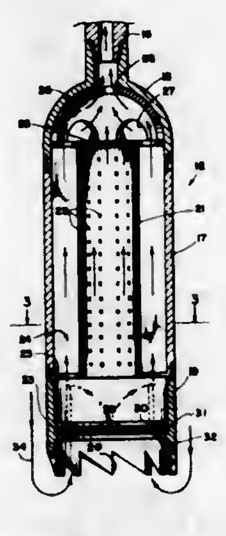


A shell-and-tube heat exchanger which experiences differential expansion between the shell and tubes where the exchanger has a floating head that cooperates with a double-pipe mechanical joint which compensates for any differential motion between the floating head and the stationary shell.

3,572,431

FLUID CIRCULATING AND RETRIEVING APPARATUS FOR OIL WELLS

Donald P. Hammon, 2939 Adelita Drive, Hacienda Heights, Calif. 91745
Filed Sept. 8, 1969, Ser. No. 856,107
Int. Cl. E21b *31/08*
U.S. Cl. 166—99 **3 Claims**



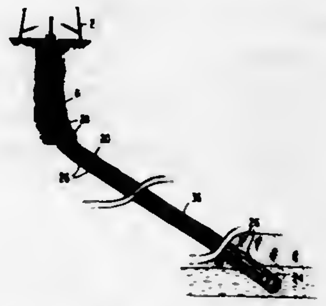
A retrieving apparatus for picking up debris from the bottom of oil wells comprises a hollow cylindrical body communicating at its upper end with the lower end of a drill pipe string and terminating at its lower end in an entrance opening. In the preferred embodiment there is supported in the body a cylindrical basket of smaller dimensions than the body to define an annulus between the exterior of the basket and the internal walls of the body itself. This annulus communicates between the lower end of the drill pipe string and the lower entrance opening of the body. A one-way catcher assembly is loosely mounted at the lower end of the basket. Oil well fluid is circulated down the oil well between the exterior walls of the drill pipe string and apparatus and the interior walls of the well and thence up through the entrance opening, catcher assembly, basket and annulus to the interior of the drill pipe string. This reverse circulation forces debris and the like up through the catcher assembly and into the basket where it is held by the catcher assembly. When the basket is filled, circulation can be maintained through the annulus to thereby wash out remaining small debris and sand at the bottom of the wall. In other embodiments, the basket can be eliminated.

3,572,432

APPARATUS FOR FLOTATION COMPLETION FOR HIGHLY DEVIATED WELLS

Burton W. Aulick, Midland, Tex., assignor to Halliburton Company, Duncan, Okla.
Original application Oct. 17, 1967, Ser. No. 675,808. Divided and this application Sept. 25, 1969, Ser. No. 870,699
Int. Cl. E21b *17/10, 33/14*
U.S. Cl. 166—114 **5 Claims**

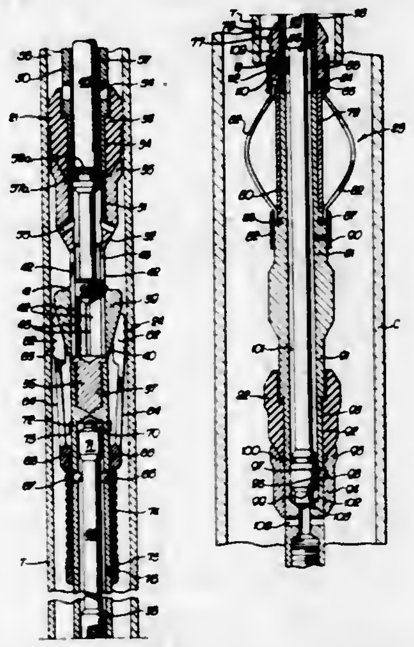
Well completion apparatus for highly deviated wells. Cement slurry is placed in the bore hole before the casing string is run. The cement is a delayed setting type cement. The casing contains fluid having a substantially lower density than that of the slurry. The fluid in the casing provides a buoyancy effect on the casing for floating the casing through the deviated zone. In a modified form of the invention, a buoyancy chamber is provided adjacent the lower end of the string in which the buoyancy fluid is contained. Centralizers are provided on the exterior of the casing and are spaced longitudinally from each other. The centralizers along the buoyancy chamber are spaced apart at greater intervals than the centralizers above the buoyancy chamber. An improved casing-cement bond is achieved due to a pressure differential between the exterior and the interior of the casing when the casing is run in the cement slurry. The hydrostatic pressure of the slurry urges the casing radially inward, but after the cement hardens, the pressure in the casing increases, thereby urging the casing outwardly against the hardened cement.



3,572,433

THROUGH TUBING CEMENTING PLUG APPARATUS

Martin B. Conrad, Carpinteria, Calif., assignor to Baker Oil Tools, Inc., City of Commerce, Calif.
Filed May 8, 1969, Ser. No. 823,030
Int. Cl. E21b *33/129, 33/16*
U.S. Cl. 166—132 **16 Claims**



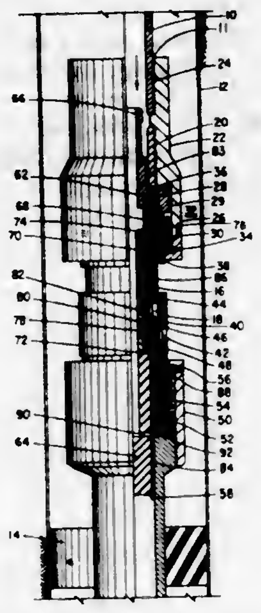
The method of cementing a porous subsurface earth formation in which well casing is set and perforated, wherein a body of cement slurry is displaced through the tubing, and a bridge plug is employed to close off the lower end of the tubing, following displacement of the cement slurry through the perforations. A bridge plug for use in performing such a method, such bridge plug having anchor slips releasably expandable into engagement with the tubing when an expansible spring device at the lower end of the plug emerges from the lower end of the tubing.

3,572,434

PRESSURE OPENED CIRCULATING SLEEVE

John H. Ecuer, Lafayette, Ind., assignor to Pan American Petroleum Corporation, Tulsa, Okla.
Filed Oct. 3, 1969, Ser. No. 863,474
Int. Cl. E21b *33/124*
U.S. Cl. 166—147 **8 Claims**

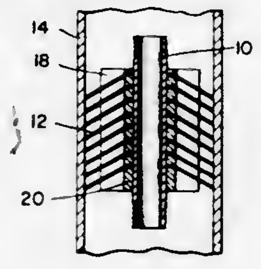
A valve for use in a string of tubing suspended in a well bore. A tabular sub having a first port in the wall thereof is connected into the tubing string. A first sleeve valve surrounds the tubular member and in its upper position opens the port and in its lower position closes the port. An upper fluid-driven piston is used to drive the sleeve valve down and a lower fluid-driven piston is used to drive the sleeve upward. The pistons are spring biased away from the sleeve valve, one of the springs having about twice the compressive resistance of the other. Application of selected pressures to the pistons will cause the right piston to move in the required direction to open or close the sleeve valve. There is provided a retrievable insertable tool comprising (a) a sleeve having a port aligned with the first port in the sub and (b) a second sleeve valve inside the sleeve for opening and closing this port.



3,572,435

LOAD SUPPORT FOR USE IN WELL CASING OR BORE HOLE

Robert E. Prescott, Jr., 10 Railroad Ave., Exeter, N.H. 03833
Filed Feb. 10, 1969, Ser. No. 797,797
Int. Cl. E21b *23/00*
U.S. Cl. 166—214 **4 Claims**



To support in a tubular well casing or bore hole a pipe consisting of a series of lengths joined by threaded nipples, and a load attached to the lower end of the pipe, stiffly resilient elements are mounted on one or more of the nipples projecting radially outward from the nipple or nipples, when unstressed, to a distance greater than the interior radius of a tubular well casing or bore hole so that when the pipe and nipples are inserted in the casing the elements are flexed to an inclined position, the tips of the elements engaging the wall of the casing to resist a change of direction of movement of the pipe. When the elements slope downward, they tend to support the weight of the pipe. To reverse the slope of the elements the pipe is rotated a few degrees to flex the elements horizontally permitting them to spring into horizontal planes. Up or down movement of the pipe then moves the elements into inclined positions.

ERRATUM

For Class 166—307 see:
Patent No. 3,572,416

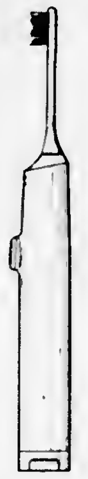
DESIGNS

MARCH 23, 1971

220,239
ELECTRICALLY DRIVEN TOOTHBRUSH

Dieter Rams, Konigstein, and Juergen Greubel, Eschenheim, Germany, assignors to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Nov. 5, 1969, Ser. No. 19,954
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D4—*15*

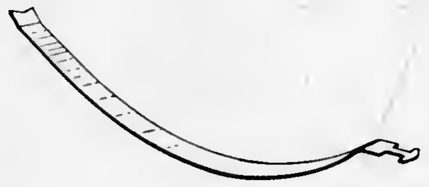
U.S. Cl. D4—15



220,240
TOOL FOR UNLOCKING AUTOMOBILE DOORS

George L. Steck, Dayton, Ohio, assignor to Steck Manufacturing Company, Inc., Dayton, Ohio
Filed Feb. 2, 1970, Ser. No. 21,183
Term of patent 14 years
Int. Cl. D8—*02*

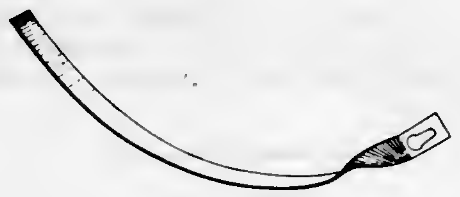
U.S. Cl. D8—16



220,241
TOOL FOR UNLOCKING AUTOMOBILE DOORS

George L. Steck, Dayton, Ohio, assignor to Steck Manufacturing Company, Inc., Dayton, Ohio
Filed Feb. 2, 1970, Ser. No. 21,204
Term of patent 14 years
Int. Cl. D8—*02*

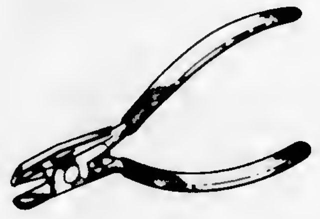
U.S. Cl. D8—16



220,242
SPOT-TIE CUTTER OR SIMILAR ARTICLE

Lewis P. David, Norwalk, Calif., assignor to North American Rockwell Corporation
Filed Oct. 20, 1969, Ser. No. 19,619
Term of patent 14 years
Int. Cl. D8—*02*

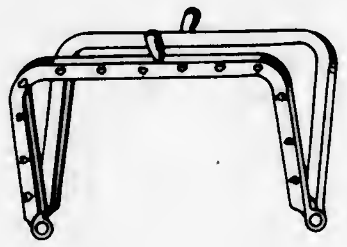
U.S. Cl. D8—58



220,243
HANDBAG FRAME

Karl H. Nos, 58 Steinheimer Str., 6453 Seligenstadt, Hesse, Germany
Filed Sept. 2, 1969, Ser. No. 18,931
Claims priority, application Germany Mar. 5, 1969
Term of patent 14 years
Int. Cl. D8—*03*

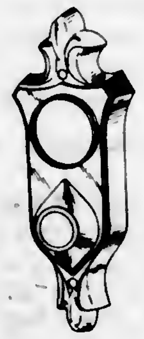
U.S. Cl. D8—125



220,244
ELECTRIC DOOR BUTTON FIXTURE

Edward J. Kunkel, Richmond, Calif., assignor to International Corporate Services, Richmond, Calif.
Filed Nov. 13, 1969, Ser. No. 20,075
Term of patent 14 years
Int. Cl. D8—*03*

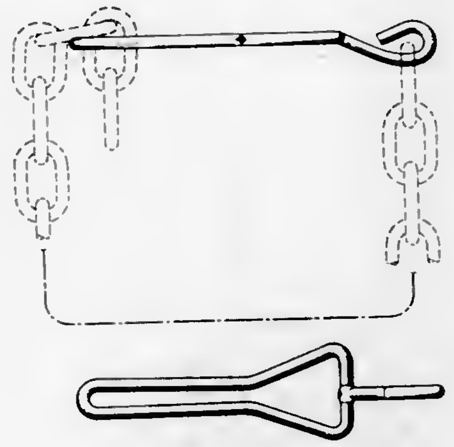
U.S. Cl. D8—179



220,245
LATCH

Clarence B. Jefferies, 5134 Darnell, Houston, Tex. 77035
Filed Nov. 12, 1969, Ser. No. 20,042
Term of patent 14 years
Int. Cl. D8—*03*

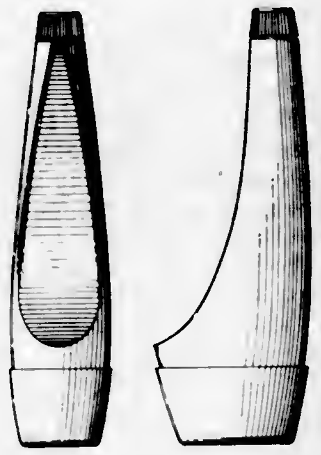
U.S. Cl. D8—261



220,246
COMBINED BOTTLE AND MEASURING CUP

Joseph G. Pacelli, Stamford, Conn., and Jerome Gould, Los Angeles, Calif.; said Pacelli assignor to Clairol Incorporated, New York, N.Y.
Filed Oct. 2, 1969, Ser. No. 19,389
Term of patent 14 years
Int. Cl. D9—*01*

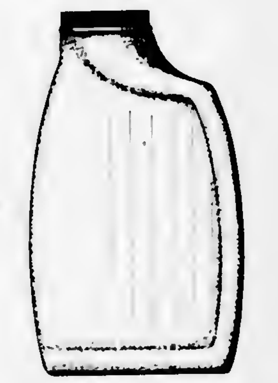
U.S. Cl. D9—10



220,247
COMBINED BOTTLE AND CAP THEREFOR

Vittorio Ghisolfi, Tortona, Italy, assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Jan. 7, 1970, Ser. No. 20,794
Claims priority, application Italy July 10, 1969
Term of patent 14 years
Int. Cl. D9—*01*

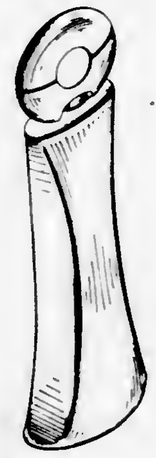
U.S. Cl. D9—63



220,248
COMBINED BOTTLE AND CAP THEREFOR

Martin L. Blumenthal, Chatham Township, N.J., assignor to Youth Care, Incorporated
Filed Apr. 7, 1970, Ser. No. 22,298
Term of patent 14 years
Int. Cl. D9—*01*

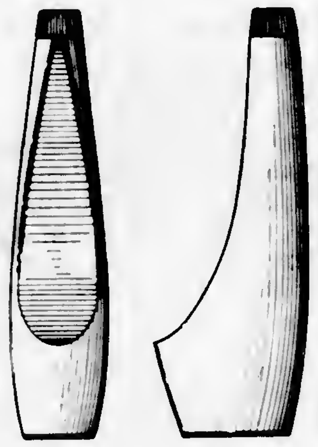
U.S. Cl. D9—63



220,249
BOTTLE

Jerome Gould, Los Angeles, Calif., assignor to Clairol Incorporated, New York, N.Y.
Filed Oct. 2, 1969, Ser. No. 19,383
Term of patent 14 years
Int. Cl. D9—*01*

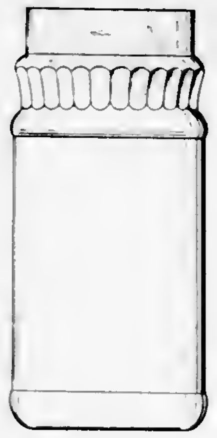
U.S. Cl. D9—63



220,250
JAR

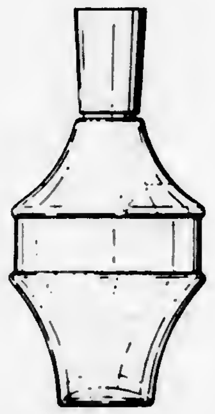
James E. Plummer, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Nov. 6, 1969, Ser. No. 19,973
Term of patent 14 years
Int. Cl. D9—*01*

U.S. Cl. D9—92



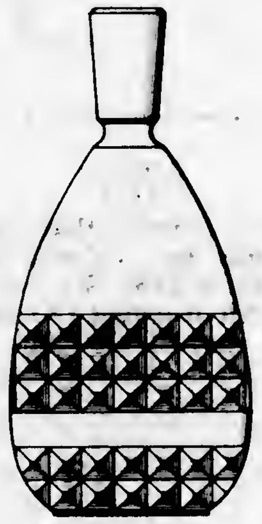
220,251
COMBINED BOTTLE AND CLOSURE CAP THEREFOR

Myles Basil Hailes, Walton-on-Thames, England, assignor to Lever Brothers Company, New York, N.Y.
Filed Feb. 17, 1970, Ser. No. 21,476
Claims priority, application Great Britain Aug. 22, 1969
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—117



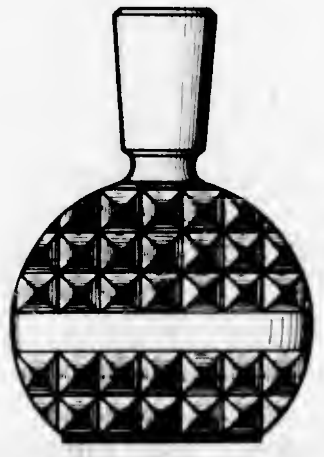
220,252
BOTTLE

Alberto Heusch Fernandez, Barcelona, Spain, assignor to Industria Espanola de Perlas Imitacion, S.A.
Filed Sept. 26, 1969, Ser. No. 19,302
Claims priority, application Spain Apr. 2, 1969
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—135



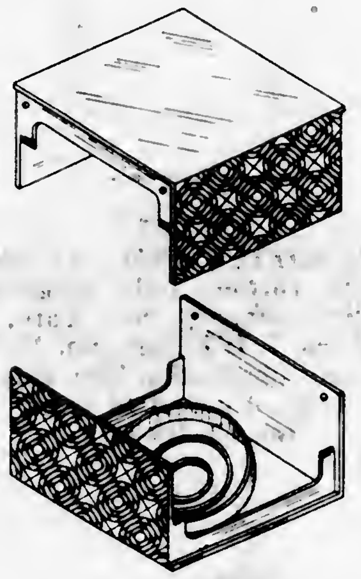
220,253
BOTTLE

Alberto Heusch Fernandez, Barcelona, Spain, assignor to Industria Espanola de Perlas Imitacion, S.A.
Filed Sept. 26, 1969, Ser. No. 19,318
Claims priority, application Spain Apr. 2, 1969
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—135



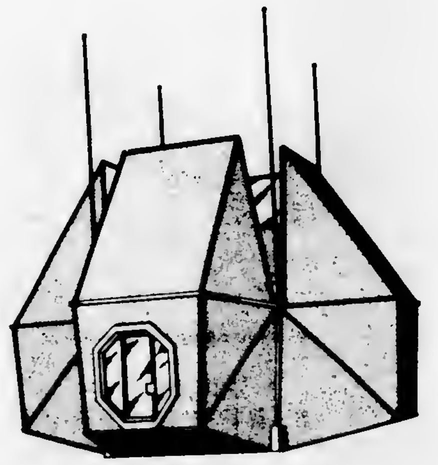
220,254
DISPLAY BOX

Vincenzo Pomodoro, Villaguardia, Italy, assignor to Neotis S.p.A., Como, Italy
Filed June 24, 1969, Ser. No. 17,848
Claims priority, application Italy Feb. 10, 1969
Term of patent 7 years
Int. Cl. D9—*04*
U.S. Cl. D9—184



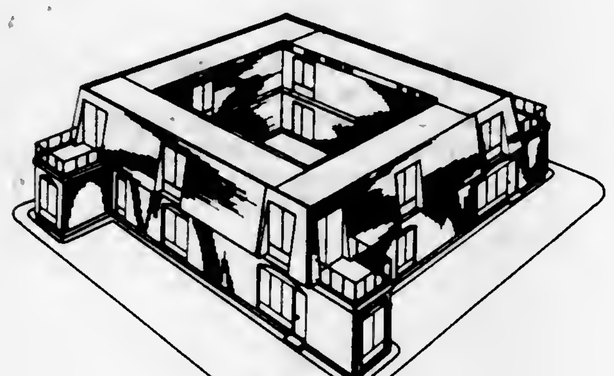
220,255
BUILDING

David B. Runnells, 6017 Windsor Drive, Shawnee Mission, Kans. 66205
Filed Nov. 20, 1969, Ser. No. 20,205
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



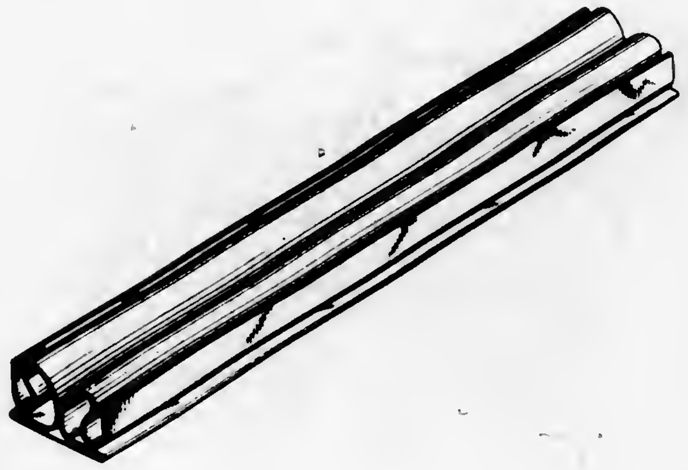
220,256
MULTIPLE UNIT HOUSING STRUCTURE

Louis J. Jenn, 4917 Laurel Circle, Indianapolis, Ind. 46226
Original design application July 15, 1968, Ser. No. 12,739, now Patent No. 216,954, dated Mar. 24, 1970. Divided and this application Nov. 13, 1969, Ser. No. 20,056
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



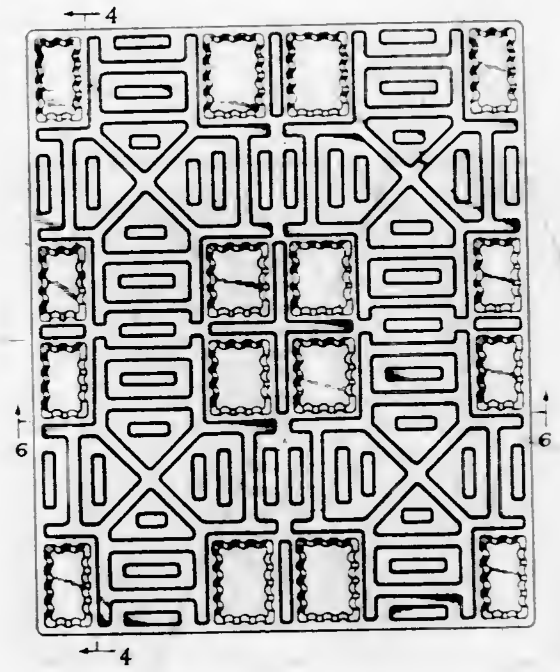
220,257
PARTITION SPACER

Jerome Philip Schooler, Roslyn Heights, N.Y. (10 Setmour Place, London W.1, England)
Filed Nov. 14, 1969, Ser. No. 20,090
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D13—6



220,258
MOLDED FIBER MATERIAL-HANDLING PALLET

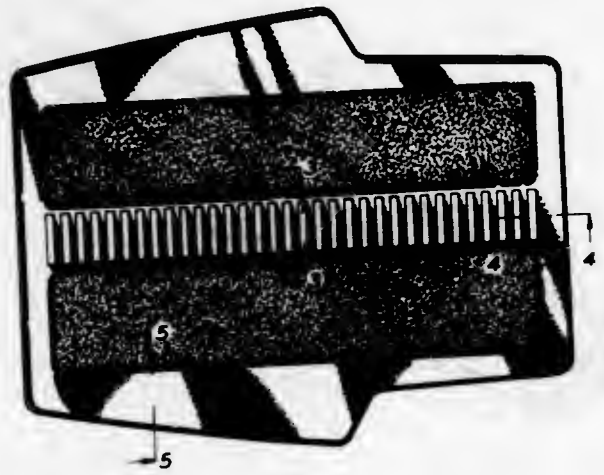
Watson S. Eastman, 4303 SW. Hillside Drive, Portland, Oreg. 97221
Filed July 8, 1969, Ser. No. 18,109
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D14—3



220,259
AUTOMOBILE FRONT FLOOR MAT AND THE LIKE

William C. Gerber, Wooster, Ohio, assignor to
Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 17, 1969, Ser. No. 20,117
Term of patent 14 years
Int. Cl. D12—*14*

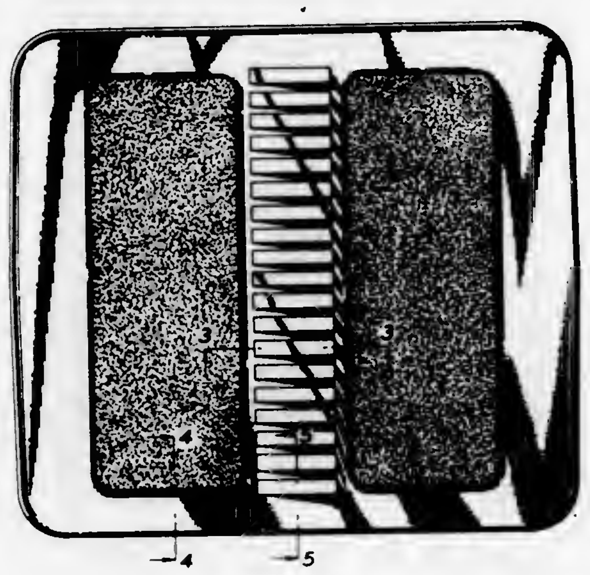
U.S. Cl. D14—5



220,260
AUTOMOBILE REAR FLOOR MAT AND THE LIKE

William C. Gerber, Wooster, Ohio, assignor to
Rubbermaid Incorporated, Wooster, Ohio
Filed Nov. 17, 1969, Ser. No. 20,119
Term of patent 14 years
Int. Cl. D12—*14*

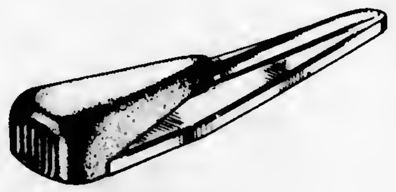
U.S. Cl. D14—5



220,261
AUTOMOBILE DOOR GUARD

Erick H. Bjorum, 640 Island View Drive, Seal Beach, Calif. 90740; John G. Gibson, 18 985 Santa Nadrina Circle, Fountain Valley, Calif. 92708; and Morgan C. Lindberg, 12840 Riverside Drive, North Hollywood, Calif. 91607
Filed Nov. 5, 1969, Ser. No. 19,960
Term of patent 14 years
Int. Cl. D12—*14*

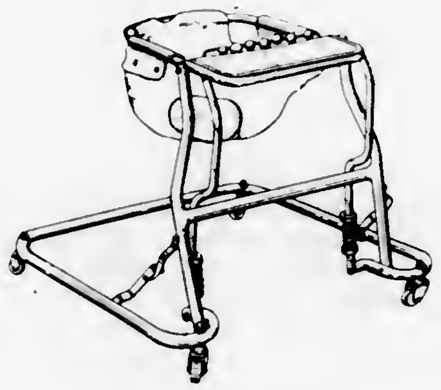
U.S. Cl. D14—6



220,262
BABY WALKER

Louis E. Shamie, 630 Ave. V., Brooklyn, N.Y. 11223
Filed Dec. 4, 1969, Ser. No. 20,362
Term of patent 14 years
Int. Cl. D6—*01*

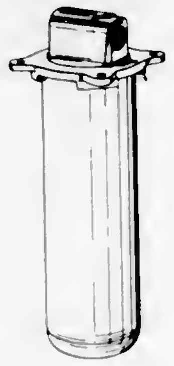
U.S. Cl. D15—1



220,263
FILTER

Cecil H. Hughes, Reading, England, assignor to
AMF Incorporated
Filed May 23, 1969, Ser. No. 17,303
Claims priority, application Great Britain Nov. 26, 1968
Term of patent 14 years
Int. Cl. D23—*01*

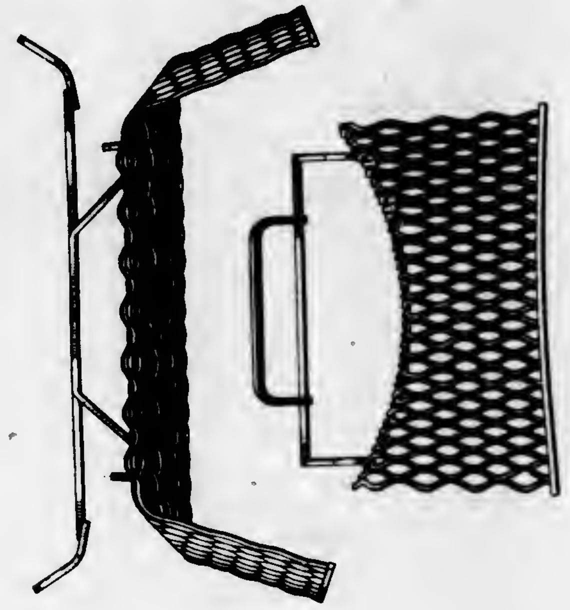
U.S. Cl. D23—4



220,264
COMBINED FIREPLACE GRATE AND GRILL

Mark M. Stone, Highland Park, Ill., assignor to
Metalex Corporation, Libertyville, Ill.
Application Mar. 13, 1967, Ser. No. 7,138, which is a continuation-in-part of design application Ser. No. 3,423, Aug. 11, 1966. Divided and this application June 19, 1968, Ser. No. 15,403
Term of patent 14 years
Int. Cl. D23—*03;* D7—*04*

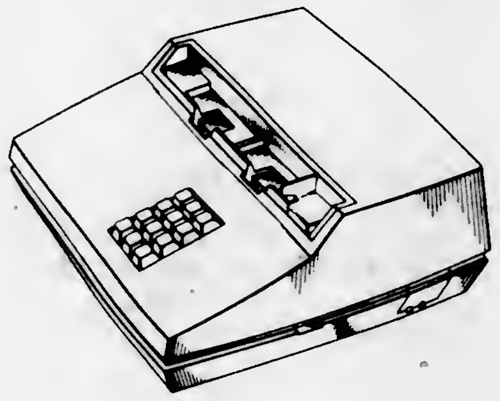
U.S. Cl. D23—98



220,265
DATA TRANSMISSION TERMINAL

Clifford I. Dawson, San Jose, Harry W. Johnson, Los Gatos, and Dallas G. Molerin, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 19, 1969, Ser. No. 20,317
Term of patent 14 years
Int. Cl. D14—*02*

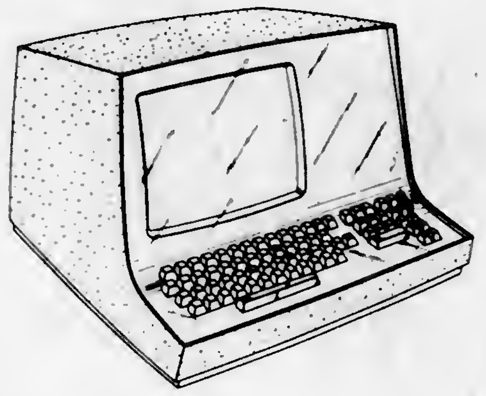
U.S. Cl. D26—5



220,266
COMPUTER TERMINAL

John P. Ray and Austin O. Roche, San Antonio, Tex., and John R. Frassanito, Jamaica, N.Y., assignors to Computer Terminal Corporation, San Antonio, Tex.
Filed Dec. 17, 1969, Ser. No. 20,547
Term of patent 14 years
Int. Cl. D14—*02*

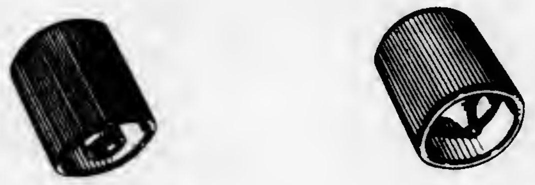
U.S. Cl. D26—5



220,267
MINIATURIZED RADIOISOTOPE GENERATOR

Wayne J. Gemmill, Warwick, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed Sept. 6, 1968, Ser. No. 13,429
Term of patent 14 years
Int. Cl. D13—*99*

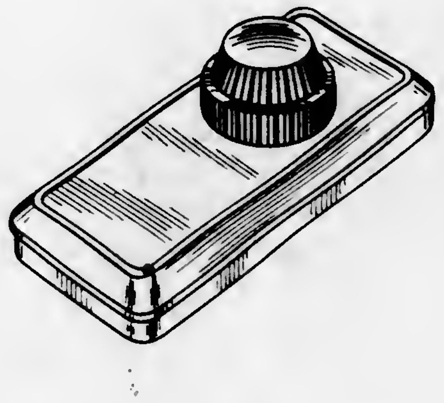
U.S. Cl. D26—6



220,268
HOUSING FOR COMMUNICATION LISTENING STATION OR THE LIKE

Donald L. Kliewer, Minneapolis, Minn., assignor to The Telex Corporation, Tulsa, Okla.
Filed Aug. 29, 1969, Ser. No. 18,914
Term of patent 14 years
Int. Cl. D13—*03*

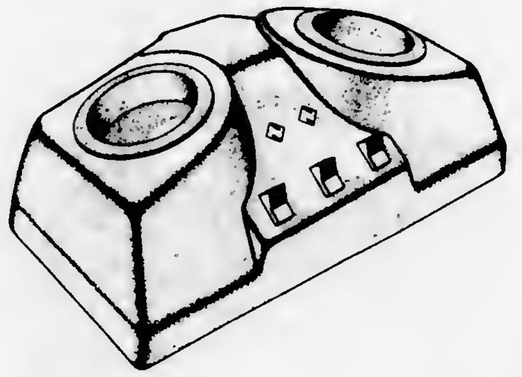
U.S. Cl. D26—13



220,269

TELEPHONE COUPLER

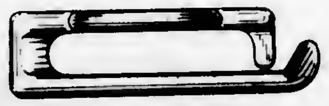
Karel Jacobs, Huntington Beach, Agazio S. Gugliotta, Hacienda Heights, and Kennon S. Haley, Costa Mesa, Calif., assignors to Vanguard Data Systems, Inc.
Filed Dec. 4, 1969, Ser. No. 20,364
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14

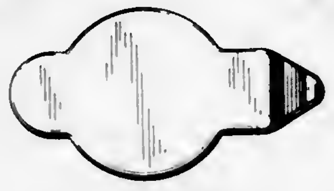


220,270

EAR TAG FOR ANIMALS

Donald David Fearing, 924 Arbor,
Mahtomedi, Minn. 55115
Filed Nov. 10, 1969, Ser. No. 20,002
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—43

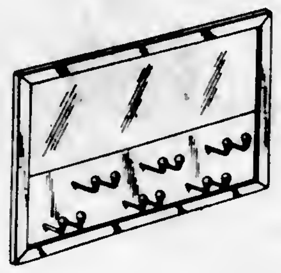




220,271

TIE RACK

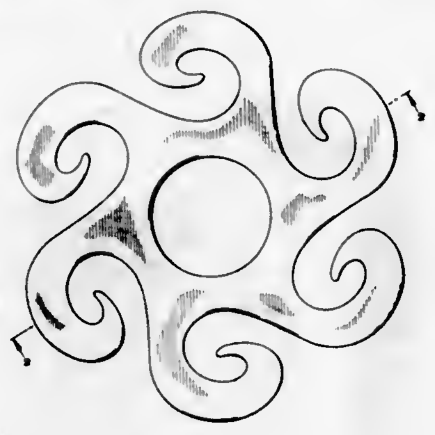
Russell W. Miles, Janesville, Iowa 50647
Filed Aug. 11, 1969, Ser. No. 18,641
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—8



220,272

RING TOSS TOY

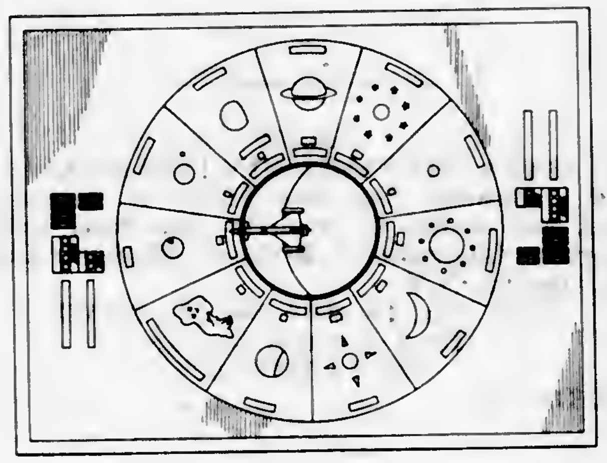
Lee Triplett, Salt Lake City, Utah, assignor to Expando Products Company, Magna, Utah
Continuation of design application Ser. No. 12,916, July 26, 1968. This application Dec. 22, 1969, Ser. No. 20,608
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5



220,273

GAME BOARD

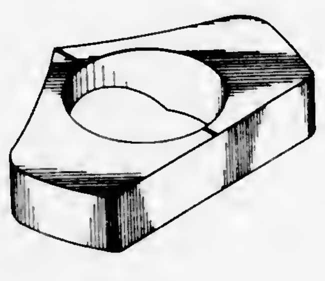
Ralph De Jesus, Imperial Beach, Calif.
(P.O. Box 308, New York, N.Y. 10029)
Filed Dec. 15, 1969, Ser. No. 20,517
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



220,274

GOLF PUTTER HEAD

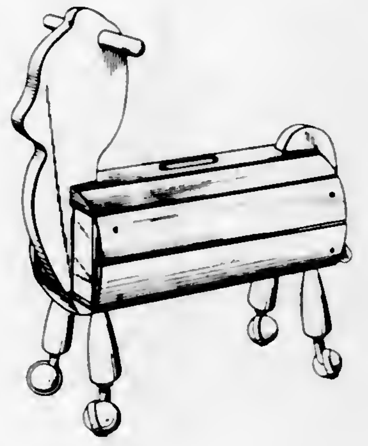
Joseph Frederick Rango, 2126 W. 177th St.,
Torrance, Calif. 90504
Filed Jan. 6, 1970, Ser. No. 20,784
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



220,275

HOBBY HORSE

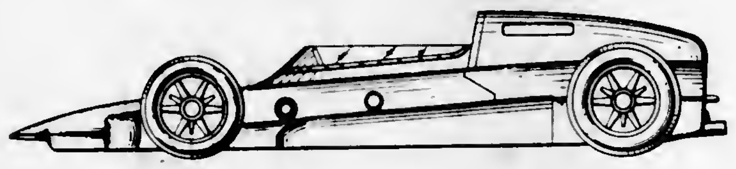
Wesley E. Sharer, Chicago, Ill., assignor to
Playskool, Inc., Chicago, Ill.
Filed Nov. 3, 1969, Ser. No. 19,896
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



220,276

MODEL RACING CAR

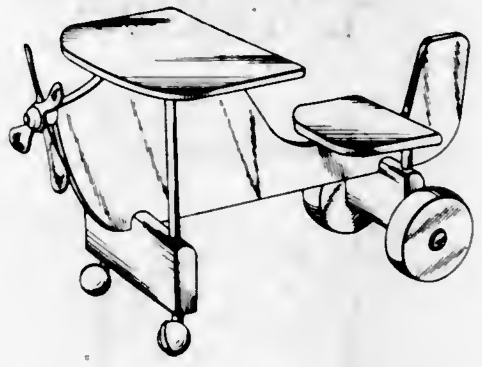
Daniel S. Gurney, Santa Ana, Calif., assignor to All American Racers, Inc., Santa Ana, Calif.
Filed July 16, 1969, Ser. No. 18,224
Claims priority, application Great Britain May 1, 1969
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



220,277

PLAY TOY VEHICLE

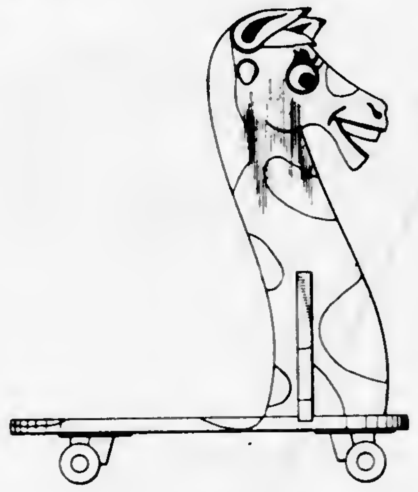
Wesley E. Sharer, Chicago, Ill., assignor to
Playskool, Inc., Chicago, Ill.
Filed Nov. 3, 1969, Ser. No. 19,897
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



220,278

SCOOTER

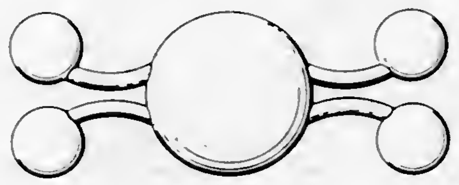
Robert J. Licher, 170 N. Adams, and Anthony J. Verbiscar, 491 Crestvale Drive, both of Sierra Madre, Calif. 91024
Filed June 26, 1969, Ser. No. 17,895
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D34—15



220,279

SPINNING TOY OR THE LIKE

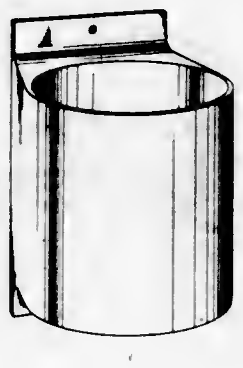
Joan L. Oliver, 8 Montego Key,
Novato, Calif. 94947
Filed Oct. 15, 1969, Ser. No. 19,573
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



220,280

WALL BRACKET FOR AN ELECTRIC SHAVER CHARGING UNIT

Bruce F. Ray, Danvers, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Dec. 18, 1969, Ser. No. 20,563
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—23

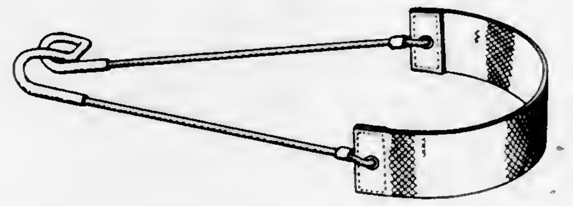


220,281

EXERCISING DEVICE

Leo Evan Long, Los Altos, Calif., assignor to Nielsen Engineering & Research, Inc., Mountain View, Calif.
Filed Feb. 26, 1970, Ser. No. 21,640
Term of patent 14 years
Int. Cl. D21—*03*

U.S. Cl. D34—5

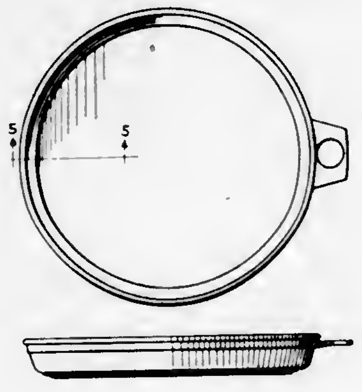


220,282

DINNER PLATE OR THE LIKE

Herbert M. Piker, Wyoming, Ohio, assignor to Sea Fair Corporation, Jacksonville, Fla.
Filed Jan. 7, 1970, Ser. No. 20,793
Term of patent 14 years
Int. Cl. D7—*01*

U.S. Cl. D44—15

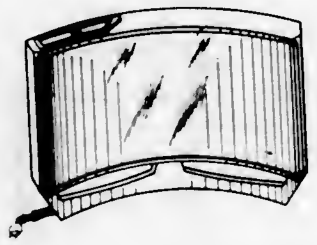


220,283

LAMP

William F. Suden, 22 Wheland Road, Apt. 11U, Providence, R.I. 02909
Filed Jan. 5, 1970, Ser. No. 20,766
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—20

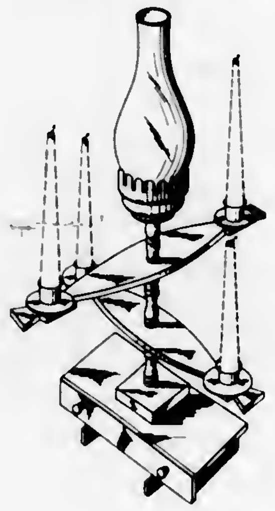


220,284

COMBINED LAMP AND CANDELABRUM

Paul R. Glasgow, Ohio Soldiers Home, Sandusky, Ohio 44870
Filed Dec. 23, 1969, Ser. No. 20,618
Term of patent 14 years
Int. Cl. D26—*02*

U.S. Cl. D48—20

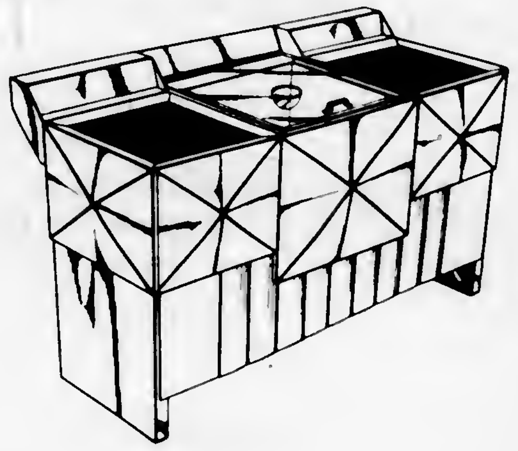


220,285

WASHING MACHINE

Robert C. Cowen, 214 Daniels, Marianna, Fla. 32446
Continuation-in-part of design application Ser. No. 11,416, Apr. 11, 1968. This application June 13, 1969, Ser. No. 17,702
Term of patent 14 years
Int. Cl. D15—*07*

U.S. Cl. D49—1

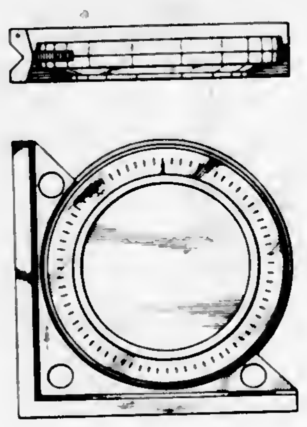


220,286

INCLINOMETER

Mike A. Provi, Rockford, Ill., assignor to Pro Products, Incorporated, Rockford, Ill.
Filed June 25, 1969, Ser. No. 17,864
Term of patent 14 years
Int. Cl. D10—*08*

U.S. Cl. D52—6

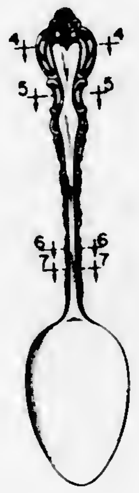


220,287

SPOON OR SIMILAR ARTICLE OF FLATWARE

Frank K. Guodace, Meriden, Conn., assignor to International Silver Company, Meriden, Conn.
Filed Feb. 20, 1970, Ser. No. 21,560
Term of patent 14 years
Int. Cl. D7—*03*

U.S. Cl. D54—12

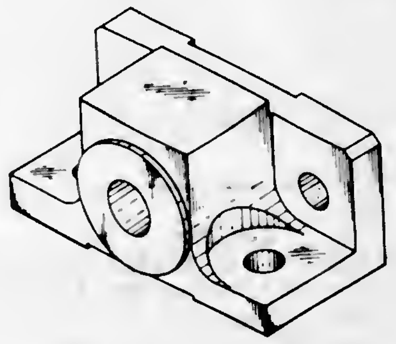


220,288

PILLOW BLOCK

Norman Schweizer, 26—02 S. 7th W., Missoula, Mont. 59801
Filed Dec. 3, 1969, Ser. No. 20,341
Term of patent 14 years
Int. Cl. D15—*05*

U.S. Cl. D55—1

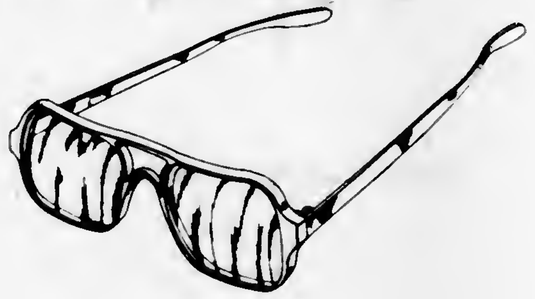


220,289

PAIR OF SPECTACLES

Atherton R. Mitchell, Dillon Beach, Calif., assignor to Renauld International, Ltd., Fitchburg, Mass.
Filed Nov. 19, 1969, Ser. No. 20,175
Term of patent 14 years
Int. Cl. D16—*08*

U.S. Cl. D57—1

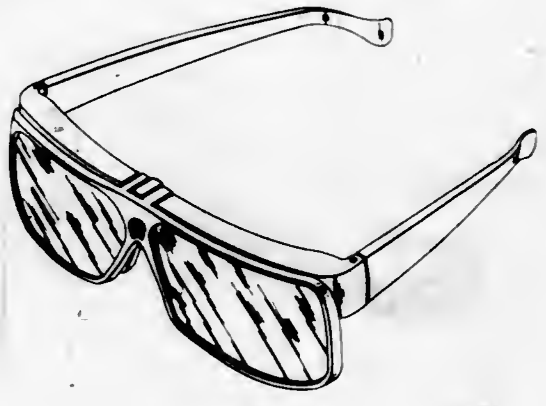


220,290

PAIR OF SUNGLASSES

Jack Bloch, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass.
Filed Apr. 21, 1970, Ser. No. 22,544
Term of patent 14 years
Int. Cl. D16—*08*

U.S. Cl. D57—1

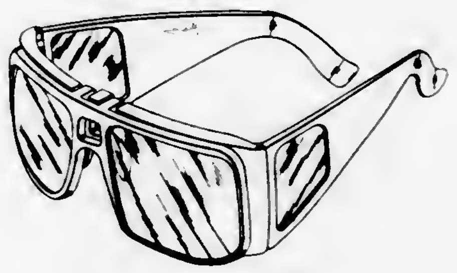


220,291

PAIR OF SUNGLASSES

Jack Bloch, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass.
Filed Apr. 21, 1970, Ser. No. 22,545
Term of patent 14 years
Int. Cl. D16—*08*

U.S. Cl. D57—1

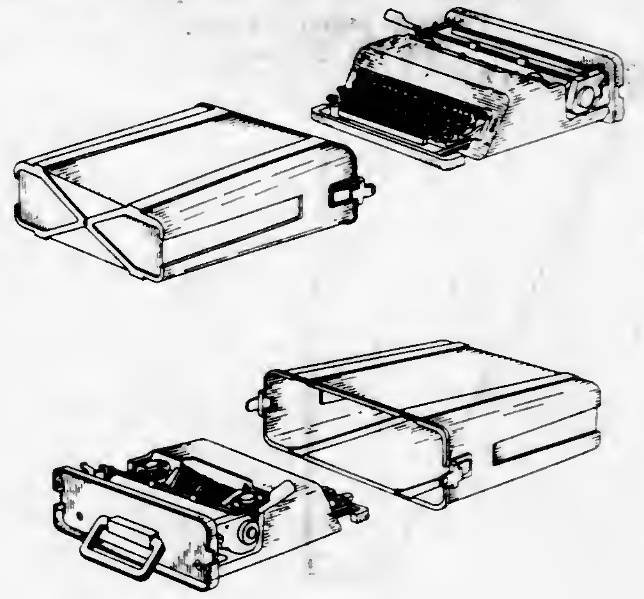


220,292

PORTABLE TYPEWRITER

Ettore Sottsass, Jr., 14 Via Manzoni, 20121 Milan, Italy
Filed Nov. 3, 1969, Ser. No. 19,893
Claims priority, application Italy May 3, 1969
Term of patent 14 years
Int. Cl. D18—*01*

U.S. Cl. D64—11

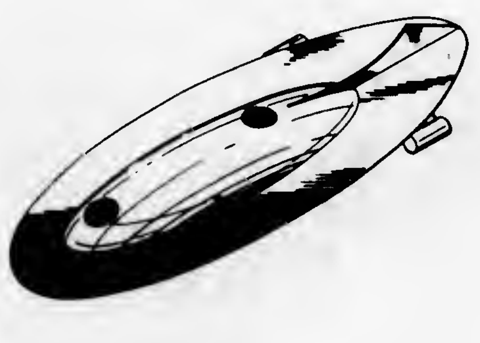


220,293

VERTICAL TAKEOFF AIRCRAFT

**Joseph Patricny, 87—30 Justice Ave.,
Elmhurst, N.Y. 11373
Filed Dec. 29, 1969, Ser. No. 20,673
Term of patent 14 years
Int. Cl. D12—*07***

U.S. Cl. D71—1

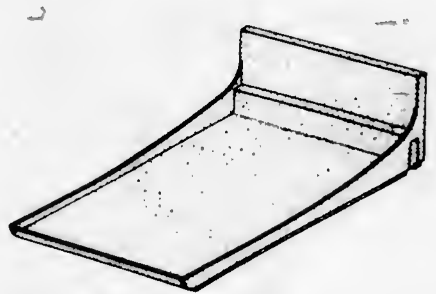


220,294

DESK TRAY

**James E. Joyce, 878 Darien Circle,
Rochester, Mich. 48063
Continuation-in-part of design application Ser. No. 15,346, Jan. 14, 1969. This application Nov. 19, 1969, Ser. No. 20,185
Term of patent 14 years
Int. Cl. D19—*02***

U.S. Cl. D74—9

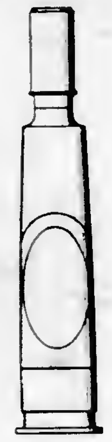


220,295

CASING FOR A MARKER PEN

**Robert R. Anderson, Park Forest, Ill., and Moto Shimano, Los Angeles, and Clarence D. Zierhut, Los Angeles County, Calif., assignors to The Gillette Company, Santa Monica, Calif.
Filed Jan. 8, 1970, Ser. No. 20,827
Term of patent 14 years
Int. Cl. D19—*06***

U.S. Cl. D74—17

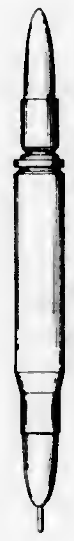


220,296

BALLPOINT PEN

**Victor A. Berlin, 67—66 108th St.,
Forest Hills, N.Y. 11375
Filed Feb. 11, 1970, Ser. No. 21,402
Term of patent 14 years
Int. Cl. D19—*06***

U.S. Cl. D74—17

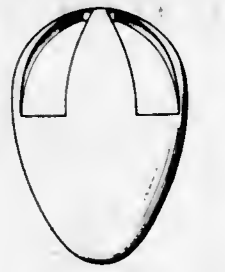


220,297

CRAYON OR THE LIKE

**Yehuda Tarmu, 1151 Stearns Drive,
Los Angeles, Calif. 90035
Filed Apr. 10, 1970, Ser. No. 22,365
Term of patent 14 years
Int. Cl. D19—*06***

U.S. Cl. D74—24

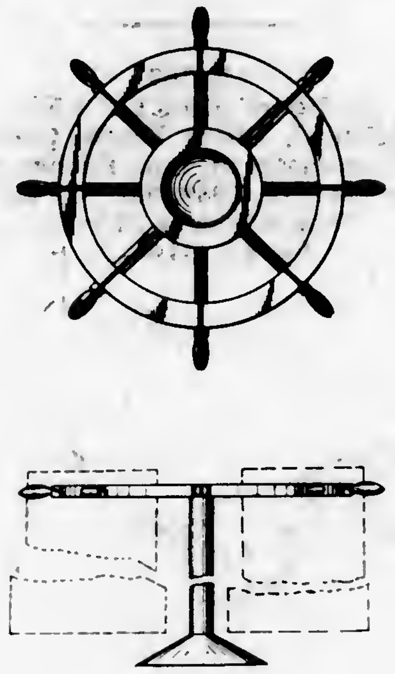


220,298

DISPLAY STAND FOR CLOTHES OR THE LIKE

**Michael Naglowsky, 709 Walnut St., Erie, Pa. 16502
Filed Aug. 1, 1969, Ser. No. 18,506
Term of patent 14 years
Int. Cl. D6—*01***

U.S. Cl. D80—9

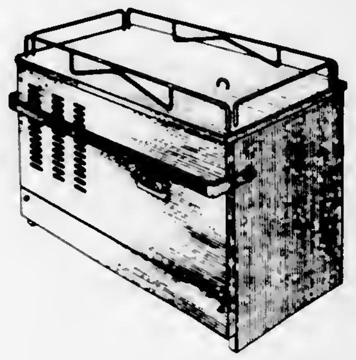


220,299

STOVE

**Norman Schott, Burnaby, British Columbia, Canada, assignor to Dickinson's Limited, Burnaby, British Columbia, Canada
Filed Nov. 21, 1969, Ser. No. 20,222
Term of patent 7 years
Int. Cl. D7—*04***

U.S. Cl. D81—10

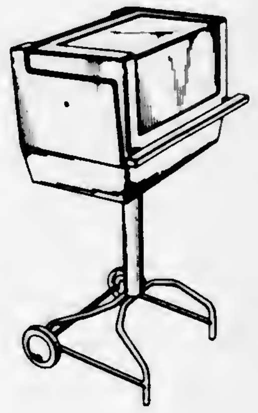


220,300

BARBECUE COOKER

**Roger T. Shaper and John E. Germann, both of
P.O. Box 125, Houston, Tex. 77001
Filed Jan. 26, 1970, Ser. No. 21,092
Term of patent 14 years
Int. Cl. D7—*04***

U.S. Cl. D81—10

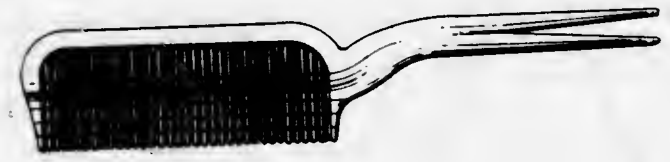


220,301

COMB

**Gino J. Piermarini, 443 Pleasant St., and Norman C. Burnap, 319 Pierce St., both of Leominster, Mass. 01453
Filed Oct. 9, 1969, Ser. No. 19,481
Term of patent 14 years
Int. Cl. D28—*03***

U.S. Cl. D86—8

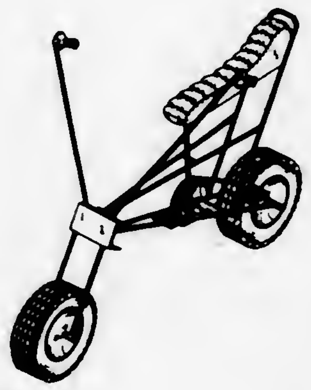


220,302

BICYCLE

**Glen R. Shaw, P.O. Box 179, Escalante, Utah 84726
Filed Mar. 10, 1970, Ser. No. 21,836
Term of patent 14 years
Int. Cl. D12—*11***

U.S. Cl. D90—8

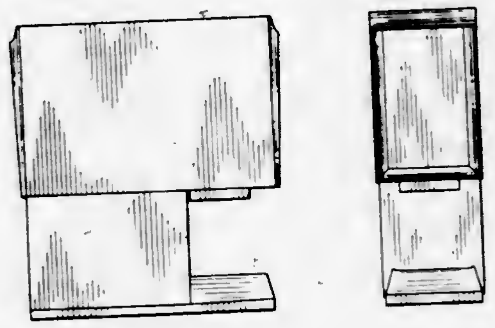


220,303

FROZEN CARBONATED BEVERAGE MACHINE

**William A. Gran, Independence, Mo., assignor to The Vendo Company, Kansas City, Mo.
Filed Sept. 12, 1969, Ser. No. 19,131
Term of patent 14 years
Int. Cl. D15—*12***

U.S. Cl. D94—3



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- Weremey, Frederick J.: *See*—
  - Carlson, Peter T.; Weremey, Frederick J.; and Mitchell, Edward B.,3,572,068.
- Weseloh, William E.: *See*—
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- West, Lynn P., to International Business Machines Corporation. FSK communication system utilizing clamped demodulator output. 3,571,710, Cl. 325-30.
- West, Lynn P., to International Business Machines Corporation. Demodulator for pulse width modulated signals. 3,571,736, Cl. 329-104.
- Westcott, Carl H., to Atomic Energy of Canada Limited. Method and apparatus for interleaved charged particle acceleration. 3,571,642, Cl. 313-63.
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- Westinghouse Air Brake Company: *See*—
  - Doolittle, Charles, 3,571,883.
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  - De Francesco, Henry F., 3,571,758.
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  - Obenshain, David Noel, 3,572,147.
- Wetzler, Justin J., to Means, F. W., & Co. Liquid processing of discrete articles without joining same. 3,571,830, Cl. 8-150.
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  - Garfield, Richard L.; and Stacik, Harold S., 3,571,941.
- White, Albert H., to Evans, Chandler, Inc. Main fuel metering valve. 3,572,365, Cl. 137-117.
- White, Douglas F.; Scadron, Marvin D.; and Faul, Joseph C., to American Standard Inc. Altitude measuring device. 3,572,126, Cl. 73-384.
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  - Doyle, Walter M.; White, Matthew B.; Galassi, George Joseph; Reisman, Elias; and Gerber, Wesley Duane,3,571,549.
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- Whitehouse, David John; Barr, John Denzil; Reason, Richard Edmund; Reeve, Thomas Charles; Spragg, Robert Claude; Starr, Arthur Tisso; and Stillwell, Peter Frederic Thomas Cryer, to Rank Organisation Limited, The. Assessing of surface profiles. 3,571,579, Cl. 235-151.3
- Widlar, Robert J. . 3,571,630, Cl. 250-199.
- Wieczorek, Alfred B., to General American Transporation Corporation. Ultrasonic non-destructive testing apparatus and method. 3,572,099, Cl. 73-67.7
- Wieland, Walter, to Langen & Co. Hydro-pneumatic pressure reservoir. 3,572,389, Cl. 138-30.
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- Wiggins, Richard F., to Gyromat Corporation, The. Control valves for supplying paint in paint spray installations. 3,572,366, Cl. 137-240.
- Wilbur, Donald A., to General Electric Company. Log periodic electron discharge device. 3,571,651, Cl. 315-3.5
- Wilhelmsson, Gunnar, to Aktiebolaget Svenska Flaktfabriken. Filtering apparatus for gaseous media. 3,572,011, Cl. 55-290.
- Wilkerson, James E., to Tyler Pipe Industries, Inc. Pipe joint make-or-break tool. 3,571,896, Cl. 29-237.
- Wilkes, Donald F., to United States of America, Atomic Energy Commission. Roller-band devices. 3,572,141, Cl. 74-89.22
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- Wilson, Henry Allen. Toy hat. 3,571,811, Cl. 2-195.
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- Wise, Layton A., to Mine Safety Appliances Company. Combination valve and speaking diaphragm unit. 3,572,332, Cl. 128-142.4
- Wise, William L., to Tydeman Machine Works, Inc. Circuit for supplying controlled DC loads from polyphase AC sources. 3,571,689, Cl. 321-5.
- Wismer, Marco, to PPG Industries, Inc. Method for casting metals in foamed inorganic refractory molds. 3,572,417, Cl. 164-43.
- Wolfe, Howard F., to United States of America, Air Force. Wide band siren sytem. 3,572,285, Cl. 116-147.
- Wollesen, Donald L., to Arc Incorporated. Internal combustion engine speed limiting apparatus. 3,572,302, Cl.
- Woltjen, Duane W., to UMC Industries, Inc. Indexing drive. 3,572,173, Cl. 74-815.
- Wood, Charles D., to Southwest Research Institute. Apparatus for breaking a layer of ice on a body of water by repetitive combustive explosions. 3,572,273, Cl. 114-40.
- Wood, Lockett E.: *See*—
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- Woodham, Edward; and Scoffin, Edward Charles Richard, to Mason, E. N., & Sons Limited. Copying machine and feed apparatus therefor. 3,572,203, Cl. 83-155.
- Woodward, Gary F., to Ford Motor Company. Vacuum motor adapted for use in a vehicle speed control mechanism. 3,572,214, Cl. 91-457.
- Worcester, Joseph A., to General Electric Company. Squelch circuit. 3,571,718, Cl. 325-478.
- Wright, Robert H.; Kellogg, Francis E.; Burton, Donald J.; and Daykin, Philip N., to United States of America, Army. Method apparatus for measuring the insect repellent properties of chemical vapors. 3,572,131, Cl. 73-432.
- Wustner, Friedrich, to Siemens Aktiengesellschaft. Plasma welding torch. 3,571,556, Cl. 219-121.
- Xerox Corporation: *See*—
  - Maksymiak, John, 3,572,289.
  - Turner, Lyman H., 3,572,288.
- Yaezima, Koro: *See*—
  - Morozumi, Muneharu; and Yaezima, Koro,3,572,151.
- Yerman, Alexander J., to General Electric Company. Integral semiconductor strain gage transducers with frequency output. 3,572,109, Cl. 73-141.
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  - Iwata, Koji; and Yokoyama, Kenjiro,3,571,691.
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- Yoshida, Okio: *See*—
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- Yoshida, Susumu; Ohgoshi, Akio; and Miyaoka, Senri, to Sony Corporation. Plural beam electron gun for a color picture tube with different-sized control grid apertures. 3,571,643, Cl. 313-70.
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  - Littwin, Arthur K., 3,571,911.
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- Yu, Albert Y.C.; and Snow, Edward H., to Fairchild Camera and Instrument Corporation. Fast switching PNP transistor. 3,571,674, Cl. 317-235.
- Yuan, Frank L., to Becton, Dickinson and Company. Disposable electrode with a metallurgically- bonded, silver-silver chloride sensing element. 3,572,323, Cl. 128-2.06
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  - John, Ernst; and Zellmann, Rudi,3,571,664.
- Zemek, Albert W. Belted axial lead electronic component splicing clip. 3,571,862, Cl. 24-36.
- Zerkle, Ronald D., 50% to Jefferies, Neal P. Cooling system for cutting tool and the like. 3,571,877, Cl. 29-106.
- Zernow, Louis, to United States of America, Air Force. Pulsed hot wire system. 3,572,092, Cl. 73-15.
- Zieske, Harrison A.: *See*—
  - Bloomfield, Daniel K.; and Zieske, Harrison A.,3,572,321.
- Zimmer, Peter: *See*—
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- Barry, Donald W.: *See*—
  - Broussard, Douglas E., Kinzbach, Kershner, and Barry. Re. 27,088.
- Binder, Alan M. Fuel induction device. Re. 27,087, 3–23–71, Cl. 261—36.
- Bountiful, Udy Lex L.: *See*—
  - Clay, Robert B., and Bountiful. Re. 27,095.
- Broussard, Douglas E., R. B. Kinzbach, S. G. Kershner, and D. W. Barry, to Shell Oil Co. Pipe-laying barge with adjuatable pipe discharge ramp. Re 27,088, 3–23–71, Cl. 61—72.3.
- Bunker Ramo Corp., The: *See*—
  - Sear, Brian E., Williams, and Stephens. Re. 27,089.
- Cavitt, Stanley B., and G. P. Speranza, to Jefferson Chemical Co., Inc. Method for the preparation of 2-amino-1-alkanols. Re. 27,098, 3–23–71, Cl. 260—584.
- Clay, Robert B., and U. L. L. Bountiful, to Intermountain Research and Engineering Co., Inc. Ammonium nitrate slurry blasting composition containing sulfur-sodium nitrate sensitizer. Re. 27,095, 3–23–71, Cl. 149—41.
- Du Pont de Nemours, E. I., and Company: *See*—
  - Slocum, Donald H. Re. 27,093.
- Fastener Corporation: *See*—
  - Novak, Edward J. Re. 27,097.
- General Electric Co.: *See*—
  - Morgan, Raymond E. Re. 27,091.
- Intermountain Research and Engineering Co. Inc.: *See*—
  - Clay, Robert B., and Bountiful. Re. 27,095.
- Jefferson Chemical Co., Inc.: *See*—
  - Cavitt, Stanley B., and Speranza. Re. 27,098.
- Kershner, Stuart G.: *See*—
  - Broussard, Douglas E., Kinzbach, Kershner, and Barry. Re. 27,088.
- Kinzbach, Robert B.: *See*—
  - Broussard, Douglas E., Kinzbach, Kershner, and Barry. Re. 27,088.
- Morgan, Agnes: *See*—
  - Morgan Raymond E. Re. 27,091.
- Morgan, Raymond E., deceased, by Agnes Morgan, administrator, to General Electric Co. Time ratio control and inverter power circuits. Re. 27,091, 3–23–71, Cl. 321—43.
- Novak, Edward J., to Fastener Corporation. Fluid motor having a supply-and-exhaust valve carried by the piston. Re. 27,097, 3–23–71. Cl. 91—28.
- Procter & Gamble Co., The: *See*—
  - Walker, Arthur P. Re. 27,096.
- Raytheon Company: *See*—
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- Rosaen, Borje O.: *See*—
  - Rosaen, Nils O., B. O., and O. E. Re. 27,094.
- Rosaen, Nils O., B. O. Rosaen, and O. E. Rosaen, to Universal Filters, Inc. Method of manufacturing pleated filters. Re. 27,094, 3–23–71, Cl. 29—445.
- Rosaen, Oscar E.: *See*—
  - Rosaen, Nils O., B. O., and O. E. Re. 27,094.
- Rutter, Henry A. Individual dry dock for boats. Re. 27,090, 3–23–71, Cl. 61—65.
- Sear, Brian E., R. C. Williams, and R. A. Stephens, to The Bunker Ramo Corp. Planar coaxial circuitry. Re. 27,089, 3–23–71, Cl. 317—10.
- Shell Oil Co.: *See*—
  - Broussard, Douglas E, Kinzbach, Kershner, and Barry. Re. 27,088.
- Shrader, William W.: *See*—
  - Stifter, Francis J., and Shrader. Re. 27,092.
- Slocum, Donald H., to E. I. du Pont de Nemours and Company. Thick cured polymethyl methacrylate article and process for its preparation. Re. 27,093, 3–23–71, Cl. 260—41.
- Speranza, George P.: *See*—
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- Stephens, Raymond A.: *See*—
  - Sear, Brian E., Williams, and Stephens. Re. 27,089.
- Stifter, Francis J., and W. W. Shrader, to Raytheon Company. Moving target indication system using a staggered repetition rate. Re. 27,092, 3–23–71. Cl. 343—7.7.
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- Walker, Arthur P., to The Procter & Gamble Co. Detergent composition. Re. 27,096, 3-23-71, Cl. 252—152.
- Williams, Robert C.: *See*—
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- All American Racers, Inc.: *See*—
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- Berlin, Victor A. Ball point pen. 220,296, 3–23–71, Cl. D74—17.
- Bjorum, Erick H., J. G. Gibson, and M. C. Lindberg. Automobile door guard. 220,261, 3–23–71, Cl. D14—6.
- Bloch, Jack, to Foster Grant Co., Inc. Pair of sunglasses. 220,290, 3–23–71, Cl. D57—1.
- Bloch, Jack, to Foster Grant Co., Inc. Pair of sunglasses. 220,291, 3–23–71, Cl. D57—1.
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  - Pacelli, Joseph G. 220,246.
- Colgate-Palmolive Company: *See*—
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- David, Lewis P., to North American Rockwell Corporation. Spot-tie cutter or similar article. 220,242, 3–23–71, Cl. D8—58.
- Dawson, Clifford I., H. W. Johnson, and D. G. Molerin, to International Business Machines Corp. Data Transmission terminal. 220,265, 3–23–71. Cl. D26—5.
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- Expando Products Co.: *See*—
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- Fearing, Donald D. Ear tag for animals. 220,270, 3–23–71, Cl. D30—43.
- Fernandez, Alberto H., to Industria Espanola de Perlas Imitacion. Bottle. 220,252, 3–23–71, Cl. D9—135.
- Fernandez, Alberto H., to Industria Espanola de Perlas Imitacion. Bottle. 220,253. 3–23–71, Cl. D9—135.
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  - Ray. Bruce F. 220,280.
- Glasgow, Paul R. Combined lamp and candelabrum. 220,284, 3–23–71, Cl. D48—20.
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- Gran, William A., to The Vendo Co. Frozen carbonized beverage machine. 220,303, 3–23–71. Cl. D94—3.
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- Gurney, Daniel S., to All American Racers, Inc. Model racing car. 220,276, 3–23–71, Cl. D34—15.
- Hailes, Myles B., to Lever Brothers Co. Combined bottle and closure cap therefor. 220,251, 3–23–71. Cl. D9—117.
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- Joyce, James E. Desk tray. 220,294, 3–23–71, Cl. D74—9.
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- Nos, Karl H. Handbag frame. 220,243, 3–23–71, Cl. D8—125.
- Oliver, Joan L. Spinning toy or the like. 220,279, 3–23–71, Cl D34—15.
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- Steck, George L., to Steck Manufacturing Company, Inc. Tool for unlocking automobile doors. 220,241, 3–23–71, Cl. D8—16.
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  - Gran, William A. 220,303.
- Verbiscar, Anthony J.: *See*—
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CLASSIFICATION OF PATENTS

ISSUED MARCH 23, 1971

Note.—First number, class; second number, subclass; third number, patent number

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3,553,517
3,553,579
3,553,640
3,553,995
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3,556,768
3,557,102
3,557,250

Patents Available for Licensing or Sale

2,978,003. FLOATING MUSHROOM ROOT TRIMMING MACHINE. William S. Benekam, 633 Valley Ave., Atglen, Pa., 19310.

3,362,415. CIGARETTE HOLDER. Guy D. Ellis, 408 N. 16th St., Kansas City, Kans., 66102.

3,463,371. DISPENSING DEVICE. Hans F. Geiger, 5845 N. New Jersey St., Indianapolis, Ind., 46220.

3,496,701. METHOD AND APPARATUS FOR REMOVING PARTICULATES FROM FLOWING GASES. T. G. Owe BERG, 14361 Deanann Place, Garden Grove, Calif., 92640.

3,526,157. COMBINATION OF CIRCULAR SAW JOINTER AND VISE. Ezra Rachal, 303 Powell Ave., Monroe, La., 71201.

3,534,789. EDGER SET WORKS. Woodrow Morris, Rte. 2, Vanceboro, N.C., 28586.

3,535,667. ELECTRICAL SAFETY DEVICE. Henry C. Harnish, Jr., and Anthony J. Osello, Elcock Ave., Boonton, N.J., 07005.

3,546,945. FLUID SAMPLER. William H. Collins, 1002 Chipley St., Baker, La., 70714.

3,548,504. SIGHTING DEVICE FOR ESTABLISHING A LINE OF SIGHT. Russell F. Sykes, 303 Palmcrest Road, North Syracuse, N.Y., 13212.

The following 3 patents are offered by: John W. Barnd, 32 Gollybrook Road, Paramus, N.J.

3,351,128. MULTI-ZONE TEMPERATURE CONTROL.

3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.

3,515,345. MULTI-ZONE TEMPERATURE CONTROL.

General Electric Company is prepared to grant non-exclusive licenses under the following 11 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be may be addressed to: Patent Counsel, Mobile Radio Department, General Electric Co., Lynchburg, Va., 24502.

3,453,053. ELECTRONIC SINGLE-POLE, DOUBLE-THROW SWITCH.

Applications for license under the following patent may be addressed to: Patent Counsel, Metallurgical Products Department, General Electric Co., Box 237–GPO, Detroit, Mich., 48232.

3,550,051. SPEAKER MAGNET HAVING CURVED PREFERRED DIRECTION OF MAGNETIZATION.

Applications for license under the following patent may be addressed to: Division Patent Counsel, Power Transmission Division, General Electric Co., 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,545,538. SELF-SUPPORTING PARALLEL TUBULAR STRUCTURE AND METHOD OF FORMING THE SAME.

Applications for license under the following 3 patents may be addressed to: Patent Counsel, Communication and Control Device Products Dept., General Electric Co., Waynesboro, Va., 22980.

3,499,168. VOLTAGE REGULATING CIRCUIT WITH REACTOR SENSING MEANS.

3,535,615. POWER CONTROL CIRCUITS INCLUDING A BI-DIRECTIONAL CURRENT CONDUCTING SEMICONDUCTOR.

3,549,971. REVERSING CONTROLLER.

Applications for license under the following 5 patents may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804, Attention: Patent Counsel.

2,866,025. NON-BOUNCING SWITCHING APPARATUS.

2,993,099. RANGE TIMER.

3,038,041. RANGE TIMER.

3,147,401. ELECTRIC IGNITION DEVICE.

3,169,177. CAM OPERATED RANGE TIMER SWITCH.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	9-29-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-30-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-12-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-02-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-22-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches: Miscellaneous.	5-26-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-04-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-27-70
PHYSICS, GROUP 280—R. L. EVANS, Director Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-17-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts; Household, Personal and Fine Arts.	5-18-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-15-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling. Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-27-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-03-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling: Lubrication; Joint Packing.	3-19-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	1-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,670,468 to 2,673,977, inclusive
Plant Patents	Numbers 1,260 to 1,266, inclusive

REISSUES

MARCH 30, 1971

Matter enclosed in heavy brackets **[ ]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,099
MAGNETIC MEMORY DEVICE

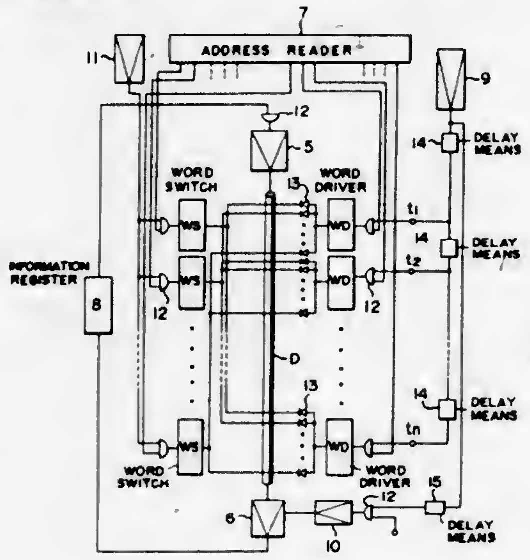
Katsuro Nakamura, Tokyo, Japan, assignor to Toko Kabushiki Kaisha, Tokyo-to, Japan

Original No. 3,408,639, dated Oct. 29, 1968, Ser. No. 458,845, May 24, 1965. Application for reissue Jan. 23, 1970, Ser. No. 5,405

Claims priority, application Japan, May 25, 1964, 39/29,241

Int. Cl. G11c *5/02, 11/14*

U.S. Cl. 340—174 **5 Claims**



A magnetic memory device comprising a plurality of laminated memory planes, each consisting of a plurality of transverse magnetic wires provided with magnetic films and a plurality of longitudinal conductors intersecting said magnetic wires. The wires and conductors act as either information lines or word lines, corresponding information in the respective planes being connected in series; a word drive commanding pulse generating circuit and a plurality of delay means having progressively different delay times extending between the word drive command pulse generating circuit and the word lines thereby to compensate for the time required for signals to travel through said information lines.

27,100
OXYGENATOR WITH HEAT EXCHANGER

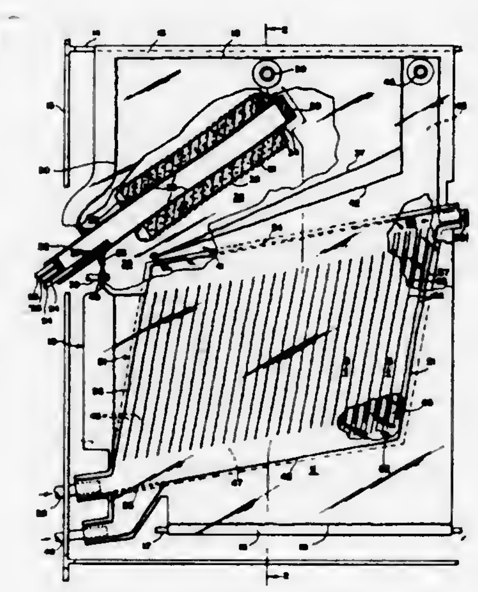
Richard A. De Wall, Dayton, Ohio, assignor to Bentley Laboratories, Inc., Santa Ana, Calif.

Original No. 3,256,883, dated June 21, 1966, Ser. No. 300,757, Aug. 8, 1963. Application for reissue June 20, 1968, Ser. No. 741,813

Int. Cl. A61m *1/03;* **A61f** *7/00*

U.S. Cl. 23—258.5 **19 Claims**

17. A blood oxygenator comprising a pair of opposed plastic side wall members secured together in face-to-face abutting relation, an upper chamber formed by the confronting interior surfaces of said members, a bubbler tube inclined upwardly in said chamber from one side margin of said members, said bubbler tube having discharge port means therein and being provided with blood and oxygen inlets in the lower end of said bubbler tube, a porous mass of defoaming material surrounding said tube about said port means, said upper chamber being provided with a downwardly sloping bottom below said bubbler tube for receiving the gravity flow of blood from said bubbler tube, a temperature control chamber below said upper chamber formed by said interior surfaces of said members, a passageway adjacent the lower end of said downwardly sloping bottom to receive the gravity flow of blood from the downwardly sloping bottom of said upper chamber and to conduct the gravity flow of blood to the upper side of said temperature control chamber, a water jacket in said temperature control chamber having a water inlet and a water outlet, said temperature control chamber having a downwardly sloping bottom, a blood outlet at the lower end of said sloping bottom, and gas vent means for said chambers.



27,101
FASTENER DRIVING APPARATUS

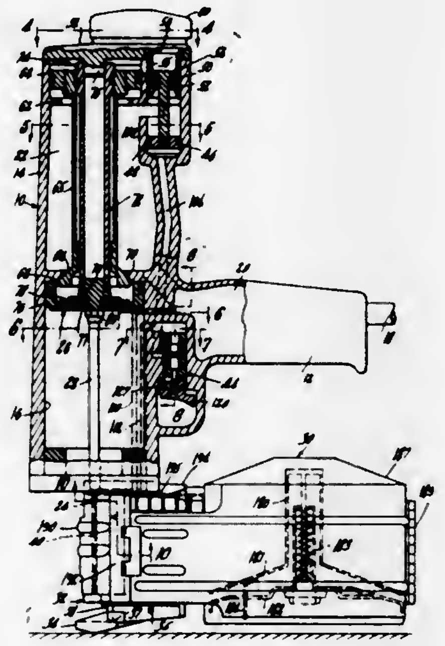
George A. Maynard, East Greenwich, R.I., assignor to Textron Inc.

Original No. 3,259,292, dated July 5, 1966, Ser. No. 352,494, Mar. 17, 1964. Application for reissue Apr. 26, 1967, Ser. No. 637,028

Int. Cl. B27f *7/06*

U.S. Cl. 227—8 **37 Claims**

A fastener driving apparatus is disclosed which has a fastener sensing member mounted in the drive track to be moved into an operative position by engagement of a fastener therewith in response to the movement of a fastener by a fastener feeding mechanism laterally into the drive track into a proper position to be driven longitudinally outwardly therefrom by a pneumatically operated fastener driving element. The apparatus includes a pneumatic circuit, actuation of which is manually controlled by digital movement of a trigger, the operation of the circuit being dependent upon the movement of the fastener sensing member into its operative position so that if no fastener is presented on proper position to be driven, the fastener driving element will not be pneumatically operated. The pneumatic circuit is operable to return the fastener driving element after the fastener has been driven thereby without the necessity of digitally releasing the trigger and again operating the fastener driving element to drive another fastener when the trigger is not released thereby rendering the apparatus capable of automatically driving a sequence of fasteners as the device is moved along and against a workpiece. The preferred fastener feeding mechanism disclosed is operable to handle a conical cylindrical fastener package including a multiplicity of common nails interconnected in series in parallel relation by a pair of parallel flexible frangible wires welded to the shanks of the nails and includes a frusto-conical support member for supporting the conical cylindrical package of nails by engagement of the points therewith and a turret member mounted for incremental step-by-step rotary movement about a central axis parallel with the axis of the drive track operable to feed successive nails into the drive track and to effect severance of the wires during the driving movement of the nail.



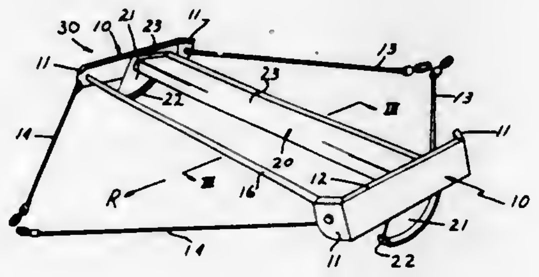
27,102
MANURE SCRAPER

Robert L. Van Huis, Zeeland, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

Original No. 3,409,120, dated Nov. 5, 1968, Ser. No. 525,259, Feb. 4, 1966. Application for reissue July 24, 1969, Ser. No. 853,562

Int. Cl. B65g *25/08*

U.S. Cl. 198—224 **8 Claims**



A manure scraper having a pair of spaced support frames with a scraper blade pivotably mounted therebetween. Rigidly attached to each end of and pivotable with the scraper blade is a rigid panel adapted to slidably abut the bottom of the pit. The panel is circular in peripheral configuration such that it causes the blade to pivot to a non-working position when the device is pulled in a first direction and to a working position when the device is pulled in an opposite direction.

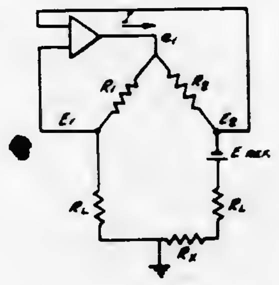
27,103
BRIDGE CIRCUIT FOR DETERMINING THE INVERSE OF RESISTANCE

Dexter E. Cate, Fairhaven, Mass., assignor to Buzzards Corporation, Marion, Mass.

Original No. 3,341,757, dated Sept. 12, 1967, Ser. No. 564,075, July 11, 1966. Application for reissue Sept. 9, 1969, Ser. No. 870,308

Int. Cl. G05b *1/06*

U.S. Cl. 318—663 **14 Claims**



A bridge circuit for use in servo systems, provides a current flow which is a linear function of the inverse of a resistance connected in one of the bridge arms. A source of reference voltage is connected in one of the bridge arms and means are provided to maintain the bridge in a null condition and to control the current in the bridge circuit to achieve the desired inverse relationship between the current and resistance.

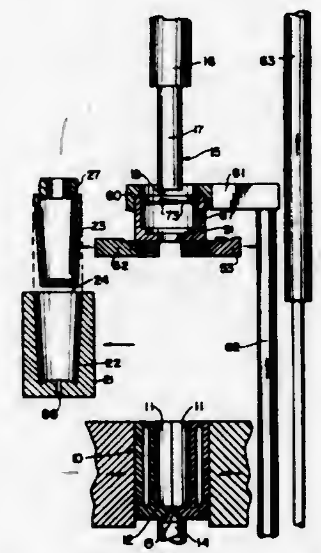
27,104
APPARATUS FOR BLOW MOLDING SEAMLESS HOLLOW OBJECTS

Emery I. Valyi, 5200 Sycamore Ave., Riverdale, N.Y. 10471

Original No. 3,364,521, dated Jan. 23, 1968, Ser. No. 484,224, Sept. 1, 1965. Application for reissue Dec. 22, 1969, Ser. No. 887,279

Int. Cl. B29d *23/03*

U.S. Cl. 18—5 **5 Claims**



A one-piece blow mold having a top opening through which a blow core carrying a parison is inserted. The blow mold is shifted into and out of the path of the blow core as the latter is transferred axially from a parison die into blow position.

27,105
REPLACEMENT FLUSH VALVE

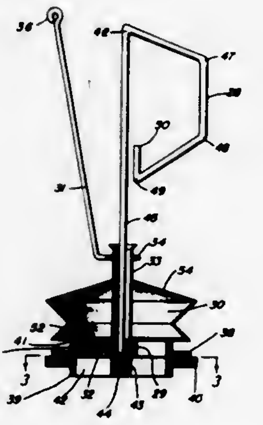
Phillip J. Brewington, 6902 Manchana Road, Austin, Tex. 78745

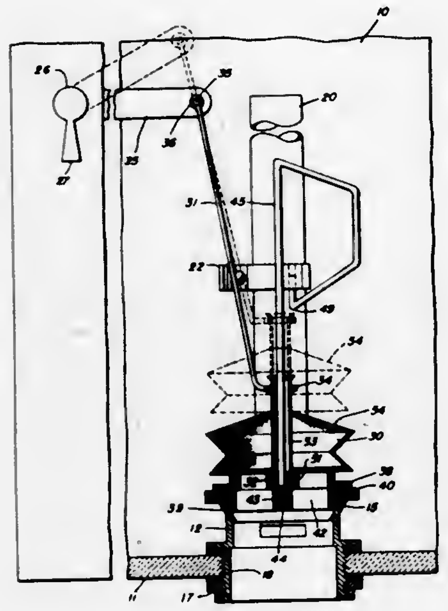
Original No. 3,263,240, dated Aug. 2, 1966, Ser. No. 379,311, June 30, 1964. Application for reissue July 12, 1968, Ser. No. 747,027

Int. Cl. E03d *1/34*

U.S. Cl. 4—57 **5 Claims**

Disclosed is a replacement flush valve assembly to replace a worn ball closure and add a new valve seat, *while retaining the old valve seat and including a new ball closure. The assembly has a member coaxial with the old valve seat and the outlet closure pipe to receive*





the new ball closure and a P-shaped spring means to resiliently urge the replacement seat toward said retained valve seat.

27,106

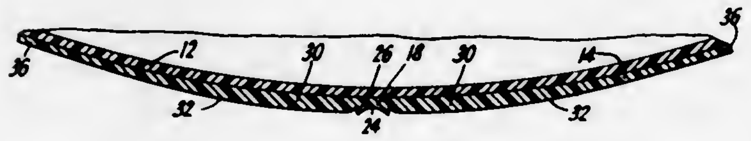
ATHLETIC GAME BALL

Robert Bruce Henderson, Newport Beach, Calif., assignor to AMF Incorporated, Jersey City, N.J.

Original No. 3,475,027, dated Oct. 28, 1969, Ser. No. 509,547, Nov. 24, 1965. Application for reissue Feb. 26, 1970, Ser. No. 14,387

Int. Cl. A63b *41/08*

U.S. Cl. 273—65 **18 Claims**



A game ball such as a basketball or football having a cover including simulated seams which divide the cover into separated cover panels. The seams are in the form of ribs which project upwardly from the cover and include concave top walls and straight side walls. The central surface areas of the panels form a symmetrical surface of revolution. The peripheral portions of the panels include first inwardly depressed parts adjacent their junctures with the seam simulating ribs and second more remote parts which are thicker than the central parts of the panels and extend outwardly beyond the symmetrical surface of revolution formed by the central surface areas of the panels.

27,107

DRUG COMPOSITION

Charles L. Levesque, Philadelphia, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa.

Original No 2,987,455, dated June 6, 1961, Ser. No. 766,496, Oct. 10, 1958. Application for reissue May 1, 1968, Ser. No. 728,092

Int. Cl. A61j *3/10;* **A61k** *9/00, 27/12*

U.S. Cl. 424—22 **32 Claims**

A composition in oral dosage form, and method of making same, comprising a particular porous plastic matrix and a water soluble drug dispersed in said matrix.

27,108

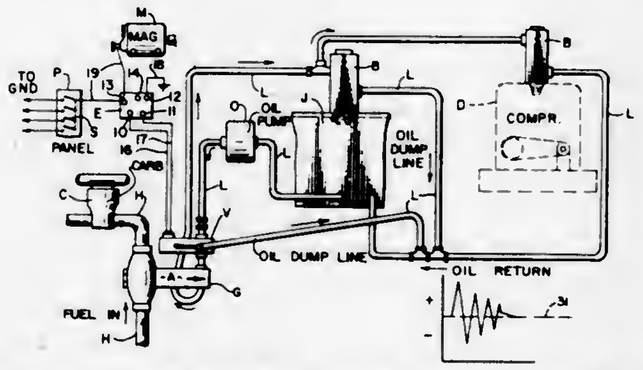
ELECTRONIC ACTUATOR FOR AN ENGINE PROTECTIVE SYSTEM

Ralph B. Johnson, Jr., and Joe E. Goodwin, Denver, Colo., assignors to Sentinel Distributors, Inc., Denver, Colo.

Original No. 3,385,278, dated May 28, 1968, Ser. No. 585,798, Oct. 11, 1966. Application for reissue Nov. 12, 1969, Ser. No. 875,644

Int. Cl. F02b *77/00;* **F01p** *5/14*

U.S. Cl. 123—198 **15 Claims**



The flow of fuel to an internal combustion engine is controlled to provide a safety shut down of the engine in response to a malfunction of the engine or an accessory device driven by the engine. A solenoid operated valve is connected in the fuel supply system and has its operating coil adapted to be energized by an electronic sensing circuit which monitors operation of the engine or the accessory device.

27,109

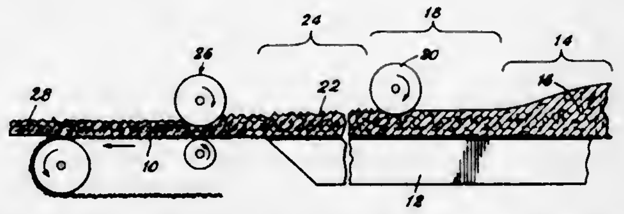
METHOD [AND APPARATUS] FOR PRODUCING SPECIAL SURFACES ON PANEL BOARD

Otis R. Videen, St. Paul, Minn., assignor to Conwed Corporation

Original No. 3,391,013, dated July 2, 1968, Ser. No. 423,168, Jan. 4, 1965. Application for reissue Feb. 6, 1969, Ser. No. 822,081

Int. Cl. B28b *5/00;* **B44d** *1/02, 5/02*

U.S. Cl. 117—10 **2 Claims**



In the production of an acoustical product having plural layers and an irregular top surface, the surface layer is simultaneously doctored onto a lower carrying layer and provided with an irregular top surface by a rotating roll arranged at an angle to the movement of the carrier material.

27,110

TRANSISTOR ELEMENT AND TRANSISTOR CIRCUIT

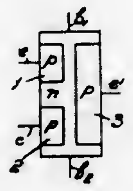
Johannes Meyer Cluwen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Original No. 3,299,281, dated Jan. 17, 1967, Ser. No. 395,550, Dec. 1, 1953. Application for reissue Sept. 3, 1968, Ser. No. 760,391

Claims priority, application Netherlands, Dec. 1, 1952, 174,267

Int. Cl. H01l *13/00;* **H03k** *5/20*

U.S. Cl. 307—303 **22 Claims**



A universal transistor element capable of many applications. The element includes within a semiconductor body at least first and second spaced zones spaced from a third zone, and one or two base electrode connections to the body material. The spacing of the first and second zones to the third zone is smaller than a diffusion length enabling transistor action to take place between each of the first and second and the third zones, but the spacing between the first and second zones is greater than a diffusion length preventing direct transistor action. With two base electrodes, the application of a voltage thereacross enables control to be exercised over the internal transistor action.

27,111

PITCH-BONDED REFRACTORY COMPOSITION

Roger E. Wilson, Silver Spring, Md., assignor to Basic Incorporated, Cleveland, Ohio

Original No. 3,236,664, dated Feb. 22, 1966, Ser. No. 187,188, Apr. 13, 1962. Application for reissue Mar. 19, 1969, Ser. No. 822,075

Int. Cl. C04b *35/04, 35/52*

U.S. Cl. 106—56 **18 Claims**

A pitch-bonded refractory composition having high strength and increased density comprising basic refractory particles, about 4% to about 10% by weight based on the weight of the total admixture of a carbonaceous material to bind said particles together, and approximately 0.5 to about 10% by weight based on the weight of the total admixture of a finely divided carbon black, at least a part of said carbon black being thermal black.

PATENTS

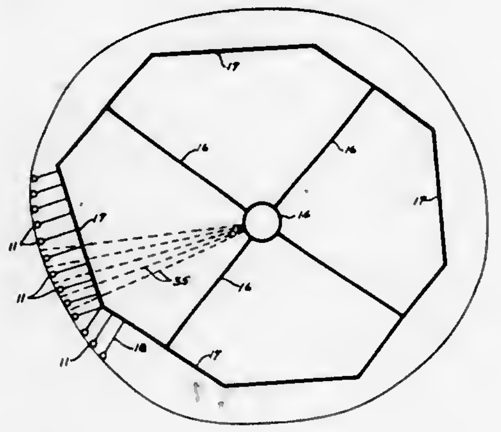
GRANTED MARCH 30, 1971

GENERAL AND MECHANICAL

3,572,436

METHOD FOR RECOVERING PETROLEUM

Frederick W. Riehl, 2347 Albion, Denver, Colo.
Filed Jan. 17, 1969, Ser. No. 791,961
Int. Cl. E21b *43/24*
U.S. Cl. 166—252 **24 Claims**

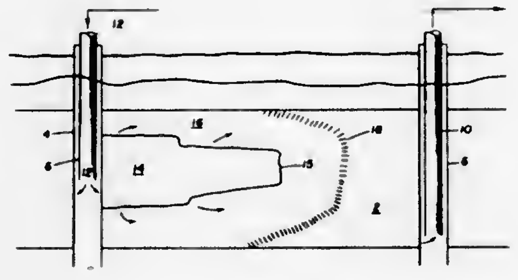


A method for recovering petroleum in the secondary or in the partially depleted primary recovery stages comprises the introduction of high pressure, high temperature superheated steam into the peripheral zone of a dome type formation, the steam being introduced through substantially equally spaced wells about the periphery of the formation. The steam is introduced until the entire formation has been heated to a predetermined temperature range, the viscosity of the petroleum is reduced and the petroleum flows downwardly toward the peripheral or bottom zone of the formation. Steam is introduced continuously to make up losses during the period of production and steam pressure and temperature are maintained until production is complete. The major loss of heat is that resulting from the removal of petroleum from the formation and control of the predetermined temperature range is effected by maintaining a heat balance, steam being added as required to supply all losses during production.

3,572,437

OIL RECOVERY BY STEAM INJECTION FOLLOWED BY HOT WATER

James E. Marberry, Calgary, Alberta, Canada, and Henry C. Coutret, Jr, Shreveport, La., assignors to Mobil Oil Corporation
Filed Feb. 14, 1969, Ser. No. 799,177
Int. Cl. E21b *43/24*
U.S. Cl. 166—272 **13 Claims**

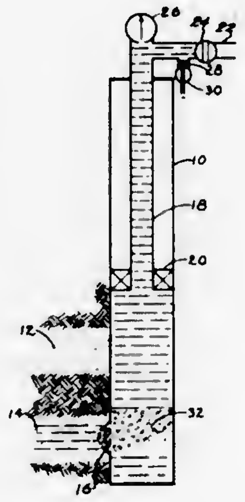


This specification discloses methods of recovering oil from subsurface oil reservoirs penetrated by at least an injection and a production well. Steam is injected into the reservoir to form a steam zone intermediate the injection and production wells. Subsequently hot water at the same temperature as the injected steam is injected into the reservoir to fill the steam zone. Thereafter cold water is injected into the reservoir to drive the hot water toward the production well and oil is recovered from the reservoir via the production well.

3,572,438

PROCESS OF PLUGGING PERFORATIONS IN A WELL CASING

Gordon S. Rohe, 908 San Jacinto Bldg., Houston, Tex.
Filed Feb. 26, 1969, Ser. No. 802,364
Int. Cl. E21b *33/138, 43/14*
U.S. Cl. 166—285 **13 Claims**



Wells may be recompleted at different formations either above or below existing perforations by a process which may include pumping a slug of cement down through the tubing, the well having either oil or water in it, to force the cement out through the existing perforations into the formation. A pressure drop signals when the cement has passed through the perforations. A measured amount of liquid may then be withdrawn from the well so that the formation will force the cement back out through the perforations. The cement may then be allowed to set up to plug the perforations.

3,572,439

CONCENTRATES FOR THE PREPARATION OF AMMONIATED FOAMED CIRCULATION FLUIDS AND USE THEREOF

Stanley O. Hutchison, Bakersfield; Glen W. Anderson, Oildale, and John C. Mc Kinnell, Taft, Calif., assignors to Chevron Research Company, San Francisco, Calif.
Continuation-in-part of application Ser. No. 720,977, Apr. 12, 1968, now Patent No. 3,486,560. This application Apr. 7, 1969, Ser. No. 814,168
Int. Cl. E21b *21/04;* **C11d** *1/14*
U.S. Cl. 166—309 **24 Claims**

The use of ammoniated concentrates for the preparation of ammoniated gas-in-liquid foams for circulation in a well and ammoniated concentrated compositions of anionic oxidized-sulfur containing foaming agents in water or water lower alkanol solvent mixtures.

3,572,440

AQUEOUS FOAMED WELL CIRCULATION FLUIDS CONTAINING AN ACID COMPONENT AND THEIR USE IN THE TREATMENT OF WELLS

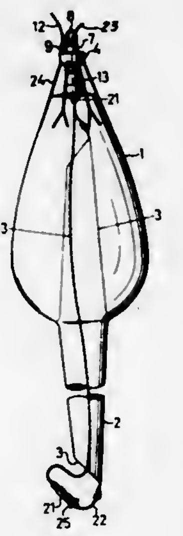
Stanley O. Hutchison, Bakersfield; John C. Mc Kinnell, Taft, and Glen W. Anderson, Oildale, Calif., assignors to Chevron Research Company, San Francisco, Calif. Continuation-in-part of Ser. No. 704,832, Feb. 12, 1968, Pat. No. 3,463,231, and Ser. No. 720, 977, April 12, 1968, Pat. No. 3,486,560
Filed July 7, 1969, Ser. No. 839,662
Int. Cl. B01j *13/00;* **E21b** *43/27*
U.S. Cl. 166—311 **19 Claims**

Preformed well circulation foams containing an acid component are used for the treating of wells, particularly for the stimulation of oil wells.

3,572,441

LIQUID DISCHARGE TANK ADAPTED TO BE HUNG AND TRANSPORTED

Masuzoh Nodegi, Tokyo, Japan, assignor to Takashima Kahashiki Kaisha, Tokyo, Japan
Filed May 13, 1969, Ser. No. 824,037
Claims priority, application Japan, May 15, 1968, 43-32675
Int. Cl. A62c *5/00*
U.S. Cl. 169—2 **3 Claims**

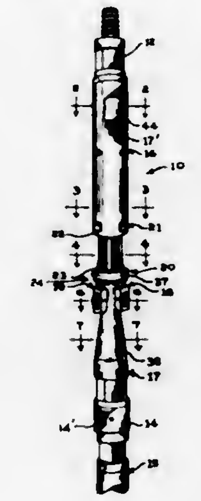


A liquid discharge tank adapted to be hung from a helicopter can be filled with a fire extinguisher liquid when a tubular extension having a discharge part is withdrawn into the tank body and secured to the upper portion of the tank body. The fire extinguisher liquid is discharged from the tank by releasing the extension from the upper portion of the tank body so that it projects downwardly from the tank body.

3,572,442

ARRESTING DEVICE FOR DOWNHOLE TOOLS

Charles A. Templeton, Odessa, Tex.
Filed Sept. 8, 1969, Ser. No. 856,129
Int. Cl. E21b *23/00*
U.S. Cl. 166—212 **10 Claims**

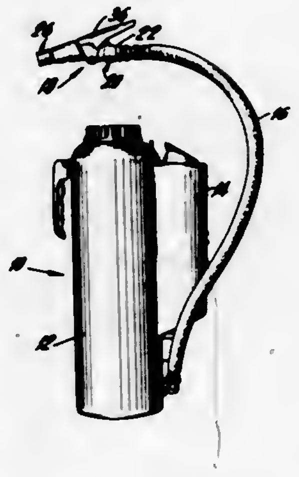


An arresting device for downhole tools comprising a mandrel which is reciprocatingly received within a barrel. The mandrel has spaced apart wall engaging means disposed thereabout and connected to the barrel. An expansion means associated with the mandrel causes the wall engaging means to outwardly extend into contact with the inside peripheral wall surface of a borehole while at the same time engaging a portion of the mandrel, whereby, inadvertent upward movement of the arresting device causes the expansion means to outwardly extend the wall engaging means to thereby arrest upward movement of the device within a borehole.

3,572,443

METHOD OF AND APPARATUS FOR PRODUCING A STREAM OF DRY CHEMICAL PARTICLES

Arthur B. Guise, Marinette, Wis., and Garry O. Hanson, Menominee, Mich., assignors to The Ansul Company, Marinette, Wis.
Original application July 19, 1966, Ser. No. 566,383, now Patent No. 3,447,610. Divided and this application Dec. 30, 1968, Ser. No. 793,639
Int. Cl. A62c *13/00*
U.S. Cl. 169—31 **4 Claims**

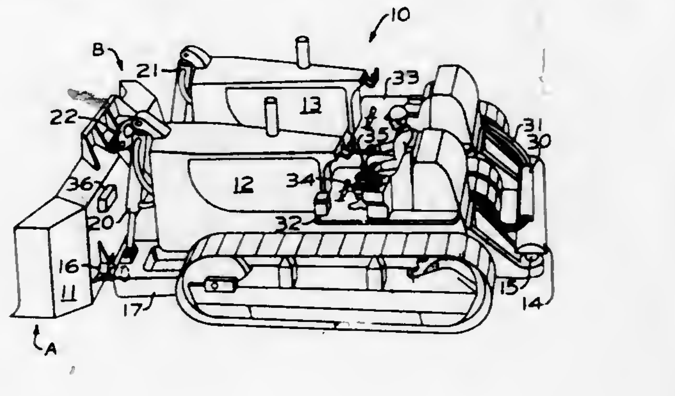


A method of discharging a fire-extinguishing composition is disclosed comprising the steps of propelling a fluidized mixture of fire-extinguishing agent and inert gas through a converging zone, then through a throat area which maximizes the linear velocity of the dry chemical fire extinguisher particles and finally through a divergent zone having an included angle of divergence of not less than 8° and not more than 12°.

3,572,444

ANGLE CONTROL SYSTEM FOR ELEMENTS ON UNITIZED TRACTOR ASSEMBLIES

Rolland D. Scholl, Peoria, and Robert N. Stedman, Chillicothe, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 25, 1969, Ser. No. 819,217
Int. Cl. E02f *3/76*
U.S. Cl. 172—4.5 **6 Claims**



Tractors connected in a side-by-side relationship to form unitized assemblies often have an adjustable, transverse earthworking element connected on opposite sides of the unitized assembly which is difficult to control due to the universal connections between the tractors. In such an assembly, an angle control system for the transverse element which maintains one end of the element at a preselected angular relationship to a manually controlled end of the element greatly enhances the productive capability. The angle control system, in combination with the unitized assembly, employs an electrolytic potentiometer as a sensor and a closed digital loop circuit to operate controls on adjusting mechanisms on one end of the transverse element to maintain a preselected angular relationship between the controlled end and its manually controlled end.

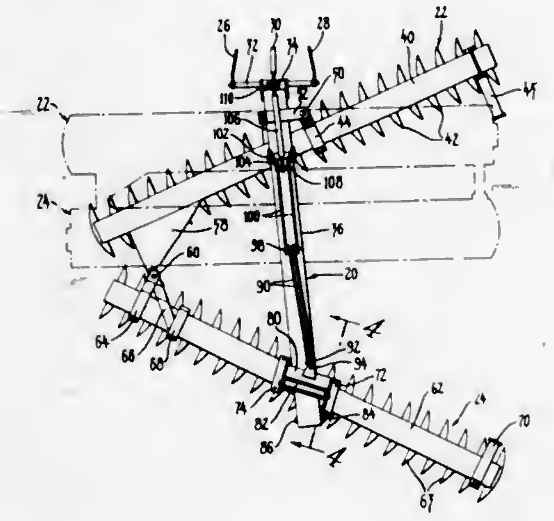
3,572,445
LIFT TYPE DISK HARROW

Clarence B. Richey, Fresno, and Ronald E. Rasmussen, Sanger, Calif., assignors to Massey Ferguson, Inc., Des Moines, Iowa

Filed Nov. 5, 1968, Ser. No. 783,445

Int. Cl. A01b *59/06, 63/02*

U.S. Cl. 172—445 **13 Claims**



An offset disk harrow adapted to be connected to a three point tractor hitch which has a frame with a mast and a hitch beam, a front gang pivotally attached to the front of the frame and rear gang pivotally attached to one end of the front gang and slidably connected to the rear portion of the hitch beam. A mechanical linkage extends between the harrow and the tractor in such a manner that when the tractor operator causes the harrow to lift, both gangs are automatically folded forward into a position perpendicular to the centerline of the tractor. Another version uses a hydraulic cylinder to fold the gangs.

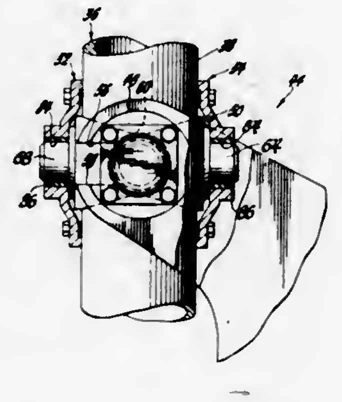
3,572,446
HYDRAULIC CYLINDER MOUNTING ASSEMBLY

Janis Mazzarins, Macedonia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 24, 1968, Ser. No. 770,229

Int. Cl. E02f *3/76*

U.S. Cl. 172—804 **3 Claims**



A mounting assembly for universally supporting the cylinder member of a hydraulic lift jack on a tractor. The mounting assembly includes a collar which surrounds the cylinder member and has four radially outwardly extending pivot pins formed therewith along mutually perpendicular pivot axes. A pair of the pivot pins are rotatably supported within a support bracket rigid with the tractor, while the other pair of pivot pins are journaled in support members rigidly secured to the cylinder member so that the hydraulic jack is movable about the aforesaid perpendicular axes during adjustable movement of a dozer blade.

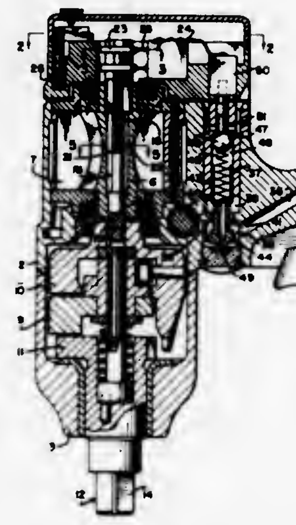
3,572,447
TORQUE MEASURING SYSTEM FOR IMPACT WRENCH

Reginald W. Pauley, Belle Mead, and Leo Kramer, Skillman, N.J., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed Nov. 12, 1968, Ser. No. 775,011

Int. Cl. B23q *5/00*

U.S. Cl. 173—12 **10 Claims**



An impact wrench including a resilient member disposed between the motor and the fastener driving spindle and adapted to yield under torque to measure the torque load. The torque load on the resilient member is measured by means such as an electrical strain gauge which operates a valve to stop the tool in response to the rise of the torque load to a selected magnitude.

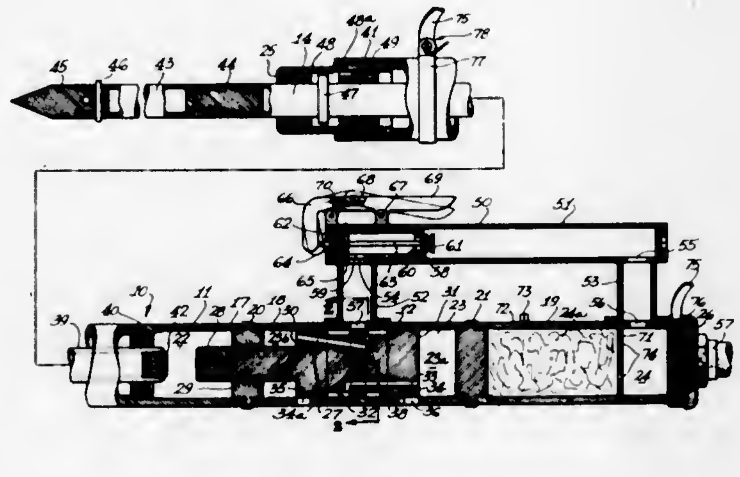
3,572,448
PNEUMATIC IMPACT TOOL

Joseph Marcenuk, 7492 Wiltshire Drive, North Surrey, British Columbia, Canada

Filed Mar. 24, 1969, Ser. No. 809,849

Int. Cl. B25d *7/00, 9/04, 17/04*

U.S. Cl. 173—115 **9 Claims**



The invention relates to lightweight scaling tools for scaling loose hanging rocks in mine areas and the like. The device includes a cylindrical wall forming a piston chamber and a piston reciprocally mounted therein. The piston is reciprocated by fluid under pressure, suitable passages being provided in the piston itself which cooperate with radial ports in the cylindrical wall. The piston actuates a reciprocally mounted striker bar which engages the loose rocks.

3,572,449
MACHINES FOR BORING HOLES

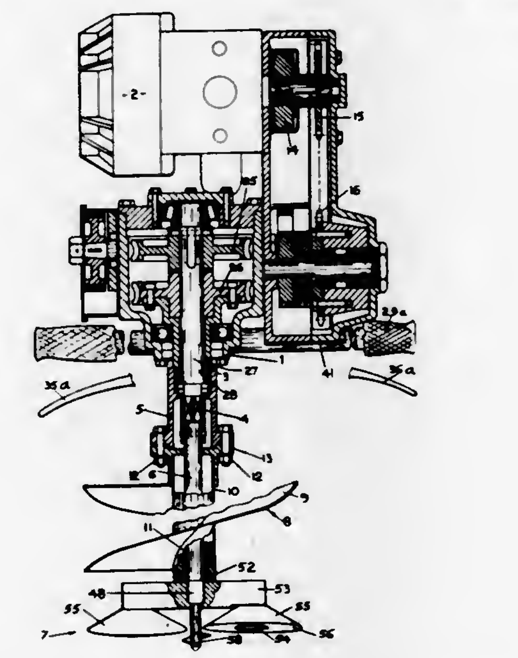
Alexander Norman Brocas, Mount Roskill, Auckland, and Arthur John Wildy, Mount Wellington, Auckland, New Zealand, assignors to said Wildy assor to Mason & Porter Limited, Mount Wellington, Auckland, New Zealand

Filed Nov. 27, 1968, Ser. No. 779,347

Claims priority, application New Zealand, Nov. 29, 1967, 150,871

Int. Cl. E21b *7/00*

U.S. Cl. 175—57 **16 Claims**



The boring of holes in which a machine provided with a rotatable cutter and a rotatable clearing device is manipulated so that the clearing device is rotated in a direction opposite to the direction of the cutter with the clearing device following the cutter into a hole formed by the cutter. The torque reaction of the cutter is balanced against the torque reaction of the clearing device whereby under normal operating conditions little controlling moment need be applied for holding the machine during boring.

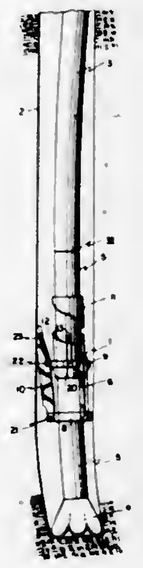
3,572,450
WELL DRILLING APPARATUS

Derry R. Thompson, Box 1052, Kenai, Alaska

Filed Oct. 4, 1968, Ser. No. 765,137

Int. Cl. E21b *7/08, 7/10*

U.S. Cl. 175—76 **18 Claims**



Apparatus for drilling directional bore holes in the earth and for preventing or correcting lateral drift in bore holes comprising at least one undergauge stabilizer blade and at least one movable stabilizer blade connected to a drill string sub so that flow of drilling mud through an orifice valve in the drill string forces the movable stabilizer blade outward and into contact with the wall of the bore hole, thus urging the drill string toward the opposite wall of the bore hole. The apparatus may be used alone or in pairs to alter the direction of the bore hole.

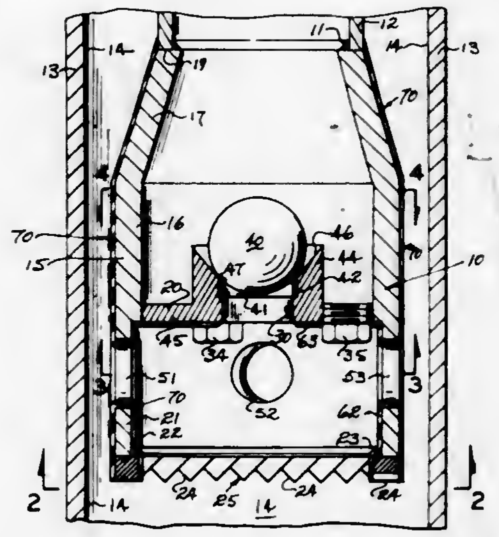
3,572,451
HYDRAULIC JET STREAM DRILLER

Conley B. Copeland, Box 356, Kingfisher, Okla.

Filed Oct. 23, 1968, Ser. No. 769,914

Int. Cl. E21b *41/00;* **F21c** *15/00;* **F21b** *7/18*

U.S. Cl. 175—317 **21 Claims**



This invention comprises an hydraulic jet stream driller that utilizes a column of drilling mud to supply pressure fluid to three hydraulic drilling jet orifices that are radially spaced from each other within a circle of cutting teeth. The novel tool is preferably clad with galvanized rubber to protect the same from erosion due to the hydraulic and other attrition forces acting on the tool.

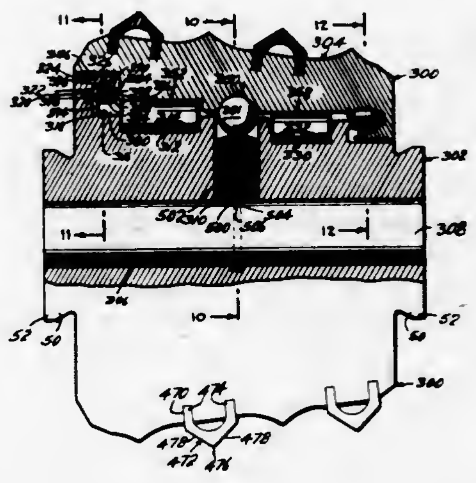
3,572,452
ROLLING CUTTER AND SEALS THEREFOR

Dougles F. Winberg, 9861 Vineyard Crest, Bellevue, Wash.

Filed Apr. 16, 1969, Ser. No. 816,661

Int. Cl. E21b *9/08*

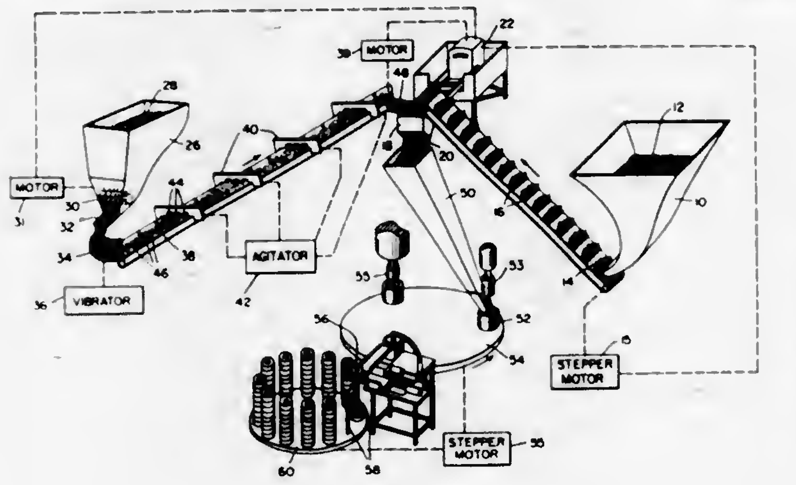
U.S. Cl. 175—371 **24 Claims**



In cutters having a rolling cutter and a journal around which the cutter rolls there are bearing members. In cutting rock and earth formations it is necessary to keep out the rock, earth, and extraneous material from the bearings. This invention is directed to seals for sealing the bearings in their working cavity in the cutter so that dirt, rock, and extraneous material cannot reach the bearing and harm and damage the bearing surfaces.

3,572,453
AUTOMATIC TWO STAGE WEIGHING AND PREFORMING OF EQUIPMENT

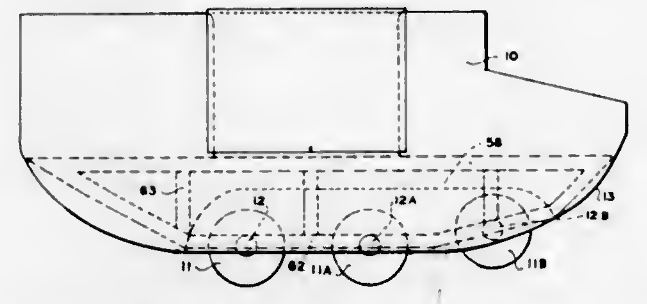
Joseph R. Hannum, Norristown, Pa., assignor to The Budd Company, Philadelphia, Pa.
Filed Nov. 29, 1968, Ser. No. 779,835
Int. Cl. G01g *13/02*
U.S. Cl. 177—123 **5 Claims**



A system for weighing and preforming material includes first and second conveyors for conveying material to a weighing device. Means are associated with one of the conveyors to separate fibers of the material to permit fine weighing of the material prior to preforming it into an article.

3,572,454
VEHICLE AND STEERING MECHANISM THEREOF

Andrew O. Siren, 10011 Fairmount Drive,S.E., Calgary, Alberta, Canada
Continuation-in-part of application Ser. No. 801,584, Feb. 24, 1968, now abandoned. This application May 15, 1969, Ser. No. 824,988
Int. Cl. B62d *11/02*
U.S. Cl. 180—6.2 **16 Claims**

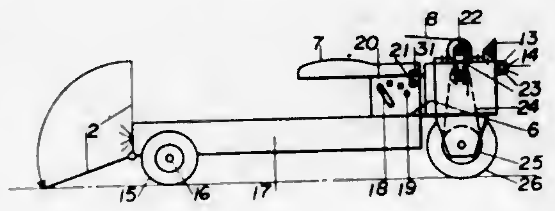


A drive mechanism in which a steering wheel is positively connected to a pair of T-arms by an endless chain. The T-arms open and close variable pulley halves of opposed pair of drive and driven pulley assemblies and gear connections are operated by the T-arms to close or open the other halves of the pulley assemblies, all connections being by positive linkage.

3,572,455
SELF-PROPELLED, ELECTRIC, THREE WHEEL MAINTENANCE CART

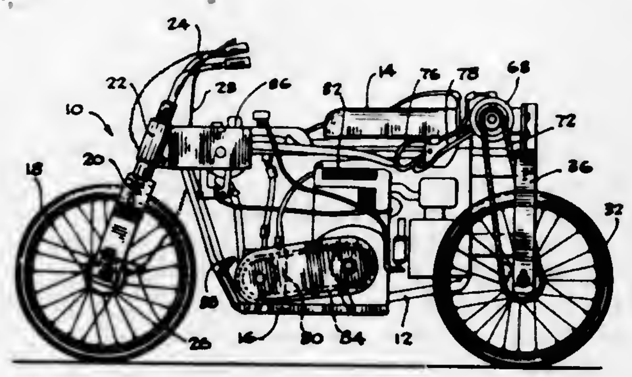
Vern Alvin Brueske, Rte 1, Box 90C, Del Mar, Calif.
Filed May 24, 1968, Ser. No. 731,987
Int. Cl. B60l *11/00*
U.S. Cl. 180—26 **2 Claims**

The invention includes a three-wheeled, self-propelled, all purpose vehicle with a large cart-type body, driven by an electric motor on a box-shaped slotted fork just forward of the handlebars and utilizing storage batteries, connected in series, with provision for recharging, with a power train to connect and drive a single, front traction wheel, and with a banana seat for the operator, just behind the motor, over a control box fitted with speed control and reverse lever setting contacts, and brake and on-off pedals at the front end of a large cart bed area with a low center of gravity, and with box-type seats running longitudinally along both sides of the cart for the storage batteries, and also with a high tailgate in rear, when the UP position, but for use in the DOWN position as a low-angle ramp. The cart operates air pollution free. Maintenance is simple because both the motor and the batteries are easily accessible, Use inside buildings or warehouses as well as outside on pavements, turf or bare ground is favored because of its quite operation, freedom from exhaust fumes and safely from fire or explosion because there is no flammable fuel tank.



3,572,456
BANKABLE TRICYCLE TYPE VEHICLE

Arthur D. Healy, 1939 S. 48th Court, Cicero, Ill.
Filed Jan. 9, 1969, Ser. No. 790,027
Int. Cl. B62h *61/08*
U.S. Cl. 180—27 **7 Claims**

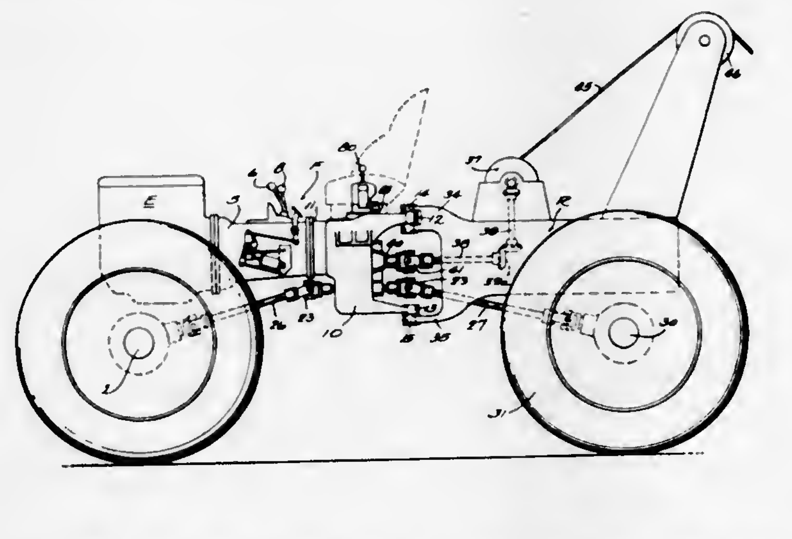


The tricycle type vehicle has a steerable wheel and two outboard wheels which are rotatably mounted on subframes. A parallelogram linkage is connected between the main frame and the subframes so that the entire vehicle is bankable, including the main frame, the subframes and all three wheels. The linkage keeps the outboard wheels parallel to each other and to the main frame. The outboard wheels are movable parallel to the main frame by corresponding amounts but in opposite directions. Resilient means are preferably provided, tending to maintain a rectangular relationship between the elements of the parallelogram linkage. The outboard wheels may be driven in such a manner as to avoid any interference with the action of the parallelogram linkage. Spring mounting means may be provided between each outboard wheel and the corresponding subframe.

3,572,457
ARTICULATED FRAME VEHICLE HAVING POWER SHIFT TRANSMISSION

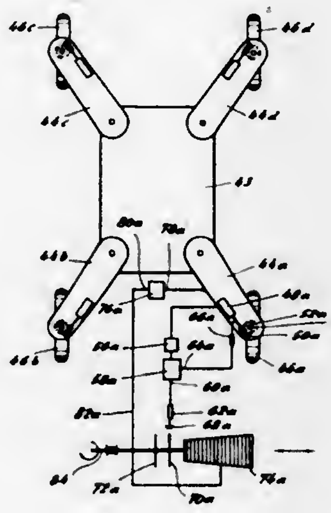
Rodney G. Hill, Faversham, Kent, England, assignor to Twin Disc, Incorporated, Racine, Wis.
Filed Feb. 25, 1969, Ser. No. 801,968
Int. Cl. B60k *17/34, 23/02;* **B62d** *15/00*
U.S. Cl. 180—51 **2 Claims**

An articulated frame vehicle such as a log skidder, earth-working equipment, or the like in which the frame of the vehicle is articulated intermediate its length so that a pivot point is provided in the frame to permit the front end of the vehicle to swing laterally relative to the rear end of the vehicle. These vehicles utilize power shift transmissions including friction clutches which need repair or replacement from time to time, and which clutches must be removed from the frame to accomplish these repairs. The pivot point on the front frame section is located on the rear end of the power shift box, and the clutch assemblies can be removed rearwardly from the box. By so locating the articulate joint on the rear end of the power shift box, the vehicle can be maneuvered so that its front end is swung laterally off the longitudinal centerline of the machine and relative to the rear portion of the machine, thereby exposing the rear end of the power shift box and providing complete accessibility thereto and facilitating the removal of the clutch assemblies without disconnecting the major portions of the vehicle.



3,572,458
ALL-WHEEL STEERING SYSTEM

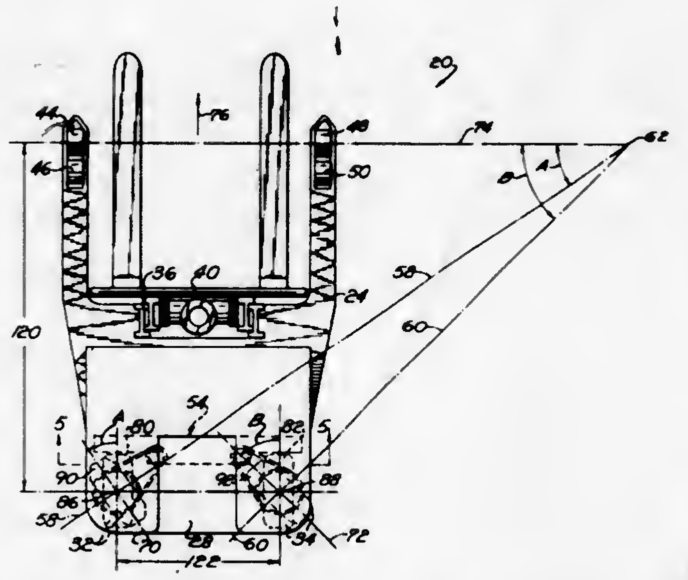
Hans Tax, Potsdamer Str. 3, 8 Munich 23, Germany
Filed Dec. 10, 1968, Ser. No. 782,671
Int. Cl. B62d *5/04*
U.S. Cl. 180—79.1 **11 Claims**



A system for individually steering all wheels of a heavy vehicle in which the wheel supports are individually turned by servomotors. The operating signals of respective cam controlled servo transmitters and signals from position indicators are combined to produce error signals which are fed to the servomotors. The cams allow for the different turning angle required for each wheel and may be replaced by other cams shaped for parallel turning of all wheels. If the track width of the vehicle is variable, the individual cams are replaced by cam drums which are shifted axially in response to changes in track width and are shaped to compensate for the required changes in the turning angle with the track width.

3,572,459
VEHICLE STEERING MECHANISM

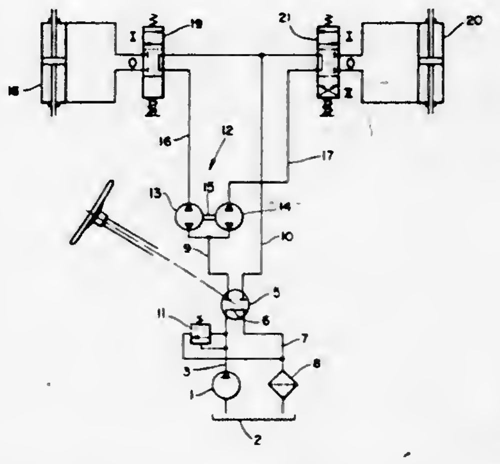
Robert A. Nieminski, Philadelphia, Pa., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Mar. 19, 1969, Ser. No. 808,525
Int. Cl. B62d *5/06*
U.S. Cl. 180—79.2 **12 Claims**



A vehicle disclosed herein has an improved steering mechanism for effecting geometric steering of steer wheels of the vehicle. The steering mechanism includes a plurality of sets of pinion gears which are driven by rack gears. The rack gears are moved into and out of meshing engagement with the pinion gears to rotate the steer wheels through a steering angle in either one of two directions. When the vehicle is to be turned in its minimum turning radius, one of the steer wheels is turned through a steering angle of more than 90° while the other steer wheel is turned through a steering angle of less than 90°.

3,572,460
HYDROSTATIC STEERING SYSTEM

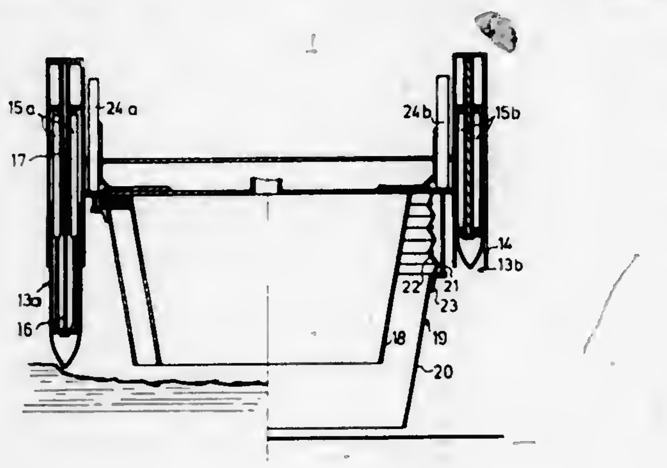
Bodo Berlich, Offenbach, Germany, assignor to Danfoss A/S, Nordborg, Denmark
Filed June 24, 1969, Ser. No. 836,077
Int. Cl. B62d *5/06*
U.S. Cl. 180—79.2 **5 Claims**



The invention relates to a hydrostatic-steering system having two or more motors for the power steering of two or more wheels, or two or more pairs of wheels. The motors are arranged in parallel in a hydraulic circuit and a metering type control device operated by a steering wheel is used for controlling the distribution pressurized hydraulic fluid to the motors. A fluid stream quantity divider is utilized to supply equal quantities of pressurized fluid to the motors. Each of the motors has valve means associated therewith having two or three operative positions including a neutral or bypass position. The other operative positions facilitate the operation of a motor such that the turning of the steering wheel in one direction effects the operation of the motor in a selected one of two possible directions. With this arrangement, for example, it is possible to have the front wheels of a vehicle turn in one direction and the rear wheels of the vehicle turn in either selected direction as desired.

3,572,461
SYSTEM FOR CONFINING PRESSURE FLUID CUSHIONS, MORE PARTICULARLY FOR GROUND-EFFECT MACHINES

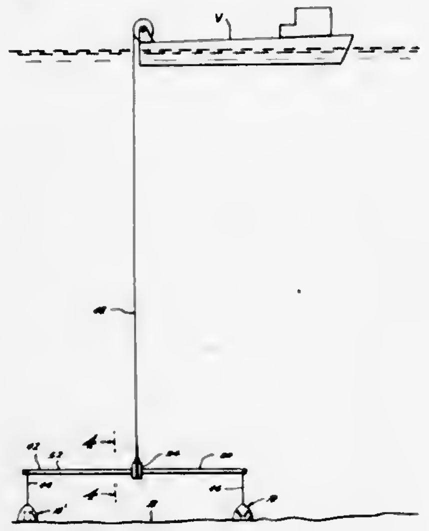
Jean Henri Bertin; Charles Joseph Marchetti, Neuilly-sur-Seine, and Guy Marcel Neplaz, Meudon-La-Foret, France, assignors to Societe D'Etudes Et De Developpement Des Aeroglisseurs Marins Terrestres Et Amphibies S.E.D.A.M., Paris, France
Filed Dec. 19, 1968, Ser. No. 785,249
Claims priority, application France, Dec. 22, 1967, 133599
Int. Cl. B60v *1/04, 1/16*
U.S. Cl. 180—126 **3 Claims**



A pressure fluid cushion system for a ground-effect machine movable opposite a surface, the said system comprising two sidewall structures extending substantially parallel to and on each side of the longitudinal medial plane of the machine and having a front end part and a rear end part, the said sidewall structures having sufficient rigidity to resist deformation under the action of variable external forces acting thereon during movement of the machine and laterally bounding a space between the machine and the said surface chambers situated between the said sidewall structures and bounded by flexible skirts which are deformable under the action of said external forces, and means for adjusting the distance of the free end of the said sidewall structures and of the chamber skirts, from the said surface.

3,572,462
APPARATUS FOR AND METHOD OF SEISMIC EXPLORATION

Joseph C. Gray, 4131 Turnberry Circle, Houston, Tex.
Filed Jan. 7, 1969, Ser. No. 789,558
Int. Cl. G01v *1/04*
U.S. Cl. 181—0.5 **4 Claims**

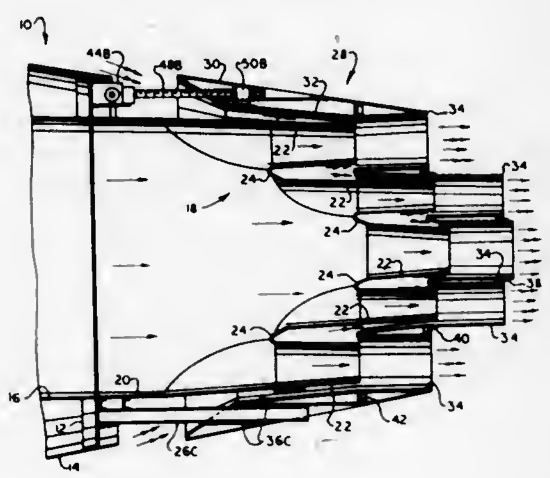


Apparatus for use in seismic exploration comprising energy propogating means for directing energy downwardly vertically into an earth formation and means for receiving and recording such energy reflected vertically upwardly from a sub-surface bed or strata. The apparatus includes an energy source housing of generally dome shape adapted to be placed in a downwardly opening position on the bottom, and within which an energy source may be discharged to generate a vertically downwardly directed force against the sea floor, and a receptor or seismometer housing also of generally dome shape adapted to be similarly positioned on the sea bottom to receive vertically upwardly reflected energy from subsurface strata.

The invention also includes a method of seismic exploration which comprises propagating vertically downwardly directed energy at the earths surface and receiving and recording the vertically upwardly reflected energy from a subsurface formation, to provide information concerning the location and character of such formation.

3,572,463
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF AN AIRCRAFT JET ENGINE

Rodney Eschenburg, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Apr. 23, 1969, Ser. No. 818,594
Int. Cl. B64d *33/06;* **F01n** *1/14*
U.S. Cl. 181—51 **4 Claims**



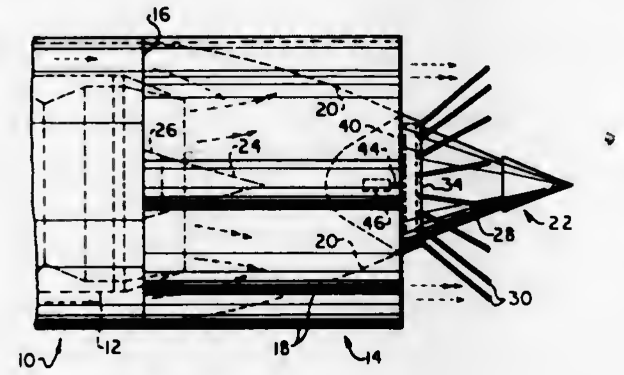
A thrust housing is mounted on an aircraft jet engine nacelle and has a plurality of nozzles at the aft end thereof. A cowling is fitted in spaced relation around the thrust housing and at its aft end is formed with a plurality of ejector tubes which are respectively disposed in spaced relation around the nozzles of said thrust housing. The cowling is mounted on the nacelle so that it can be moved to a first position wherein the forward end of the cowling abuts the nacelle and atmospheric air flowing along the nacelle is excluded from the interior of the cowling, or to a second position wherein the forward end thereof is spaced from the nacelle and atmospheric air enters the interior of the cowling and flows out of the aforesaid ejector tubes in annular streams respectively surrounding exhaust gas streams discharged through the nozzles of the thrust housing.

3,572,464
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF A FAN-JET ENGINE

Howard R. MacDonald, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Oct. 6, 1969, Ser. No. 863,915
Int. Cl. B64d *33/06;* **F01n** *1/08, 1/14*
U.S. Cl. 181—51 **4 Claims**

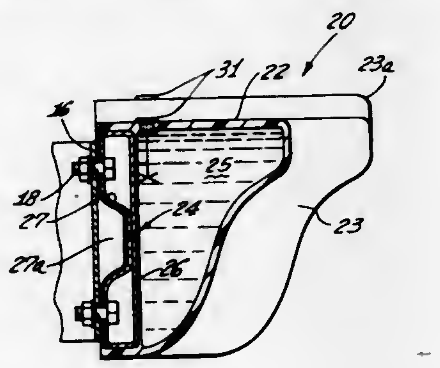
Both fan air and exhaust gas of a fan-jet engine are discharged through the lobes of a corrugated thrust nozzle and thus enter the atmosphere in streams spaced apart circumferentially of the aft end of said nozzle. Ambient air flows between the lobes of the nozzle and between said streams of combined fan air and exhaust gas. To provide

wound suppression, a plurality of elongate vanes are positioned at the interfaces between the aforesaid streams, creating flow turbulence which promotes rapid mixing of ambient air with the fan air and exhaust gas.



3,572,465
LIQUID SHOCK ATTENUATING AND PREVENTING DEVICE

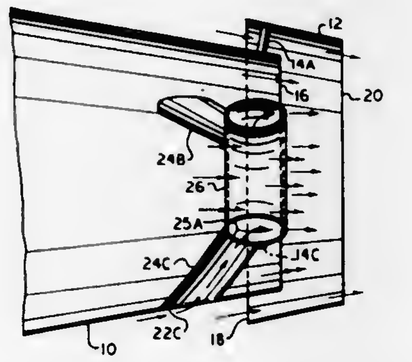
William Carl Olson, West Sacramento, Calif., assignor to Thunder Enterprises, West Sacramento, Calif.
Filed Mar. 18, 1966, Ser. No. 535,443
Int. Cl. B60r *19/08;* **B61f** *19/04;* **F16d** *63/00*
U.S. Cl. 188—1 **1 Claim**



Impact is attenuated by a hollow resilient elongated one-piece body formed by a substantially flat reinforced rear wall, a top wall and front, side and bottom walls defining a cavity which is filled with water. A plurality of apertures are provided in the top wall, each of which apertures is defined by resilient walls and is closed by a resiliently deformable plug in frictional engagement with the aperture walls. In response to a strong impact against the front wall of the body, a series of physical steps occur which result in ejecting the plugs from, followed by water from the cavity upwardly through, the apertures.

3,572,466
APPARATUS FOR AUGMENTING THRUST AND SUPPRESSING NOISE OF JET ENGINE

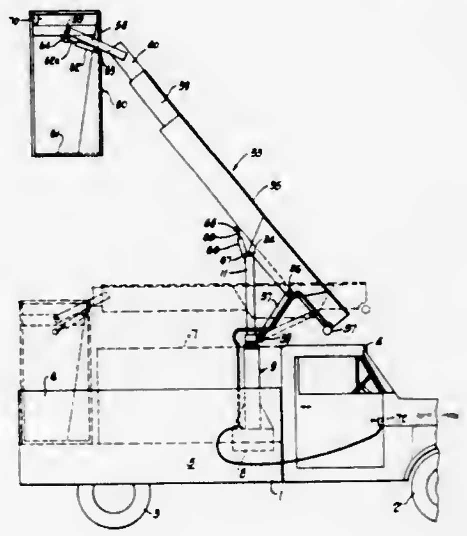
Felix Hom, La Mesa, and George E. Medawar, San Diego, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
Filed Oct. 24, 1969, Ser. No. 869,194
Int. Cl. B64d *33/06;* **F01n** *1/14*
U.S. Cl. 181—51 **2 Claims**



A tubular ejector is coaxially spaced around the aft end of an aircraft housing containing a jet engine so that slipstream air flows in annular stream around thrust gas discharged from the engine. Tubes are connected at one end thereof to edges of openings spaced around periphery of the engine housing and at other end thereof to edges of openings spaced around periphery of a hollow ring coaxially mounted within said housing, so that slipstream air also enters tubes and is discharged into central portion of the thrust gas through a slot in the aft end of ring.

3,572,467
AERIAL LADDER

Thomas R. Hall, Portland, Oreg., assignor to Altec Manufacturing Company, Inc.
Filed Mar. 26, 1968, Ser. No. 716,049
Int. Cl. E06c *5/06*
U.S. Cl. 182—67 **3 Claims**

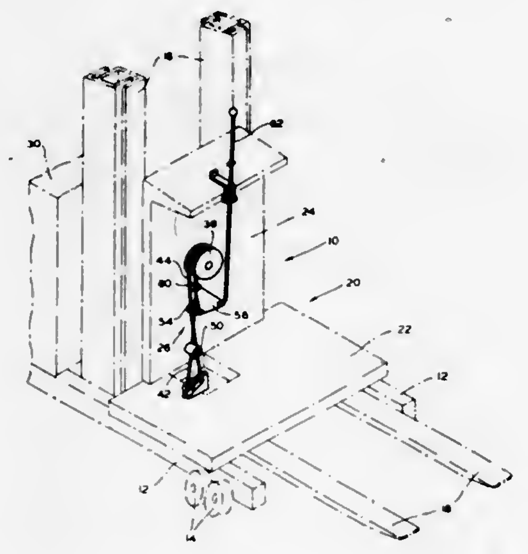


This invention discloses an aerial ladder or lift apparatus including a fixed vertical column to be mounted on a transport vehicle of the usual type, the upper end of the upright column being provided with a ladder assembly, which ladder assembly is connected to a mechanism provided in the column to raise and lower the outer end thereof, there being provided a personnel platform at the outer end of said ladder to be raised and lowered therewith. The ladder assembly is of the telescopic type and arranged to move from a horizontal position by means of the interconnection of an intermediate portion of the ladder with the column mechanism, a portion of which is provided with hydraulic instrumentalities adapted to be extended and retracted. The combination of this arrangement with linkage intermediate a vertically fixed member in the column from which a link is connected to a point on the ladder will effect the raising and lowering described. The ladder unit is, by reason of the construction set forth, susceptible of being mounted on virtually any kind of transport vehicle and as an example adjacent the driver station with the column extending up through the roof of the body structure whether the same be a van or not, or at least adjacent such body structure, and still rotatable and swingable as stated, to provide for raising personnel directly on the platform or providing access to the platform by the ladder means provided, there being controls in or at the personnel platform and at the driver station for regulating movement of the respective parts as required to position the same where necessary.

3,572,468
EXTENDIBLE SAFETY MECHANISM

Henry J. Thomas, Battle Creek, Mich., assignor to Clark Equipment Company
Filed Sept. 12, 1969, Ser. No. 857,401
Int. Cl. E04g *1/18;* **B66b** *5/00*
U.S. Cl. 182—112 **8 Claims**

An extendible safety mechanism for use with a lift truck having a body and an elevatable operator's station. The mechanism includes a switch mounted on the body and a control mounted on the operator's station. The control is connected to the switch by a pair of flexible tension members which are wound on a drum biased to exert a tension on the tension members and means for varying the effective length of one of the tension members. The ends of the tension members remote from the drum are connected to the ends of a bar which is mounted for pivotal movement about an axis intermediate the ends thereof and connected to the switch.

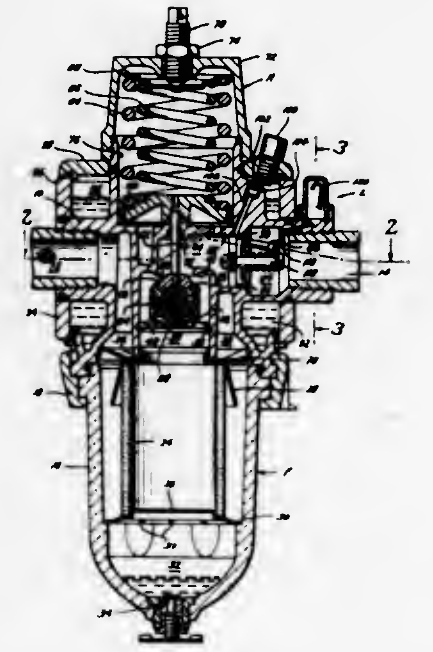


3,572,469
AIR LINE LUBRICATING DEVICE

John F. Miller, Charlotte, N.C., and George R. Ferguson, Clover, S.C., assignors to G. W. Murphy Industries, Inc., Houston, Tex.

Filed Dec. 11, 1968, Ser. No. 782,958
Int. Cl. F16n *7/34*

U.S. Cl. 184—55 **11 Claims**



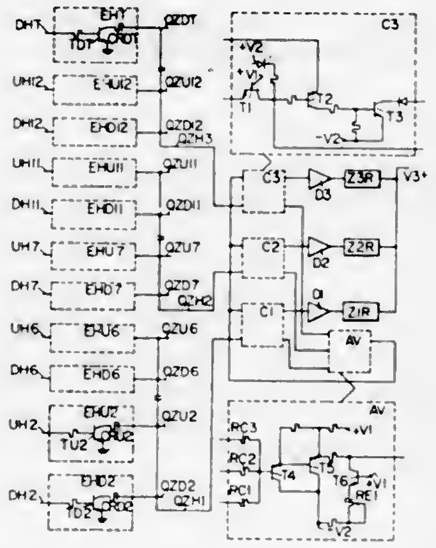
A combined lubricator, filter and pressure regulator device having a body with an inlet and an outlet, a filter in the body in communication with the inlet, a valve, a pressure-responsive means connected to the valve, the valve being mounted within the body to control flow from the filter to the outlet and a lubricating fluid injector in the body between the filter and the outlet.

3,572,470
ZONED ELEVATOR CONTROL SYSTEM INCLUDING AN ARRANGEMENT FOR CONTROLLING THE OPERATION OF CARS IN RESPONSE TO THE LEVEL OF TRAFFIC IN THE ZONES

Melvyn Hirsch, Bronxville, N.Y., and John Charles Doane, Somerset, N.J., assignors to Otis Elevator Company, New York, N.Y.

Filed Sept. 8, 1969, Ser. No. 855,978
Int. Cl. B66b *1/20*

U.S. Cl. 187—29 **7 Claims**



A zoned elevator control system for a group of cars in which the cars are distributed on a predetermined apportioned basis into various zones of the building for assignment thereto, whereupon in the absence of calls each car is brought to a stop at a landing in a zone to which it is assigned. Thereafter in a zone to which a car is assigned the response to the first landing call is limited to a car assigned to that zone. A landing call in a zone to which no car is assigned starts a car assigned in the nearest lower zone. The level of traffic in each zone is measured individually and is a function of the number of landing calls in registration in the respective zone. An average of a number of landing calls in all zones is derived and a comparison is made between the number of landing calls in each individual zone and the average number of landing calls. Whenever the number in any zone exceeds the average by a predetermined amount it signifies that the zone is a heavy traffic zone. As a result the limitation on the response to landing calls to a car assigned to that zone is removed. This enables a car in the nearest lower zone to respond to landing calls in the heavy traffic zone notwithstanding another car is assigned to that zone. In addition while the heavy traffic demand continues any car in a zone which is in excess of the apportioned number of cars for that zone and therefore is not assigned to that zone is caused to travel toward the heavy traffic zone. All cars entering the heavy traffic zone while the heavy traffic demand continues are assigned to that zone and are thereby prevented from traveling to an unoccupied zone as they otherwise would.

ERRATUM

For Class 188—1 see:
Patent No. 3,572,465

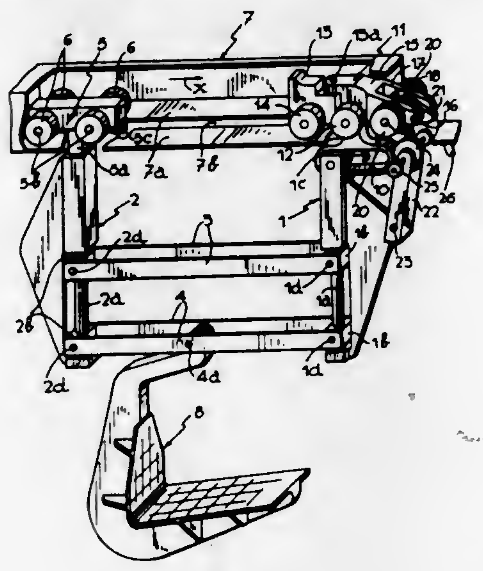
3,572,471
TRANSPORT VEHICLE

Ghislain Antoine Jean-Marie Martelee, Lieges, Belgium, assignor to Cockerill-Ougree-Providence et Esperance-Longdoz en abrege "Cockerill,", Seraing-lez-Liege, Belgium

Filed July 26, 1968, Ser. No. 747,936
Claims priority, application Belgium, Aug. 11, 1967, 41,445
Int. Cl. B61h *13/20*

U.S. Cl. 188—144 **13 Claims**

In a transport vehicle having a rigid frame and rollers rolling on a track there is provided, an automatic speed controlling means comprising a gear wheel whose rotation is controlled by an oscillating element having two jaws spaced apart from one another and cooperating respectively and alternately with the teeth of said gear wheel which is mounted on a shaft having on at least one end a friction roller rolling on said track and which is carried by a rocking component adapted to rock in respect of said rigid frame on any downwardly sloping part of said track to engage said friction roller with said track so as to slow the speed of travel of said vehicle along said sloping part. Alternatively, friction brakes may be provided which are applied by rocking movement of a vehicle component on a downwardly sloping track portion.

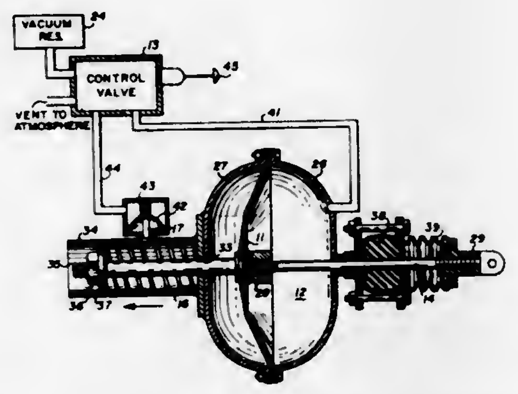


3,572,472
EMERGENCY BRAKE SYSTEM FOR A VEHICLE

Edward R. Black, 1261 Normandy Way, Apt. 2, Santa Clara, Calif.

Filed Apr. 21, 1969, Ser. No. 817,772
Int. Cl. F16d *69/00*

U.S. Cl. 188—290 **1 Claim**



A parking brake for a motor vehicle is actuated by reduced pressure or vacuum from the engine intake manifold which will compress a spring to release the brakes. When the vacuum is shut off the spring will expand and will apply the brakes to the vehicle. When the spring is compressed and the brakes are released, a pawl will engage and secure the spring in compression to prevent inadvertent application of the brakes if the manifold vacuum is reduced.

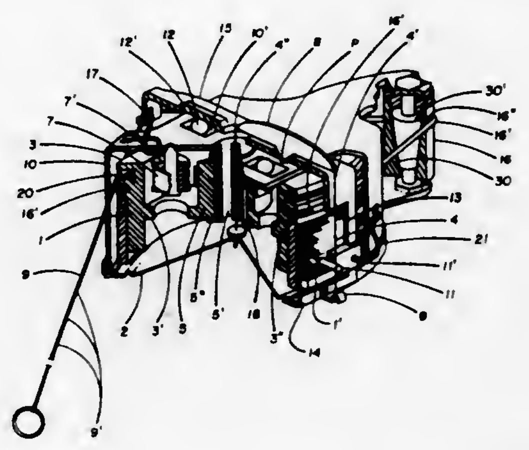
3,572,473
PHONOGRAPH SYSTEM

Royal V. Jones, Jr., Waltham; Clayton H. Allen, Wellesley, and Colin G. Gordon, Bedford, Mass., assignors to Bolt Beranek and Newman Inc., Cambridge, Mass.

Original application Feb. 13, 1967, Ser. No. 615,537, now Patent No. 3,480,283. Divided and this application Mar. 5, 1969, Ser. No. 828,036
Int. Cl. F16d *57/00*

U.S. Cl. 188—183 **2 Claims**

Phonograph system with tensioned wire coupling between a needle engaging a drum-type record and a loudspeaker, and including a speed controller having a pair of coaxial conical members with a viscous liquid therebetween, the outer member being driven by the drum which carries the record and the inner member being driven by the outer member through the viscous liquid.

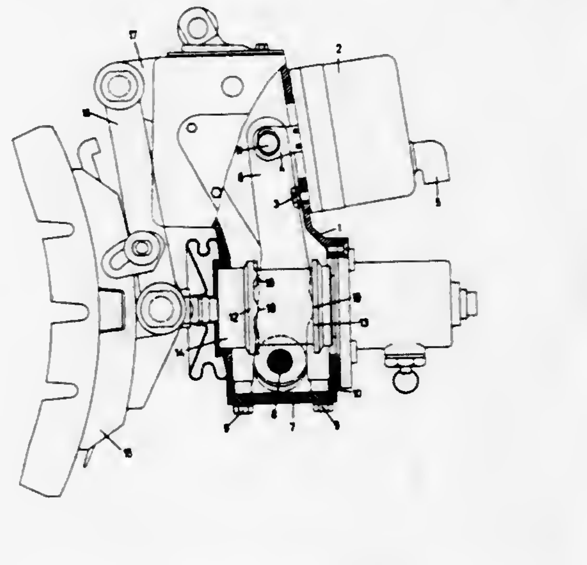


3,572,474
RAILWAY VEHICLE BRAKE RIGGING

Gert A. Persson, Oxie, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Jan. 27, 1969, Ser. No. 794,268
Int. Cl. F16d *65/44*

U.S. Cl. 188—197 **6 Claims**



A railway vehicle brake rigging is disclosed with a power source such as a pneumatic cylinder actuating a pivoted lever against a shoulder on a pushrod for moving a brake shoe into the wheel. Provisions are made to vary the pivot axis position while maintaining axial contact between the pivoted lever and the pushrod by means of introducing spacing elements between a housing assembly containing the pivoted lever and the mounting for the pushrod. The movement of the pivot axis position permits the application of different forces to the brake shoe.

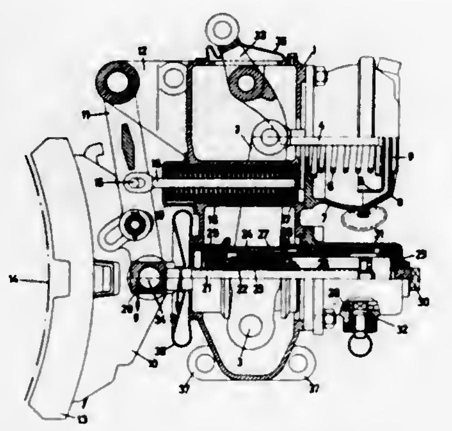
3,572,475
RAILWAY VEHICLE WHEEL BRAKE UNIT

Gert Artur Persson, Oxie, Sweden, Nil Barge Lennart Sander Malmo Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Nov. 25, 1968, Ser. No. 778,394
Int. Cl. F16d *65/56*

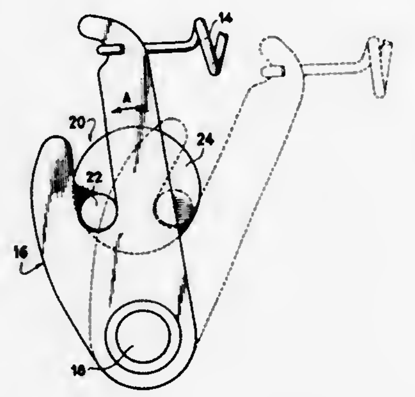
U.S. Cl. 188—202 **2 Claims**

A railway wheel brake unit, having a pivoted brake shoe lever moved by a piston into braking braking position by means of the engagement with a slack-adjusting mechanism and forced by a spring away from braking position, includes a pivoted coupling member on the brake shoe lever with a V-shaped groove registering a V-shaped end pushing member on the slack adjusting mechanism to thereby permit sliding engagement in the plane of movement of the brake shoe lever without rotation.



3,572,476
SHOE RETRACTING SYSTEM FOR INTERNAL SHOE DRUM BRAKES, AND BRAKES INCLUDING SAME

Bernard Laverdant, Vincennes, France, assignor to Societe Anonyme D.B.A., Paris, France
Filed Jan. 23, 1969, Ser. No. 793,313
Claims priority, application France, Jan. 26, 1968, 137,591
Int. Cl. F16d *65/58*
U.S. Cl. 188—216 **4 Claims**

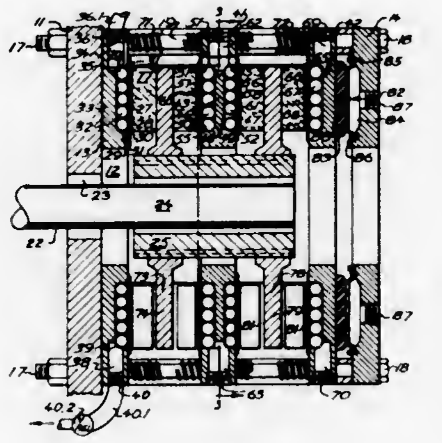


A drum brake is disclosed which includes a lever pivotally attached to one of the shoes. The lever has a hooked end which is attached to one end of a return spring which is stretched between the shoes. A cam member is rotatably mounted on the one shoe and includes an eccentric mounted thereon which engages a slot in the lever. Rotation of the cam member moves the lever from a first position in which the return spring is relaxed to a second position in which the spring is stressed to exert a force on the shoes. The cam member is accessible from the exterior of the brake so that an appropriate tool may be used to rotate the cam member.

3,572,477
LIQUID COOLED BRAKE

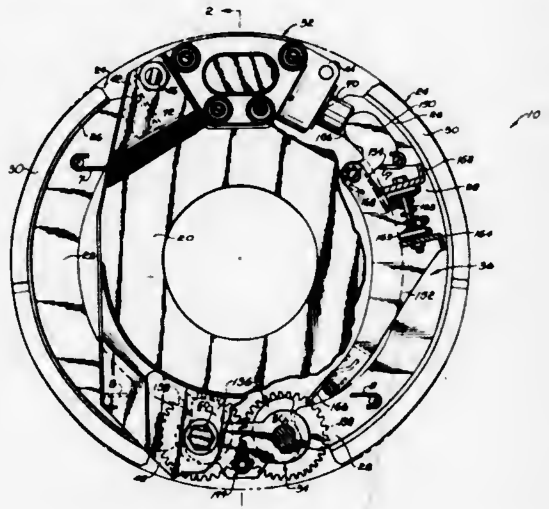
James M. Ewart, Nanimo, British Columbia, Canada, assignor to S. Madill Ltd.,, Nanaimo, British Columbia, Canada
Filed Nov. 25, 1968, Ser. No. 778,733
Int. Cl. F16d *65/84*
U.S. Cl. 188—264 **1 Claim**

A Liquid Cooled Brake wherein a steel wear plate adapted to be engaged by a frictional element forms one wall of the chamber through which a liquid coolant is passed. Copper fins in the chamber and in intimate contact with the wear plate transfer heat from the latter to the liquid coolant.



3,572,478
BRAKE MECHANISM

William S. Nagel, Franklin, and Mack H. Lawrence, Farmington, Mich., assignors to Eaton Yale & Towne, Inc., Cleveland, Ohio
Continuation of application Ser. No. 679,468, Oct. 31, 1967, now abandoned. This application Oct. 31, 1969, Ser. No. 871,789
Int. Cl. F16d *51/52*
U.S. Cl. 188—330 **37 Claims**

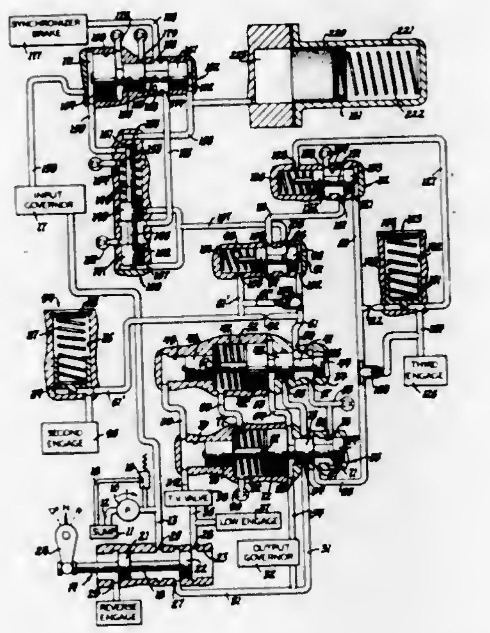


A brake mechanism comprises a pair of brakeshoes which are displaceable to contact a brakedrum to effect braking thereof. Each of the brakeshoes has first and second ends. Abutment means contacts the respective first ends of the brakeshoes, and actuator means in the form of a wedge actuator effects outward displacement of the second ends of the brakeshoes an equal amount during braking. The brakeshoes are mounted on a sheet metal spider member which is located generally centrally with respect to the brakeshoes. The abutment means which contacts the first ends of the brakeshoes consists of a pair of cam members which are rotated to effect adjustment of the brakeshoes in response to brake lining wear.

3,572,479
STEP-RATIO TRANSMISSIONS WITH FLUID OPERATED SYNCHRONIZING BRAKE

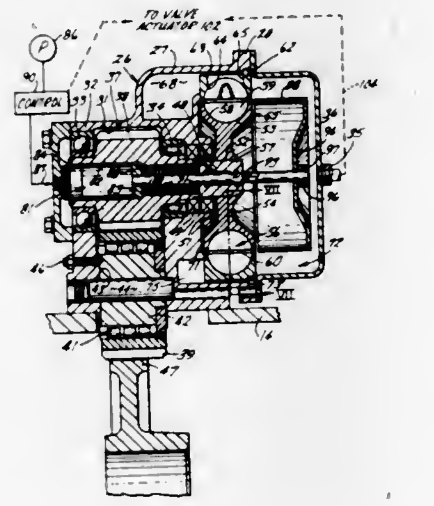
Oliver K. Kelley, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 24, 1969, Ser. No. 844,324
Int. Cl. F16h *57/10*
U.S. Cl. 192—4 **9 Claims**

A control system for an even step-ratio power transmission driven by a gas turbine power source. A synchronizing brake is adapted to decrease the speed of the turbine shaft and transmission input shaft to establish a predetermined speed ratio between the input and output shafts of the transmission during upshifting of the transmission and to permit the turbine shaft speed to increase to establish a predetermined speed ratio between the input and output shafts during downshifting of the transmission. The synchronizing brake is controlled by a synchronizing valve which is controlled by an accumulator governor pressure and by an input governor pressure. Fluid pressure from the governor and the accumulator to the synchronizing valve is controlled by a governor control valve that is movable to an upshift position to direct governor pressure to one side of the synchronizing valve and accumulator pressure to the other side and to a downshift position to reverse the governor and accumulator pressure connections on the synchronizing valve.



3,572,480
TRANSMISSION-DRIVEN RETARDER WITH FLUID-OPERATED BLOCKER AND INLET VALVE

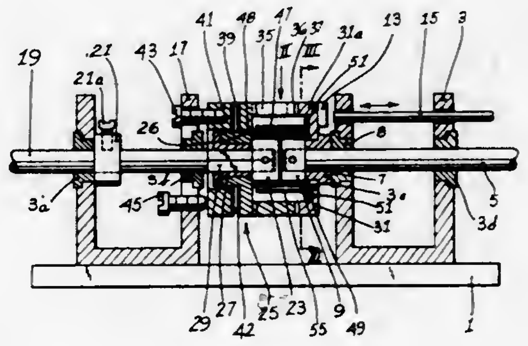
William S. Nagel, Franklin, Mich. (3135 Spring Court, Birminghan, Mich., 48010)
Filed Apr. 14, 1969, Ser. No. 815,733
Int. Cl. F16h *57/10;* **F16d** *57/02*
U.S. Cl. 192—4B **11 Claims**



A device for retarding the speed of a motor vehicle having an engine cooling system, ground engaging wheels and a transmission including a housing and gears normally shiftable into high ratios at low vehicle speeds and low ratios at high vehicle speeds and having a power takeoff connection to said transmission at a point having at least a pair of ratio gears between the power takeoff and the output shaft of said transmission. An impeller housing is connected to said cooling system for receiving energy absorbing medium therefrom, and has a stator fixed thereto and an impeller rotatably concentrically mounted therewithin. Said rotor is preferably secured to the power takeoff and is driven thereby. A control sleeve is mounted internally of the impeller housing for movement into a gap between the impeller member and the stator for controlling the torque absorbed by the retarder unit.

3,572,481
LATCH-RELEASED COIL CLUTCH WITH AUTOMATIC FRICTION BRAKE

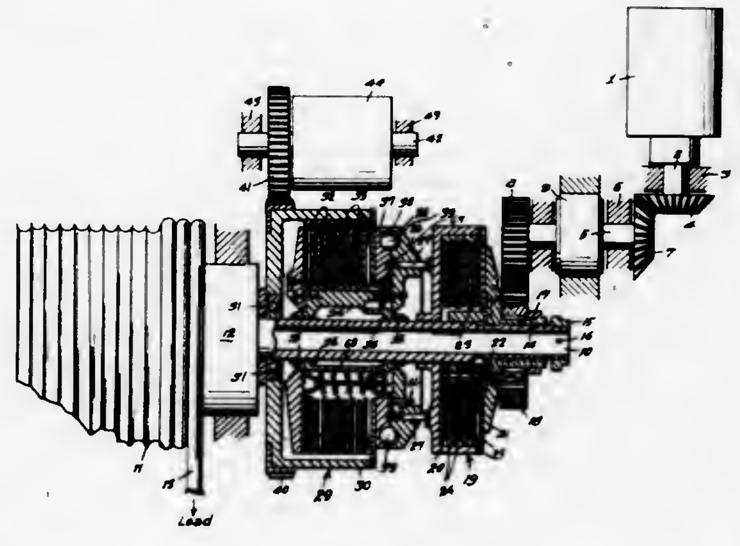
Rolf Moritz, Wilhelmshaven, Germany, assignor to Olympia Werke A G, Wilhelmshaven, Germany
Filed Oct. 2, 1969, Ser. No. 863,165
Claims priority, application Germany, Oct. 11, 1968, P 18 02 486.7
Int. Cl. F16d *67/02*
U.S. Cl. 192—12 **10 Claims**



An output shaft is driven from a drive shaft by clutch means including a coil spring enveloping clutch drums on the drive shaft and output shaft. The ends of the coil spring are connected with a brake disc mounted on the output shaft, and with a control disc mounted on the drive shaft for rotation. When the control disc is stopped, the brake disc continues to rotate and spreads the coil spring so that the clutch is disengaged, while cam means on the control disc move the still turning brake disc to a braking position abutting a stationary brake member.

3,572,482
AUTOMATIC CLUTCH AND BRAKE FOR HOISTS

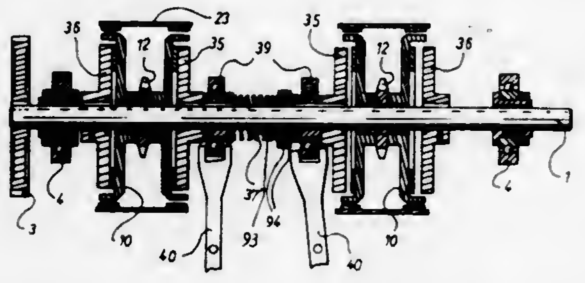
Roland A. Kalpas, Willlngboro, N.J., and Derek W. Stowe, Springfield, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 3, 1969, Ser. No. 788,860
Int. Cl. F16d *67/02, 67/00*
U.S. Cl. 192—15 **2 Claims**



A mechanical load brake system having a motor in driving connection with a traveling nut threadable on the drive shaft of a hoist drum. When rotated in one direction the nut will engage an input clutch which, in turn, engages a disc brake to lock a brake housing for rotation with the drive shaft. The brake housing is prevented from rotation in both directions by a backstop brake to permit free rotation of the drive shaft during hoisting without having to overcome brake friction torque in addition to the torque required to hoist the load, and on lowering the load to hold fixed the brake housing to permit generation of a reaction torque when brake application is required. On lowering the speed of the drive shaft is controlled by the nut which acts as a governor.

3,572,483
STEERING CLUTCH AND BRAKE FOR DOUBLE-TRACKED VEHICLE

Benoit Giguere, Lambton Village, Frontenac, Quebec, and Augustin Veilleux, 86 Normand Boulevard, Chateauguay Centre, Quebec, Canada
Filed Mar. 24, 1969, Ser. No. 809,733
Int. Cl. F16d *67/02, 21/06;* **B62d** *11/08*
U.S. Cl. 192—13 **3 Claims**

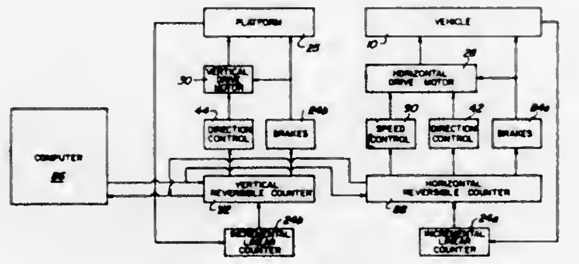


A steering clutch and brake for double-tracked vehicles in which the vehicle engine drives the respective tracks through an intermediate driving shaft, carrying two clutching systems, each associated with one track of the vehicle and each including a driven clutch disc having a peripheral flange providing an external braking surface cooperable with a brakeshoe forming a braking system for stopping the vehicle or for making a sharper turn.

The drive also includes means for easily adjusting the clutching engagement of the clutching discs to prevent slipping.

3,572,484
CONTROL MECHANISM COMPRISING MOTOR AND BRAKES RESPONSIVE TO COUNTER MEANS

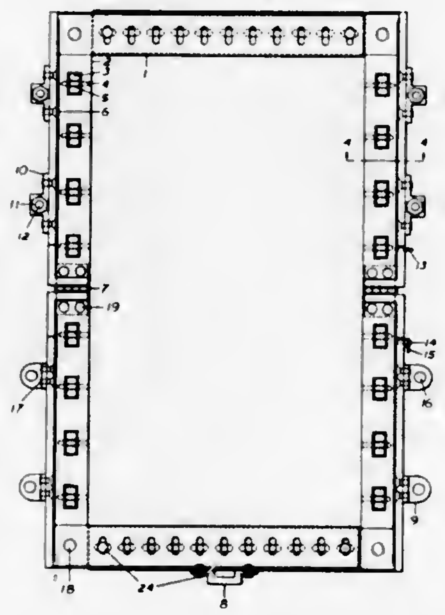
Kenneth A. Richins, Salt Lake City, Utah, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Nov. 14, 1968, Ser. No. 775,889
Int. Cl. F16d *71/04;* **B65g** *47/22*
U.S. Cl. 192—142 **8 Claims**



A control mechanism for material carrying vehicles which includes track means for controlling the direction of travel of the vehicle, a roller rotatably secured to the vehicle to form a no-slip contact with the track and be rotated thereon when the vehicle moves along the track, drive means for propelling the vehicle, a counter driven by the roller for counting the roller revolutions, vehicle brakes for braking the movement of the vehicle, and activation circuit means electrically connected to the counter and to the brakes for setting the brakes when the roller has rotated a predetermined number of revolutions.

3,572,485
CONVEYOR-TYPE FOLDUP TOOL CHEST BASE

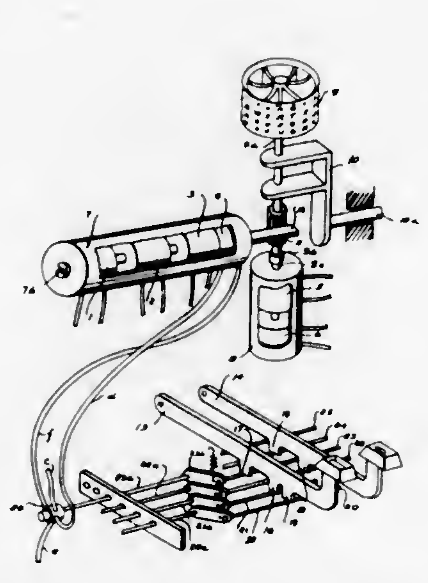
Reese Wesley Hardin, 4101 S. Shaver #3504, Pasadena, Tex.
Filed May 15, 1969, Ser. No. 827,473
Int. Cl. B65g *13/00*
U.S. Cl. 193—35 **4 Claims**



A portable conveyor having rollers in its upper surface for sliding a toolbox or the like into a space such as one under a cabinet. The conveyor is hinged intermediate its ends so that the portion of the conveyor projecting from the space may be folded vertically and locked in that position.

3,572,486
PNEUMATIC SETTING ARRANGEMENT FOR A TYPE HEAD

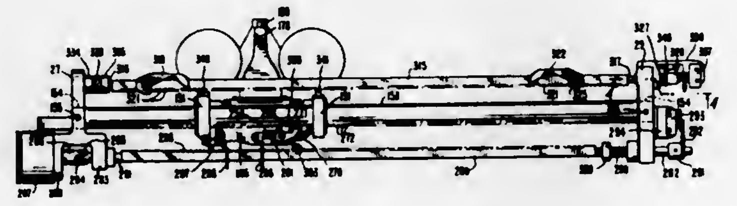
Martin Hebel; Otto Krauss, Nuernberg, and Hermann Waldenburger, Wolkersdorf, Germany, assignors to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt, Fuerth, Bayern, Germany
Filed Sept. 6, 1968, Ser. No. 757,919
Claims priority, application Germany, Nov. 28, 1967, G38438
Int. Cl. B41j *23/20*
U.S. Cl. 197—15 **10 Claims**



A series of pairs of interconnected cylinders and pistons is provided for setting a type head between different printing positions. The cylinder and piston of each pair are movable between a contracted position and an expanded position, and the cylinders and pistons of different pairs are spaced in the expanded position different distances selected in accordance with a code. Pneumatic operating means including valves controlled by keys, move the cylinders and pistons of selected pairs to the expanded position so that the piston at one end of the series is displaced relative to the cylinder at the other end of the series a distance which is the total of the distances of expansion of the selected pairs, and sets the type head accordingly to different printing positions.

3,572,487
MARGIN CONTROL STRUCTURE

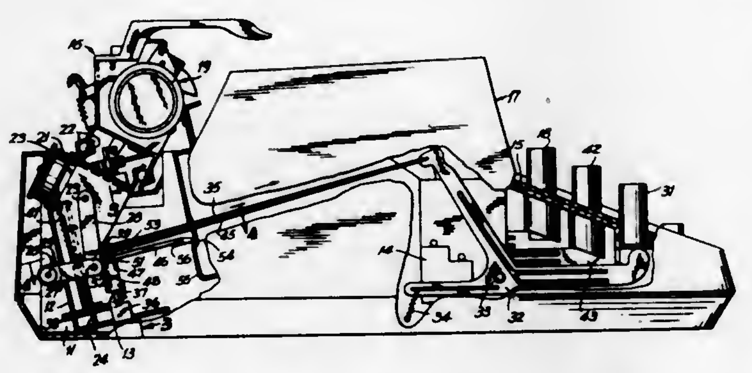
Donald L. Rolph, Fairport, and Ronald Tristram, Rochester, N.Y., assignors to The Singer Company
Original application Oct. 6, 1967, Ser. No. 673,440. Divided and this application May 1, 1969, Ser. No. 842,749
Int. Cl. B41j *21/02*
U.S. Cl. 197—63 **1 Claim**



A margin control structure for use with a character-by-character printer having a margin stop rack supported for pivotal and longitudinal motion away from a home position. In response to the carrier entering a zone defined by the position of the right-hand margin stop member, the margin stop rack is pivoted and an electrical signal provided indicative of entry into the zone. In response to a carrier return signal, the carrier is moved to the left until a projection on the carrier engages the left-hand margin stop member, thereby moving the margin stop rack longitudinally. In response to said last mentioned longitudinal motion, an electrical signal is generated to terminate the carrier return motion.

3,572,488
SHIFT AND SHIFT LOCK MECHANISM FOR TYPEWRITER

Shigeaki Kuramochi, Tokyo, Japan, assignor to Louis Marx & Co., Inc., New York, N.Y.
Filed Jan. 15, 1969, Ser. No. 791,278
Int. Cl. B41j *11/14, 29/64*
U.S. Cl. 197—73 **6 Claims**

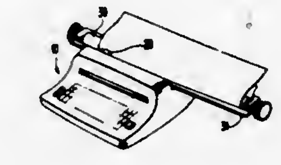


A shift mechanism for a typewriter having a shift key and a shift lock key, both of which are effective to shift the typewriter carriage. A latching arm is normally spring-biased to a nonlatching position and is rocked forwardly to a latching position when the shift lock key is operated to retain the carriage in shifted position until the shift key is operated to release the latching force on the latch arm to permit it to be biased to a nonlatching position for release of the carriage from the shifted position.

3,572,489
TYPEWRITER WITH EXTENDED WRITING LINE

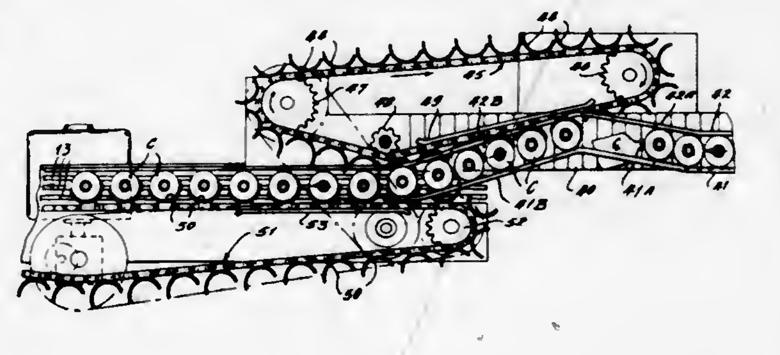
John O. Schaefer, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 8, 1968, Ser. No. 774,281
Int. Cl. B41j *19/00*
U.S. Cl. 197—82 **4 Claims**

The writing line of a moving print element typewriter is extended beyond the typewriter side frame by employing a long paper carriage and effecting conjoint opposite direction movement of the paper carriage of a print element carrier. Absolute movement of the paper carriage and the print element carrier is thus less in each case than the length of the writing line. A mechanical interconnection is employed to allow control over both movements to be obtained by controlling the movement of the print element carrier. Movement of the print position between adjacent letters is accomplished by moving the print element two-thirds of a letter space to the right and simultaneously moving the paper one-third of a letter space to the left to minimize the effective inertial loads on the system.



3,572,490
CONTAINER HANDLING APPARATUS

Momir Babunovic, Des Peres, Mo., assignor to Barry-Wehmiller Company, St. Louis, Mo.
Filed Apr. 1, 1969, Ser. No. 811,880
Int. Cl. B65g *47/26*
U.S. Cl. 198—22 **9 Claims**

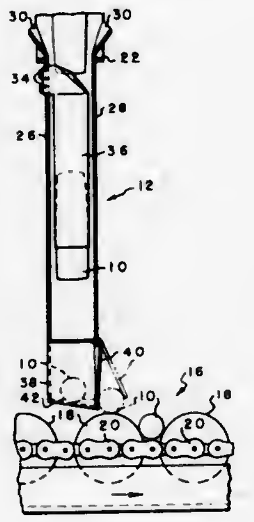


Apparatus for handling the transfer of containers from a table top conveyor on which the containers may be in contact with each other to conveyor means having cups or pockets for separating and preventing container contact. There is included apparatus for handling the transfer of containers between table top conveyors moving in different directions through the application of pocketed conveyor means. The apparatus utilizes a container guide on the side of the containers opposite the conveyor cups or pockets, which guide is inclined in the direction of container movement to gradually cause the containers to seat in the cups or pockets.

3,572,491
COIN CHUTE

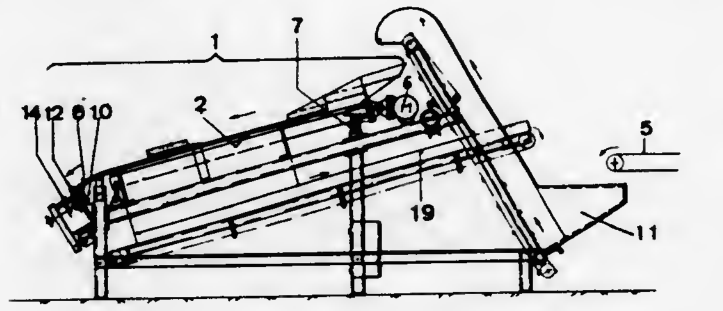
Richard D. Wylie, 114 Anthony St., Gaffney, S.C.
Filed June 3, 1968, Ser. No. 734,054
Int. Cl. B65g *47/04*
U.S. Cl. 198—26 **1 Claim**

Apparatus to receive wrapped rolls of coins and automatically transfer such rolls to another coin handling apparatus which is located at an angle to the initial coin roll receiving apparatus. Basically, the apparatus includes a gate member which prevents the rolls of coins from being transferred onto the other coin handling apparatus in a skew position.



3,572,492
APPARATUS FOR ALIGNING PARQUET STRIPS IN THE SAME DIRECTION

Werner Dreszig, Saint Margrethen, Switzerland, assignor to Bauwerk AG, St. Margrethen, Switzerland
Filed Nov. 4, 1968, Ser. No. 782,507
Claims priority, application Switzerland, Nov. 7, 1967, 15523/67
Int. Cl. B65g *47/24, 47/26*
U.S. Cl. 198—30 **8 Claims**

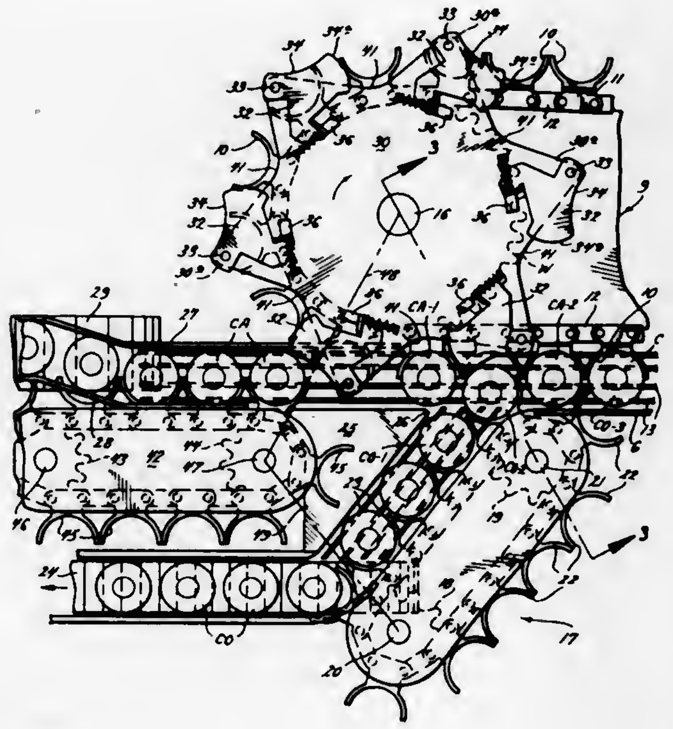


There is disclosed an apparatus for aligning parquet strips in the same direction and which is of the type comprising chute means equipped with a plurality of adjacent or juxtapositioned channels for receiving the parquet strips. A jolting mechanism cooperates with the chute means for aligning the parquet strips which have been randomly received upon the chute means and further serves to convey such parquet strips along the chute means. A transfer table is disposed at the discharge end of the chute means and removes the aligned parquet strips. Transverse extending stop means are arranged at the region of the discharge end of the chute means in front of the transfer table. The aligned parquet strips impact against such transverse extending stop means. Furthermore, means serve to periodically render inoperable the transverse extending stop means so that the parquet strips impacting thereagainst slide past such transverse extending stop means and onto the transfer table.

3,572,493
CONTAINER FLOW DIVIDER APPARATUS

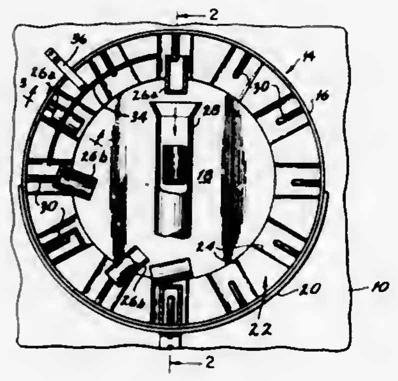
Momir Babunovic, Des Peres, Mo., assignor to Barry-Wehmiller Company, St. Louis, Mo.
Filed Feb. 7, 1969, Ser. No. 797,406
Int. Cl. B65g *47/30*
U.S. Cl. 198—31 **9 Claims**

Container handling apparatus for dividing a single stream of containers moving at high speed into two slower moving streams by means which alternately diverts containers to one of the slower conveyors and passes containers to another of the slower conveyors so that there is no loss in the speed of handling the containers and the single high-speed stream is effectively reduced to streams moving at more moderate speeds to match the operating speeds of processing machinery. The apparatus includes means to effect the container diverting so that the chances of blocking the single high-speed stream is substantially avoided.



3,572,494
HOPPER TYPE APPARATUS FOR ORIENTING AND FEEDING JARS, OR THE LIKE

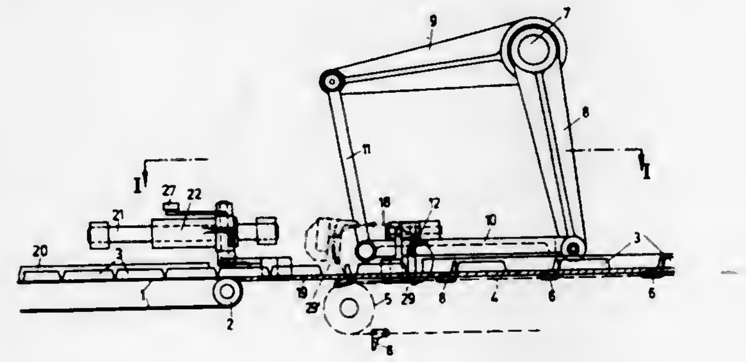
Samuel S. Aidlin, 214 Beaumont St., and Stephen H. Aidlin, 3855 Shore Parkway, New York, N.Y.
Filed Oct. 17, 1968, Ser. No. 768,472
Int. Cl. B65g *17/24*
U.S. Cl. 198—33 **6 Claims**



A hopper type apparatus for automatically feeding jars, or the like, oriented with their bottoms foremost; including a rotary, inclined feed ring having radial recesses formed therein for picking up jars at the bottom of the hopper for discharge at the top thereof and a chute for receiving the discharged jars; each said recess having a pin extend part way thereinto from its peripheral end in spaced relation to the recess wall; said pin permitting a jar entering the recess opening foremost to enter fully into the recess and preventing a jar entering the recess bottom foremost from entering fully therein; and a friction bar disposed above the feed ring in position to frictionally engage the portion of the jar fitted over the pin to hold it in place within the recess until it is carried up to the chute inlet.

3,572,495
METHOD AND APPARATUS FOR SEPARATING CONTIGUOUS OBJECTS AND FOR MOVING THEM TO A SECOND ADVANCING MEANS

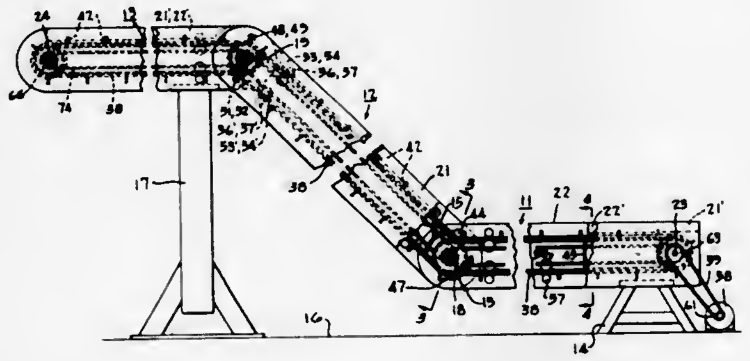
Pierre Luginbuhl, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie- Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Dec. 26, 1968, Ser. No. 786,893
Claims priority, application Switzerland, Feb. 13, 1968, 2106/68
Int. Cl. B65g *47/26*
U.S. Cl. 198—34 **7 Claims**



A buffer synchronizes the movement of the foremost chocolate bar of a row of contiguous bars, from a first conveyer, with the movement of a second conveyer. Two pairs of clamping jaws, working alternately, then accelerate the foremost bar to the second conveyer, while another pair of jaws, timed with the operation of the first conveyer and with the two other pairs of jaws, holds the bar behind the foremost one and advances it in synchronism with the first conveyer.

3,572,496
ADJUSTABLE ANGULATED CONVEYOR SYSTEM IN WHICH HOLDDOWN ROLLERS ARE EMPLOYED TO SECURE A RIDGED BELT TO CHANNELED PULLEYS

Ernest M. Cutts, Sr., and Ernest M. Cutts, Jr., R.D. #3, Vincentown, N.J.
Filed Jan. 21, 1969, Ser. No. 792,354
Int. Cl. B65g *41/00*
U.S. Cl. 198—109 **10 Claims**

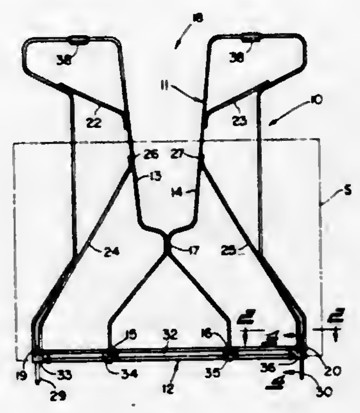


An angulated conveyor system is described in which a ridged conveyor belt is securely supported on channeled pulleys by holddown rollers. The frame of the conveyor is formed in a plurality of sections. The sections are pivotally connected to allow angular adjustment. A separate endless drive chain is provided in each section to permit angular adjustment without adjusting the tension on the chains.

3,572,497
WICKET AND METHOD OF CONSTRUCTION

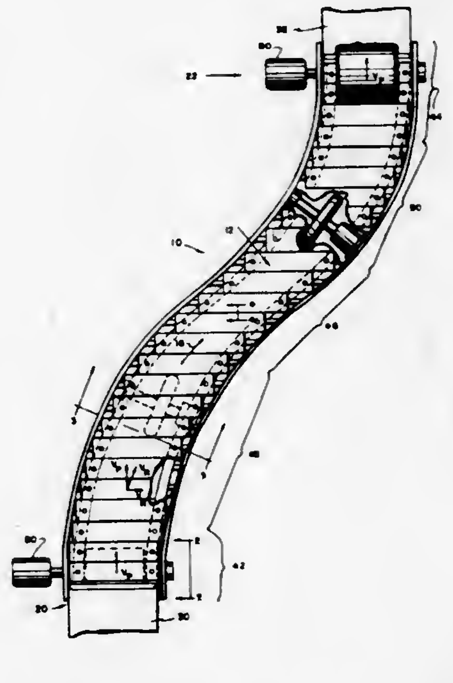
John A. Karpac, North Royalton, Ohio, and Richard S. Thrasher, East Aurora, N.Y., assignors to FECO, A Division of Bangor Punta Operations, Inc., Bangor, Maine
Filed Dec. 18, 1968, Ser. No. 784,793
Int. Cl. B65g *17/16*
U.S. Cl. 198—134 **6 Claims**

A wicket construction with the chain pin and wicket tubes attached to the rest bar and each other by two weld or brazed joints, one on the backside of the wicket above the rest bar and the other also on the backside through a slotted hole in the center of the rest bar.



3,572,498
VARIABLE SPEED CONVEYOR

Andrew G. Hammitt, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Sept. 23, 1968, Ser. No. 761,730
Int. Cl. B65g *15/02*
U.S. Cl. 198—182 **9 Claims**

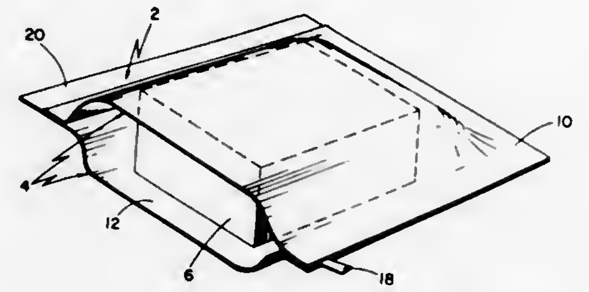


A variable speed conveyor having an endless conveyor member composed of longitudinally spaced load-bearing sections which are relatively movable with at least a component of relative motion parallel to the conveyor path. The conveyor member is driven endwise in a manner such that the velocity of each load-bearing section parallel to the conveyor path varies along the path between the conveyor infeed and outfeed stations to maximize the average conveyor velocity along the path and/or to provide the conveyor with different infeed and outfeed velocities. The conveyor is useful both as an article conveyance and a pedestrian conveyance.

3,572,499
CONDUCTIVE PACKAGING MATERIAL AND CONTAINER FOR EXPLOSIVES

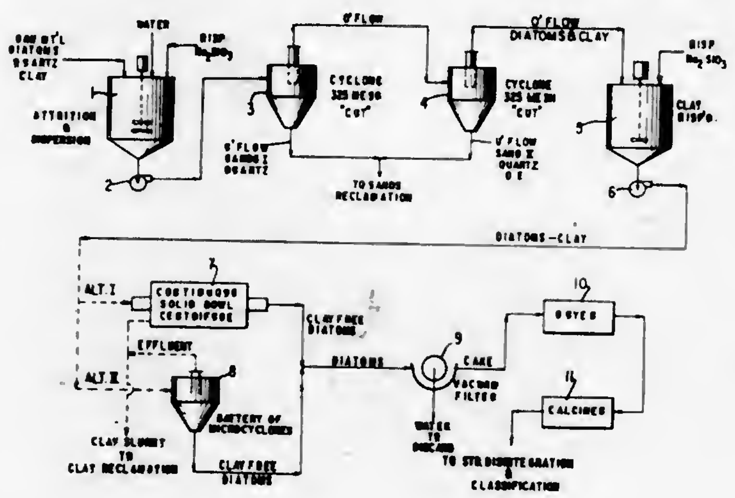
Ralph L. Mondano, Lexington, Mass., assignor to Custom Materials, Inc., Chelmsford, Mass.
Filed Jan. 19, 1967, Ser. No. 610,260
Int. Cl. B32b *27/32, 15/18, 7/00*
U.S. Cl. 206—1 **8 Claims**

A laminated-sheet-packaging material having good moisture-vapor-barrier properties and providing reduced risk of deleterious effects from buildup of static electricity is formed from an aluminum film having a layer of protective material on one face and a layer of heat-sealable, electrically conductive plastic material on the other face, the electrically conductive plastic material forming the inner surface of the package.



3,572,500
BENEFICIATION OF DIATOMACEOUS EARTH

Anastasios P. Kouloheris, Atlanta, Ga., assignor to Cities Service Company, New York, N.Y.
Filed June 18, 1968, Ser. No. 738,022
Int. Cl. B03b *1/00, 7/00*
U.S. Cl. 209—5 **14 Claims**



Diatomaceous earth can be purified of sand and clay and reduced to a smaller particle size by wet attritioning raw diatomaceous earth to reduce the diatomite particle size, hydraulically classifying the wet attritioned material to remove sand and quartz, dispersing clay and centrifugally classifying to remove said clay. Wet attritioning can be done in the presence of a clay dispersant and centrifugal classification can be done before or after the quartz and sand are removed.

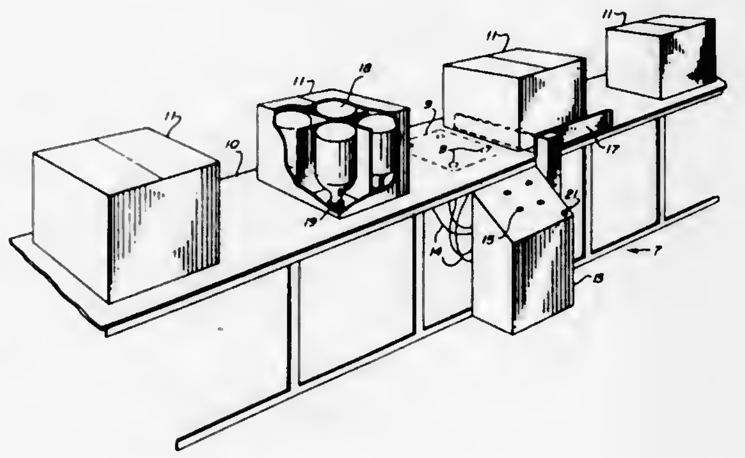
3,572,501
METHOD OF SEPARATING TONER PARTICLES FROM CARRIER PARTICLES IN DEVELOPER MIXTURES USED IN ELECTROSTATIC PRINTING

James Norton Brennan, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Nov. 7, 1968, Ser. No. 774,182
Int. Cl. B03b *1/04*
U.S. Cl. 209—9 **4 Claims**

In an electrostatic-printing process employing a developer mixture comprised of electrically conductive carrier particles, and electrostatically attractable nonconductive toner particles, the carrier particles may be separated from the toner particles by immersing the developer mixture in a dilute electrolyte solution. The separation of the carrier particles from the toner particles permits the carrier particles to be reused with a variety of different colored toner particles.

3,572,502
ELECTRONIC CLOSURE DETECTION SYSTEM

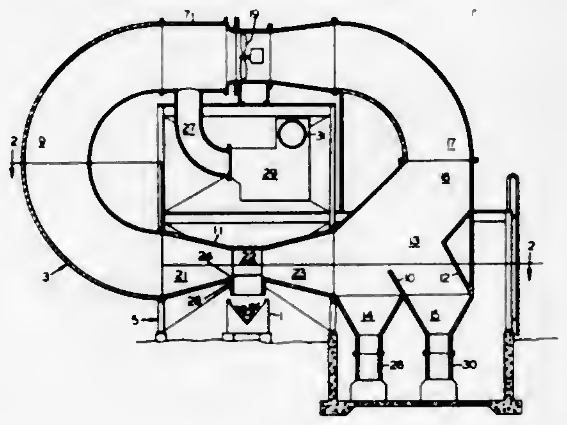
Richard M. Quinn, Muncie, Ind., and Donny W. Candioto, Broken Arrow, Okla., assignors to Ball Corporation
Filed Dec. 23, 1968, Ser. No. 786,001
Int. Cl. B07c *5/344*
U.S. Cl. 209—73 **15 Claims**



An electronic closure detection system for sensing presence or absence of closures and, in particular, closures normally hidden from view. The apparatus includes one or more inductive sensors which form part of the frequency-determining network of an oscillator, the frequency of the oscillator being changed by the sensed presence of a closure. Determining circuitry responsive to the output of the oscillator controls energization of means for indicating presence or absence of the closures, and provides a signal for proper gate operation where applicable.

3,572,503
TRASH SEGREGATION APPARATUS

William J. Hezel, St. Louis, Mo., assignor to Waste Reclamation Corporation, St. Louis, Mo.
Filed Nov. 4, 1968, Ser. No. 773,248
Int. Cl. B07b *4/00*
U.S. Cl. 209—120 **10 Claims**



Apparatus for segregating trash in accordance with its specific gravity, comprising a vibratory conveyor which causes large or heavy pieces of material such as metal or wood to settle to the bottom and lighter material such as paper and cardboard to remain at the top, and a closed circuit conduit having a venturi above the conveyor with an opening in its throat directly over the conveyor, a blower anterior to the venturi in the conduit for producing a flow of air through the venturi whereby to create a pressure reduction at the venturi throat sufficient to lift the lighter materials, i.e., paper and cardboard, off the conveyor and into the venturi and to propel the material received therein through the venturi, a plurality of upwardly open hoppers communicating with the conduit ductwork posterior to the venturi whereby the heavier materials will be caused to fall, by their specific gravity into the first hopper and lighter materials will be caused to fall by their relative specific gravities into the succeeding hopper or hoppers. For discharging excess air down into the system through the venturi throat opening, from the system, a lateral discharge conduit including an air filter is provided posterior to the blower.

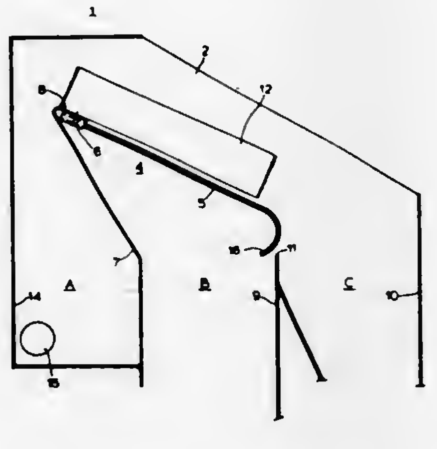
3,572,504
METHOD FOR THE FLOTATION OF OXIDIC ORES WITH CALCAREOUS AND DOLOMITIC GANGUE

Jacques A. DeCuyper, Sterrebeek, Belgium, assignor to Societe De Produits Chimiques D'Auby, Neuilly-sur-Seine (Hauts de Seine), France
Continuation of application Ser. No. 637,621, May 11, 1967, now abandoned. This application Oct. 21, 1969, Ser. No. 868,241
Int. Cl. B03d *1/02*
U.S. Cl. 209—166 **7 Claims**

A method for the flotation of minerals and ores with a calcareous and dolomitic gangue, such as oxidized ores, especially of copper, in which there are incorporated in the flotation pulps, when so required, together with modifying reagents acting on the minerals to be collected, modifying products acting on the gangues, especially on calcareous and dolomitic gangues, the said gangue-modifying products being preferably agents selected from the group comprising the polymers of acrylic acid, their derivatives and their equivalents which are soluble in water.

3,572,505
SCREENING DEVICE

Johannes Jongbloed, Hoensbroek, Netherlands, assignor to Stamicarbon N. V., Maesenstraat, Heerlen, Netherlands
Continuation of application Ser. No. 714,985, Mar. 21, 1968, now abandoned. This application Dec. 11, 1969, Ser. No. 884,372
Int. Cl. B07b *1/04*
U.S. Cl. 209—240 **5 Claims**

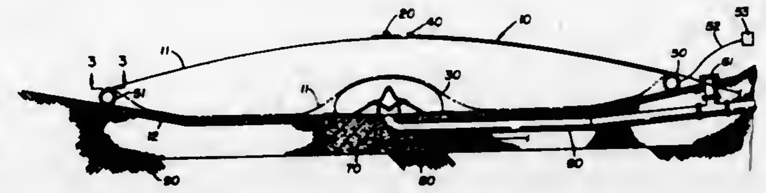


To overcome the tendency for undersize particles, in a wet, loose, solid material being screened on a stationary screening device comprising inclined longitudinal bars, to follow the surfaces of the bars into an oversize fraction collection area: the lower end regions of the bars are directed downwardly and terminated at such points that undersize particles dropping from the lower ends will drop into an undersize fraction collection area.

3,572,506
UNDERWATER STORAGE TANK

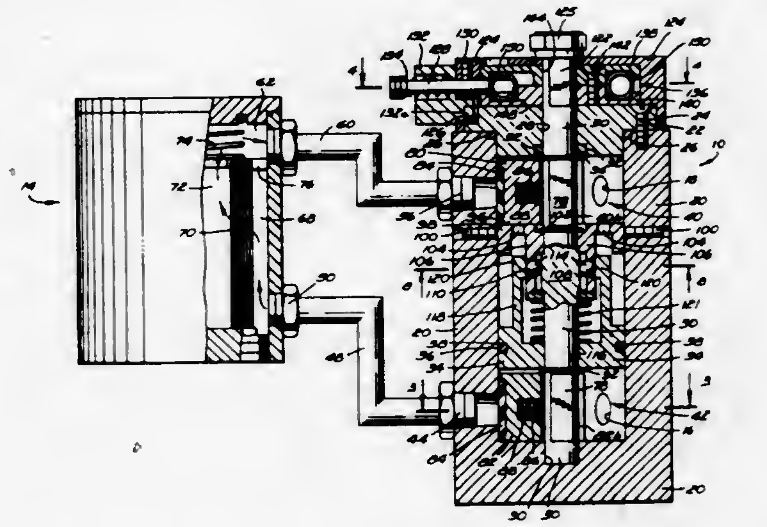
William J. Bandy, Jr.; William K. E. Morris, and Grant M. Stainbrook, Akron, Ohio, assignors to the United States of America as represented by the Secretary of the Interior
Filed Feb. 14, 1969, Ser. No. 799,454
Int. Cl. B01d *21/24*
U.S. Cl. 210—86 **6 Claims**

This invention relates to an underwater storage tank for the temporary storage of liquids such as overflow storm water. The tank consists of top and bottom walls with at least the top wall being a flexible and collapsible membrane made of rubber or similar material and a metal framework of piping to which the membranes are secured. The structure is placed in position on the bottom of a lake, for example, and is connected, by means of an inlet-outlet pipe, to a sewer system. The pipes of the metal framework include jets which are connected to a source of liquid under pressure which can be used for flushing the tank. The tank also includes a cover for the inlet-outlet pipe which assists in disbursing large pieces of sediment and also assists in removing the same from the tank. The tank also includes vent valves for the escape of gases which may evolve while the sewage is in the tank and furthermore includes means for determining the volume of the tank at any given time.



3,572,507
CONTROL DEVICE FOR SELECTIVE DELIVERY OF A FLUID UNDER PRESSURE

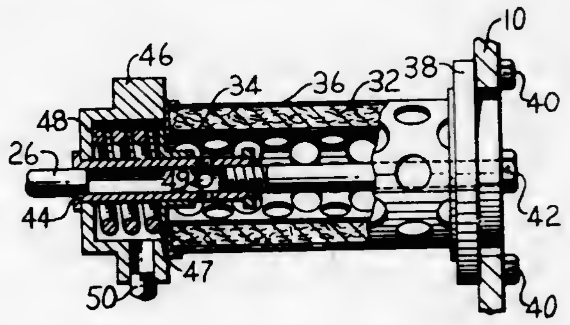
John Juskevic, 7265 Orchard Road, Dearborn, Mich.
Filed May 12, 1969, Ser. No. 823,708
Int. Cl. B01d *35/12*
U.S. Cl. 210—97 **12 Claims**



The fluid control device functions to deliver fluid under pressure to a selected one of a pair of fluid processing units. The control device includes a movable piston which is displaceable when the pressure of the fluid flowing through a selected one of the processing units exceeds a predetermined pressure. When the displacement of the piston occurs, the fluid control device directs the fluid under pressure to be processed into the second of the pair of fluid processing units while closing off the first fluid processing unit.

3,572,508
FILTER SYSTEM FOR HYDRAULIC CIRCUIT

Roger A. Rice, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed June 30, 1969, Ser. No. 837,529
Int. Cl. B01d *35/14, 35/02*
U.S. Cl. 210—130 **9 Claims**



A hydraulic circuit including a reservoir, a pump for withdrawing fluid therefrom and for directing it under pressure through a control valve and to a hydraulic motor and means for directing return fluid back to the reservoir and through a filter which is disposed entirely within the reservoir. The filter has no external fluidtight housing and fluid is filtered by passing outwardly through a hollow filter unit so that the filtered fluid passes at relatively low pressure and velocity into the body of fluid in the reservoir to avoid agitating and aeration of the fluid supply therein.

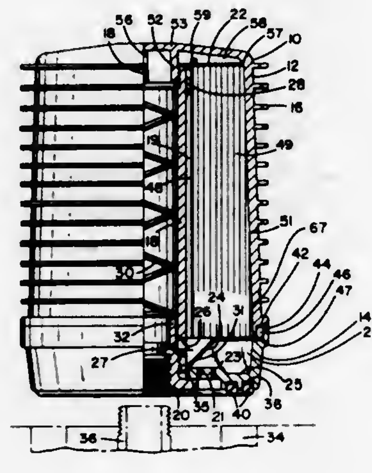
3,572,509
TISSUE ROLL OIL FILTER ASSEMBLY

Rolland W. Dexter, San Diego, Calif., assignor to Auto-Life Products Inc., San Diego, Calif.

Filed June 19, 1969, Ser. No. 834,659

Int. Cl. B01d *35/14, 27/10*

U.S. Cl. 210—130 **6 Claims**



A full flow oil filter that uses a roll type, disposable tissue cartridge and that employs "spin on" external attachment to an existing engine and that has a resiliently biased, valve controlled, bypass means for providing continuous oil flow notwithstanding possible oil flow stoppage through the tissue cartridge and that has structure for providing gradient density filtering by the tissue cartridge.

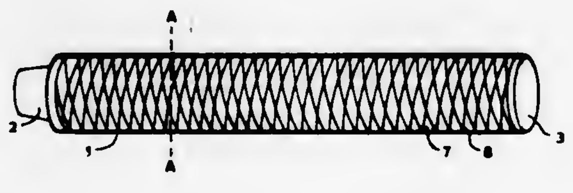
3,572,510
LIQUID-FUEL MONITOR FILTER

Samuel J. Lyda, Rte 2, Flat Rock, Ala.

Filed Apr. 24, 1969, Ser. No. 818,924

Int. Cl. B01d *39/00*

U.S. Cl. 210—502 **1 Claim**



An improved filter device employing organic water-soluble resin as the filter material for effectively removing free-water and other contaminants from liquid hydrocarbon fuels and other organic liquids. Also acts as a monitor to completely shut off liquid flow when excessive free-water contaminant is present and the device has filtered to its capacity.

3,572,511
MULTIPLE MEMBER ASSEMBLY

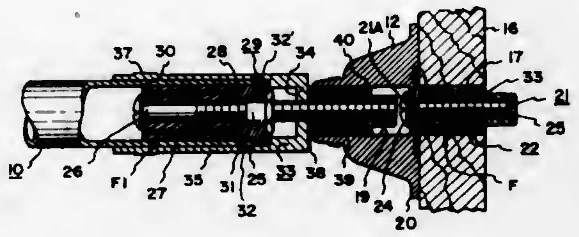
Lee Triplett, 2878 South 8600 West, Salt Lake City, Utah

Filed July 26, 1968, Ser. No. 747,952

Int. Cl. A47h *1/08;* **F16b** *7/18*

U.S. Cl. 211—105.6 **1 Claim**

A multiple member assembly which includes interiorly located, compression-type friction locks for releasably securing two or more members of the assembly together. One of the members can comprise a work piece, when desired. In one embodiment of the invention the multiple member assembly, constructed in accordance with the teachings of the invention, comprises an elongate rod assembly and provides means for mounting the assembly between two supports, such as wall panels, and also for tightening the same into position.



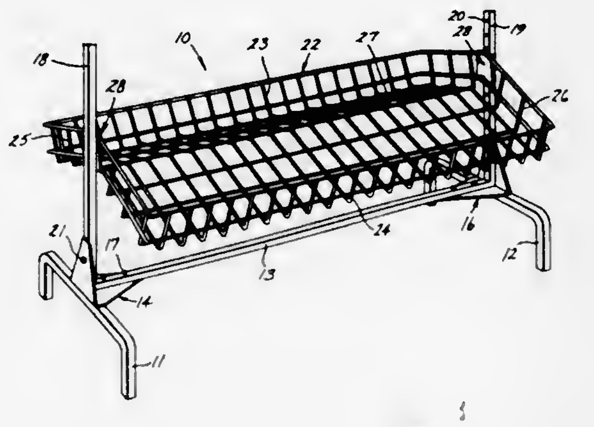
3,572,512
DISPLAY TRAY AND BRACKET ASSEMBLY

Walter H. Schray, Battle Creek, Mich., assignor to United Steel and Wire Company, Battle Creek, Mich.

Filed Oct. 2, 1968, Ser. No. 764,532

Int. Cl. A47f *3/14, 5/10*

U.S. Cl. 211—133 **6 Claims**



A shelf bracket assembly for a display tray which is positionable between a pair of horizontally spaced posts, said posts having opposed surfaces with a plurality of axially aligned, vertically spaced, openings therein. A pair of first members are provided with projection means thereon which are receivable into the openings in the posts. The first members are provided with first flange means for engaging the sides of the posts thereby preventing same from twisting relative thereto. A pair of second flange means extend also from said first members laterally of the first flange means. A pair of second members are fixed to the display tray and have means thereon for releasably securing same to the second flange means on the first members so that the display tray will be supported on and by the posts. The second members can be separated from the first members for purposes of adjustment in the height of the first members relative to the posts and for the purpose of disassembly.

3,572,513
TROLLEY CRANE APPARATUS

Keith W. Tantlinger, Grosse Pointe Shores, and Richard T. Fujioka, Oxford, Mich., assignors to Fruehauf Corporation, Detroit, Mich.

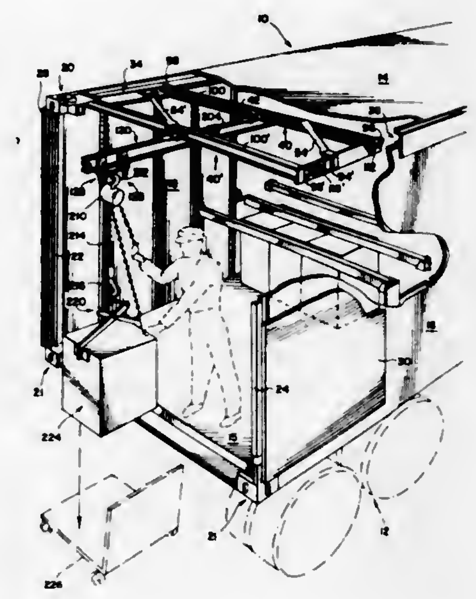
Filed Mar. 11, 1969, Ser. No. 806,231

Int. Cl. B66c *17/00*

U.S. Cl. 212—10 **13 Claims**

A generally rectangular support framework is mounted for movement along a pair of fixed spaced parallel tracks. The framework comprises two interconnected portions each of which is of generally U-shaped configuration and includes a

long and a short leg, the long leg of one of said framework portions being detachably connected with the short leg of the other of the framework portions. An elongated trolley support is mounted on said support framework for movement laterally with respect thereto. A trolley means is mounted for movement longitudinally along the trolley support.



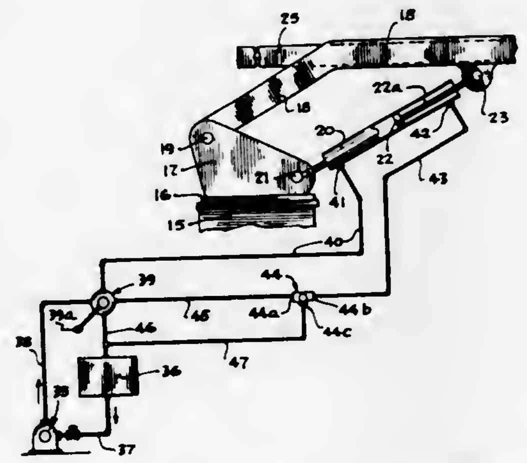
3,572,514
METHOD AND SYSTEM FOR AVOIDING DAMAGE TO DERRICKS BY PREVENTING OVERLOAD CONDITIONS

Charles J. Sauber, Sauber Road, Virgil, Ill.

Filed Aug. 12, 1968, Ser. No. 751,901

Int. Cl. B66c *23/06*

U.S. Cl. 212—35 **2 Claims**



The invention involves a method of operating a hydraulic actuated derrick or crane while lifting or pulling anchored objects by winching with the boom resting on a stiff leg and the derrick control in the boom down position. A pressure relief valve and bypass line is provided in the hydraulic circuit to function in lieu of and in conjunction with possible downward movement of the boom thus avoiding damage to the derrick or boom.

3,572,515
LOGGING GRAPPLE CARRIAGE

Philip F. Hahn, Eugene, Oreg., assignor to Georgia-Pacific Corporation, Portland, Oreg.

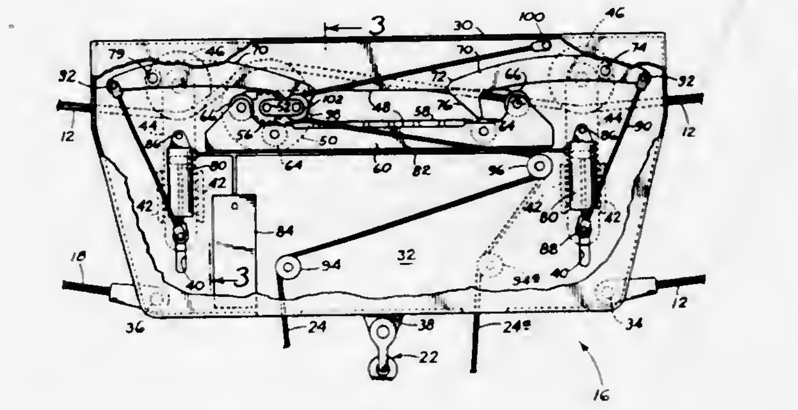
Filed Aug. 11, 1969, Ser. No. 848,906

Int. Cl. B66c *21/00*

U.S. Cl. 212—84 **8 Claims**

A carriage is designed for use with a logging grapple shiftable between open and closed positions by changes in the length of its operating lines. The carriage has connecting means for connecting it with the grapple and with conventional outhaul and inhaul cables. It is provided further with a pair of suspension members adapted to track on the outhaul cable and thereby suspend the carriage. The suspension members move up and down upon alternately applying and releasing the grapple weight.

A grapple-actuating sheave frictionally engages the outhaul cable. The sheave is shiftable by cable movement between two terminal positions at the respective ends of a horizontal track. Grapple operating line guides on the sheave and on the carriage are so arranged that the sheave shortens the grapple lines when it moves to one of its terminal positions and lengthens them when it moves to the other. This alternates the grapple between open and closed positions.



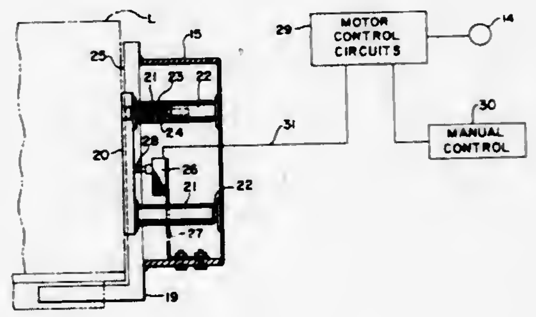
3,572,516
ANTIPUSH STACKER CRANE

Kang Suez, Forrest City, Ark., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Oct. 21, 1968, Ser. No. 769,093

Int. Cl. B66c *19/00*

U.S. Cl. 212—132 **6 Claims**



The load carriage of a stacker crane is equipped with a vertical plate that is spring pressed to a position slightly in advance of the rearward vertical parts of load forks on the carriage, so as to engage the load first when the crane moves the forks horizontally toward a load engaging position. When depressed by contact with the load, the plate actuates a switch that stops the operation of the crane motor whereby to control stresses acting in the crane mast incidental to the movement of the forks against the load. In a further form, the forks are themselves mounted to yield so as to actuate the switch.

3,572,517
TRANSPORTABLE CRANE OR DERRICK

Hans Liebherr, 795 Biberach ander Riss, Memmingerstrasse; Franz Josef Fenzl, 795 Biberach ander Riss, Schlierenbachstrasse 57, and Peter Paul Weisser, 795 Biberach ander Riss. Dittmarstrasse 33, Munich, Germany

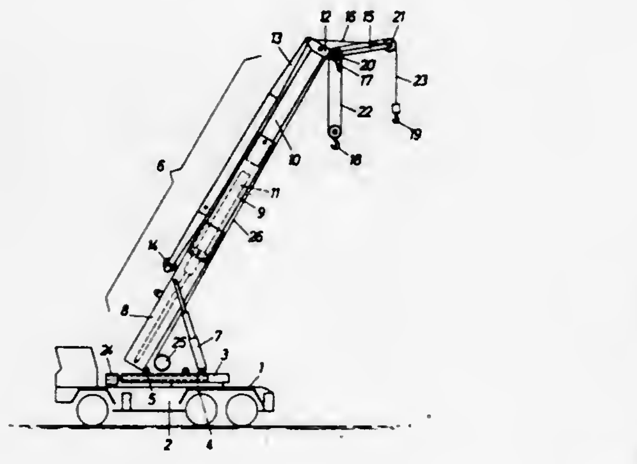
Filed Mar. 7, 1968, Ser. No. 711,265

Claims priority, application Germany, Mar. 11, 1967, L55,989

Int. Cl. B66c *23/62*

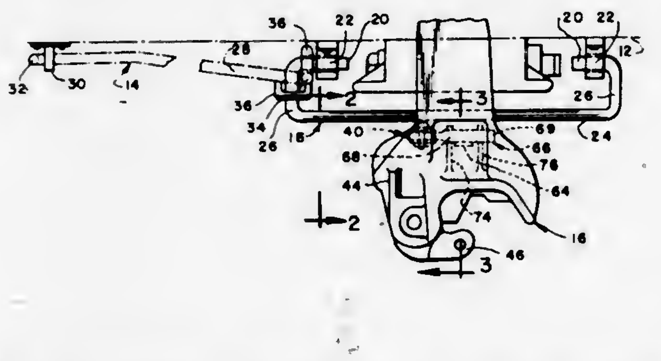
U.S. Cl. 212—144 **3 Claims**

A transportable crane or derrick comprising a mast or column pivotally mounted on the platform of a vehicle so as to be capable of being tilted with respect to the platform. The mast includes a main jib pivotally mounted at the head of the mast to pivot in the tilting plane of the mast. On the opposite side of the mast from the main jib there is mounted a sheave providing guide means for a cable having a load-carrying hook mounted thereon.



3,572,518
RAILWAY COUPLER

Lee Gail Wisler, Beloit, Ohio, assignor to Amsted Industries, Incorporated, Chicago, Ill.
Filed Dec. 16, 1968, Ser. No. 784,126
Int. Cl. B61g *1/08, 3/20*
U.S. Cl. 213—166 **10 Claims**

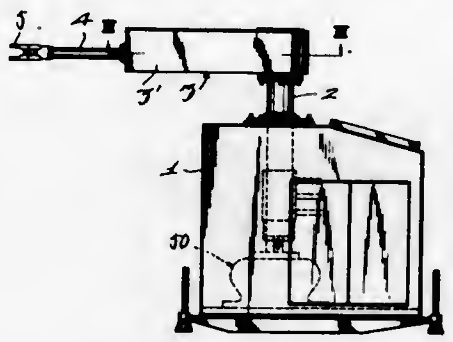


A conventional Association of American Railroads -(AAR) type F coupler head is rotatable engaged with a railway car and has a rotor engaged with the coupler's unlocking mechanism. A rotor arm is secured to the rotor for corresponding rotational movement outboard from one of the rotary shaft walls of the coupler head and projects downwardly away from the bottom of the coupler head. The rotor arm may be pivoted upwardly, rotating the rotor and unlocking the lock of the unlocking mechanism, by a U-shaped member pivotally secured to the railway car. The lockhole walls of the coupler head are modified to allow pivotal movement of the U-shaped member.

3,572,519
ARTICLE TRANSFER APPARATUS ADAPTED TO AUTOMATICALLY FEED MATERIAL TO ONE OF PRESSES OR OTHER PROCESSING MACHINES

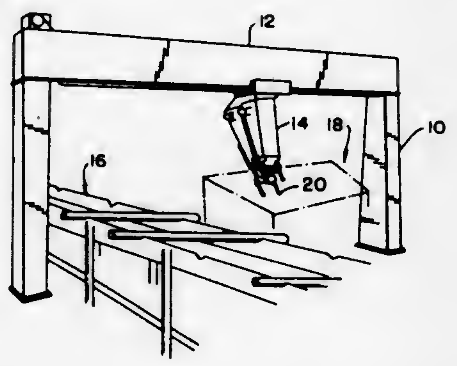
Yoshitomo Tezuka, Tokyo, Japan, assignor to Kabushiki Kaisha Aida Tekkosho, Kanagawa-Ken, Japan
Filed Apr. 3, 1969, Ser. No. 813,206
Int. Cl. B25j *9/00*
U.S. Cl. 214—1 **2 Claims**

An automatically operated article transfer apparatus for feeding material to one or a first of presses or other processing machines aligned in a working row, transferring a semiprocessed product between adjacent processing machines in the row, or discharging a finished product from the last processing machine in the row to a location at which the product is subjected to further processing or is shipped.



3,572,520
AUTOMATIC LOADING MECHANISM

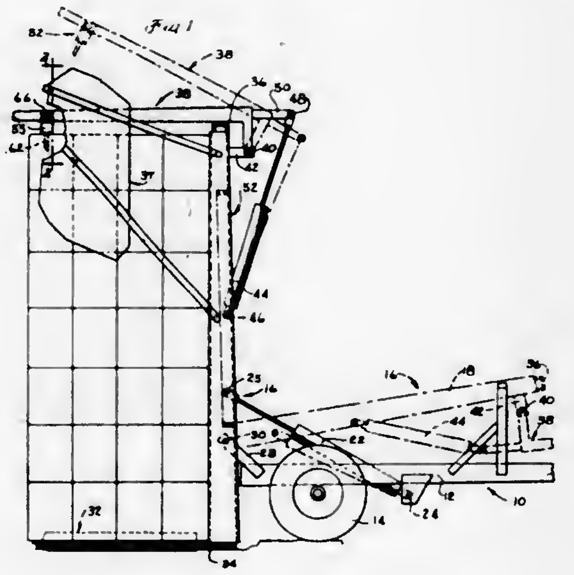
Dewey M. Evans, Farmington, and Peter J. Manetta, Warren, Mich., assignors to Simplex Corporation, Detroit, Mich.
Filed July 28, 1969, Ser. No. 845,221
Int. Cl. B23b *13/00*
U.S. Cl. 214—1 **10 Claims**



Automatic loading mechanism comprising a pair of elongated arms movable longitudinally along converging paths with work supporting cradles at the free ends. The cradles move in curved paths due to combination longitudinal movement of the arms and cam controlled rocking movement thereof.

3,572,521
RETRIEVER ATTACHMENT FOR A BALE WAGON

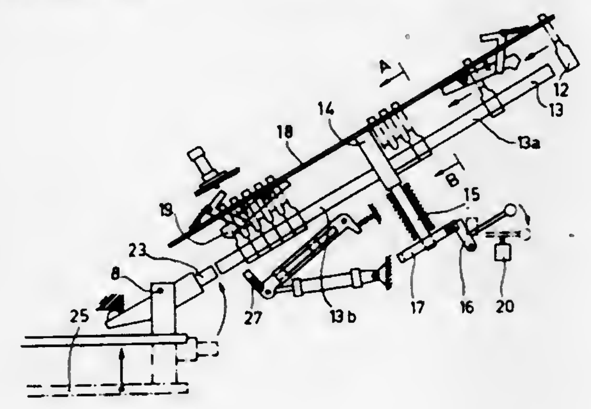
Donald M. Grey, Selma, and Lee D. Butler, Kingsburg, Calif., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed May 29, 1969, Ser. No. 828,910
Int. Cl. B65g *57/08*
U.S. Cl. 214—6B **1 Claim**



The invention relates to a bale wagon for retrieving a stack of bales using a removably mounted spiked retrieving bar which is attached to the wagon transfer table during retrieval and stored beneath the wagon load bed during other wagon operations.

3,572,522
PIVOTABLE MAGAZINE FOR WORKPIECES

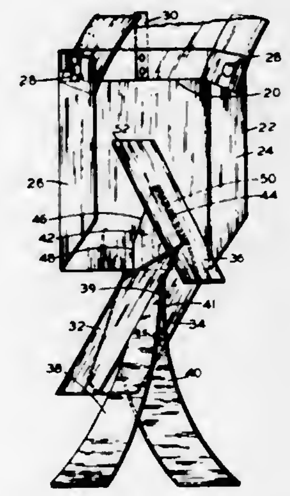
Paul Nesterok, Notzingen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 27, 1969, Ser. No. 794,112
Claims priority, application Germany, Feb. 7, 1968, P 15 83 985.7
Int. Cl. B65g *60/00*
U.S. Cl. 214—8 **2 Claims**



A device for feeding workpieces in which an inclined rod is pivotally mounted so that each free end can alternately occupy a position for the stringing of workpieces thereon and for transferring workpieces therefrom, for further treatment.

3,572,523
SILAGE DISTRIBUTOR

Hermann K. Cymara, R.D. #2, Newfield, N.Y.
Filed July 10, 1969, Ser. No. 840,652
Int. Cl. B65g *65/32*
U.S. Cl. 214—17 **3 Claims**

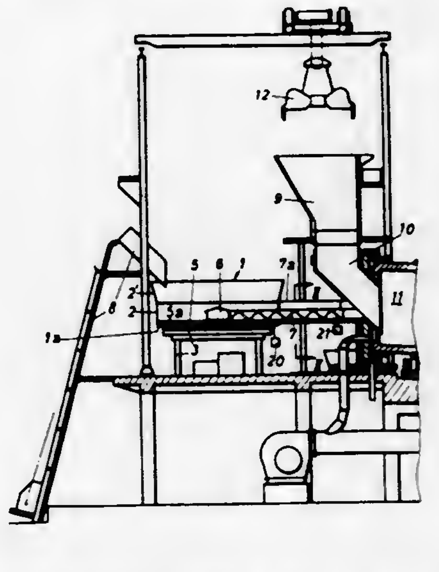


Silage distributor adapted for attachment to the silo fill spout discharge end, and which is constructed with deflectors inclined in four directions to provide uniform distribution of the silage discharged into the distributor, and without requiring power.

3,572,524
MECHANICAL EQUIPMENT FOR CHARGING SLUDGE AND/OR SEMISOLID AND FLUID WASTE MATERIAL INTO ROTARY INCINERATING KILNS

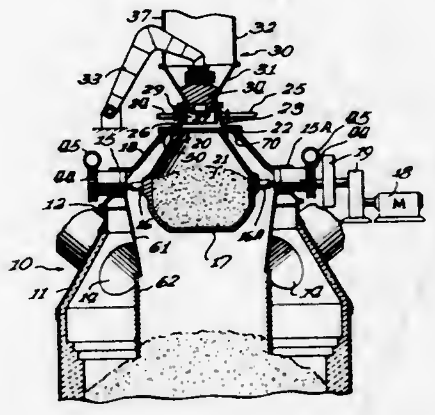
Heribert Muckenheim, Dietikon, Switzerland, assignor to Von Roll AG, Gerlafingen, Switzerland
Filed Nov. 25, 1968, Ser. No. 778,726
Claims priority, application Switzerland, Nov. 28, 1967, 16,691/67
Int. Cl. F23k *3/14*
U.S. Cl. 214—19 **4 Claims**

There is disclosed new and improved mechanical charging equipment for rotary incinerating kilns. This equipment renders it possible for sludges and/or viscous, pasty and/or semisolid and fluid waste materials to be fed into such incinerators indifferently, regardless of their condition at delivery, whether in bulk or containers.



3,572,525
BLAST FURNACE CHARGING APPARATUS

William E. Slagley, Crown Point, and Lawrence G. Maloney, Munster, Ind., assignors to Inland Steel Company, Chicago, Ill.
Filed Apr. 14, 1969, Ser. No. 815,740
Int. Cl. F27b *1/20*
U.S. Cl. 214—35 **8 Claims**



Improvements in apparatus for delivering material to a vessel having an internal gas pressure different than the external gas pressure applied to the vessel, said vessel having an opening through which material can be delivered or supplied from outside to inside the vessel, a closure means which movably plugs and closes the vessel opening to keep the vessel internal gas pressure different than the external pressure and a material-receiving open-mouthed hollow receptacle movably mounted in the vessel so that the mouth can be brought into communication with the vessel opening and receptacle moving means to displace the receptacle and pour material from the receptacle through the mouth and into the vessel, the improvements comprising: means to displace the receptacle into pressure contact with a first sealing ring with the receptacle mouth in communication with the vessel opening, said first sealing ring being supported by the vessel for use in combination with the receptacle for blocking passage of gas between the vessel interior and exterior at least when the vessel opening is open, said sealing ring circumscribing the vessel opening and having a seating surface for contracting the receptacle exterior surface around its mouth.

Further improvements are a sealing ring mounted inside the vessel and below the first sealing ring, said second sealing ring having a larger open area than the first sealing ring, means to rotate the receptacle to position an exterior continuous surface thereof in spaced-apart position relative to the second sealing ring, and means to displace the receptacle continuous surface into contact with the second sealing ring to thereby seal off the vessel interior and permit replacement of the first sealing ring.

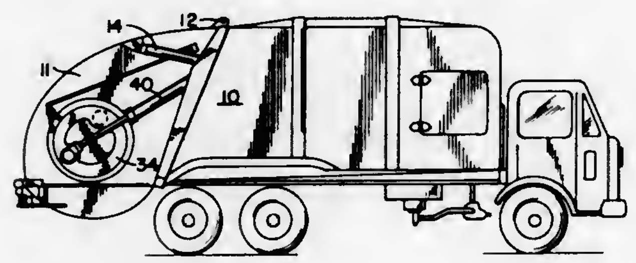
3,572,526
PACKING PLATE ASSEMBLY FOR REFUSE VEHICLE

Cyril R. Gollnick, Oshkosh, Wis., assignor to Leach Company, Oshkosh, Wis.

Filed June 18, 1969, Ser. No. 834,288

Int. Cl. B65f *3/00*

U.S. Cl. 214—83.3 **22 Claims**



The refuse vehicle has a storage body with a loading hopper at the rear end thereof. A packer plate is mounted in the hopper by a first pair of pivots engaged respectively with a pair of links which are pivoted to the hopper sidewalls. The packing plate includes a second pair of pivots respectively connected to a pair of disks, the latter being rotatably mounted in the hopper sidewalls. A single pair of fluid-operated rams is connected with the disks for rotating the latter to provide the desired movement of the packer plate. A transversely extending torsion bar is connected to both disks to ensure movement in unison of the latter. The rams are connected to the disks to obtain maximum mechanical advantage when the refuse in the hopper is being compressed and to permit only one ram to occupy a dead center position at any one time.

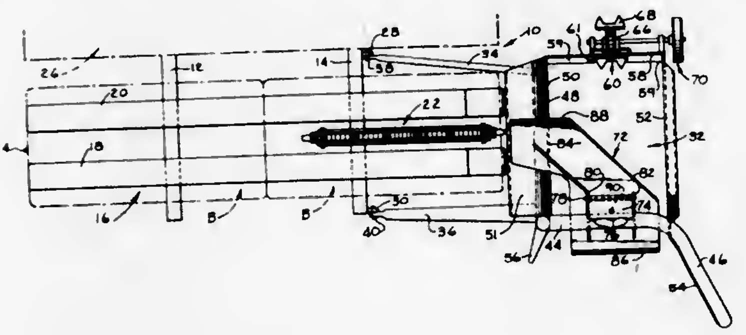
3,572,527
PIVOTAL BALE SHOE FOR A BALE WAGON BALE LOADER

Lee D. Butler, Kingsburg, Calif., assignor to Sperry Rand Corporation, New Holland, Pa.

Filed May 29, 1969, Ser. No. 828,887

Int. Cl. B60p *1/36*

U.S. Cl. 214—83.14 **2 Claims**



A bale loader, for use on an automatic bale-handling wagon, having a pivotally mounted bale shoe thereon adapted to engage a bale of crop material and positively force the bale rearwardly against a lifting means to facilitate elevating the bale from a field and transferring it to the wagon.

3,572,528
UNIFORM STRESS CANTILEVER BEAM

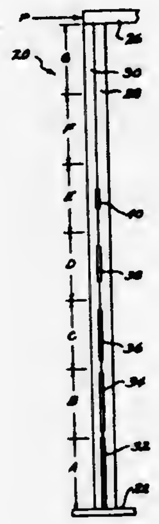
Michael D. Morton, Hinsdale, and Richard R. Conners, Chicago, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed May 14, 1969, Ser. No. 824,548

Int. Cl. B66f *9/00, 11/00*

U.S. Cl. 214—145 **8 Claims**

A cantilever beam for use as a safety frame or a loader boom arm for a tractor having angle or channel members forming an enclosed hollow section beam. The members are secured together by welds which are spaced at progressively wider intervals from the supported end of the beam so that the stress created by a load imposed at the free end of the beam is substantially uniformly distributed along the length thereof.



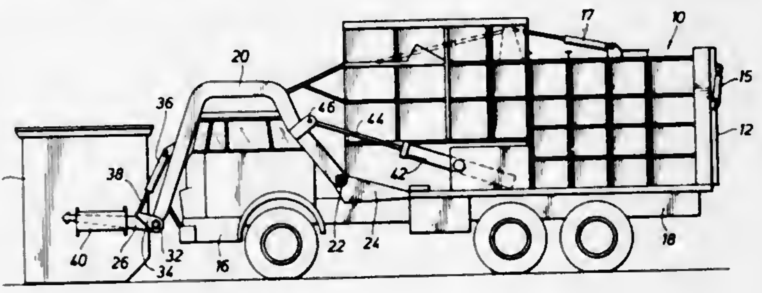
3,572,529
FRONT-END LOADING REFUSE VEHICLE

Orin M. Anderson, P.O. Box 14,147, San Antonio, Tex.

Filed Feb. 3, 1969, Ser. No. 796,053

Int. Cl. B65f *3/02*

U.S. Cl. 214—302 **9 Claims**



A refuse vehicle having a body with a top opening and provided with a lift arm at each side whose rear ends are pivotally connected to the vehicle and whose forward ends extend beyond the front end of the vehicle when the arms are in lowered position. The lift arms carry vertically swingable tilt arms which extend forwardly from the front ends of the lift arms for engagement with a container which is to be lifted and emptied into the top opening of the body. The top opening has a hinged door which opens to allow dumping of the container through the top opening.

An electropneumatic-hyraulic system is provided for operating the loading mechanism automatically to lift the container, level the container during the lifting of the same, open the top door and invert the container through the top opening. The system may further operate automatically to redeposit the container on the ground and close the top door. The electropneumatic-hydraulic system includes a valve bank having hydraulic valves, operated by pressure cylinders which are supplied with air under pressure from a source of such air under the control of valves which are electrically operated.

The vehicle is provided with rests for the front ends of the lift arms to prevent damage to the equipment due to bouncing or vertical oscillation of the lift arms when the vehicle is moving over rough grounds or bumps and means is also provided for holding the front ends of the lift arms in somewhat elevated positions when a container is positioned thereon to hold the container clear of the ground when the vehicle is to be used for collecting refuse by moving the vehicle along the street while loading the container manually.

The vehicle may have a cab at the front end which is provided with a forwardly tiltable body to allow access to an engine beneath the cab and the cab body is provided with a rub-rail at the front to protect the same against damage by accidental engagement with a container being lifted. The rub-rail is hinged or articulated to allow the cab body to be tilted to open position without disconnecting the rub-rail.

The operating system is designed to permit manual control of the movements of the loading mechanism at any stage of operation.

ERRATUM

For Class 214—516 see:
Patent No. 3,572,563

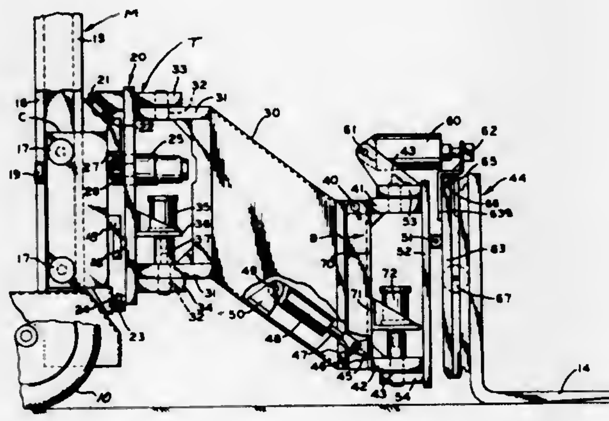
3,572,530
INDUSTRIAL TRUCK

Frederick F. Ohntrup, Plymouth Meeting, and Russell A. Cornwall, Holland, Pa., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Apr. 16, 1969, Ser. No. 816,735

Int. Cl. B66f *9/14*

U.S. Cl. 217—730 **8 Claims**



In an industrial truck a carriage is mounted for vertical movement on a pair of spaced uprights. An arm base roll is mounted on said carriage for movement transversely of the truck. A load arm rotates on said base on a generally vertical axis so as to be movably positionable with respect to an axis extending transversely of the truck. A load carrier is pivoted on a generally vertical axis at the end of the load arm opposite its pivot on the arm base. By rotating both the load carrier and the load arm, a load on the carrier may be moved to one side or the other of the truck and also forwardly, without at any time moving the load relatively to the truck to a position where it will greatly effect the stability of the truck.

3,572,531
EXCAVATOR ASSEMBLY

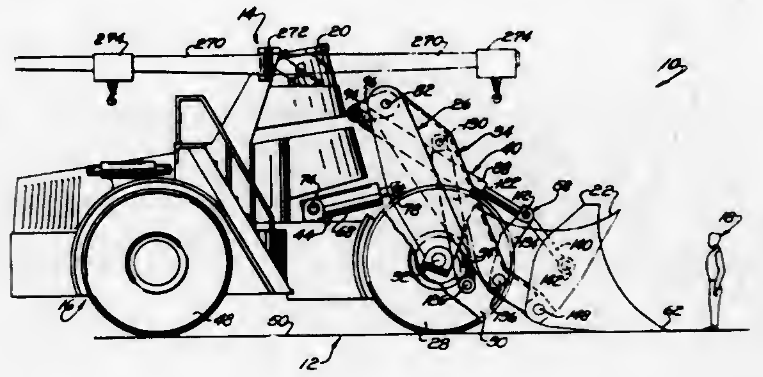
Bronislaus I. Ulinski, Palm Beach, Fla., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed July 11, 1969, Ser. No. 840,912

Int. Cl. B66f *9/00*

U.S. Cl. 214—778 **20 Claims**

An improved excavator assembly includes a main arm which is pivotally connected to an articulated vehicle, a lift arm pivotally connected to the main arm, and a bucket which is pivotally connected to an outer end portion of the lift arm. The main arm is pivoted forwardly by a first piston and cylinder assembly to crowd or force the bucket into a pile of dirt or other material while the vehicle remains stationary. A second piston and cylinder assembly is then operated to pivot the bucket to an upright load-carrying position. Once the bucket has engaged a load, a third piston and cylinder assembly is operated to pivot the lift arm upwardly to raise the bucket and the load. After the load has been raised, the second piston and cylinder assembly is operated to pivot the bucket to a downwardly facing down position to thereby dump the load.



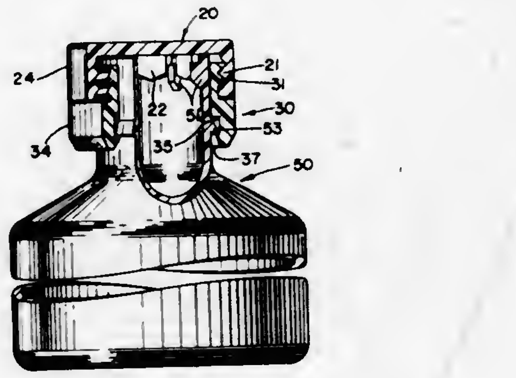
3,572,532
SAFETY CLOSURE

John J. Shannon, 425 Foster Road, Tewksbury, Mass.

Filed Aug. 11, 1969, Ser. No. 849,084

Int. Cl. B65j *55/02;* **A61j** *1/00*

U.S. Cl. 215—9 **10 Claims**



A safety closure for preventing access to containers such as drug bottles and the like by children and other irresponsible persons. The closure includes two major parts. One part is a sleeve which is axially secured to the container neck and has an outer threaded surface. The sleeve is free to rotate on the neck. The other part is a cap which may be threaded to the sleeve, but is secured from removal from the container so long as it is threaded on the sleeve. Preliminary rotation of the sleeve is necessary to free the cap for removal in the normal manner.

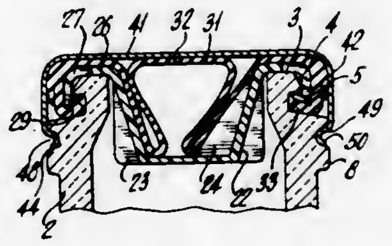
3,572,533
INFANT FEEDING BOTTLE

Stanley J. Koll, Keansburg, N.J., assignor to American Flange & Manufacturing Co. Inc, New York, N.Y.

Continuation-in-part of application Ser. No. 686,856, Nov. 30, 1967, now Patent No. 3,477,603. This application May 12, 1969, Ser. No. 823,863

Int. Cl. A61j *9/00;* **B65d** *43/02*

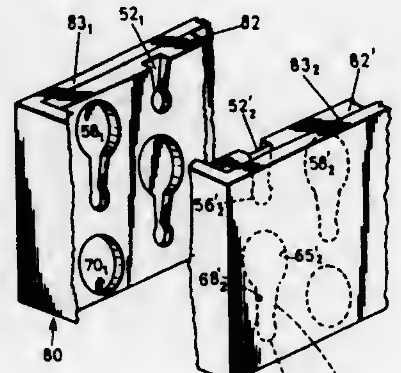
U.S. Cl. 215—11 **6 Claims**



A self-contained infant formula package comprising a bottle having affixed thereto a nipple and insert subassembly, the insert forming a fluid barrier isolating the nipple from the formula during storage. The package is sealed with an overlying cap which holds the nipple in depressed stored position and is easily torn away causing the nipple to automatically assume an erect feeding position.

3,572,534
DEVICE FOR THE TRANSPORT OF BOTTLES

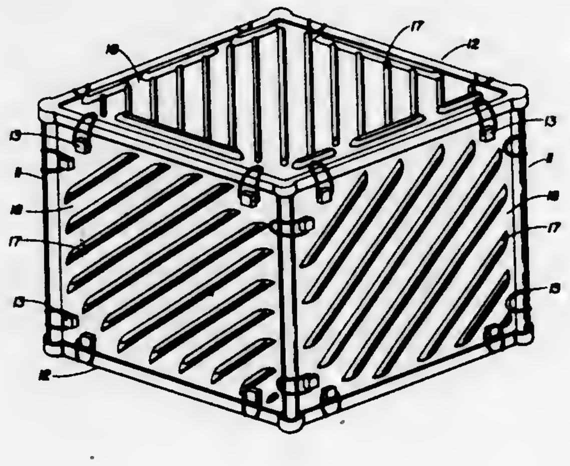
Charles Benoit, Chatuzange-le-Goubet, 26 France
Filed Mar. 21, 1969, Ser. No. 809,304
Claims priority, application France, May 28, 1968, 153,122
Int. Cl. B65d *81/00, 85/00, 25/02*
U.S. Cl. 217—19 **8 Claims**



A device for the transport of bottles comprising two racks facing each other, lining the opposed faces of a parallelepipedic case and having cutouts or notches the shape of which corresponds to that of the neck and bottom of a bottle, respectively. The notches are so disposed in the racks that a bottle is securely maintained in position when its neck and its bottom fit into two facing and associated notches.

3,572,535
COLLAPSIBLE STORAGE CONTAINER

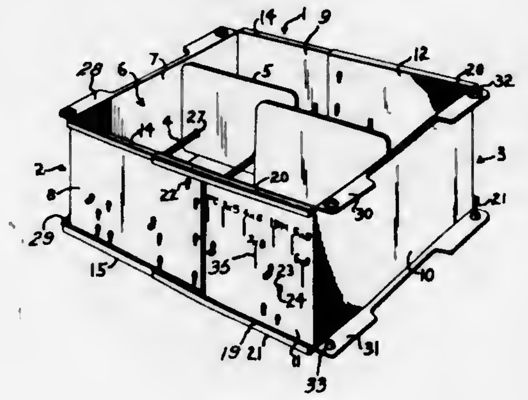
William W. Kinzie, 907 Symphony, Ogden, Utah
Continuation-in-part of application Ser. No. 775,885, Nov. 14, 1968, and a continuation-in-part of 792,335, Jan. 21, 1969. This application Jan. 21, 1969, Ser. No. 792,450
Int. Cl. B65d *7/00*
U.S. Cl. 220—4 **10 Claims**



A collapsible, reuseable, storage and shipping container including four separate rectangular sidewall panels, preferably of identical interchangeable configuration; a bottom panel; and a cover panel. The edges of each panel are adapted for releasable joining with edges of adjacent panels so that the container may be assembled and disassembled as desired. The joints between panels may be provided with appropriate sealant to make the assembled container watertight.

3,572,536
ADJUSTABLE CARD FILE

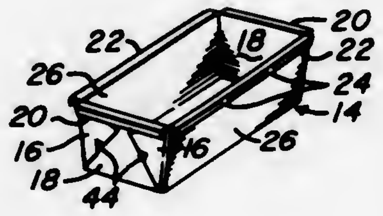
Norvin J. Wehner, Kansas City, Mo., assignor to Cramer Industries, Inc., Kansas City, Kans.
Filed Apr. 14, 1969, Ser. No. 815,541
Int. Cl. B65d *25/06*
U.S. Cl. 220—22.1 **6 Claims**



An adjustable card file for holding a plurality of cards having a pair of transversely spaced telescoping frame members each having an end panel and arms extending from opposite ends of the end panel. Each of the arms have a plurality of apertures arranged in aligned random patterns to engageably receive support members extending between the transversely spaced arms for movably supporting at least one partition thereby defining a card-receiving compartment.

3,572,537
MULTIPLE BAKE PAN SET CONSTRUCTION

Charles N. Baltzer, 1360 Custer St., Cincinnati, Ohio
Filed Jan. 6, 1969, Ser. No. 789,147
Int. Cl. B65d *21/02*
U.S. Cl. 220—23.4 **24 Claims**

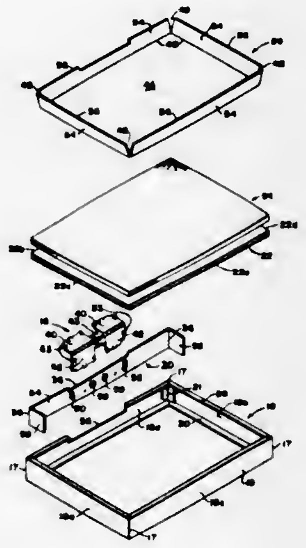


The multiple bake pan set or unit utilizes a rectangular frame of rigid strapping, in which the pans are arranged more or less loosely until a binding harness is applied for clamping the pan rims between rigid elements of the harness and frame. Wire reinforcing for the pan rims is eliminated, and pan replacements are effected on the job with ease and despatch, by removing the harness. Cooperative pan support areas on the frame and harness protect the pans, and especially their upper peripheral portions, from damage in use.

3,572,538
HINGE RECEIVING ELEMENT

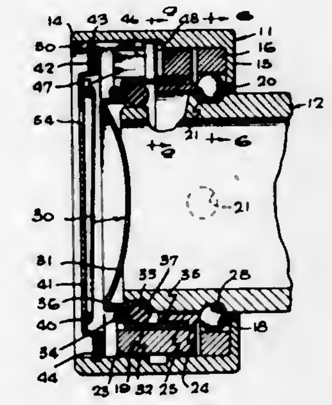
Robert G. Bergh, and George G. Bergh, North Attleboro, Mass., assignors to Bergh Bros. Co., Inc., Attleboro Falls, Mass.
Filed Sept. 17, 1968, Ser. No. 760,323
Int. Cl. B65d *43/16*
U.S. Cl. 220—31 **7 Claims**

Apparatus for mounting a hinge in a fixed position close to but separate from the interior surface of a box component wall member. The apparatus includes a hinge receiving element to which the hinge is directly attached by any known means. The hinge receiving element is suitably dimensioned to fit between and be located by spaced flanges extending inwardly from the upper and lower edges of the wall member. Separable bottom and insert members cooperate with the spaced flanges to wedge the hinge receiving element in place.



3,572,539
PRESSURE-LOCKED CAP

Wolfgang G. Wunderlich, Saugus, Calif., assignor to Roylyn Incorporated, Glendale, Calif.
Filed July 7, 1969, Ser. No. 839,250
Int. Cl. B65d *41/04*
U.S. Cl. 220—40 **7 Claims**

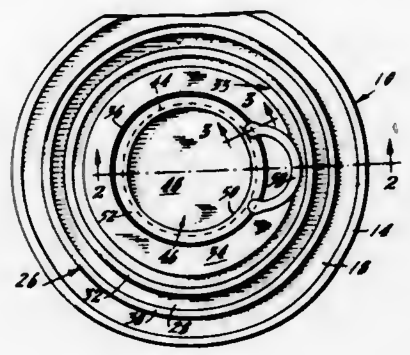


The application discloses a cap for closing a nipple or tube, the cap having a rotatable collar and a locking mechanism operated thereby for securing the cap on the end of the nipple. The cap is provided with an internal actuator and seal ring assembly responsive to pressure for the purpose of automatically locking the collar against rotation and thereby preventing the locking mechanism from being released.

3,572,540
CAN CLOSURE

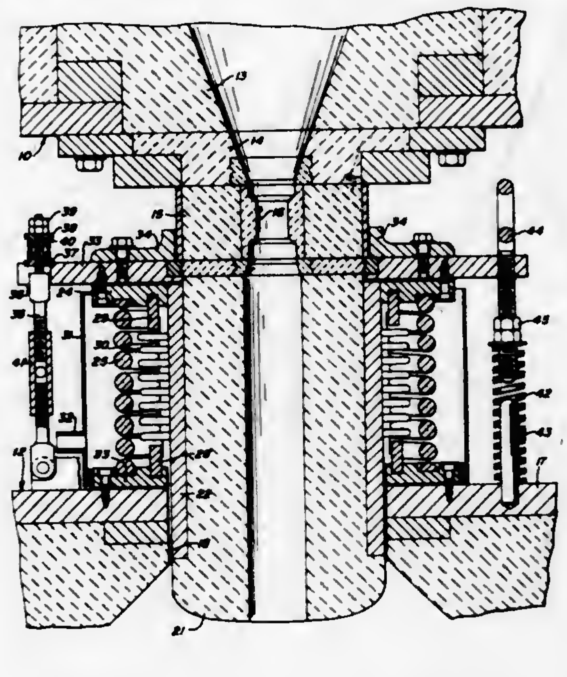
Leonard Thomas LaCroce, Paramus, N.J., assignor to American Can Company, New York, N.Y.
Filed Apr: 1, 1969, Ser. No. 812,079
Int. Cl. B65d *41/00, 43/10*
U.S. Cl. 220—42 **4 Claims**

A paint can is provided with a primary metal friction closure which is formed with an opening which permits pigments, etc. to be added to the paint without requiring removal of the primary closure. The metal of the primary closure around the opening is curled upwardly and outwardly to prevent its corrodible raw edge from coming into contact with the paint, and the opening is sealed by a removable auxiliary plastic snap-on plug having a flange which is recessed into the surface of the adjacent portion of the primary closure to shield it against inadvertent snagging and loosening during shipment and storage. The auxiliary plug is made of a translucent or transparent material to permit the consumer to visually observe the color of the paint within the can.



3,572,541
INLET CONSTRUCTION FOR ENCLOSED VESSELS

James T. Shapland, Pittsburgh, Pa.
Filed Mar. 20, 1969, Ser. No. 808,841
Int. Cl. B65b *3/00;* **B65c** *3/00*
U.S. Cl. 220—86 **10 Claims**

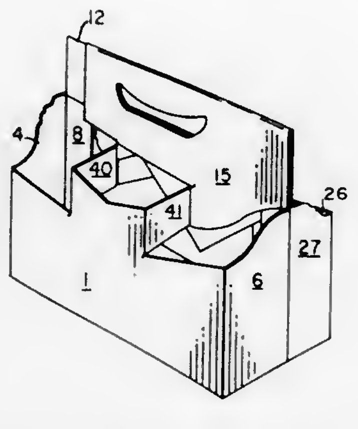


An inlet construction especially for vessels which receive molten metal where it is necessary to provide a seal against loss of vacuum or escape of gas. Includes an axially movable tube and spring means urging the tube upwardly. Tube can engage the bottom of a bottom-pour vessel equipped with a sliding-gate-type of closure. Avoids need for tube on bottom of pouring vessel.

3,572,542
ARTICLE CARRIER HAVING IMPROVED LOCKING MEANS

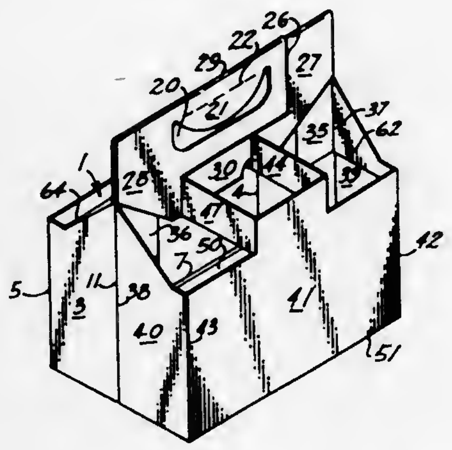
Prentice J. Wood, Jonesboro, and James T. Stout, Doraville, Ga., assignors to The Mead Corporation
Filed June 19, 1969, Ser. No. 834,728
Int. Cl. B65d *75/00, 5/48*
U.S. Cl. 220—111 **3 Claims**

A collapsible basket-style article carrier having a bottom panel, sidewalls foldably joined to the side edges of the bottom panel, end panels foldably joined to the end edges of the sidewalls, riser panels foldably joined to the inner edges of the end panels, and handle panels foldably joined to the riser panels and disposed medially of the carrier is provided with an improved setup locking arrangement wherein a locking hook at the bottom end of the riser panels at one end of the carrier is disposed for engagement with the end edge of the bottom panel and is provided with a weakened fold line whereby the locking hook is movable in a transverse direction during the performance of a locking operation thereby to insure secure locking engagement and a fully squared up condition of the carrier when set up.



3,572,543
ARTICLE CARRIER

Homer W. Forrer, and Prentice J. Wood, Jonesboro, Ga., assignors to The Mead Corporation
Filed June 19, 1968, Ser. No. 738,206
Int. Cl. B65d *75/00*
U.S. Cl. 220—113 **4 Claims**

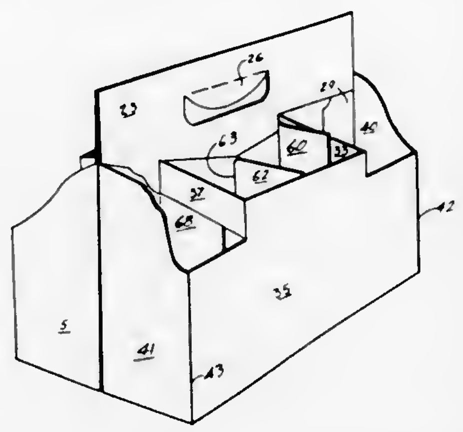


An article carrier having a bottom wall, spaced side and end walls and a handle structure interconnected with each sidewall by partition panels is provided with reinforcing means affixed to the bottom wall and to the adjacent portions of the sidewalls as well as to the handle and partition structure and the upper portions of the side and end walls so that each article receiving cell is reinforced at its bottom to take the weight of the article and is reinforced entirely about its upper portions so as to secure the article therein against any inadvertent rupture of the upper portion of the cell. The reinforcing strips are applied to the main blank by simply affixing a common center strip to the web of material from which the main blanks are formed, the bottom panels of the blanks being disposed in aligned relationship along the reinforced common reinforcing strip. Additional strips are arranged on either side of the common center strip and coincide with other portions of the blanks which are aligned with each other and which correspond to the handle, partition structure and the upper portions of the side and end walls.

3,572,544
ARTICLE CARRIER

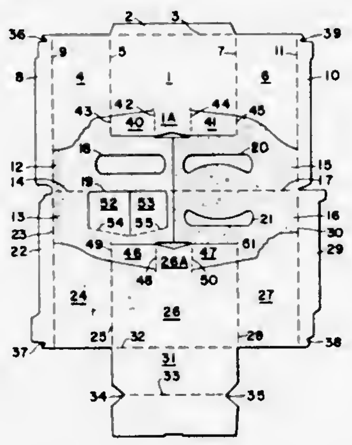
Homer W. Forrer, Jonesboro, Ga., assignor to The Mead Corporation
Filed Feb. 24, 1969, Ser. No. 801,259
Int. Cl. B65d *5/46, 5/48*
U.S. Cl. 220—113 **3 Claims**

An article carrier is disclosed having a bottom wall, sidewalls foldably joined to the side edges of the bottom wall, end wall panels foldably joined to the end edges of the sidewalls and extending inwardly therefrom, medial partition structure including medial panels joined to the end walls at the ends of the carrier to form a medial partition and a handle together with transverse partition panels interconnected between the medial panel structure and the sidewalls to form substantially full depth transverse partitions.



3,572,545
ARTICLE CARRIER HAVING IMPROVED BRACING KEEL

James T. Stout, Doraville, Ga., assignor to The Mead Corporation
Filed July 3, 1969, Ser. No. 838,961
Int. Cl. B65d *75/00*
U.S. Cl. 220—113 **4 Claims**

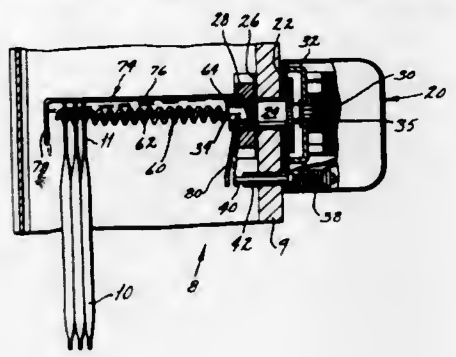


A collapsible basket-style article carrier having a bottom panel, sidewalls foldably joined to the side edges of the bottom panel, end panels foldably joined to the end edges of the sidewalls, riser panels foldably joined to the inner edges of the end panels, and a multi-ply handle adjoined to the riser panels and disposed medially of the carrier is provided with an improved keel arrangement wherein a pair of bracing struts are struck from one ply of the handle and folded downwardly and outwardly along upwardly divergent fold lines and into positions of flat face contacting overlapped relationship with the riser panels at each end of the carrier respectively.

3,572,546
CELLULAR MAGAZINE-TYPE ARTICLE DISPENSING MACHINE

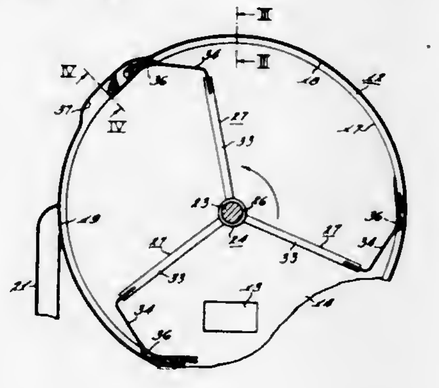
Stanley O. Schlaf, Rte. 1, Box 233, Winfield, Mo.
Filed Dec. 30, 1968, Ser. No. 787,877
Int. Cl. G07f *11/00*
U.S. Cl. 221—75 **14 Claims**

A dispensing machine having article carrying spindles provided with thin mounting shanks which fit into sockets in drive shafts forming part of drive units. Each spindle shank has a tang which is engaged by a transversely extending pin in the drive shaft to which the spindle connects. The pins extend through the sockets and are adapted to shift laterally therein under spring bias so that the spindles can be detached for loading. An adapter for converting existing dispensing machines for use with thin shank spindles of the aforementioned variety. The adapter fits rigidly in the enlarged sockets of a drive shaft on such existing machines and has a socket adapted to receive the shank of the spindle as well as a laterally shiftable pin to hold the spindle therein.



3,572,547
PLATELESS PLANTER

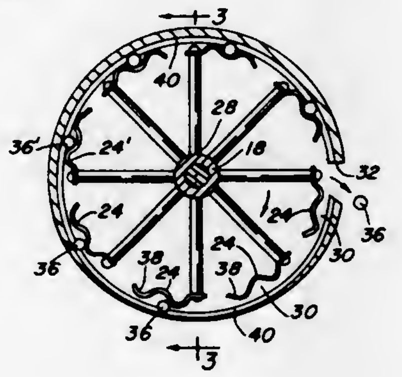
Maynard E. Walberg, Waukesha, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed July 22, 1969, Ser. No. 843,544
Int. Cl. A01c *7/08*
U.S. Cl. 221—220 **10 Claims**



A plateless planter wherein rotating fingers pick up seeds, move them in a groove in the periphery of a drum surrounding the fingers to a point where the groove is interrupted with depressions so that excess seed can drop out and return to the seed supply while the singulated seed is moved along the groove by the finger to a point of discharge.

3,572,548
PLATELESS SEED PLANTER

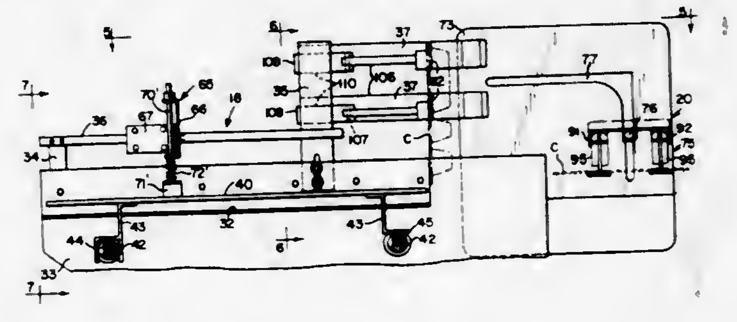
Bernard P. Fuchs, R.R. #3, and Byron P. Sanderson, P.O. Box 233, Rochelle, Ill.
Filed June 16, 1969, Ser. No. 833,282
Int. Cl. B65h *5/00*
U.S. Cl. 221—225 **9 Claims**



A hollow generally cylindrical planter housing mounted on a horizontal axis and closed by end plates, one of which has an opening to the interior of the housing adjacent the bottom thereof for the entry of a seed supply, the housing having an outlet opening in its cylindrical wall for discharge of seeds, a spring finger orbiting the housing axis close to the surrounding wall, and means for opening the space between the spring finger and the circumferential wall at the bottom portion of the housing whereby a seed will enter between the spring finger and the housing wall and the spring finger will carry the seed along the said wall to the outlet opening.

3,572,549
CONTAINER-DISPENSING APPARATUS

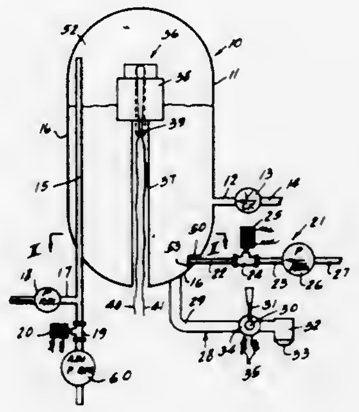
Charles H. Willsey, Topeka, and Francis W. Majors, Ozawkie, Kans., assignors to Seymour Foods, Inc., Topeka, Kans.
Continuation-in-part of application Ser. No. 497,242, Oct. 18, 1965, now Patent No. 3,461,459. This application Sept. 30, 1968, Ser. No. 763,663
Int. Cl. B65h *3/26*
U.S. Cl. 221—226 **13 Claims**



An apparatus for dispensing article-receiving containers, specifically, open cartons or filler flats for packing eggs, which apparatus is characterized by a magazine for supporting a stack of the containers arranged on their edges and a means at the end of the stack which may be operated to withdraw successive endmost containers, one by one, and deposit the same with the open side uppermost on a horizontally disposed conveyor or other support for advance to a packing station or the like, the device being mounted on a swinging frame and including gripper fingers which are operated to grip the endmost container when the frame is swung to engage the stack end and to release the container when the frame is swung down to a position where the container is in a generally horizontal plane. In one form of the apparatus the gripper fingers may be rendered inoperative and the apparatus adapted to dispense containers which do not need to be pulled from the stack.

3,572,550
METHOD OF AND APPARATUS FOR CARBONATING, HAVING INTERSECTING STREAMS OF GAS AND LIQUID

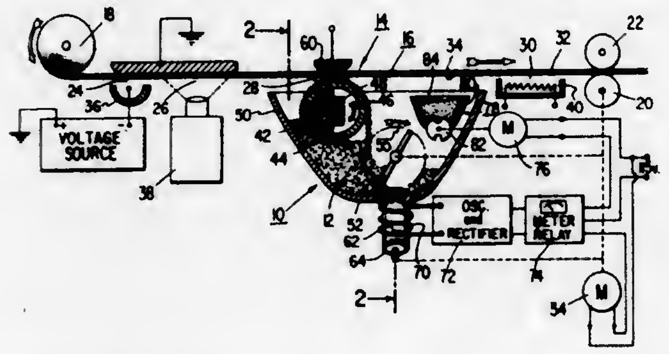
Theodore S. Colomina, Utica, Mich.; Thomas E. Davis, Macedonia, Ohio, and Kenneth W. Schang, Dearborn, Mich., assignors to Eaton Yale & Town Inc.
Filed Oct. 14, 1968, Ser. No. 767,163
Int. Cl. B67d *5/56*
U.S. Cl. 222—1 **12 Claims**



A two-stage carbonator for carbonating fluids in a single chamber having a venting system by which the chamber is at least partially vented of pressure to allow entry of fluid from a low-pressure line. The pressurized gas inlet directs the stream of gas tangentially to the liquid outlet through a normally open valve. The gas stream is thus directed into the chamber during discharge and passes adjacent the discharge opening thereby supercharging the exiting fluid, increasing the degree of carbonation.

3,572,551
APPARATUS FOR MONITORING AND CONTROLLING THE CONCENTRATION OF TONER IN A DEVELOPER MIX

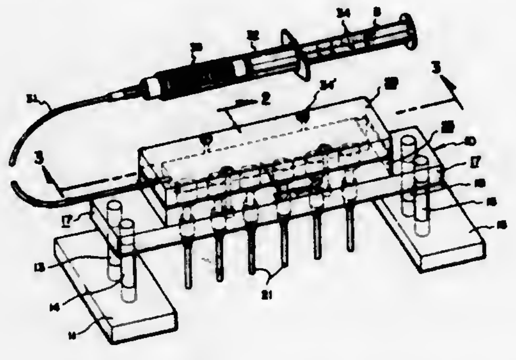
Henderson C. Gillespie, Moorestown; Ralph Herman, Cherry Hill, and Milton M. Sowiak, Trenton, N.J., assignors to RCA Corporation
Filed Mar. 27, 1969, Ser. No. 811,132
Int. Cl. B67d *5/08*
U.S. Cl. 222—56 **6 Claims**



Samples of a developer mix, comprising toner and magnetic particles, are passed continuously through a coil connected in an oscillator circuit. The inductance of the coil changes with variations in the concentration of the toner in the samples of the developer mix, and, consequently, the circuit provides output signals that are related to the concentrations of toner in the samples. Means responsive to the output signals control the addition of replenisher toner to the developer mix as toner is consumed from the developer mix in a developing process.

3,572,552
DIAPHRAGM DISPENSER

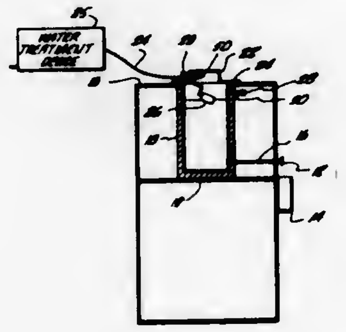
Perry W. Guinn, 128 E. 5460 S. Apt. 8, Murray, Utah
Filed July 25, 1969, Ser. No. 844,830
Int. Cl. G01f *11/00*
U.S. Cl. 222—263 **10 Claims**



The present invention comprises a diaphragm dispenser for fluids and includes plural charge-receiving chambers having respective variable upper extremities. The latter are defined by a diaphragm means which is selectively deformable, and in desired degrees, within said chambers as fluid pressure is applied to the upper side of the diaphragm. This is accomplished in one form of the invention by a plunger and, preferably, the same actuates a given hydraulic fluid exposed between the diaphragm and the plunger. The plunger is preferably calibrated so that a given depression of the operating piston thereof effects predetermined incremental displacements of respective portions of the diaphragm within the charged chambers so that the latter may receive and discharge respective portions of a test liquid in a manner hereinafter described.

3,572,553
CONVERSION DRINKING WATER SYSTEM

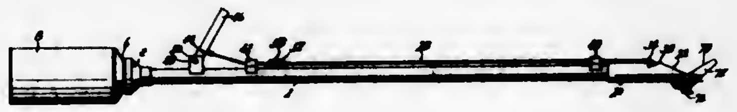
Stanley D. Ogden, 1667 Chevy Knoll Place, Glendale, Calif.
Filed Aug. 8, 1968, Ser. No. 751,081
Int. Cl. B67d *3/00*
U.S. Cl. 222—67 **2 Claims**



A drinking water supply apparatus is described which is capable of providing a constant supply of water by gravity flow from a dispenser. The apparatus is especially useful for converting existing bottle-type water dispensers into a unit which delivers readily available tap water by gravity flow from the existing dispenser outlet valve while avoiding any return flow to the tap water supply line.

3,572,554
PESTICIDE APPLICATOR

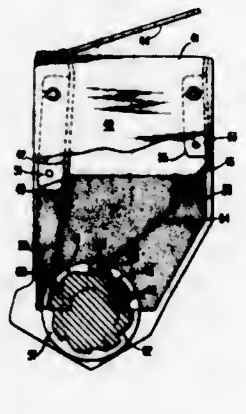
Richard S. Kubik, 1030 Villa Vista Drive, Colby, Kans.
Filed Jan. 6, 1969, Ser. No. 789,149
Int. Cl. G01f *1/12*
U.S. Cl. 222—246 **4 Claims**



A pesticide applicator consisting of an elongated tube having one end sharpened for insertion into a rodent burrow or the like, means for attaching a container of pesticide to the opposite end of said tube whereby the pesticide flows through said tube by gravity, and accurately controlled valve means in said tube to control said flow.

3,572,555
XEROGRAPHIC TONER DISPENSER

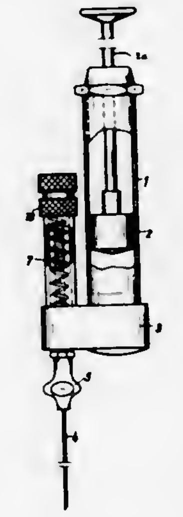
Arthur H. Knight, and Myrl J. Miller, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 27, 1969, Ser. No. 828,268
Int. Cl. G01f *11/06*
U.S. Cl. 222—342 **1 Claim**



Apparatus for dispensing toner into a developing unit of a xerographic-copying machine is disclosed. The dispenser comprises a hopper having sidewalls provided by a pair of resilient members whose lower ends engage the periphery of a rotatable fluted-dispensing shaft located at and forming the bottom of the hopper. The resilient members function to seal the lower portion of the hopper, meter the amount of toner carried from the hopper when the fluted-dispensing shaft is rotated, and clean the toner from the toner-carrying grooves or channels of the fluted-dispensing shaft. Mechanism is provided for indicating when the amount of toner in the hopper has been reduced to a predetermined minimum amount.

3,572,556
APPARATUS FOR METERING OF LIQUIDS

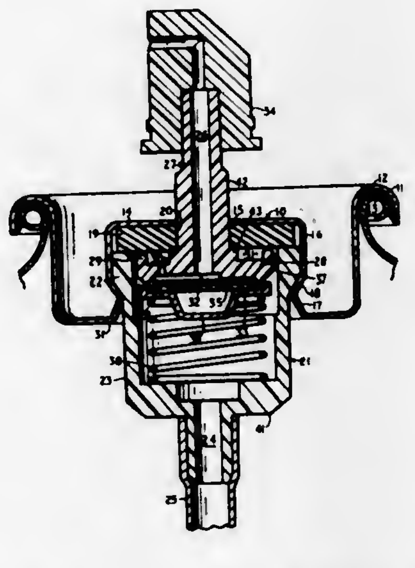
Peter Pogacar, Philosophenweg La, Heidelberg, Germany
Filed Mar. 25, 1969, Ser. No. 810,091
Claims priority, application Germany, Mar. 28, 1968, P31166/
Int. Cl. B67d *5/42;* **A61m** *5/00*
U.S. Cl. 222—400.8 **10 Claims**



A method of and an apparatus for metering of liquids. A canula has a preferably capillary passage whose volume, when the passage is completely filled, corresponds to a precisely predetermined quantity of liquid. In accordance with the invention, the passage is completely filled and thereupon the liquid is completely ejected therefrom so that the quantity of ejected liquid is a precisely metered quantity.

3,572,557
AEROSOL VALVES

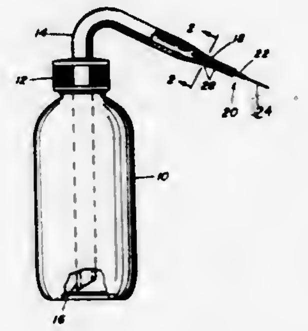
Cecil Robert Montgomery Graham, Killara near Sydney, New South Wales, and Lambert Ronald Little, Eastwood near Sydney, New South Wales, Australia, assignors to Samuel Taylor Pty. Limited, Gore Hill, New South Wales, Australia
Filed Oct. 29, 1968, Ser. No. 771,567
Claims priority, application Australia, Nov. 6, 1967, 29481/67
Int. Cl. B65d *83/00*
U.S. Cl. 222—402.22 **11 Claims**



A closure for aerosol containers includes a tubular stem having a bore for discharging the aerosol and the stem has a concentrically arranged flange located at the inlet end of the stem within the container. The flange is formed on one face to provide a cup-shaped surface which is in contact with a first gasket and on its other face to afford a groove communicating between the inlet end to the bore through the stem and an opening through the flange which communicates with the cupeshaped surface. A second gasket is disposed in sealing engagement with the other face of the flange so that aerosol passing through the opening in the flange can flow through the groove only into the inlet end of the bore in the stem.

3,572,558
DROPPER DISPENSER

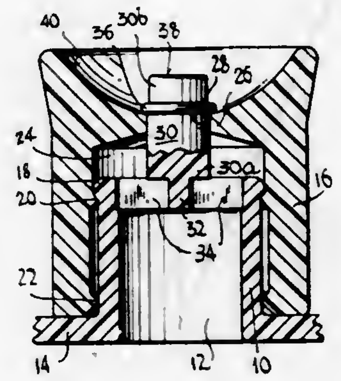
Robert M. Hooker, P.O. Box 25, Pine Point, Conn.
Filed Jan. 2, 1969, Ser. No. 788,561
Int. Cl. B67d *47/18*
U.S. Cl. 222—420 **4 Claims**



The disclosed dropper dispenser includes a plastic squeeze bottle containing the liquid to be dispensed. A tube extends through the bottle cap with its intake end submerged in the liquid and its discharge end fitted to receive and hold a drop dispenser tip. The tip includes a capillary tube through which extends an elongated drop conveying stem; the tube being deformed to engage the stem and prevent lengthwise movement thereof, while affording a liquid passage therebetween.

3,572,559
MULTIPOSITION DISPENSING CAP

Morton B. Stull, Boonton, N.J. (c/o Stull Engraving Company, 221-223 Banta Ave., Garfield, New Jersey 07026)
Filed Feb. 16, 1968, Ser. No. 706,129
Int. Cl. B65d *41/28*
U.S. Cl. 222—499 **6 Claims**

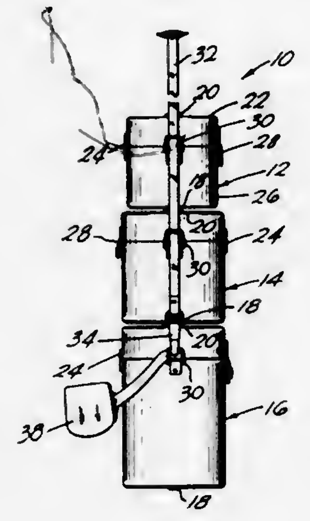


A dispensing cap construction comprising an orifice member attachable to a container, and a cap member movably mounted on the orifice member. The members have cooperable stopper- and discharge passage portions. The stopper portion has at one point a side projection increasing its size. The cap member can have both a shallow, consumer seal position and a deep, factory seal position. For both said positions the stopper portion closes the cooperable discharge passage, whereas the passage is opened for a third or raised, dispensing position of the cap member. The deep position of the cap member effects a more secure seal of the passage, and requires a greater applying force than that needed to attain only the shallow cap position, this being due to the increased size of the stopper portion effected by its side projection.

ERRATUM

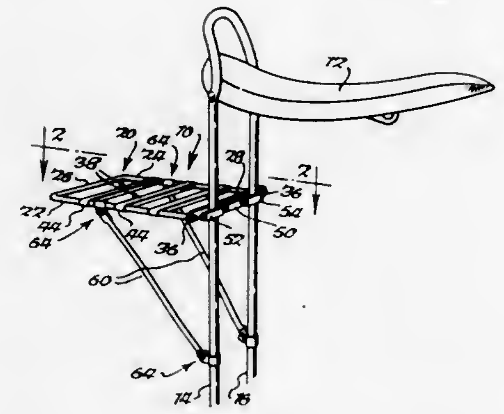
For Class 223—99 see:
Patent No. 3,572,580

3,572,560
PHOTOGRAPHY LUGGAGE
Charles L. Dolph, 3395 N. Maple, Ann Arbor, Mich.
Filed June 16, 1969, Ser. No. 833,651
Int. Cl. A45c *11/38*
U.S. Cl. 224—5V **9 Claims**



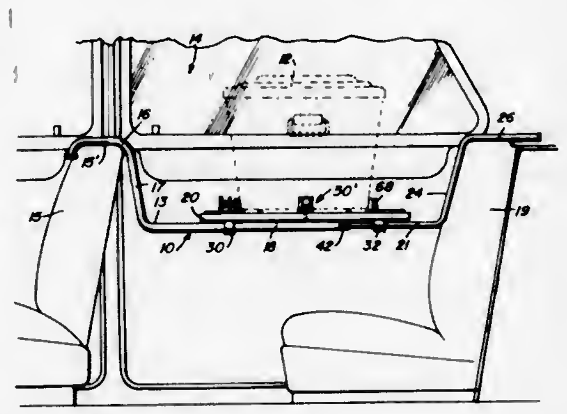
Gadget luggage for storing and carrying small articles to be used with photographic equipment. Individual containers for the articles are connected together in a relatively flexible vertical column and are adapted to be supported by a shoulder strap in an arrangement such that any container can be opened to make its contents readily available without removing it from the vertical column.

3,572,561
LUGGAGE CARRIER ACCESSORY
Herbert J. McCauley, 86 Dana Road, Buffalo, N.Y.
Filed May 19, 1969, Ser. No. 825,816
Int. Cl. B62j *7/04*
U.S. Cl. 224—32 **4 Claims**



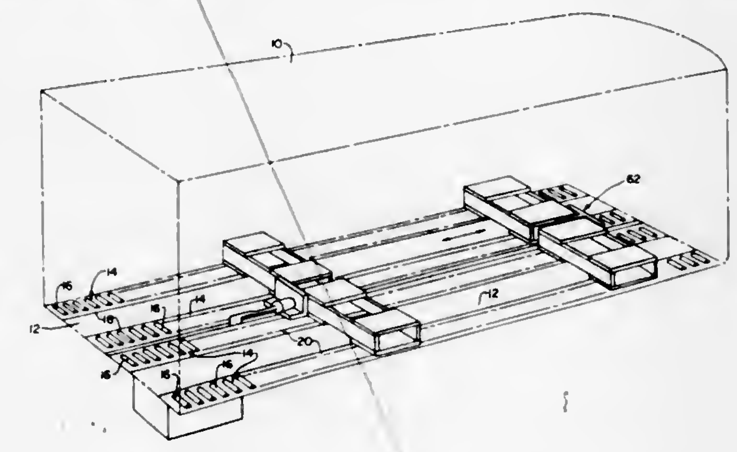
A luggage carrier accessory for attachment to a bicycle comprising a load support platform or frame having a series of crossmembers extending between and connected to the side portions of the frame. A mounting plate secures the load support frame to spaced vertical seat or saddle support struts mounted on the bicycle frame. Carrier rods are connected at one end of each to the side portions of the load support frame and at their other ends to the saddle support struts. The load support frame is vertically adjustable on the saddle support struts relative to the bicycle frame.

3,572,562
ADJUSTABLE CASKET SUPPORT FOR AUTOMOBILES
Jesse B. Floyd, Jr., 755 Yell Road, Lewisburg, Tenn.
Filed Oct. 31, 1968, Ser. No. 772,102
Int. Cl. B60r *11/00;* **B60p** *3/26*
U.S. Cl. 224—42.42 **3 Claims**



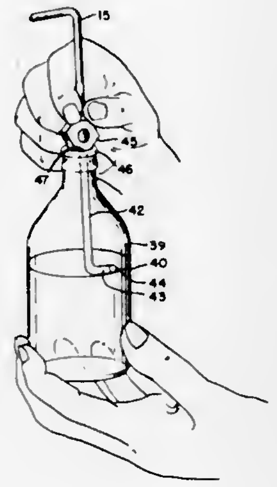
Supporting rails engage the forward and rearward seat of an automobile sedan. A base member is clamped to an intermediate portion of the rail members, the base member being adapted to support a small size casket thereon. The base member includes adjustable means for contacting the sides of a casket thereby inhibiting sliding motion of the casket during transport. Roller means are provided in the base member for reducing the effort required to slide the casket across the upper surface of the base member.

3,572,563
TRUCK UNLOADER
Emerson T. Oliver, Marblehead, Mass. (Essex Engineering & Mfg. Inc., Day St., Lynn, Mass.)
Filed Oct. 1, 1969, Ser. No. 862,886
Int. Cl. B60p *1/38*
U.S. Cl. 214—516 **14 Claims**



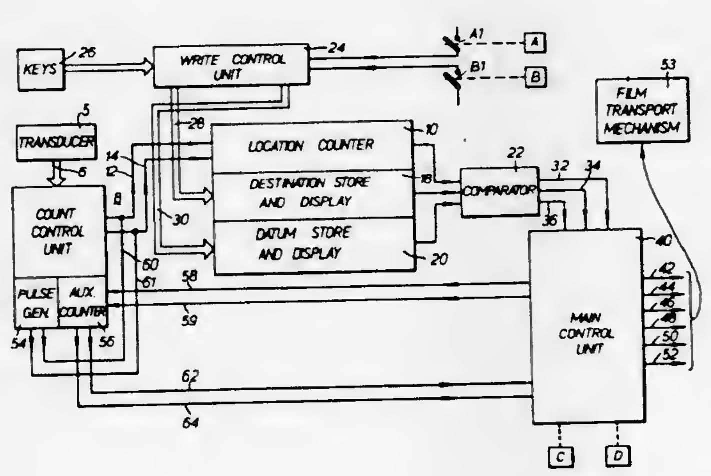
A loading and unloading apparatus for a freight-carrying vehicle having a low-friction bed to enable loads to be positioned along the length of the vehicle bed with ease. The device includes an unloading unit which is located forwardly of the load and is slidable along the length of the bed. When the vehicle is unloaded, the unloading unit is driven rearwardly to urge the loads toward the rear of the vehicle. The unloading unit is driven by an endless chain disposed beneath the vehicle bed for movement along a run that extends lengthwise of the bed. The chain and unloading unit are connected during normal loading operations and advance forwardly in unison to the forwardmost end of the bed. When the unloading unit has advanced to the forward end of the bed it automatically disengages the chain to permit continued forward advancement of the chain and loading of the vehicle. Loading is facilitated by a removable loading unit which is connected manually to the chain and which engages the rearward end of the load to advance the load forwardly in unison with the chain. Because the unloading unit disengages the chain at its forwardmost position, the chain may be driven continually in a forward, loading direction to continue to load the vehicle. Additionally, the loading unit may be manually disengaged from and repositioned along the chain.

3,572,564
GLASS BOTTLE AND JUG CUTTER
Floyd L. Fleming, 2110 Southwest 173rd Place, Seattle, Wash.
Filed Oct. 23, 1968, Ser. No. 769,926
Int. Cl. B26f *3/00*
U.S. Cl. 225—2 **5 Claims**



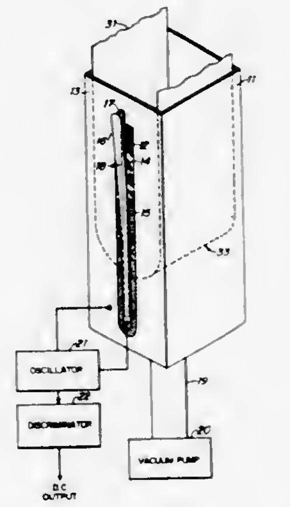
Apparatus for severing closed glass articles such as bottles and tubes employing a jig to hold a glass cutter wheel at the proper angle relative to the glass and to guide the cutter in scribing a shallow groove on the outside of a bottle. A hammer is inserted through the mouth of the bottle for tapping the glass opposite the groove on the outside of the bottle. The hammer has a stop engageable with the mouth of the bottle enabling it to be manipulated outside the bottle held fixed relative to the groove while tapping along the groove.

3,572,565
INFORMATION RETRIEVAL APPARATUS
Douglas L. Steggall, London, England, assignor to Selectro-Micro Company Limited, London, England
Filed Oct. 15, 1968, Ser. No. 767,608
Claims priority, application Great Britain, July 3, 1968, July 12, 1968, 31,671/68;33,307/68
Int. Cl. B65h *23/18*
U.S. Cl. 226—33 **7 Claims**



Information retrieval apparatus, particularly for locating a desired frame on a microfilm strip, comprises a photoelectric transducer for detecting the passage therepast of markers on the film strip, each marker being associated with a particular frame, a counter for counting the corresponding signals produced by the transducer, storage means for storing the serial number of a frame to be brought to a reading position, comparing means for continually comparing the count of the counter with the stored serial number, and means for arresting the film movement when the comparison shows equality. The storage means also includes means for storing the serial number of the frame initially in the reading position, this number being also fed into the counting means to provide a datum count. The apparatus also includes means for sensing that the desired frame is approaching the reading position and for slowing down the film so as to avoid overshoot when the film is finally arrested. The apparatus can drive the film in either direction to locate the desired frame and, when one desired frame has been located, a further desired frame can be located without having to rewind the film to a datum position.

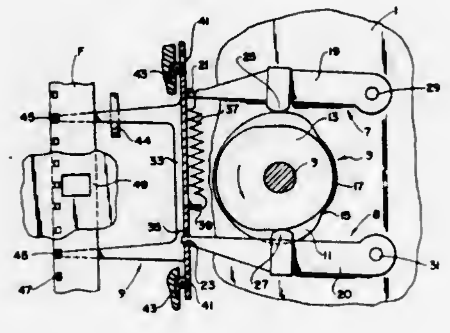
3,572,566
WEB POSITION SENSOR
Robert M. Fraser, Lincoln, and Roger K. Lee, Watertown, Mass., assignors to Itek Corporation, Lexington, Mass.
Filed Feb. 19, 1969, Ser. No. 800,660
Int. Cl. B65h *25/02*
U.S. Cl. 226—45 **6 Claims**



A vacuum box having a capacity transducer located in a slot in one of the sidewalls. The transducer consists of a conductive mesh, a porous dielectric material and a flexible metallic strip which at one end is biased away from the sidewall and fixed to the wall at the other end. As a web loop enters the box, a pressure differential is created by the web loop between the atmosphere above the loop and that below the loop. The vacuum below the loop acts upon that portion of the metallic strip below the loop bringing it close to or in contact with the porous dielectric and the conductive mesh thereby changing the capacitance of the transducer as a function of the length of the loop. The capacitor forms a portion of the tuned element of an oscillator, the frequency of which varies linearly with changes in the position of the loop.

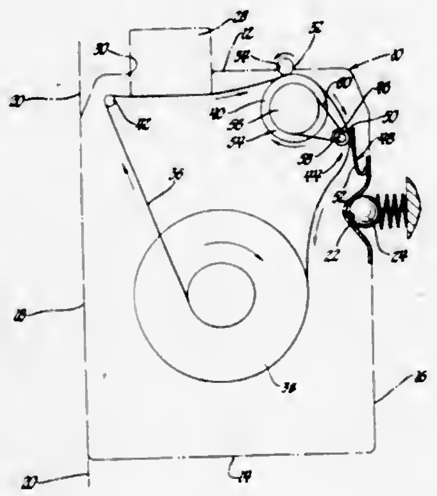
3,572,567
CAM MECHANISM FOR THE FILM-ADVANCING SYSTEM IN A CINEMATOGRAPHIC DEVICE
Hermann Claar, Stuttgart-Wangen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 6, 1968, Ser. No. 750,518
Claims priority, application Germany, Aug. 12, 1967, K63088
Int. Cl. G03b *1/22*
U.S. Cl. 226—67 **2 Claims**

A mechanism for controlling the motion of a pulldown claw in a cinematographic device operates throughout its entire cycle under approximately constant torque requirements of the drive motor of the device. The mechanism includes two opposed cam followers which ride on two cam surfaces respectively of a cam means. Each cam surface and follower has a particular shape and orientation relative to the other cam surface and follower such that the torque required to drive the pulldown claw remains approximately constant throughout each 360° of rotation of the cam.



3,572,568
ENDLESS LOOP TAPE CARTRIDGE

Phillip A. Lutz, and Peter D. Lintzenich, Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Mar. 10, 1969, Ser. No. 805,571
Int. Cl. G11b *23/04*
U.S. Cl. 226—108 **1 Claim**

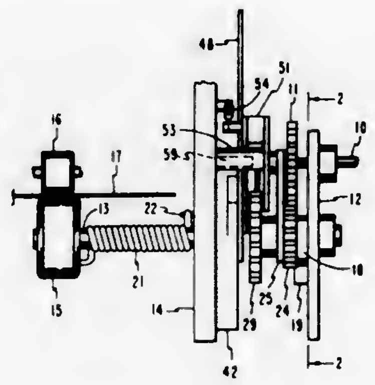


A magnetic tape cartridge includes an internal pressure roller cooperating with an external drive roller so as to drive an endless loop of tape therebetween. A takeup apparatus is located within the tape cartridge to prevent the accumulation of slack tape in the area surrounding the pressure roller. The takeup apparatus comprises an auxiliary drive roller which cooperates with a bearing device so as to tension the tape as it leaves the pressure roller.

3,572,569
DOCUMENT FEED AND CONTROL DEVICE

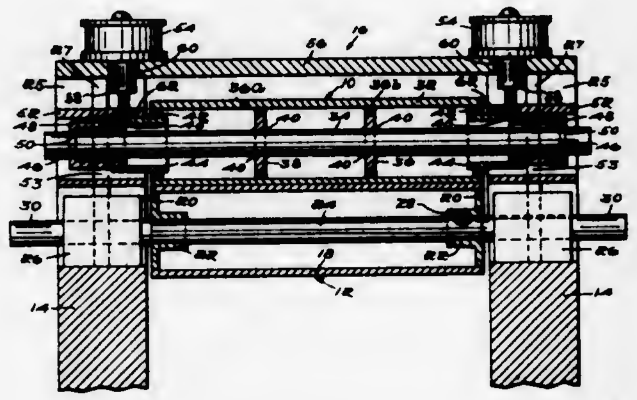
Raymond L. Cimijotti, Chatfield, and Robert F. Markley, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 2, 1969, Ser. No. 829,407
Int. Cl. B65l *17/22*
U.S. Cl. 226—141 **9 Claims**

A document control device which utilizes a single mode of input drive to affect any of a selected plurality of modes of document feed output. A modified ratchet wheel on the output shaft is driven in various modes by a drive element variously directed by a channel cam structure during a fixed arcuate drive cycle.



3,572,570
ROLL WITH CONTROLLABLE DEFLECTION

Peder Mortensen, Skoobrynet 1, Bagsvard, Denmark
Filed June 12, 1969, Ser. No. 839,145
Claims priority, application Denmark, Aug. 2, 1968, 3736
Int. Cl. B65h *17/20*
U.S. Cl. 226—177 **4 Claims**

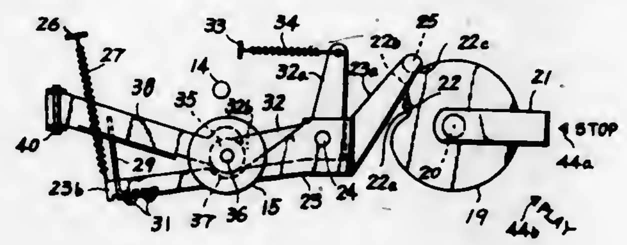


Apparatus for controlling the deflection of a tubular nip roll. The roll is supported internally at its ends by annular bearings which are in turn carried by sleeves. A nonrotatable shaft extends axially through the roll and the sleeves, the shaft having at least one additional bearing radially supporting the roll at a point intermediate its ends. The sleeves are carried on adjustable members which are movable axially on the shaft. By applying a force to the sleeves, which force is opposite to the nip separating force and by properly positioning the adjustable members on the shaft, the shaft and the roll are deflected in opposite directions, the deflection of the roll being in the same direction and approximately of the same magnitude as that of the other mating nip roll.

3,572,571
PINCH ROLLER DEVICE FOR MAGNETIC RECORDING AND REPRODUCING APPARATUS

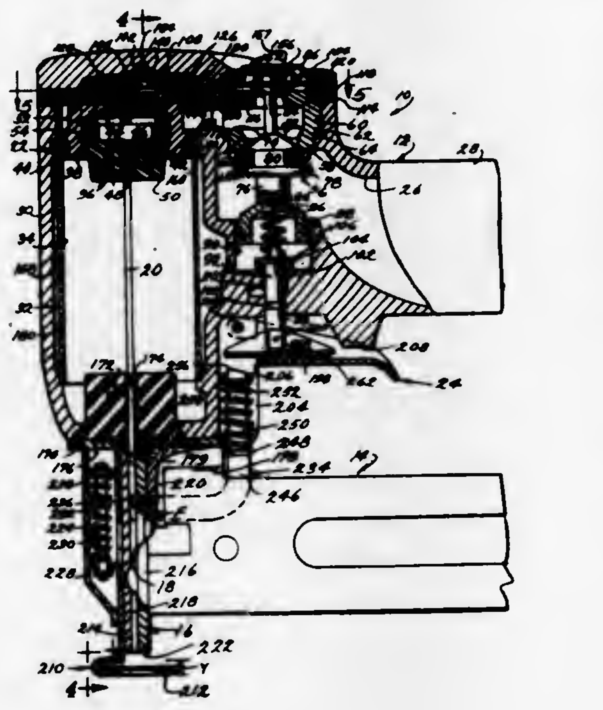
Kenichi Mori, and Mitsuo Iwata, Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Filed Sept. 17, 1969, Ser. No. 858,769
Claims priority, application Japan, Sept. 20, 1968, Apr. 26, 1969, 43/67664;44/37752
Int. Cl. B65h *17/22*
U.S. Cl. 226—176 **9 Claims**

In a magnetic recording and reproducing apparatus, a pinch roller device which moves a pinch roller downwardly lower than a determined height of a travelling path of a magnetic tape simultaneously as the pinch roller is disengaged and separated from a capstan.



3,572,572
FLUID PRESSURE OPERATED FASTENER DRIVING DEVICE

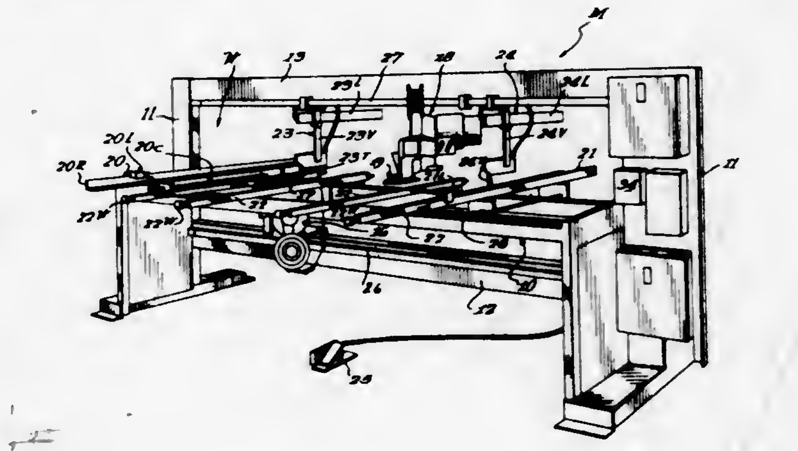
Peter A. Readyhough, Barrington, and Walter G. Lemos, Riverside, R.I., assignors to Textron Inc.,, Providence, R.I.
Filed July 22, 1969, Ser. No. 843,665
Int. Cl. B27f *7/06*
U.S. Cl. 227—8 **16 Claims**



A fastener driving device having a fluid pressure operated system for moving a fastener driving element through repeated cycles each of which includes a drive stroke during which a fastener is driven and a return stroke, the main control valve for effecting the cycle of operation being moved by pilot pressure within a pilot chamber acting on a pilot piston forming part of the main control valve, the pilot chamber being communicated with reservoir pressure through a restricted orifice and the exhaust of the pilot chamber being under the control of an auto-fire valve operable to prevent exhaust of the pilot pressure in response to the establishment of a pressure signal in the return plenum chamber at the end of the drive stroke and operable to permit exhaust of the pilot pressure in response to a low pressure signal from the return plenum chamber toward the end of the return stroke. The device also includes an interlock lever pivoted intermediate its ends to the depending stem of the actuating valve and having its ends connected respectively to the trigger member and a motion transmitting member, which, in turn, is connected through a spring to the work contacting member so as to prevent undesired movement of the actuating valve into its closed position as a result of recoil movement of the device when the fastener driving element completes its drive stroke.

3,572,573
DOUBLE SIDE SEAMER

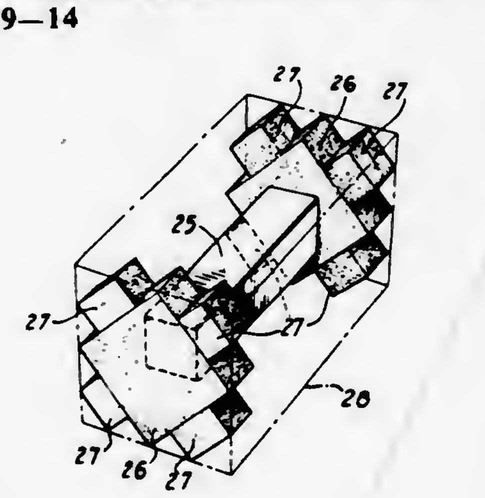
Bernard P. Kunka, Racine, Wis., assignor to Interlake Steel Corporation, Chicago, Ill.
Filed Nov. 17, 1969, Ser. No. 877,065
Int. Cl. B25c *7/00*
U.S. Cl. 227—150 **9 Claims**



A double side seamer stitches a pair of mating carton blanks together to form a two-piece carton in a single pass. The seamer frame has a pass-through window provided with guides to support the folded carton blanks in side-by-side edge lapping relation for defining a top set of overlapping edges and a bottom set of overlapping edges. A separate stitcher head is provided for seaming each set of edges and a timer is connected to the stitcher heads to synchronize initiation of the stitcher heads after each stitch cycle and thereby enable both seams to be formed at the same time.

3,572,574
PACKAGING

Thomas W. Mears, Wilmslow, England, assignor to Evans Bellhouse Limited, Manchester, Lancashire, England
Filed Feb. 24, 1969, Ser. No. 801,716
Int. Cl. B65d *5/50, 85/30, 81/04*
U.S. Cl. 229—14 **6 Claims**



Cushioning unit for use inside a packing box includes a hollow carrier, such as a tube or box, for accommodating the article to be packed, and pieces of resilient material, such as foamed plastic, secured to exterior of the carrier and adapted to engage the inner surfaces of the box walls. Resilient pieces may include a main rectangular pad secured to each end of carrier, and auxiliary pads secured to center of each side of main pad, only the edges of the pads engaging the packing box walls. Alternatively, each main rectangular pad may have spaced pads secured to its sides, spaced pads making face-to-face contact with packing box walls. Resilient buffer may be secured to inner surface of each packing box end wall.

3,572,575

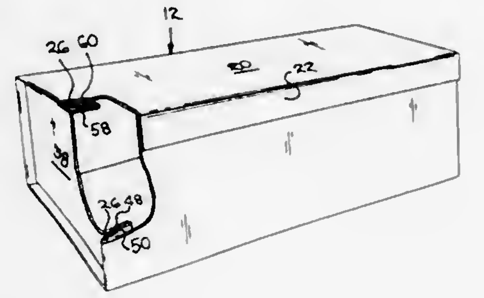
SELF-LOCKING PAPERBOARD SHIPPING CONTAINER

Gus John Dorofachuk, Willingboro, N.J., assignor to Owens Illinois, Inc.

Filed Apr. 18, 1969, Ser. No. 817,332

Int. Cl. B65d *13/00, 5/02*

U.S. Cl. 229—23 **7 Claims**



A self-locking folded paperboard shipping container including interlocking body and end portions wherein the end panels are formed with reversely bent flaps on each side forming an interlocking V to engage inturned portions on said body when said end panels are inserted into the body through an open top flap and pushed into position to close the ends and form a rigid interlocked structure.

3,572,576

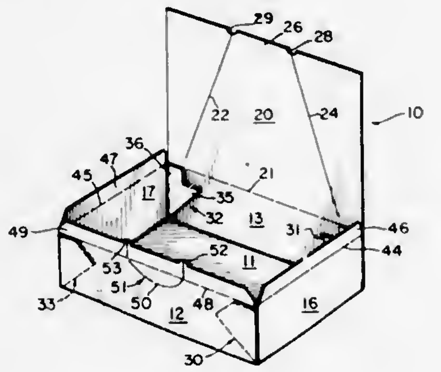
FROZEN FOOD CARTON

Thomas W. Foster, Palo Alto, Calif., assignor to Fibreboard Corporation, San Francisco, Calif.

Filed May 14, 1969, Ser. No. 824,512

Int. Cl. B65d *5/22, 5/24*

U.S. Cl. 229—31 **12 Claims**



A frozen food carton is erected out of a single blank to comprise a tray portion having a cover flap hingedly connected thereto. The tray portion comprises front, back and sidewalls attached together by corner gusset folds and a narrow flap hingedly connected to the top edges of the front and side panels. The cover flap, hingedly connected to the back panel and having opening means formed therein, is adhesively secured over the three narrow flaps to form a tightly sealed carton closure.

3,572,577

VENTILATED TRAY

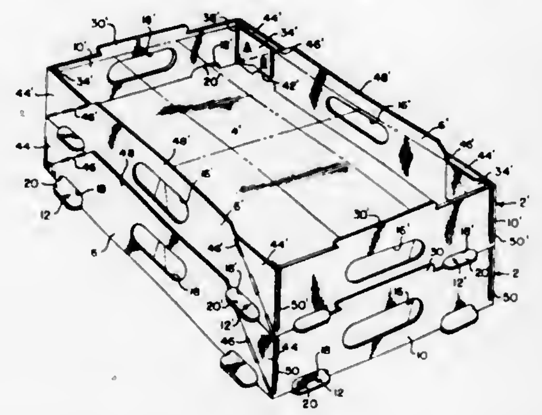
Martin S. Dorfman, West Englewood, N.J., assignor to Grand-City Container Corporation, North Bergen, N.J.

Filed Dec. 29, 1969, Ser. No. 888,216

Int. Cl. B65d *5/26*

U.S. Cl. 229—32 **10 Claims**

A tray for supporting products which require ventilation is formed from a single piece blank of paperboard and includes a bottom wall, two sidewalls and two end walls. Ventilation slots in the sidewalls and in the end walls of the tray are formed by punching out curvilinear tabs along cut scorelines. The outwardly extending tabs serve to prevent lateral and longitudinal skidding between stacked trays and also provide for convenient nesting. The ventilated tray is easily collapsed so that it can be shipped substantially flat when empty.



3,572,578

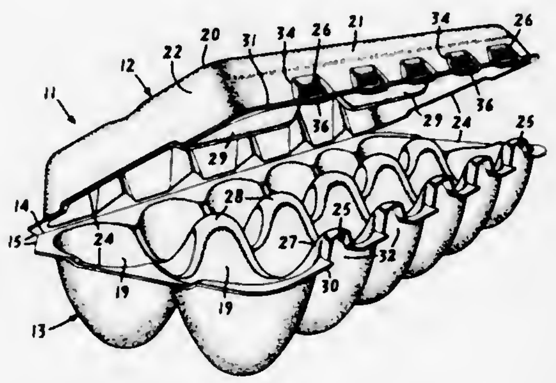
CARTON LATCH CONSTRUCTION

Howard A. Rohdin, Waquoit, Mass., assignor to Packaging Industries Inc., Hyannis, Mass.

Filed Apr. 8, 1969, Ser. No. 814,254

Int. Cl. B65d *45/00*

U.S. Cl. 229—44 **4 Claims**



There is disclosed a carton made of foamed polystyrene or like material comprising a top portion and a bottom portion hinged along one side and releasably fastened along the other side by a plurality of latching means. An edge of the bottom portion of the carton having cells for receiving eggs or the like, is molded with a plurality of vertical protrusions along it, each protrusion having an outwardly projecting hook at its upper end. The hook is disposed inwardly of the carton edge and a cutout is made in the edge below the hook. Catches are molded in the corresponding edge of the carton lid, including inwardly extending detents to engage the hooks firmly when closed, and downwardly extending lips to engage the cutouts in the bottom portion edge. The latch means do not extend beyond the edges of the carton and effectively resist accidental opening when twisted.

3,572,579

SCORED PERIPHERAL TEAR STRIP WITH RECLOSURE LID

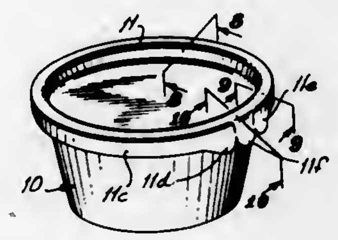
David Charles Mueller, Neenah, Wis., and Peter Floyd Niesen, Mound, Minn., assignors to American Can Company, New York, N.Y.

Filed Apr. 11, 1969, Ser. No. 815,416

Int. Cl. B65d *17/24*

U.S. Cl. 229—51 **5 Claims**

A thermoplastic container and lid are heat-sealed together through clamping jaws. During the sealing operation a pair of offset scores are applied to flanges on the container and lid, which are heat-sealed. The scores facilitate severance of the sealed flanges for opening the container. Offset knives heated by the clamping jaws form the offset scores and leave a tab on the lid by which the lid may be readily removed and replaced subsequently when desired.



3,572,580

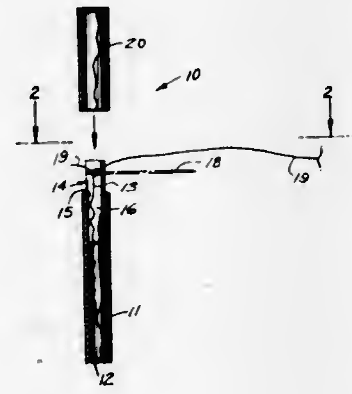
NEEDLE THREADING DEVICE

Mike V. Kasper, 460 E.255, Euclid, Ohio

Filed Aug. 11, 1969, Ser. No. 848,827

Int. Cl. A41h *31/00*

U.S. Cl. 223—99 **5 Claims**



A needle threader composed of a cartridgelike member having an extending hook portion for insertion into the eye of a needle, the hook portion receiving the thread which will then be pulled through the eye of the needle. An extending portion from the cartridgelike member allows the needle to be steadied during the threading operation.

3,572,581

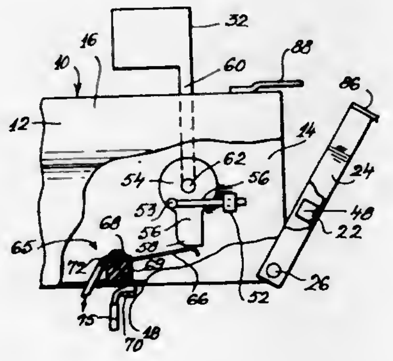
MAILBOX WITH MULTIPLE SIGNAL DEVICES

Donald H. McLeod, 2508 Riverside Drive, Mobile, Ala.

Filed Sept. 23, 1969, Ser. No. 860,376

Int. Cl. A47g *29/12*

U.S. Cl. 232—35 **10 Claims**



A rural-type mailbox has two flags pivotally mounted at opposite sides of the box. Inside the box are slidable rods engageable with spring fingers on the pivotable door of the box. The rods are operatively connected to the flags by rotatable discs for holding one flag elevated and the other flag lowered when the door is closed and the rods are engaged with the spring fingers. A switch in the box is disposed for contact by a radial extension of one disc when the other flag is raised upon opening the door. A signal device such as a lamp or bell is connected in circuit with the switch to operate when the door is opened to raise the lowered other flag.

3,572,582

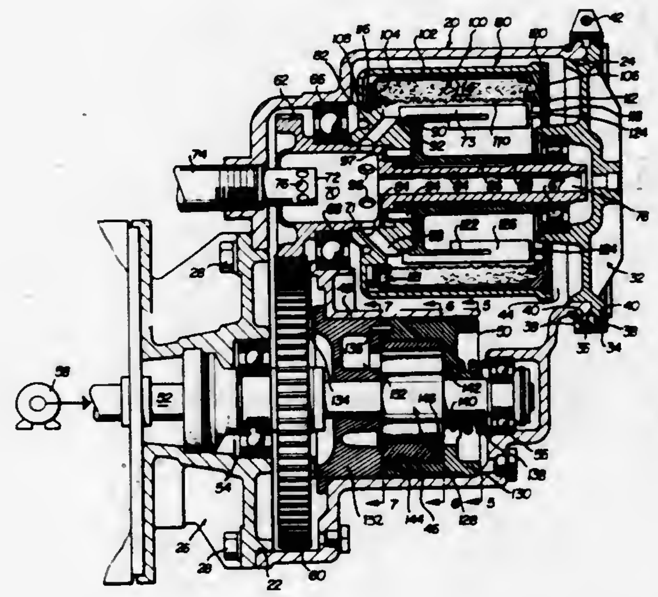
CENTRIFUGE

Harold Douglas Seielstad, Jr., Birmingham, Mich., assignor to Midwest Aero Industries Corporation, Royal Oak, Mich.

Filed Mar. 21, 1969, Ser. No. 809,113

Int. Cl. B04b *3/00*

U.S. Cl. 233—2 **13 Claims**



A centrifuge for separating contaminants from a liquid, such as lubricating oil. The centrifuge includes a rotating cylindrical sleeve assembly open at one end and provided with a readily removable and replaceable annular particle receiving and entrapping sleeve. The centrifuge includes a positive displacement-type pump operable to discharge decontaminated fluid from the centrifuge at a rate at least equal to the rate at which contaminated fluid is fed into the centrifuge, to thereby achieve nonflooded operation and to permit the separation of entrained air from the lubricant.

3,572,583

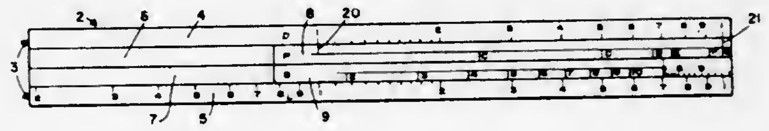
SLIDE RULE FOR MAKING PATTERNS

Joseph E. Hannon, 943 W. Greenbriar Lane, Dallas, Tex.

Filed Oct. 28, 1968, Ser. No. 771,187

Int. Cl. G06g *1/02*

U.S. Cl. 235—70 **6 Claims**



This disclosure provides a method and a tool for simplifying the art of pattern making while simultaneously increasing the accuracy of the patterns made. One embodiment of this tool is a slide rule (known as a "pattern rule") so constructed as to directly compute and display the dimensions required in a pattern layout. By inserting the known dimensions and requirements into one area of the pattern rule by physically moving a sliding rule member, the desired dimensions are displayed in another area of the rule.

3,572,584

WEIGHT REDUCTION CALCULATOR

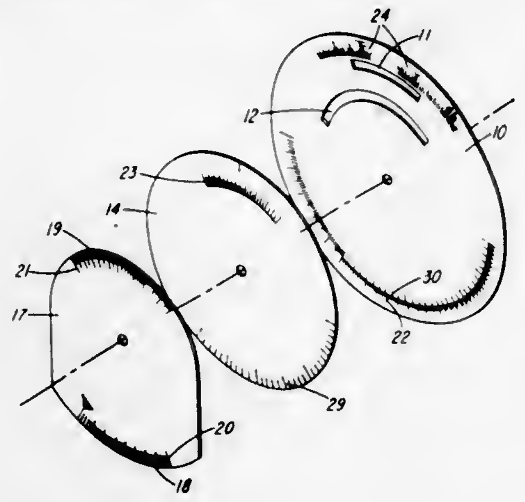
Richard Paul Weaver, 1413 Dogwood Dr., Portage, Mich., and Talivaldis Cepuritis, 2348 Tipperary Road, Kalamazoo, Mich.

Filed Oct. 1, 1968, Ser. No. 764,162

Int. Cl. G06c *3/00*

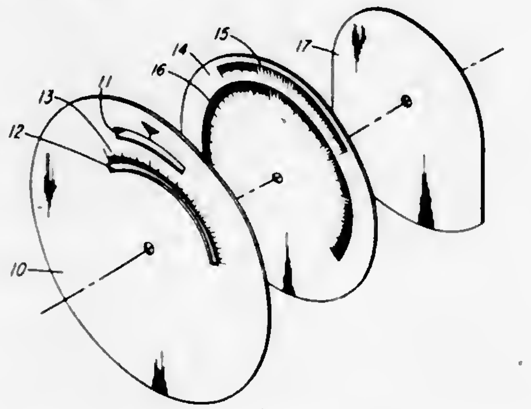
U.S. Cl. 235—88 **1 Claim**

Age, weight, height, and physical activity of a patient are correlated by means of appropriate scales on axially aligned, rotatably mounted discs or plates to indicate food allowance in calories. Using the food allowance data, the number of days a patient should be on diet are calculated.



3,572,585
WEIGHT REDUCTION CALCULATOR

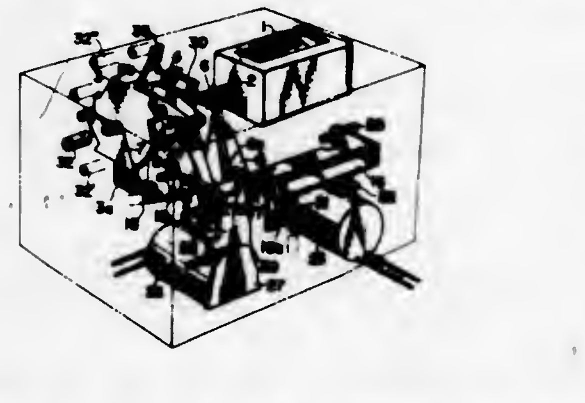
Richard Paul Weaver, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Filed Oct. 1, 1968, Ser. No. 764,141
Int. Cl. G06c *3/00*
U.S. Cl. 235—88 **1 Claim**



Age, weight, height, and physical activity of a patient are correlated by means of appropriate scales on axially aligned, rotatably mounted discs or plates to indicate food allowance in calories. Using the food allowance data, the number of days a patient should be on diet are calculated.

3,572,586
CALCULATING DEVICE FOR A DUPLICATOR

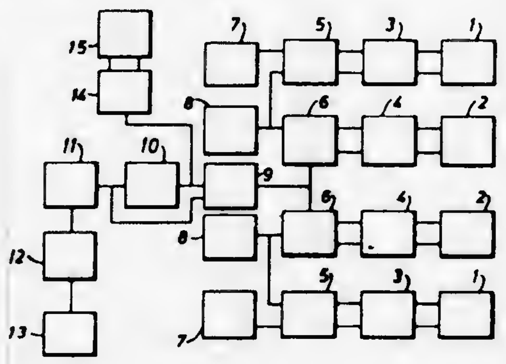
Shigeru Suzuki, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Mar. 28, 1968, Ser. No. 716,951
Int. Cl. G06m *1/00;* **G06f** *15/18*
U.S. Cl. 235—91 **5 Claims**



A calculating device for a duplicator comprises a first driving ratchet wheel fixed to a shaft of a calculating meter and a second ratchet wheel loosely mounted on the shaft. The second ratchet wheel is urged by a spring to an initial predetermined position and a pawl is positioned adjacent the ratchet wheels to drive them each time a copy of an original is made by the duplicator. Each time the pawl is driven, each of the ratchet wheels is rotated through one tooth. The second ratchet wheel has a protruded toothless portion to engage the pawl after a predetermined rotation of the second ratchet wheel in order to prevent engagement of the pawl with the driving ratchet wheel. Consequently the calculating meter will only indicate the number of copies made up to a predetermined number. A retaining pawl engages the second ratchet wheel to prevent return thereof to its original position until an original to be copied is replaced in the duplicator by another original.

3,572,587
BURNER CONTROL APPARATUS

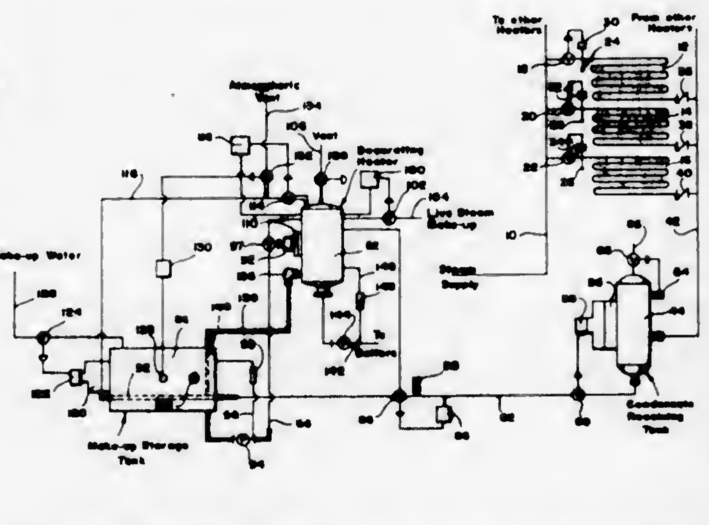
Jerk Gunnar Oldenburg, Genarp; Sten Bengt Ove Wilhelmsson, Vintrie, and Krister Kurt Olle Lennervad, Skivarp, Sweden, assignors to Kockums Mekaniska Verkstads Aktiebolag, Malmo, Sweden
Filed Feb. 11, 1969, Ser. No. 798,323
Claims priority, application Sweden, Feb. 12, 1968, 1785/68
Int. Cl. F23n *1/00*
U.S. Cl. 236—26 **8 Claims**



An apparatus for controlling the steam production of preferably ship steam boilers comprising transmitters for providing signals corresponding to air pressure, fuel oil pressure and steam pressure and controlling the operation of the burners of the boilers via a time integrating circuit, an adding circuit, comparators and drive circuits controlling servomotors for dampers and fuel oil valves and for igniting and extinguishing at least most of said burners.

3,572,588
CONDENSATE AND HEAT RECOVERY SYSTEM

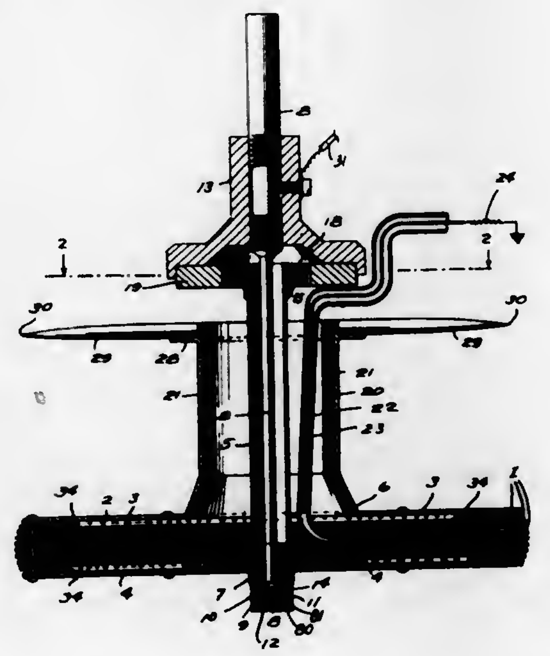
John S. Hamilton, Jr., Monroe, La., assignor to Boiler Equipment and Controls, Inc., Monroe, La.
Filed Apr. 3, 1969, Ser. No. 813,161
Int. Cl. F24d *1/02*
U.S. Cl. 237—9 **23 Claims**



A trapless condensate and heat recovery system is provided for use with a plurality of parallel connected steam heating coils, each of which is provided with an individual temperature control valve at its inlet side. The coils are connected without the use of traps to a common condensate recovery tank which is provided with pressure and level controls. In one embodiment, the tank is provided with a vent orifice sized to provide adequate venting of noncondensible gases. Alternatively, the tank may be provided with pressure responsive means to bleed off flash steam to a point in a condensate return line from the tank. The condensate return line is coupled either to a deaerating heater or to a makeup storage tank depending on the temperature of the condensate in the line. Live makeup steam is fed into the deaerating heater in response to the pressure within the heater, and excess flash steam within the heater is automatically transferred to the makeup storage tank in response to excess pressure within the heater. In the event that the temperature within the makeup storage tank is excessive, temperature control means responsive to the temperature within the makeup storage tank is employed for controlling an atmospheric vent coupled to the excess steam line to the makeup storage tank. The deaerating heater is provided with level controls to control the feed of water to and from the makeup storage tank.

3,572,589
ELECTROSTATICALLY DRIVEN DISTRIBUTOR

Edward O. Norris, P.O. Box 4157, Westport, Conn.
Filed July 31, 1968, Ser. No. 749,164
Int. Cl. B05b *5/04*
U.S. Cl. 239—15 **17 Claims**

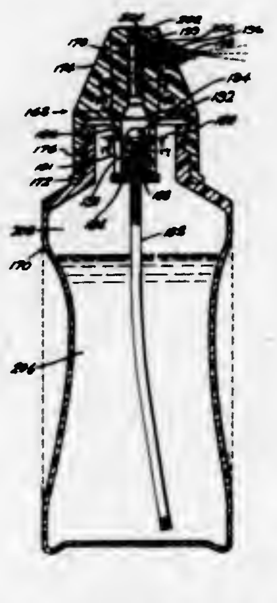


This disclosure relates generally to rotary atomizers of the type used in painting and coating operations, and more particularly to simple and inexpensive driving mechanisms for rotating such atomizers. The present invention is embodied in apparatus including an atomizing unit comprising a rotary atomizer mechanically coupled and electrically connected to an electrostatic motor in a manner in which a common high voltage charge will drive the atomizer to atomize the coating material and will charge the atomized particles. In one advantageous form of the apparatus of the invention, the electrostatic motor and the atomizer are integrated as a common unit in the form of curved, hollow horn-shaped members mounted on a common sleeve.

3,572,590
SQUEEZE BOTTLE ATOMIZERS AND LIQUID DISPENSERS

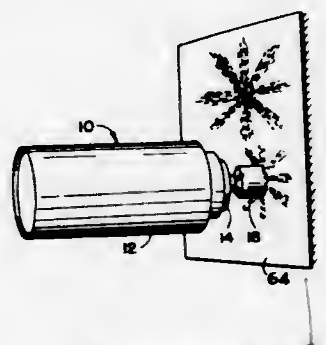
Carl E. Malone, Fort Lauderdale, Fla., assignor to The AFA Corporation, Miami, Dade County, Fla.
Filed May 31, 1968, Ser. No. 733,356
Int. Cl. B65d *1/32*
U.S. Cl. 239—327 **17 Claims**

A squeeze bottle atomizer having an atomizing head in which an airstream impinges on a column of liquid in a siphon tube to partially nebulize the liquid. The partially nebulized liquid is then carried by the airstream through a mixing chamber and a restricted orifice or a wick saturated with liquid and an orifice to further nebulize the liquid. The atomizing head is so constructed that the liquid is nebulized sequentially in two stages, thereby producing an extremely fine spray. The size of the orifice through which the airstream impinges on the liquid column can be adjusted to vary the fineness of the nebulized liquid.



3,572,591
AEROSOL POWDER MARKING DEVICE

Richard J. Brown, Yonkers, N.Y., assignor to Precision Valve Corporation, Yonkers, N.Y.
Filed Feb. 24, 1969, Ser. No. 801,569
Int. Cl. B05b *7/32*
U.S. Cl. 239—337 **7 Claims**



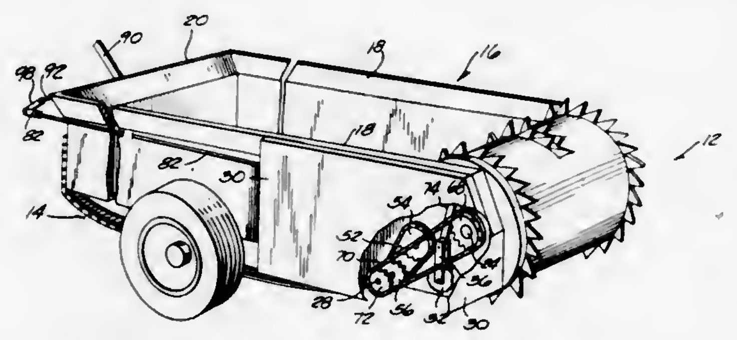
A marking device comprising a valved propellant source, a source of mark-forming material, means for simultaneously discharging the propellant and mark-forming material to a pattern-forming member. The pattern-forming member has a flat upper end having one or more (usually a plurality) grooves. The grooves extend from the opening in the conduit to a venting zone, thereby producing a passageway or series of passageways for discharging propellant and mark-forming material to the surface to be marked.

To form a mark, the flat outer end of the pattern-forming member is impressed against the surface with sufficient force to activate the means for discharging the propellant and the mark-forming material.

3,572,592
DRIVE ARRANGEMENT

Richard A. Jankowski, West Bend, Wis., assignor to Kasten Manufacturing Corporation, Allenton, Wis.
Filed Mar. 5, 1969, Ser. No. 804,489
Int. Cl. A01c *19/00;* **E01c** *19/20*
U.S. Cl. 239—680 **13 Claims**

Disclosed herein is a control assembly for a manure spreader having a beater drum driven by a clutch and an apron conveyor driven by a step by step ratchet drive, the assembly including a selectively positionable lever arm to control the motion of the ratchet drive, a clutch control rod connected to the lever arm and the clutch to disengage the clutch when the apron conveyor is operating at high speed, a kickout lever to prevent reengagement of the clutch when disengaged by the clutch control rod, and a cam on the lever arm to release the kickout lever from the clutch at the conveyor no drive position of the lever arm. The kickout lever is manually releasable from the clutch.



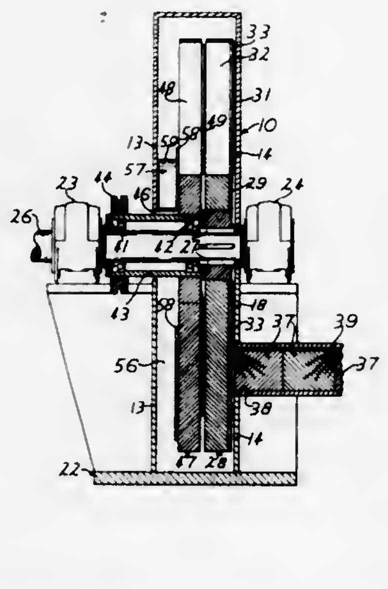
3,572,593
METHOD FOR REDUCING AND CLASSIFYING SUGAR CANE BAGASSE

Peter V. Guarisco, Morgan City, La., assignor to Silver Lining, Inc., Morgan City, La.
Filed Feb. 28, 1969, Ser. No. 804,057
Int. Cl. B02c *19/00*
U.S. Cl. 241—24 **5 Claims**

Sugar cane bagasse in a dry state is reduced only to the extent that substantially all of the particles thereof are capable of passing through a sieve in the 5-mesh to 15-mesh range and then classified into a finer fraction of reduced crude fiber and high nutrient content containing all particles of a size within the range of from 30-mesh to 50-mesh and smaller and a coarser fraction of high crude fiber content containing all particles larger than those of the finer fraction. In this way, substantially the whole of the bagasse is usable, with minimum waste, as two separate fractions that are especially suited, respectively, for use as a food additive and as a basic ingredient for paper products and building and insulating materials.

3,572,594
WOOD COMMINUTING APPARATUS

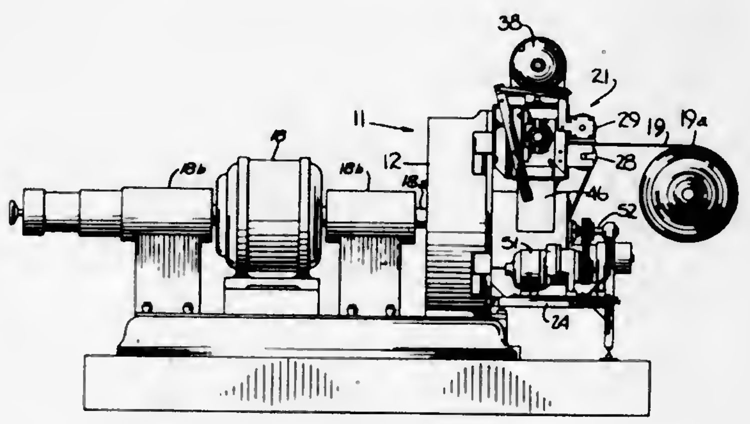
Royce G. Kershaw, Montgomery, Ala., assignor to Kershaw Manufacturing Company, Inc.
Filed Feb. 18, 1969, Ser. No. 800,101
Int. Cl. B02c *18/06*
U.S. Cl. 241—55 **10 Claims**



Wood comminuting apparatus having adjacent discs rotatable in opposite directions in a housing with blades at one side of one disc positioned to contact a length of wood fed sidewise thereagainst. Openings adjacent blades on the one disc convey cut wood therethrough to adjacent side of other disc. Other disc rotates at greater speed than the one disc and in opposite direction. Cutters on other disc comminute wood which then passes through openings in other disc. Impellers at other side of the other disc discharge comminuted wood from housing.

3,572,595
ATTRITION MILL

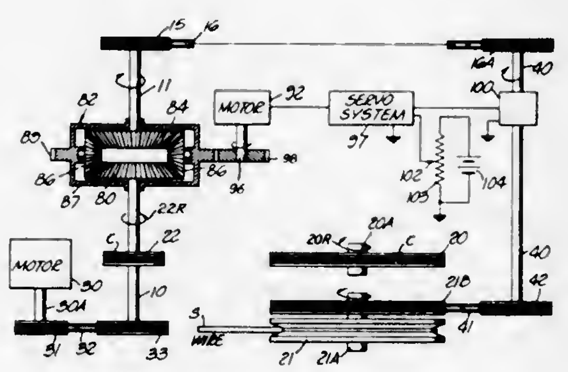
Charles R. Lyon, Fort Mill, S.C., assignor to Celanese Corporation
Original application Mar. 2, 1965, Ser. No. 436,579, now Patent No. 3,406,916, dated Oct. 22, 1968. Divided and this application June 26, 1967, Ser. No. 664,578
Int. Cl. B02c *7/06, 13/06, 21/00*
U.S. Cl. 241—152 **5 Claims**



An apparatus for the separation of fibers of cellulose pulp sheet material including an attrition mill having a stationary and an opposing rotary disc, the stationary disc having a central aperture for reception of sheet material, the apparatus further including an impact zone, a driven roll extending across the width of the sheet material for feeding the pulp sheet in unfolded state to the impact zone, a series of spaced hammers mounted in the impact zone on a driven shaft for hitting the sheet material adjacent to its leading edge, with repeated impact spaced across its width to break the pulp material at its leading edge into chips, the hammer elements adapted to coact in interfitting relation with a set of stationary spaced cutter teeth on a stationary bar, a series of spaced supporting elements staggered with respect to the hammers for supporting the sheet material adjacent to its leading edge, the construction being such that the chips fall between the spaced supporting members, a conveyor mounted below the supporting elements for receiving the chips and for continuously feeding the chips to the aperture.

3,572,596
CABLE STRESSING AND WINDING APPARATUS

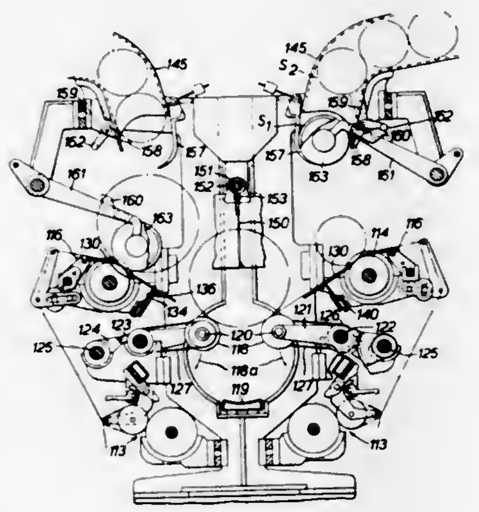
Maximiliaan J. Dykmans, 4434 Mayapan Dr., La Mesa, Calif.
Filed Apr. 2, 1968, Ser. No. 718,138
Int. Cl. B21f *17/00*
U.S. Cl. 242—7.21 **20 Claims**



In wrapping wire around a concrete tank to prestress the same a motor-driven carriage travels around the tank with a sprocket wheel engaging a chain that extends around the tank. Simultaneously, the wire is fed from a supply spool onto a wire gripping drum and is then laid on the outer tank wall with a wire tension established by monitoring deviations in stress with respect to a nominal value of stress and using such deviations to produce changes in the difference in peripheral lineal speed between the sprocket wheel (carriage speed) and the gripping drum such that such stress is maintained substantially constant at said nominal value whereby the wire is uniformly and accurately stressed when and as it is being wrapped around the tank wall. The carriage is supported on a tower having wheels engaging both the ground and the tank wall so that wire may be supplied from a point on the machine within or outside the tank. In one form a differential gear system is used. In another form a pair of hydraulic motors is used with one of such motors operating as a pump for the other motor. In another form a variable gear drive is provided between the sprocket wheel and gripping drum. In another form a force is applied to a stressing block acting on the wire in accordance with the stress in the wire. In another form the effective diameter of a gripping drum is changed in accordance with stress in the wire.

3,572,597
TEXTILE MACHINES

Walter Parker, Wilmslow; Harold William Lee, Poynton, and Alan Herbert Evans, Bramhall, England, assignors to Ernest Scragg & Sons Limited, Macclesfield, Cheshire, England
Filed Sept. 25, 1968, Ser. No. 762,419
Int. Cl. B65h *54/06*
U.S. Cl. 242—18 **10 Claims**

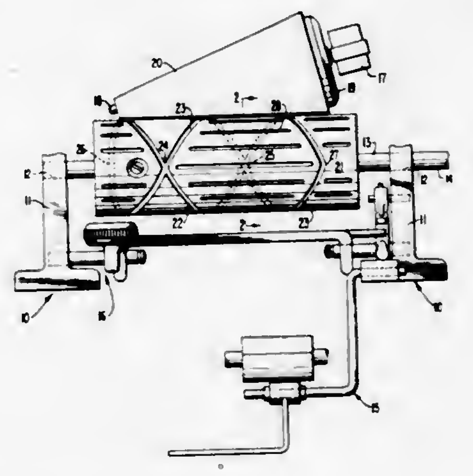


A doffing mechanism of a textile machine in which prior to severing the yarn a full spool is released from the yarn-winding position to fall on to auxiliary drive rolls and is then supported and rotated by auxiliary drive rolls so that the full spool continues to take up yarn until an empty spool is delivered to the winding position and is ready to take up yarn, whereafter the yarn is severed to commence winding on of yarn on the empty spool and the auxiliary drive rolls are moved to lower the full spool on to a delivery conveyor arranged below these rolls.

3,572,598
FRICTION-DRIVING DRUM

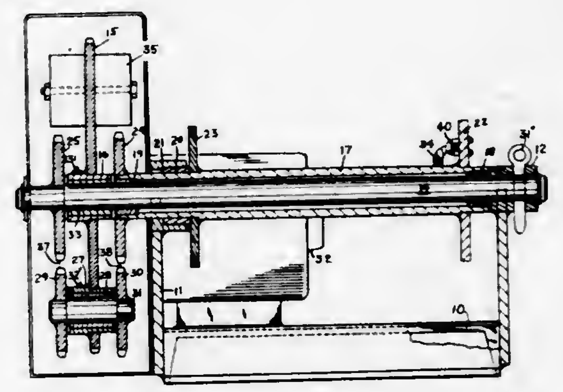
Julian B. Chavis, P.O. Box 939, Gastonia, N.C.
Filed May 28, 1968, Ser. No. 732,590
Int. Cl. B65h *54/48*
U.S. Cl. 242—43.2 **5 Claims**

The cam used in quick traverse type winders has one or more turns of spiral grooves that run in opposite directions and cross one another at one or more points on opposite edges of a diametral plane. This cam is also a friction-driving drum for rotating a core or package on which a strand is being wound. These drums are molded from a thermosetting material such as Bakelite or Formica. For winding fine yarns spaced apart, axially extending grooves are provided about the periphery of the drum.



3,572,599
WINCH

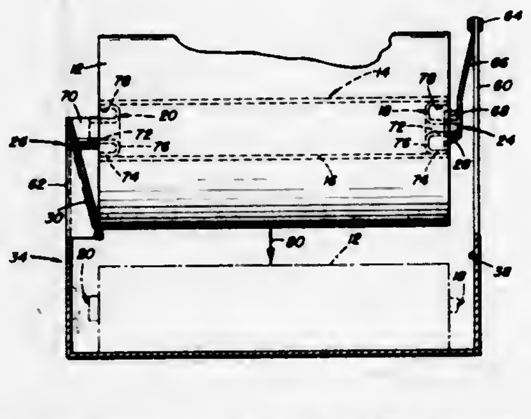
Elwyn P. Hilmer, 3028 Valmont Ave., Boulder, Colo.
Filed Apr. 14, 1969, Ser. No. 815,932
Int. Cl. B65h *75/00*
U.S. Cl. 242—54 **7 Claims**



This disclosure describes the preferred embodiment of a speed reducer and winch combination made up of spaced support members each having a bearing on it, a hollow shaft rotatably supported in one bearing and a solid shaft extending through the hollow shaft and rotatably received in the other bearing, a first sprocket is supported on the solid shaft and a second sprocket is supported on the hollow shaft, a large sprocket is rotatably supported on the solid shaft between the first sprocket and second sprocket, a third shaft is supported on the large sprocket offset from its center and swung by it around the first and second sprocket, two small sprockets are supported on the third shaft. In the embodiment disclosed, sprockets and chains connecting the sprockets providing an epicyclic train are shown. However, the speed reducer can be used as a winch by providing flanges on the hollow shaft thereby making a spool. A sprocket may be used as a driver for the planet. This sprocket, as well as the other sprockets, could be V-belts and sheaves, timing belts and sheaves, or gears. Cable free reel-out is provided by a pull pin that when pulled will allow the stationary sprocket to rotate, which in turn rotates the planet sprocket freely. By the arrangement, equal slack in the two chains or equal center distance is achieved between the planet sprockets and the sprockets that are supported on the central shafts all of which are different size sprockets and the chains being of different lengths. The winch may be driven by any rotating power means.

3,572,600
DISPENSER FOR ROLLS OF FLEXIBLE SHEET MATERIAL HAVING STRUCTURALLY RIGID INTERNAL SUPPORTING MEANS

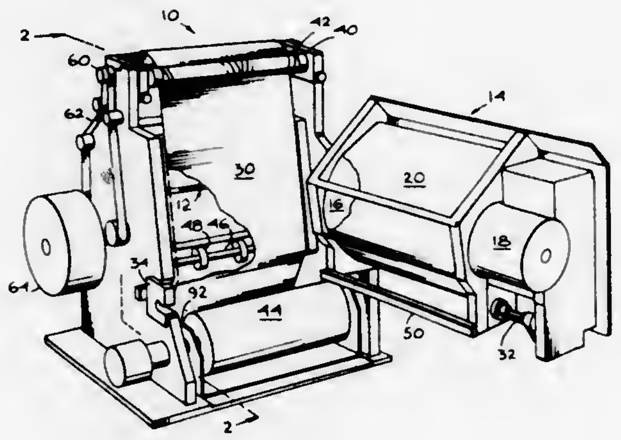
Paul W. Jespersen, Westport, Conn., assignor to Georgia-Pacific Corporation, Portland, Oreg.
Filed Feb. 9, 1968, Ser. No. 704,320
Int. Cl. A47k *10/38;* **B65h** *19/04*
U.S. Cl. 242—55.3 **17 Claims**



A device for dispensing a roll of flexible sheet material, which roll has structurally rigid internal supporting means extending axially outwardly beyond the ends of the roll, comprising; a framework including a pair of substantially horizontally opposed supporting members for rotatably engaging the ends of the supporting means, the supporting members being disengageable from the ends of the supporting means upon movement of the roll and supporting means axially of the roll, and means associated with the framework for preventing axial movement of the roll and supporting means until a predetermined amount of flexible sheet material has been removed from the roll so that when said predetermined amount of material has been removed from the roll, the remaining portion of the roll and supporting means may be moved axially of the roll until the supporting members disengage the ends of the supporting means, whereupon the remaining portion of the roll and supporting means gravitate from between the supporting members.

3,572,601
WEB FEED SYSTEM SUITABLE FOR USE IN HIGH-SPEED PRINTERS

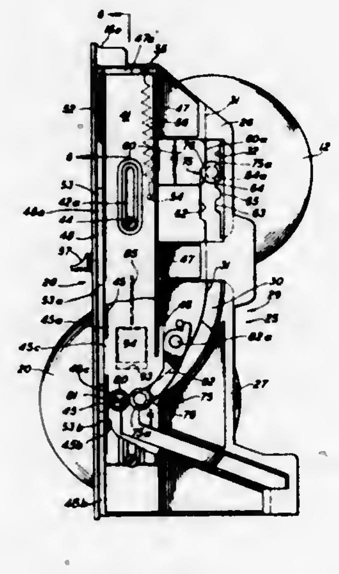
Richard H. Miller, Chatsworth, Calif., assignor to Data Products Corporation, Cuiver City, Calif.
Filed Apr. 14, 1969, Ser. No. 815,654
Int. Cl. B65h *75/00*
U.S. Cl. 242—55 **7 Claims**



A web feed system suitable for feeding multipart paper in high-speed printers. The system utilizes a driving roller and a driven roller which together pull paper from a supply roll mounted in a paper supply buffer system. The ends of the driving and driven rollers are enlarged so that a driving force can be coupled directly therebetween rather than through the paper passing between the rollers. Reverse spiral grooves are formed in the roller surfaces to properly center and horizontally tension the paper as well as cause perfect tracking. The paper supply buffer system provides a means of supplying paper from a large roll without imposing the massive inertia of the roll into the paper-driving system.

3,572,602
TISSUE ROLL DISPENSER

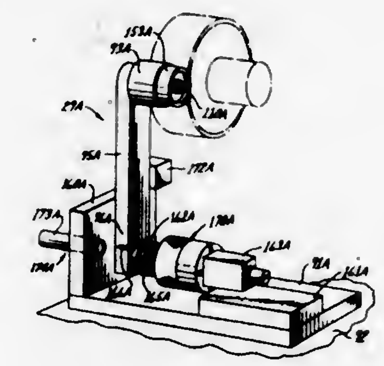
Ralph B. Mott, Sr.; Ralph B. Mott, Jr., and Robert L. Woods, Houston, Tex., assignors to Reserv-A-Roll Co.
Filed June 26, 1968, Ser. No. 740,337
Int. Cl. A47k *10/22;* **B65h** *19/04*
U.S. Cl. 242—55.3 **4 Claims**



The dispenser includes a frame for receiving a pair of tissue rolls mounted on spindles therein and retaining same one above the other, lower release means in the form of a movable ring for retaining the lowermost tissue roll in a dispensing position, upper release means in the form of a double tab and intermediate slot structure for retaining the uppermost tissue roll in a reserve position, and means for actuating the lower and upper release means when the lowermost tissue roll is substantially depleted to remove the spindle for same and to lower the uppermost tissue roll to the dispensing position.

3,572,603
ELECTRICAL COIL WINDING DEVICE

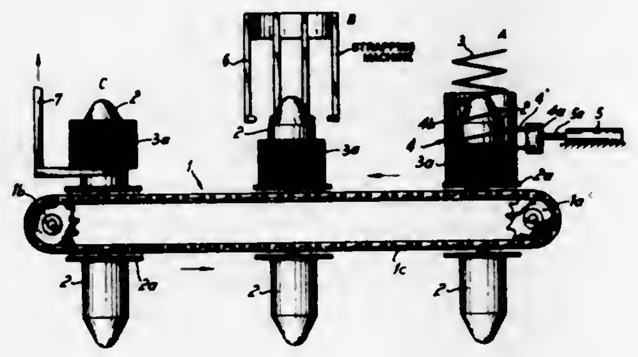
Benton A. Whlteman, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed May 9, 1968, Ser. No. 727,881
Int. Cl. B65h *39/16*
U.S. Cl. 242—56.1 **7 Claims**



A conductive strip is wound onto a rotated coil while a roller presses the periphery of the coil to prevent a buildup of material along an edge of the coil. The roller is rotatably carried adjacent to the free end of a pivoted arm and constantly biased into engagement with the coil. One end portion of the roller has a reduced diameter portion to accommodate an electrical lead for application to the coil.

3,572,604
CONVEYOR DEVICE FOR COILING AND TYING WIRE

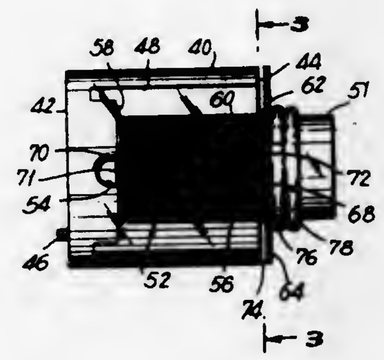
Erich Reth, and Karl Rebuschat, Duisburg, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed Mar. 26, 1969, Ser. No. 810,642
Claims priority, application Germany, May 18, 1968, P 17 61 434.5
Int. Cl. B21c *47/24*
U.S. Cl. 242—79 **17 Claims**



Auxiliary equipment for use in a metallurgical plant following a rolling mill for handling rolled material in wire or strip form comprises a conveyor having a plurality of winding arbors thereon at spaced locations therealong. The conveyor is movable successively into association with equipment at a plurality of different stations. The equipment at a first station comprises means for effecting the winding of the wire over the arbor and includes means for positioning a surrounding shell around the arbor to aid in winding a vertical stack of successive coils of wire thereon. This station may also include means, for example; for surrounding the arbor with two half shell plates providing an outside guide for the wire coils. A second section advantageously includes means for strapping the vertical stack which is formed at the first station and tying the stacks into secure bundles by encircling them with wire for example.

3,572,605
WIRE PACKAGE INCLUDING ENCASED SPOOL

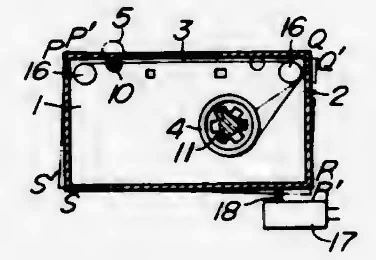
Raymond Abbott De Forest, New City, N.Y., assignor to Secon Metals Corporation, White Plains, N.Y.
Filed Sept. 12, 1969, Ser. No. 857,481
Int. Cl. B65h *49/18*
U.S. Cl. 242—137.1 **7 Claims**



A spool of wire is encased in a cylindrical casing provided with an axially aligned slot for dispensing the wire. The spool has an outer flange with a diameter corresponding to the outer diameter of the casing so that a portion of the flange is juxtaposed to an end of the slot. The free end of the wire is detachably connected to said portion by a piece of masking tape or the like. A post in the casing supports the spool and O-rings on the post to prevent movement of the spool from the casing.

3,572,606
DEVICE FOR CONTROLLING TAPE DRIVE IN TAPE RECORDER OF MAGAZINE TYPE

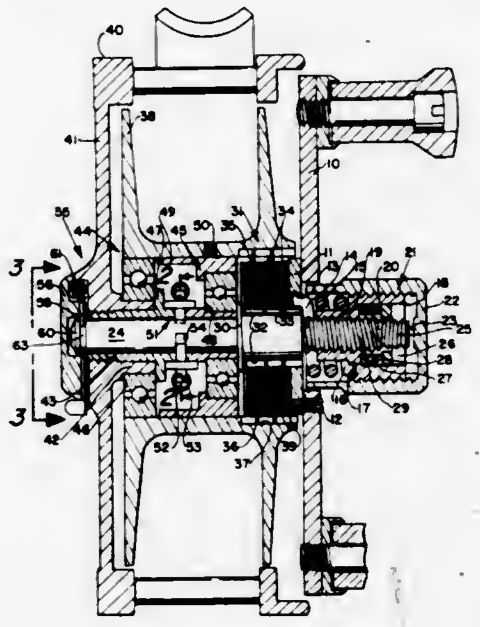
Kozo Yamamoto, Hirakata-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 26, 1968, Ser. No. 708,284
Int. Cl. B65h *59/38, 63/00*
U.S. Cl. 242—190 **4 Claims**



A magazine having means for effecting the drive control for a magnetic tape contained therein. The drive control means is actuated by the tension imparted to the tape at the end of tape supply thereby to stop the movement of or reverse the travelling direction of the tape in cooperation with an associated means.

3,572,607
FISHING REEL

Harry D. Wilson, 225 10th Ave., San Francisco, Calif.
Filed Apr. 22, 1968, Ser. No. 729,138
Int. Cl. A01k *89/00*
U.S. Cl. 242—218 **30 Claims**

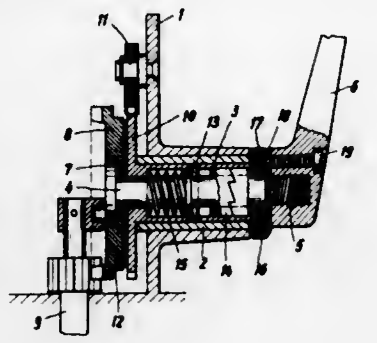


A fishing reel comprises a handle and a clutch pressure plate mounted for rotation on an axle thereof. The drag on a spool, having a fishing line suitably wound thereon, may be varied within a predetermined range by manipulating the handle only. Rotation of the handle drives the pressure plate, a spring and a clutch sleeve which in turn impart drive to the spool via a slipping clutch.

3,572,608
FISHING REEL

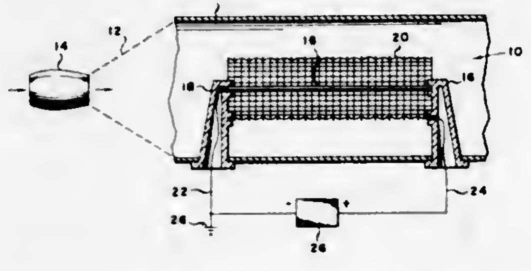
Rudolf Schultz, Berlin, Germany, assignor to Deutsche Angelgerate Manufaktur (DAM) Kantze Gesellschaft mit beschrankter Haftung & Co., Kommanditgesellschaft, Berlin, Germany
Filed Apr. 7, 1969, Ser. No. 813,867
Claims priority, application France, June 19, 1968, 155,544
Int. Cl. A01k *89/00*
U.S. Cl. 242—218 **2 Claims**

A fishing reel has a driving shaft for the wind-up roller. A handle is screwed upon the shaft and the inner end of the shaft carries a wheel frictionally driving the wind-up roller. This wheel can be connected by a coupling with a hollow shaft provided with a one way lock freely movable in the winding direction. The coupling is opened by a rearward turning of the handle. The invention is particularly characterized in that the handle is screwed upon a threaded outer end of the driving shaft and that the driving shaft is connected with the hollow shaft by a transverse pin so as to prevent relative turning but with small axial play.



3,572,609
STATIC DISCHARGED FROM JET AIRCRAFT

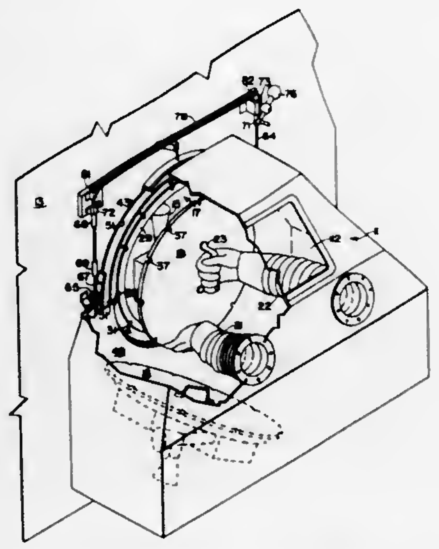
Roy G. R. Slawson, Sylmar, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed May 2, 1969, Ser. No. 821,206
Int. Cl. B64d *45/02*
U.S. Cl. 244—1 **8 Claims**



A static discharger for an aircraft is described which employs a stream of gas passing between and over spaced, charged electrodes on the aircraft. One of the electrodes is perforated and is located around the other of the electrodes. To obtain best performance the gas stream contains finely divided carbon or smoke particles.

3,572,610
THRUSTER MAINTENANCE SYSTEM

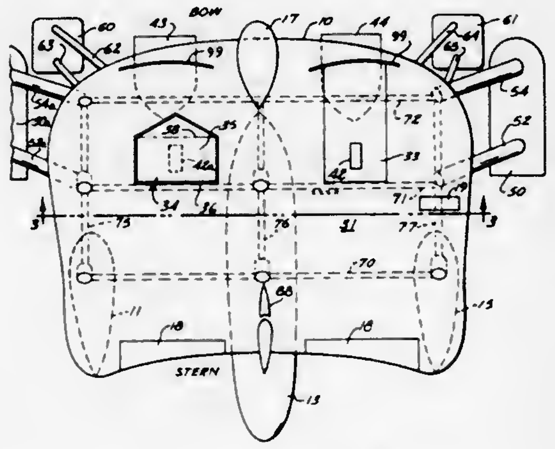
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Jerry P. Hethcoat, and Roland H. Norton, Huntsville, Calif.
Filed July 9, 1969, Ser. No. 840,176
Int. Cl. B64g *1/00*
U.S. Cl. 244—1 **5 Claims**



A system for maintenance of a spacecraft thruster. The thruster is mounted on the exterior surface of a panel removably mounted on the spacecraft wall. A portable airlock is provided which may be removably sealed to the interior surface of the spacecraft wall about the removable panel. An operator within the spacecraft inserts his arms into space suit-type gloves extending into the airlock which enable him to remove the thruster panel and replace it with a new panel, afterwhich the portable airlock may be removed from the spacecraft wall.

3,572,611
SEA-GOING VESSELS WITH SEPARABLE MODULES

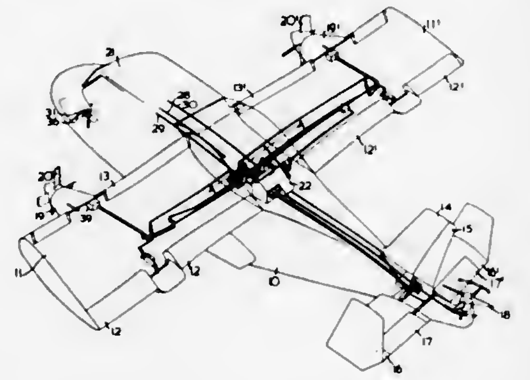
Robert F. Oulton, Annapolis, Md. (1512 Suncrist St., Midland, Mich. 48640)
Filed Nov. 22, 1968, Ser. No. 778,175
Int. Cl. B64c *37/02*
U.S. Cl. 244—2 **40 Claims**



A seagoing vessel, such as an aircraft carrier, is made up of separable modules, some of which can fly, and/or submerse, individually, and can be quickly joined together to fly or to submerge collectively, and to provide a large aircraft-supporting surface. This minimizes the target for enemy attack. The complete vessel can be quickly disassembled to permit interchanging units or provide for quick turn around in port.

3,572,612
PROGRAMMING AND MIXING UNIT FOR VTOL AIRCRAFT

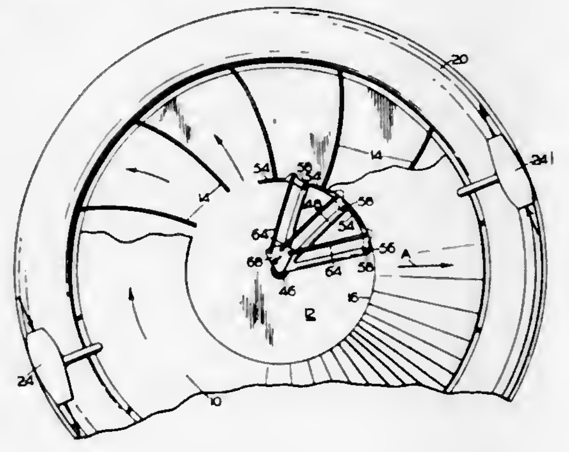
Karl Irbitis, Montreal, Quebec, Canada, assignor to Canadair Limited, Montreal, Quebec, Canada
Filed July 15, 1968, Ser. No. 744,828
Claims priority, application Canada, Aug. 2, 1967, 996911
Int. Cl. B64c *29/00*
U.S. Cl. 244—7 **63 Claims**



A control system for a tilt wing VTOL aircraft is described. In normal or horizontal flight at a wing tilt angle of zero, the conventional attitude control elements have control authority i.e. the pilots pitch, yaw and roll controls are transmitted respectively to the usual elevators, rudder, and ailerons. As wing tilt angle increases, however, roll control authority is gradually transferred to laterally spaced thrust producers positioned on the aircraft wings, while yaw control authority is gradually transferred to the ailerons. At the same time, pitch control authority is gradually transferred by the control system to the only auxiliary attitude control element required, namely a vertical thrust producer located adjacent the tail end of the aircraft. The transfers of control authority are effected by a mixing and programming unit which includes a plurality of mechanisms the gain of which vary in response to the angle to the angle of wing tilt, such mixing and programming unit having inputs connected to receive the pilots pitch yaw and roll control signals, and outputs connected to the above mentioned attitude control elements.

3,572,613
CIRCULAR WING AIRCRAFT

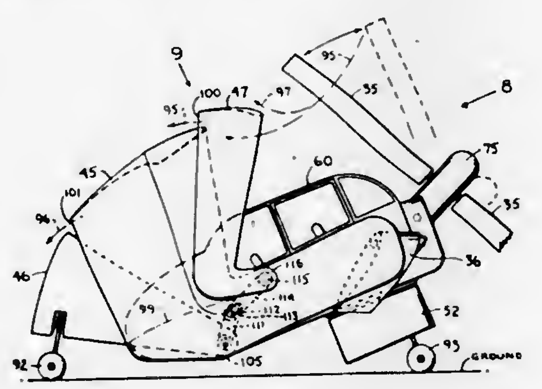
Arthur Porter, 3015 River Road, Eugene, Oreg.
Filed Feb. 17, 1969, Ser. No. 799,573
Int. Cl. B64c *29/00*
U.S. Cl. 244—12 **6 Claims**



A hollow, circular housing is open about its periphery and has a central opening in its top. Circumferentially spaced vanes extend between the central opening and the open periphery to direct air flow from the central opening radially outward through the open periphery and across the upper and lower surfaces of an annular airfoil wing secured to the housing. A pair of jet engines at the housing periphery operate to rotate the housing to effect said movement of air.

3,572,614
AIRCRAFT

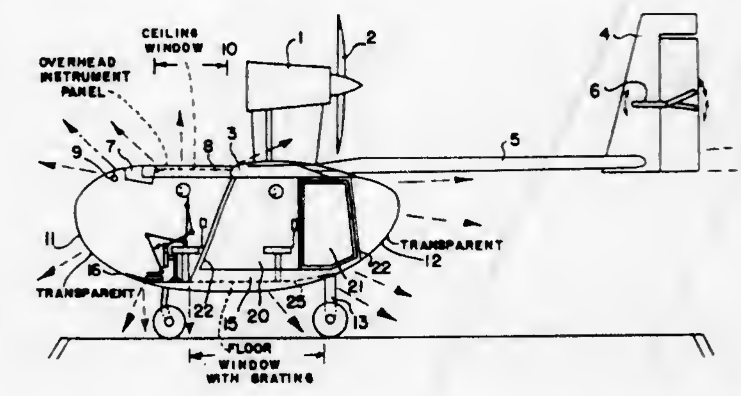
William R. Bertelsen, 4343-18th Ave., Rock Island, Ill.
Continuation of application Ser. No. 707,382, Feb. 14, 1968, now abandoned, which is a continuation of application Ser. No. 125,005, July 18, 1961, now abandoned, Continuation-in-part of application Ser. No. 652,298, Apr. 11, 1957, now abandoned. This application Oct. 20, 1969, Ser. No. 867,951
Int. Cl. B64c *15/06, 15/12*
U.S. Cl. 244—12 **18 Claims**



The present invention relates to aircraft, and more particularly to structure and controls for aircraft adapted to take off and land in substantially the vertical direction. While not limited thereto, the preferred structure to be described in detail is of the canard type, and achieves at least the majority of control in empennage positioned forward of the main supporting surfaces and adjacent one or more rotors or propellers, or the like.

3,572,615
AIRPLANE WITH SPATIAL PANORAMA

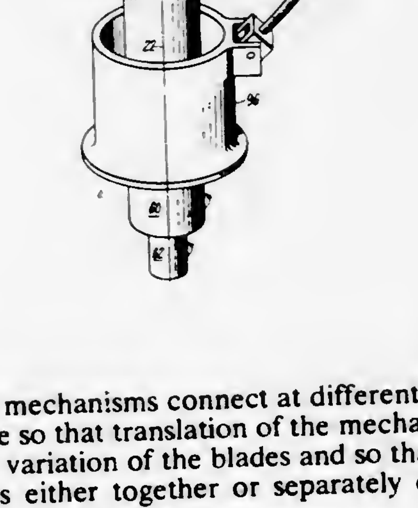
Floyd A. Firestone, 172 Clinton Ave., Dobbs Ferry, N.Y.
Continuation-in-part of application Ser. No. 660,700, Aug. 15, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 616,053, Feb. 14, 1967, now abandoned.
This application Mar. 7, 1969, Ser. No. 806,346
Int. Cl. B64c *1/14*
U.S. Cl. 244—13 **44 Claims**



A fixed wing airplane having a substantially transparent fuselage, which in straight and level flight permits both the pilot and copilot to see the entire ground and sky in all directions and from nadir to zenith, with the exception of roughly two steradians of solid angle in the quadrant above and behind him. The necessary opaque struts which cross the transparent areas are so oriented and dimensioned that the distant scene as seen through the major areas of the plane appears to be continuous, advantage being taken of the fact that the pilot has two eyes whose lines of regard are not simultaneously occulted by narrow struts properly spaced and oriented. Utilizing the same fact of vision, instrument arrays and stressed skin structures are described, that the pilot can see through.

3,572,616
PITCH CONTROL MECHANISM FOR BLADED ROTOR

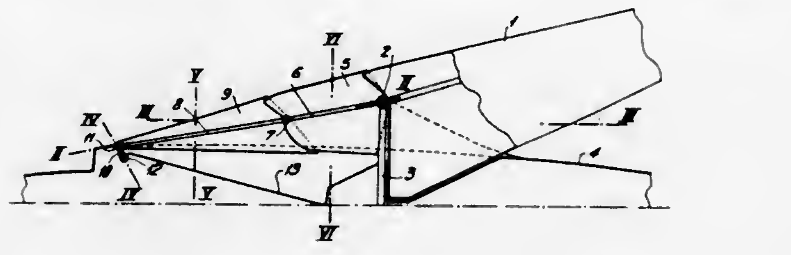
Harold Danford Ulisnik, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Sept. 18, 1969, Ser. No. 859,137
Int. Cl. B64c *27/10, 27/72*
U.S. Cl. 244—17.23 **13 Claims**



Two Z-crank mechanisms connect at different stations to a rotor swashplate so that translation of the mechanisms causes collective pitch variation of the blades and so that rotation of the mechanisms either together or separately causes cyclic pitch variations of the blades.

3,572,617
AIRCRAFT OF VARIABLE CONFIGURATION

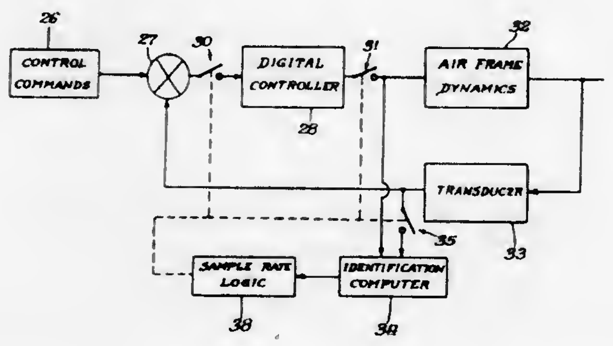
Armand G. Ricard, Viroflay, Yvelines, France, assignor to Brequet-Aviation, Velizy, Yvelines, France
Filed Feb. 26, 1969, Ser. No. 802,380
Claims priority, application France, Mar. 5, 1968, 142,393
Int. Cl. B64c *3/40*
U.S. Cl. 244—46 **6 Claims**



An aircraft having variable geometry has compensating devices at the front of the folding wings. These devices comprise two flaps articulated to one another along an axis parallel to the pivoting folding axis of the wing.

3,572,618
METHOD FOR STABILIZING AIRCRAFT AND MISSILES

Richard M. Willett, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
Filed Nov. 1, 1967, Ser. No. 679,850
Int. Cl. B64c *13/18*
U.S. Cl. 244—77 **3 Claims**

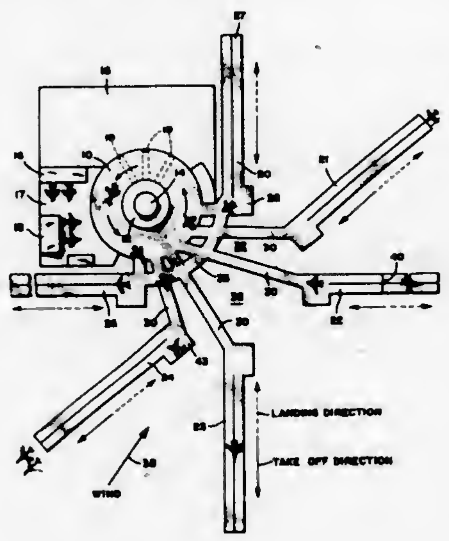


Stability of a sampled-data feedback control system for an airframe is enhanced by varying the sampling interval as a function of the particular bending mode the airframe exhibits. A command signal is fed to the control system for controlling the state of the airframe; and sensed signals are generated by transducers on the airframe representative of the actual state of the airframe. The difference between the command signal and the sensed signals is sampled thereby generating a train of error pulses. The train of error pulses is then fed into a digital controller for computing digital signals for controlling the airframe according to its characteristics. A signal is generated for identifying the instantaneous body bending mode frequency; and the sampling interval of the error signal is varied inversely with respect to the instantaneous body bending frequency to maintain the product of the mode frequency and sampling interval a constant.

3,572,619
AIRPORT AND RUNWAY SYSTEM THEREFOR

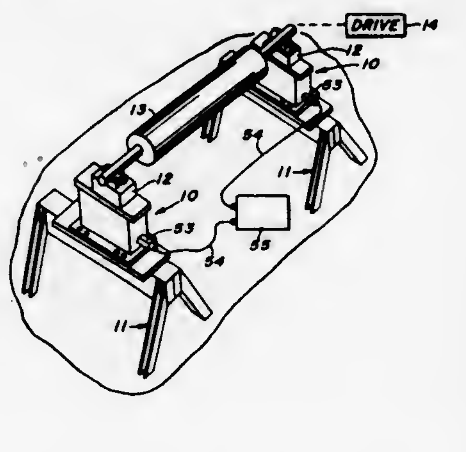
Edward G. Brown, R.R. 2, Eaton, Ohio
Filed Jan. 22, 1969, Ser. No. 792,939
Int. Cl. B64f *1/00, 1/36*
U.S. Cl. 244—114 **7 Claims**

Airports are disclosed which have runways laid out so that they do not intersect. The runways are formed in centerline-aligned pairs, and have adjacent ends which are spaced apart so that when one of the runways of the pair is used for incoming or landing traffic the other runway may be used for departure traffic. The adjacent ends only of the runways are provided with short taxiways leading to a terminal ramp area. The landing aircraft proceeds to the end of its runway onto the taxiway and into the ramp area, and the departing aircraft proceeds by way of the taxiway to the adjacent end of a departure runway. The taxi distances both inbound and outbound are related only to the adjacent end of one runway. Since there is no need to taxi to the far end of a runway, there is less delay both in the air and on the ground. There is no intermix of landing and departing aircraft on a single runway.



3,572,620
BALANCING SUPPORT UNIT

Harry R. Kincaid, Rte. 3, Box 157A, Johnstown, Ohio, and William D. Wardle, 1887 Oakland Ave., Columbus, Ohio
Filed Sept. 15, 1969, Ser. No. 857,748
Int. Cl. F16m *13/00;* **G01m** *1/16*
U.S. Cl. 248—17 **7 Claims**



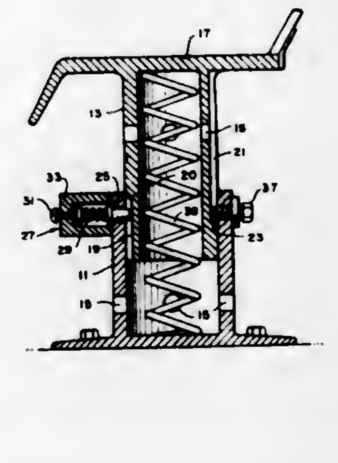
Improved balancing support unit adapted to be connected to any suitable supporting structure, such as, rails in the floor of a building, a lathe bed, a working table, and the like. The support unit includes a garden swing suspension structure disposed entirely within a stationary housing. A supporting pedestal, supported by the swing structure, has a top presented exteriorly of the housing and adapted to receive a rotor support device.

3,572,621
SHOCK MITIGATING SPRING AND DETENT PEDESTAL

Frank I. Whitten, Bethesda; Charles E. Strother, Rockville, and Joseph Gesswein, Bethesda, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Sept. 27, 1968, Ser. No. 763,145
Int. Cl. F16f *15/00*
U.S. Cl. 248—20 **3 Claims**

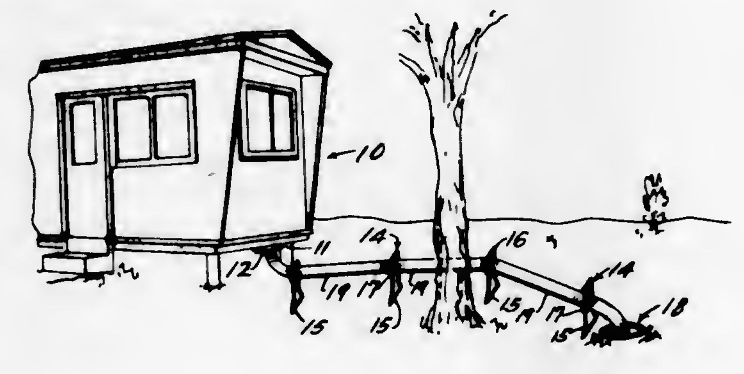
A personnel protecting pedestal has two telescoping elements biased apart by a coil spring and held together by a limit stop. A detent prevents telescoping of the elements

toward each other until a predetermined shock loading is reached. The force needed to compress the spring is less than the force needed to release the detent, so that upon occurrence of a shock wave, the spring distributes the velocity associated with the shock wave over a period of time longer than the duration of the shock wave, thus reducing the velocity and, therefore, the overall acceleration on the load to be protected.



3,572,622
TRESTLE FOR FLEXIBLE HOSE

Harold H. Smith, 502 Vine St., Archbold, Ohio
Filed Sept. 17, 1969, Ser. No. 858,697
Int. Cl. F16l *3/02*
U.S. Cl. 248—49 **6 Claims**

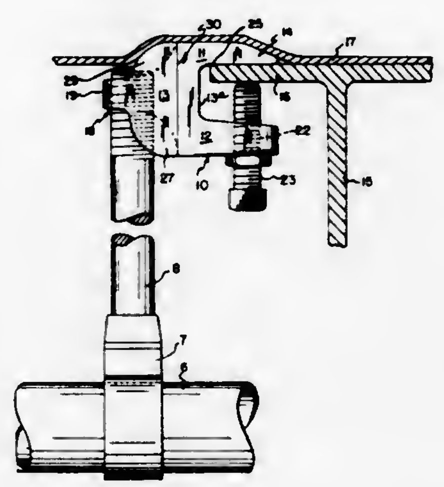


A trestle for a flexible hose such as a waste hose for a house trailer or camper. The trestle has a plurality of support units, each having a ground engaging base and two spaced, vertical arms between which the hose is positioned. Each support has a cross member extending between the arms and adjustably positionable at any desired height thereon. The support members are connected by stringers. Each stringer extends between the corresponding arms of a pair of supports with its opposite ends supported at heights determined by the cross member on each support. The hose lies on and is supported by the stringers in the spans between the supports. Each stringer is pivotally connected to the two supports so that the trestle can extend along above the ground in a nonlinear path as desired.

3,572,623
PIPE HANGER CLAMP

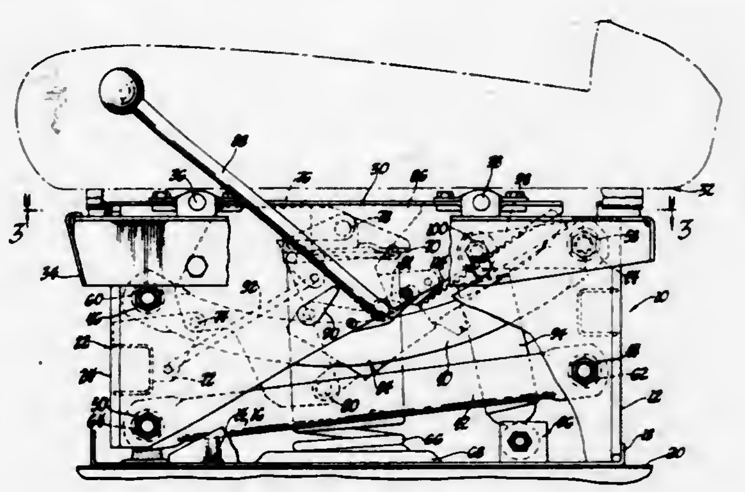
Chester A. Lapp, 11881 Prospect Road, Cleveland, Ohio
Filed Aug. 6, 1969, Ser. No. 848,011
Int. Cl. F16l *3/00*
U.S. Cl. 248—72 **2 Claims**

A cast iron pipe hanger clamp having a solid body with upper and lower jaws projecting from one side, and a boss projecting from the center of the opposite side and braced by upper and lower pairs of spaced flanges. The boss has a threaded bore with jam threads to receive a threaded pipe hanger rod between the spaced flanges, the load of the supported weight being distributed and loading the upper flanges in tension. A setscrew in one jaw locks the clamp in position and loads all four flanges in compression, reducing or eliminating tension load in the upper flanges.



3,572,624
SUSPENSION SEAT

Carl J. Holdampf, Southfield, and Randal T. Murphy, Royal Oak, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.
Filed Aug. 18, 1969, Ser. No. 850,938
Int. Cl. B60n *1/02*
U.S. Cl. 248—376 **17 Claims**

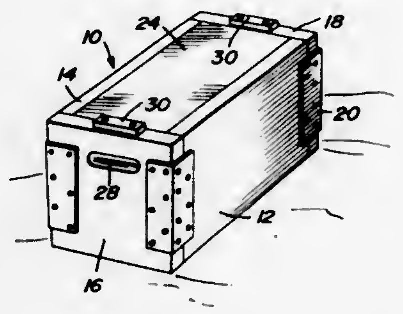


A vertically adjustable seat of the type wherein the seat portion is connected to a mounting base by a parallelogram linkage to permit vertical adjustment of the seat without affecting the angularity thereof. A force transmitting adjuster mechanism such as a bidirectionally lockable jack is connected between the free end of a support spring and the seat portion to effect the vertical adjustment while fully retaining the resilient effect of the support spring. A damping device, such as a shock absorber, is mechanically connected in parallel with the support spring to damp oscillation of the seat portion relative to the mounting base.

3,572,625
BLOCK FORMING DEVICE

Eddie E. Williamsen, 711 S. First St., Norfolk, Nebr.
Filed May 13, 1968, Ser. No. 728,508
Int. Cl. B28b *7/10*
U.S. Cl. 249—117 **2 Claims**

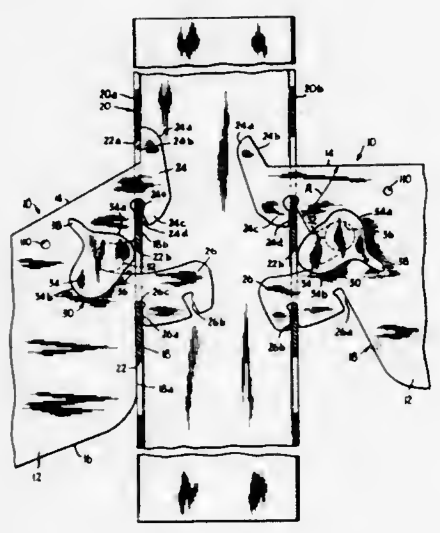
A mold for forming blocks of snow including four right angularly related walls, an open top and an open bottom. One



of the walls is slightly inclined outward so as to facilitate the removal of the block. Two of the opposed walls are provided with bumpers to enable a bouncing of the mold in shaking the block loose therefrom.

3,572,626
ADJUSTABLE BRACKET

Hans Bertschi, Upper Montclair, N.J., assignor to J. C. Penney Company, Inc., New York, N.Y.
Filed Nov. 13, 1968, Ser. No. 775,370
Int. Cl. A47f *5/08*
U.S. Cl. 248—242 **4 Claims**



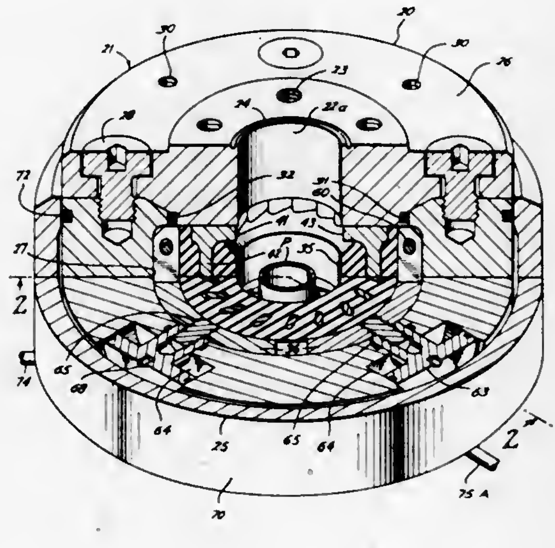
Adjustable bracket members are engaged and locked in position of two or more selected orientations by retaining lug formations that are received through slots in the vertical members supporting the bracket members and have retainer notch formations arranged to engage and capture portions of the wall of the vertical member adjacent the slots. Locking members having a cam surface for each of the positions of the bracket urge the lug formations into firm engagement with the vertical member and further insure the retention of the bracket members in proper position.

ERRATUM

For Class 249—117 see:
Patent No. 3,572,625

3,572,627
BLOWOUT PREVENTER

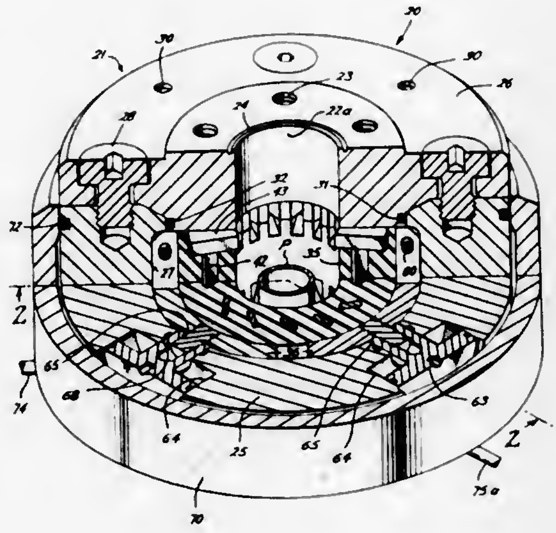
Marvin R. Jones, and Benton Baugh, Houston, Tex., assignors to Cameron Iron Works, Inc., Tex.
Filed Oct. 4, 1968, Ser. No. 765,061
Int. Cl. E21b *33/06*
U.S. Cl. 251—1 **17 Claims**



An annular blowout preventer comprising a housing having a bore through it and an annular recess extending outwardly from the bore, and a packer within the recess including an annulus of deformable material having a bore aligned with the housing bore and a circular series of rigid inserts extending therethrough from one end to the other. A sealing surface on an end portion of the annulus engages the oppositely facing end surface of the recess, and there are radially movable parts about the outer side of the annulus for constricting the packer to urge its bore into position to seal about a member in the bore of the housing or upon itself when the bore is empty. The packer is symmetrical end-for-end so that it may be disposed with either end up, and each of the rigid inserts includes a rib having a flange at each end. The flanges are skewed in the unconstricted position of the annulus and are caused to swing into more radial positions as the annulus is constricted. The sides of the flanges are adjacent one another to confine the annulus at its opposite ends and cause the inserts to move in unison, and the radially innermost ends of the flanges are substantially adjacent the bore of the annulus when unconstricted, so as to be moved into a position within the bore of the preventer housing as the annulus is constricted.

3,572,628
BLOWOUT PREVENTER

Marvin R. Jones, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Filed Oct. 4, 1968, Ser. No. 765,066
Int. Cl. E21b *33/06*
U.S. Cl. 251—1 **20 Claims**

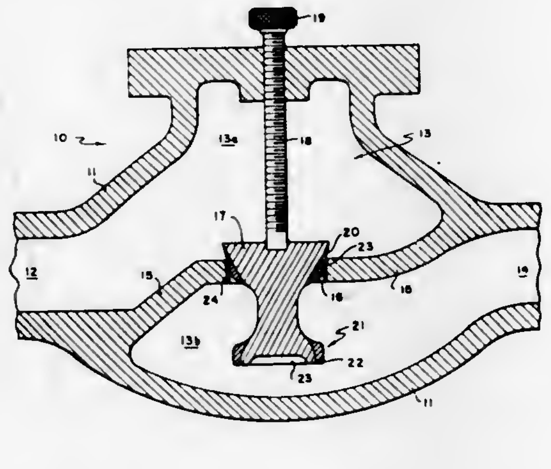


An annular blowout preventer comprising a housing having a bore through it and an annular recess extending outwardly from the bore, and a packer within the recess including an annulus of deformable material having a bore aligned with the housing bore and a circular series of rigid inserts extending therethrough from one end to the other. A sealing surface on an end portion of the annulus engages the oppositely facing end surface of the recess, and there are radially movable parts about the outer side of the annulus for constricting the

packer to urge its bore into position to seal about a member in the bore of the housing or upon itself when the bore is empty. The packer is symmetrical end-for-end so that it may be disposed with either end up, and each of the rigid inserts includes a rib which has opposite sides lying generally in planes of least strain of the deformable material of the annulus during radial movement of the inserts upon constriction of the packer.

3,572,629
THROTTLING AND SHUT-OFF VALVE

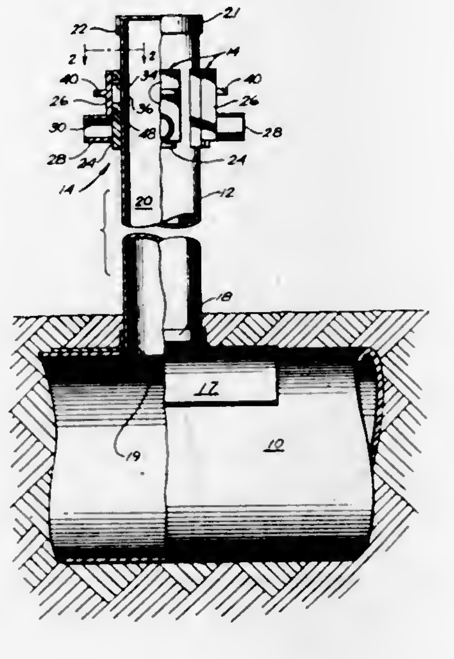
Edward Coe Clark, 5602 Hawthorne St., Cheverly, Md.
Filed July 28, 1969, Ser. No. 845,447
Int. Cl. F16k *47/08*
U.S. Cl. 251—121 **1 Claim**



A valve arrangement for controlling the flow of fluids which contains a valve disc positioned in a valve disc housing, said disc being shaped in an hourglass design so as to provide a first set of seats for effecting shutoff control of said fluids and a second set of seats for effecting throttling control and means for moving the two sets of seats into and out of positions in said housing. The shape of the valve disc also enhances the ease of operation of the valve.

3,572,630
IRRIGATION SLIDE GATE VALVE AND SYSTEM

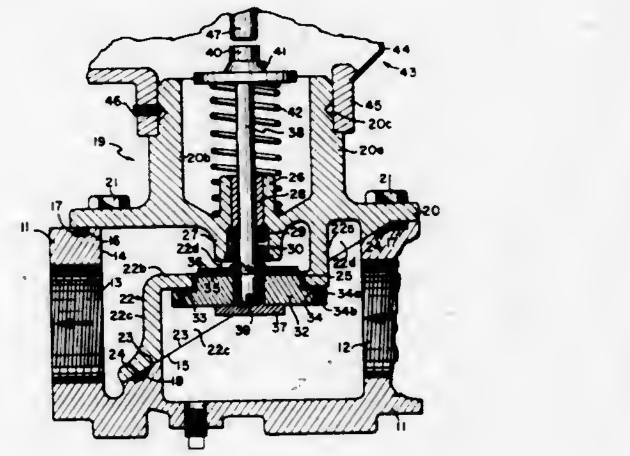
Edward V. Mendenhall, Del Mar, Calif., assignor to Climate Conditioning Corporation, Stanton, Calif.
Filed Apr. 24, 1969, Ser. No. 819,043
Int. Cl. E02b *13/00;* **F16k** *3/316*
U.S. Cl. 251—145 **4 Claims**



A high strength-to-weight ratio plastic is used in the fabrication of an irrigation slide gate valve system which includes a water distribution pipe or conduit, slide gate valves and a riser. The riser is capped. The slide gate valves include a slide which is coupled through a mounting base to the riser. The slides have spouts which are selectively positionable over water passages in the mounting bases to produce metered flow from the riser. An O-ring in each mounting base urges against each slide to effect a seal and keep the slides in their desired positions. The slides are coupled to the mounting bases through spaced apart and facing flanges of the slides which are received in complementary slots or tracks in the mounting bases.

3,572,631
MOTORIZED VALVE OF GLOBE-TYPE

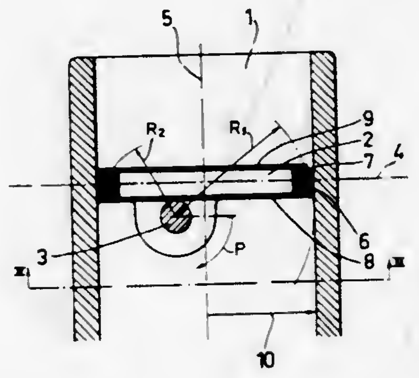
Stuart T. Ritchart, Burnsville, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 26, 1969, Ser. No. 810,512
Int. Cl. F16k *1/00*
U.S. Cl. 251—210 **5 Claims**



A motorized valve having a combined valve seat and valve assembly and a valve body having a side opening and an inclined peripheral shoulder between the inlet and outlet. Said assembly has a saddle or partition wall portion with a surface that engages said shoulder, with sealing means therebetween, and an integral motor-supporting portion that closes the opening in the valve body. The saddle has a smooth bore therethrough and a smooth surface around the inlet end of the bore and the valve has a piston portion and a disc portion for sequentially engaging said bore and surface, respectively.

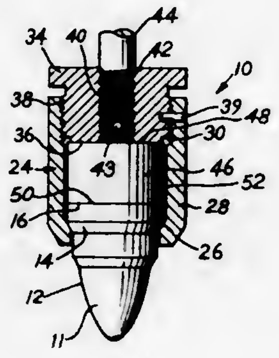
3,572,632
FLAP VALVE

Gosta Bengtsson, Farsta, Sweden, assignor to Sundstrand Hydraulic AB, Huddinge, Sweden
Filed Mar. 10, 1969, Ser. No. 805,654
Int. Cl. F16k *1/22*
U.S. Cl. 251—306 **3 Claims**



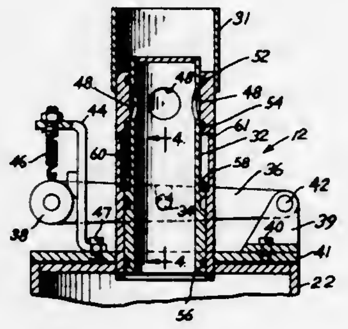
A flap valve in which a flap mounted in a cylindrical bore and which is pivotal from a closed to open position, and vice versa, about an axle oriented perpendicular to the longitudinal axis of the cylindrical bore, has the rotation axis of the flap located on one side of the sealing plane of the flap at a certain distance thereto and unsymmetrically in the bore with said distance to the longitudinal symmetry axis of the cylindrical bore.

3,572,633
ATTACHMENT MEANS FOR VALVE COMPONENTS
Donald J. Gaffney, Marshalltown, Iowa, assignor to Fisher Controls Company, Inc.
Filed July 25, 1969, Ser. No. 854,338
Int. Cl. F16k *1/42, 1/48*
U.S. Cl. 251—356 **6 Claims**



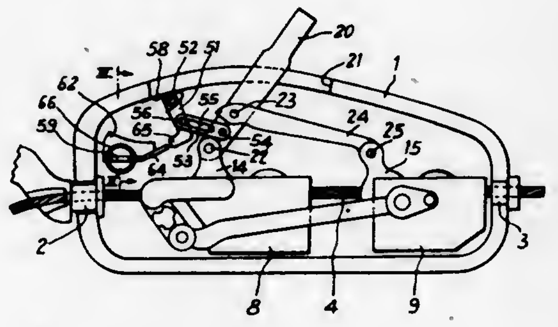
Apparatus for mounting a valve component having a relatively low coefficient of expansion in a high-temperature environment including a retainer and a support member joined to one another to form a holder for holding the valve component securely. An expansion plug having a relatively high coefficient of expansion is between the valve component and the holder to maintain the valve component and holder in desired vibration-free mounted relationship throughout a wide temperature range.

3,572,634
AUTOMOTIVE JACK WITH SAFETY PRESSURE RELEASE
Gaylord B. Haviland, Mainville, Ohio, assignor to Big Four Automotive Equipment Corporation
Filed Dec. 26, 1968, Ser. No. 786,916
Int. Cl. B60p *1/00;* **B66f** *3/24;* **F15b** *11/04*
U.S. Cl. 254—2 **9 Claims**



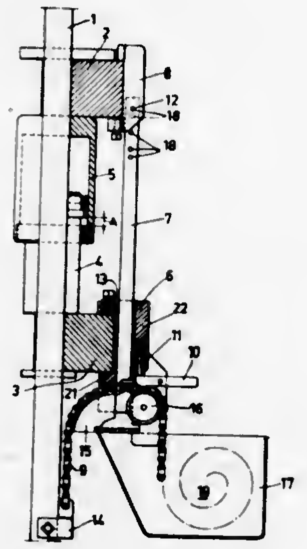
An automotive lift or jack having safety pressure release means for releasing pressure from the pressure chamber within the piston and cylinder means in the event the load is suddenly dropped or freed from the support means on the jack.

3,572,635
RELEASE CONTROL AND SAFETY DEVICE FOR CLAMP-TYPE TRACTION AND HOISTING APPARATUS
Andre Emile Evariste Desplats, Boulogne-Billancourt, France, assignor to Tractel S.A., Paris, France
Filed June 25, 1969, Ser. No. 836,318
Claims priority, application France, June 27, 1968, 156 882
Int. Cl. B66f *3/00*
U.S. Cl. 254—76 **1 Claim**



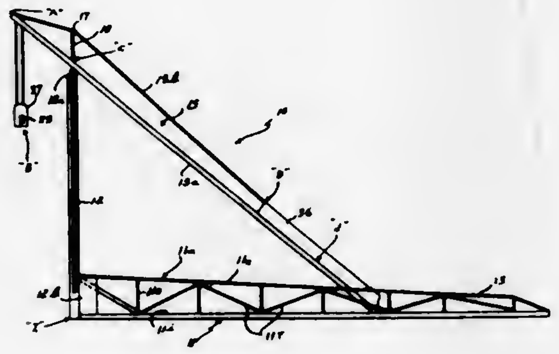
The release control device comprises a manually movable release control lever and a latching element adapted in the normal position to prevent the actuation of the release control device, the latching element being automatically returned to its normal position by spring means and comprising actuating means which cannot be actuated by the same hand of the operator simultaneously with the release control member, in order that the release of the apparatus necessitates the simultaneous action of the two hands of the operator on the release control member and on the latching element.

3,572,636
DEVICE FOR AUTOMATIC CONTROL OF CLIMBING JACK MOVEMENTS
Rolf Gustaf Johansson, Saltsjo-Duvnas, Sweden, assignor to A B Byggforbattring, Stockholm, Sweden
Filed Apr. 22, 1968, Ser. No. 722,975
Claims priority, application Sweden, Apr. 25, 1967, 5808/1967
Int. Cl. B66f *1/00;* **E02d** *21/00*
U.S. Cl. 254—106 **9 Claims**



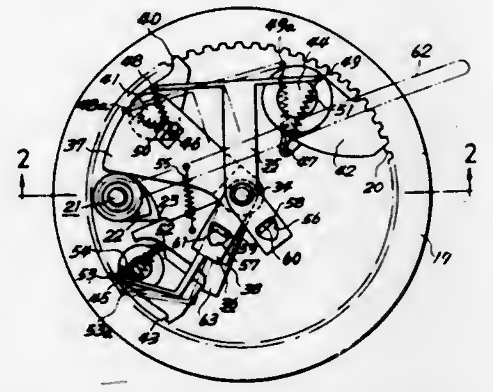
A method of controlling the travelling distance of a climbing jack which climbs stepwise on a smooth climbing rod in which the step length of the jack is controlled by a flexible elongated control member connected to the climbing rod and stretched in parallelism to such rod by the jack. The control member at equally spaced points produces impulses in cooperation with a locking means provided for the jack so that by such impulses in cooperation with the locking means, the step length of the stepwise movement of the jack is limited.

3,572,637
AIRCRAFT CRASH RECOVERY HOIST
James P. Mitchell, Jr., 14262 Oxford, Vectorville, Calif.
Filed Sept. 6, 1968, Ser. No. 757,966
Int. Cl. B66c *23/60*
U.S. Cl. 254—139.1 **2 Claims**



An emergency aircraft-lifting-rig assembly having a main upright, rectangular-shaped supporting frame member supporting two spaced-apart lifting boom elements which, in turn, collectively support a pair of lifting pulley- and -cable systems. The latter are attached to a floating crossbeam member which is utilized to interconnect both pulley- and-cable systems with a main hoisting strap attached to the aircraft to be raised.

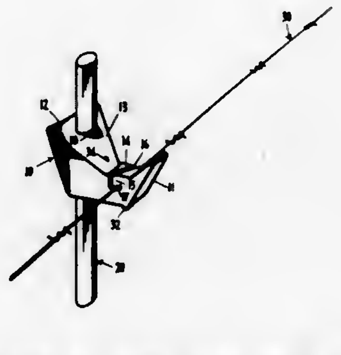
3,572,638
MANUALLY OPERATED WINCH
Masamitsu Tatsuguchi, Funabashi, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 860,490
Claims priority, application Japan, Sept. 25, 1968, 43/69615
Int. Cl. B66d *1/04*
U.S. Cl. 254—150 **3 Claims**



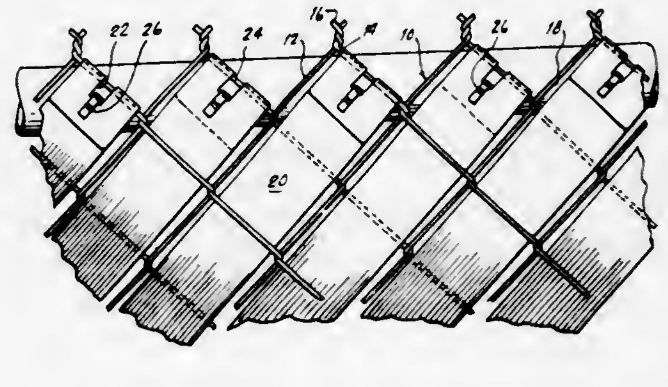
A winch for a wire-winding drum in which the drum has an internally toothed ratchet having three pawls spaced circumferentially about the ratchet with the first pawl operating to advance the drum, the second pawl operating to prevent reverse rotation of the drum and the third pawl operating to arrest the drum when the first two pawls are disengaged. The third pawl is arranged so that it cannot engage the ratchet when the first two pawl are engaged and automatically escapes the ratchet when the drum reverses.

3,572,639
CHARGED WIRE FENCING
Ralph E. Shettel, Rte. 1, Twin Falls, Idaho
Filed May 16, 1969, Ser. No. 825,151
Int. Cl. A01k *3/00*
U.S. Cl. 256—10 **4 Claims**

A charged wire fence line structure comprising insulator and post components of integral design that effectively simplify the construction of portable and rotation systems, while adapting to existing fence lines. The insulator selectively receives and contains the wire without being attached thereto. The supporting post offers the insulator diverse vertical position for the creation of single fence lines or multiples of fence lines spaced apart from each other to better effect the control of livestock of whatever kind.

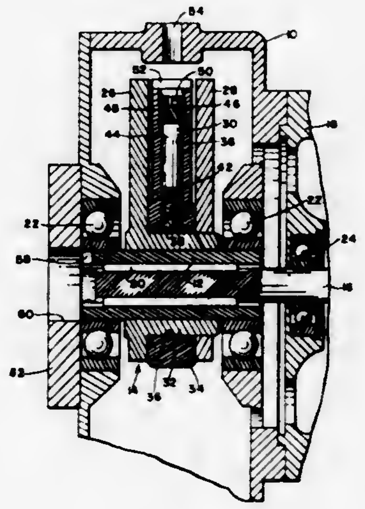


3,572,640
FENCE LATTICE AND RETAINING MEANS THEREFOR
Francis Vecchiarelli, River Edge, N.J., assignor to Alcan Aluminum Corporation, Cleveland, Ohio
Filed Aug. 11, 1969, Ser. No. 848,839
Int. Cl. E04h *17/02*
U.S. Cl. 256—34 **1 Claim**



The combination of a chain link fence and an elongated metallic fence slat located in a channel formed by the fence links, and having a clip for firmly locking the slat in place within the fence fabric.

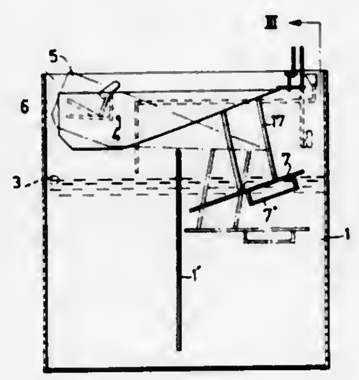
3,572,641
ROTARY VIBRATOR WITH ADJUSTABLE WEIGHT MEANS
Edwin F. Peterson, 119 Main St., Neponset, Ill., and Carl G. Matson, 401 E. Central Blvd., Kewanee, Ill.
Filed Feb. 3, 1969, Ser. No. 802,316
Int. Cl. B06b *1/16*
U.S. Cl. 259—1 **4 Claims**



A rotary vibrator of the eccentric weight type has its weight means comprised of at least two separate parts that are relatively angularly positionable selectively about the shaft axis so as to enable selection of the amount of unbalance and thus to achieve variation in the vibratory forces, all without requiring dismantling and reassembly of the machine.

3,572,642
PURIFICATION OF WATER

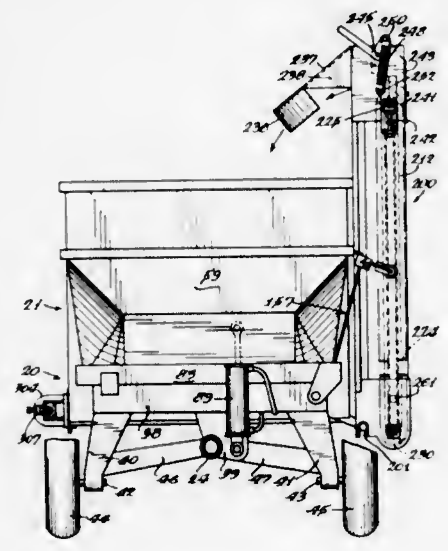
Bertil Waller, St. Eriksplan 15, Stockholm, Sweden
Filed Mar. 28, 1969, Ser. No. 811,529
Claims priority, application Sweden, Apr. 5, 1968, Jan. 20, 1969, 4601;658
Int. Cl. B01f *15/04*
U.S. Cl. 259—2 **9 Claims**



A device for mixing two or more liquids in predetermined portions with waste water is shown. A first container has a second container therewithin and is provided with an outlet. The second container is adapted to receive waste water from an inlet and is swingable about a horizontal axis. When a predetermined volume of waste water is received by the second container it will swing around its axis and deliver its contents into the first container. Swinging movement of the second container also supplies cleaning liquids kept in separate containers into said first container. The second container is asymmetrically shaped and is divided into two chambers communicating with one another.

3,572,643
MATERIAL CARRIER APPARATUS

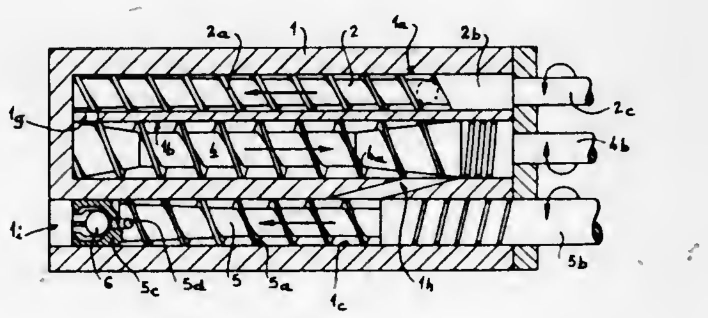
Bert A. Birdsall, Mondamin, Iowa
Filed Aug. 15, 1968, Ser. No. 752,843
Int. Cl. B01f *15/02*
U.S. Cl. 259—4 **5 Claims**



A material carrier movable over the ground and having structure to facilitate downward flow of material therein to a discharge opening and with structure for tilting of the carrier relative to the supporting frame and additionally with improved elevator mechanism for elevating material and for discharging it either away from the carrier or back into the container box of the carrier, with provisions for spreading the material over the area of the container. Automatic cycling feed mixer structure disposable in the container mixes material carried therein and an insertable cross conveyor conveys material outwardly from the bottom of the container. Additionally, an alternately usable auger conveyor is provided with an elevating auger and a charging auger to advance material to the elevating auger to have it carry a full load and with a common drive including a belt changing direction 90° in its travel.

3,572,644
APPARATUS FOR EXPOSING A PULVERULENT PASTY OR LIQUID MATERIAL TO THE ACTION OF A CONTROLLED ATMOSPHERE

Pierre Poncet, 12 bis, Rue Trarieux, Lyon, France
Filed May 12, 1969, Ser. No. 823,689
Int. Cl. B01f *7/08*
U.S. Cl. 259—6 **12 Claims**



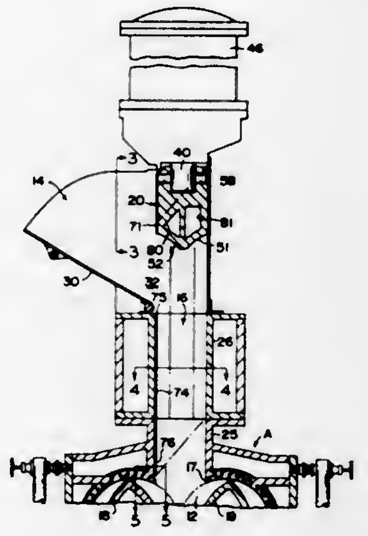
The apparatus comprises a main conveyor screw which rotates within a main bore having at least one lateral slot which communicates with an exposing chamber. The latter is maintained under vacuum or receives a treating gas. A returning conveyor screw rotates in a bore situated below the exposing chamber and which communicates with the main bore and with the exposing chamber in order to return into the former the material which may have been thrown into the latter by the main screw. The material is introduced into the main bore by a feed device, as for instance a feed screw, so arranged as to form an airtight seal isolating the main bore from the outer atmosphere. In the same manner the material treated is withdrawn from the main bore by an outlet device also forming an airtight seal. More particularly in the case of pasty or plastified materials the airtight seal may be obtained by increasing the diameter of the core of the screws in order to compress the material in the form of a plug between the successive turns.

3,572,645
MIXING MACHINE

James T. Matsuoka, Brecksville, Ohio, assignor to Intercole Automation, Inc., Cleveland, Ohio
Filed Nov. 6, 1968, Ser. No. 773,928
Int. Cl. B01f *7/02*
U.S. Cl. 259—21 **7 Claims**

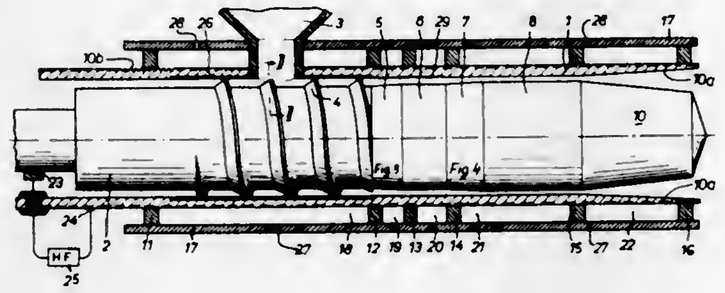
An apparatus for mixing rubbers, elastomers, plastics, and similar material, preferably of the internal mixer type, such as Banbury type mixer, having frame structure forming a mixing chamber, rotors within the mixing chamber for mixing materials therein, a material charging hopper mounted on the frame structure above the mixing chamber and having a charging conduit communicating with the mixing chamber and a floating weight or member movable for applying pressure on the material to be mixed. The floating weight

member and interior of the charging conduit include structure to vent gases from the mixing chamber when the floating weight is in a lower position adjacent the mixing chamber.



3,572,646
APPARATUS FOR TRANSFORMING AND MIXING DEFORMABLE MEDIA

Heinz Kocher, Centralstrasse 41, Neuhausen, Switzerland
Filed Apr. 16, 1968, Ser. No. 721,816
Claims priority, application Austria, Apr. 17, 1968, A-3592/67
Int. Cl. B01f *7/02*
U.S. Cl. 259—25 **11 Claims**

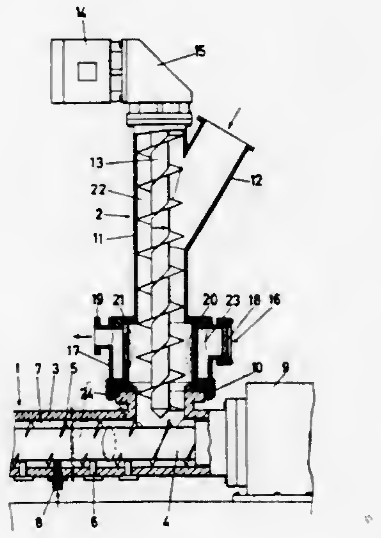


Apparatus for transforming and mixing deformable media, such as plastics, comprises a cylindrical casing having a rotor mounted for coaxial driven rotation in the cylinder which is provided with an inlet for the medium. The rotor is provided with a conveyor screw for the medium, and following the screw in the direction of flow the rotor comprises diverging diffusor portions alternating with cylindrical rotor portions. The end of the rotor adjacent the outlet of the cylinder is formed as a converging diffusor. The different rotor portions coact with surrounding wall portions of the cylinder having portions with a surface finish differing from that of the rotor portions to subject the medium flowing in the space between the rotor and the surrounding casing wall to differing frictional resistance along the external and internal layers thereof.

3,572,647
PROCESS AND APPARATUS FOR HANDLING MATERIALS IN DUST AND POWDER FORM

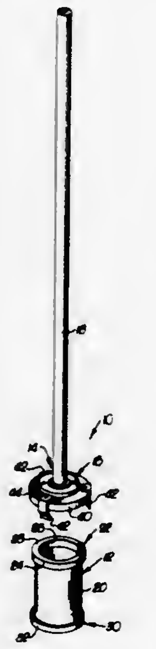
Hans Peter Staheli, Pratteln, Switzerland, assignor to Buss A. G., Basel, Switzerland
Filed Mar. 4, 1969, Ser. No. 804,164
Claims priority, application Switzerland, Mar. 8, 1968, 3413/68
Int. Cl. B01f *7/02*
U.S. Cl. 259—25 **4 Claims**

Process and apparatus for handling materials in dust and powder form, comprising the steps of, and means for, filling materials into a feeding device, venting and precompacting the materials therein, feeding them into a mixing and kneading device, further venting, compacting and transferring them in said last-named device, and applying heat therein. The feeding device has a venting insert, and the kneading device has a worm shaft.



3,572,648
PHARMACEUTICAL TESTING INSTRUMENT

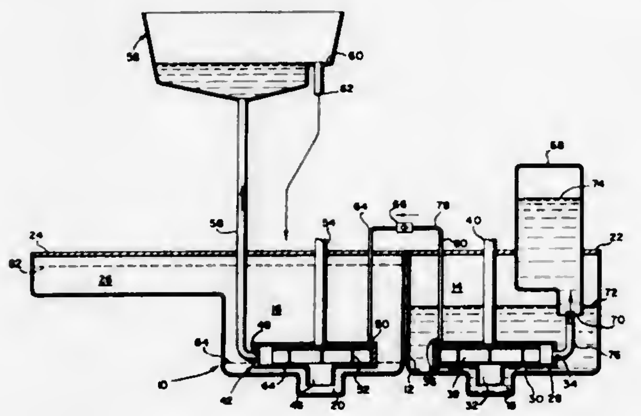
William A. Hanson, 10945 Nestle Ave., Northridge, Calif.
Filed June 13, 1969, Ser. No. 832,936
Int. Cl. B01f *9/00*
U.S. Cl. 259—90 **8 Claims**



A basket stirrer for testing the dissolution rate of solid pharmaceutical preparations such as tablets and capsules. Passage means is provided through the drive plug which forms a closure at the upper end of the generally cylindrical screen basket to break the air or fluid lock which otherwise introduces errors in the routine laboratory use of this type of equipment by preventing proper fluid drainage from the basket when it is raised out of the testing solution at the end of a test, or proper circulation of the fluid through the basket during the test.

3,572,649
APPARATUS FOR AGITATING AND ADDING A LIQUID TO A LIQUID FLOW SYSTEM

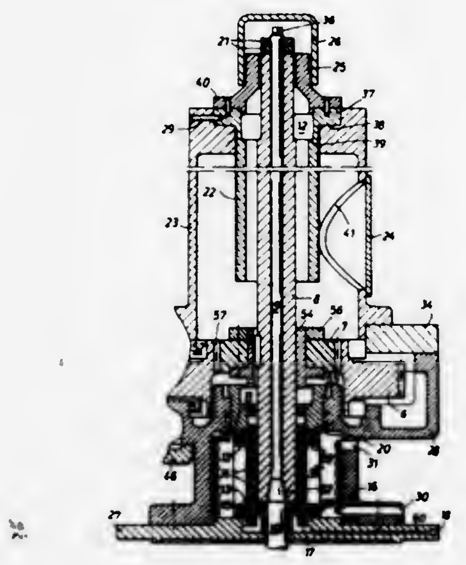
Henry G. Joel, New York, N.Y., assignor to Ing. C. Olivetti & C. S. p. A., Ivrea, Italy
Filed Jan. 15, 1970, Ser. No. 3,082
Int. Cl. B01f *5/12*
U.S. Cl. 259—95 **21 Claims**



Apparatus for accurately adding a liquid to a flow system, where the additive liquid is continuously agitated by a recirculating device which is connected to the flow system. Discharge from the recirculating device is set against discharge from the prime mover of the liquid in the flow system so that additive liquid will enter the flow system when the pressure of the liquid in the flow system drops below the pressure of the additive liquid.

3,572,650
STIRRING APPARATUS

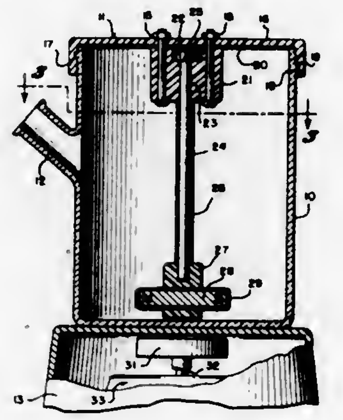
Dieter Kupka, Kirn, Nahe, Germany
Filed May 5, 1969, Ser. No. 821,912
Claims priority, application Germany, May 4, 1968, P 17 50 468.6
Int. Cl. B01f *7/00*
U.S. Cl. 259—103 **5 Claims**



In a stirring apparatus the slide ring packing for the stirring shaft extending into a high pressure vessel is disposed in the agitator gear housing about the drive shaft secured to the end of said stirring shaft in axial alignment therewith. For replacing the slide ring packing, said drive shaft may be disconnected from said stirring shaft and axially displaced with said slide ring packing through said gear housing into a tubular casing disposed thereabove and communicating therewith. The tubular casing is provided with a lateral opening through which the slide ring packing, now aligned therewith, may be replaced.

3,572,651
SPIN-CULTURE FLASK FOR CELL CULTURE

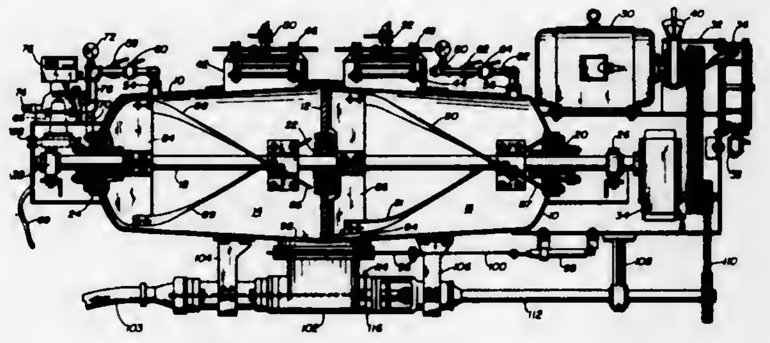
William S. Harker, Vineland, N.J., assignor to Wheaton Industries, Millville, N.J.
Filed Apr. 28, 1969, Ser. No. 819,857
Int. Cl. B01f *7/18*
U.S. Cl. 259—107 **7 Claims**



A flask for the suspension culture of cells in a medium of nutrient substances is provided in which the suspension is given an orbital motion by a magnetic impeller which is suspended in the culture medium. All of the elements in contact with the suspension are inert thereto.

3,572,652
APPARATUS FOR MIXING, DISPENSING AND DISPERSING WET OR DRY PLASTIC MATERIALS UNDER PRESSURE OR NON PRESSURE

Loren Hale, 3703 E. 36th St. N., Tulsa, Okla.
Continuation of application Ser. No. 651,345, June 19, 1967, now abandoned. This application Dec. 23, 1968, Ser. No. 800,309
Int. Cl. B28c *5/00*
U.S. Cl. 259—151 **8 Claims**

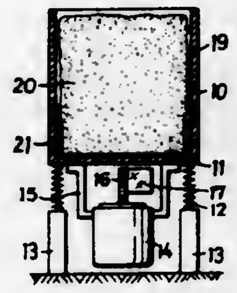


A gun for cement and similar plastic materials which are mixed and dispensed under option wet or dry mix or pressure or nonpressure conditions and discharged from a mixing vat by a reversible rotor-stator pump to a nozzle.

3,572,653
APPARATUS TO LOOSEN COMPOUNDS, ESPECIALLY MOLDING-AND CORE SANDS FOR FOUNDRIES

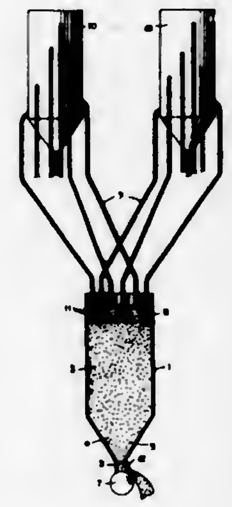
Dietmar Boenisch, Haselsteig 11, Aachen, Germany
Filed Mar. 7, 1968, Ser. No. 711,296
Claims priority, application Germany, Mar. 10, 1967, B91549
Int. Cl. B28c *5/18*
U.S. Cl. 259—174 **24 Claims**

Apparatus for treating a material such as foundry sand to maintain the same in a loose condition for various treatments such as preparation, cooling or transporting the same including a container for the material having a sidewall portion with vibrating means operatively associated with the container to swing the sidewall portion generally perpendicular to the longitudinal axis of the container in rotational vibrations of an amplitude and frequency such that the material within the container moves away from the sidewall portion to define an annular space between the material and the sidewall.



3,572,654
APPARATUS FOR THE CONTINUOUS SELF-REGULATING GRAVITY-FLOW MIXING OF POURABLE GRANULAR MATERIAL

Friedrich Jaeger, Bad Hersfeld, Germany, assignor to Glanzstoff A G, Wuppertal, Germany
Filed May 6, 1969, Ser. No. 822,184
Claims priority, application Germany, May 10, 1968, P 17 56 344.9
Int. Cl. B01f *5/00*
U.S. Cl. 259—180 **8 Claims**

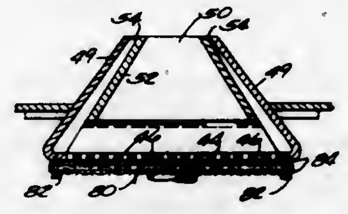


A combination of apparatus for the continuous, self-regulating, gravity-flow mixing of different component streams of a pourable or flowing granular material wherein a plurality of individual discharge conduits from different supply vessels and/or supply zones open into a grid of feed compartments at the upper end of a vertical receiving container of rectangular cross section having a unidimensionally narrowing discharge zone terminating in a discharge slot at the lower end of the container and an unobstructed stabilizing zone interconnecting the discharge zone with the feed compartments, with means to adjust the flow of granular material through the discharge slot.

3,572,655
POLLUTED AIR ABATEMENT DEVICE

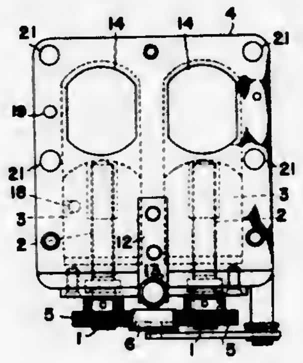
John E. Brown, 6601 S. Whipple St., Chicago, Ill.
Filed Sept. 2, 1969, Ser. No. 854,384
Int. Cl. B01f *3/04*
U.S. Cl. 261—21 **13 Claims**

A polluted air abatement device including a closed tank partially filled with liquid and having a flue at each end, a number of baffles dividing the portion of the tank above the liquid into separate compartments, a sprayer head in each baffle offset from the sprayer heads in adjacent baffles and having a plurality of polluted air orifices, elongated spray orifices in each sprayer head positioned to provide a converging spray in the direction of flow of polluted air through the compartments, a nozzle in each compartment to direct a stream of liquid toward the polluted air orifices of the sprayer head in that compartment, and a recirculating pump assembly to pump filtered liquid from the tank to the sprayer heads and sprayer nozzles.



3,572,656
VALVE MECHANISM IN CARBURETOR FOR CAR

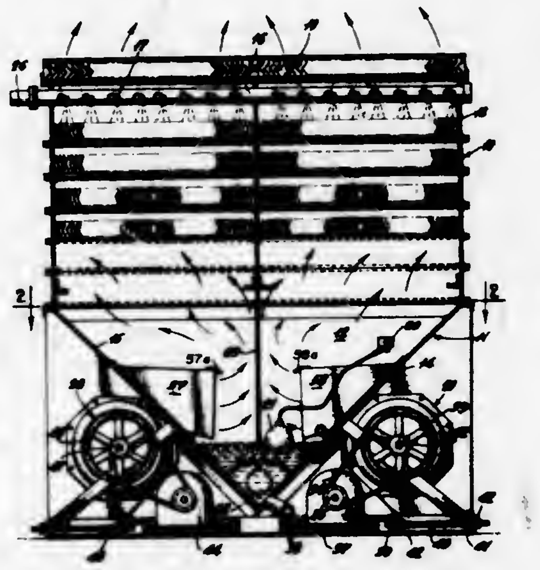
Takakazu Oshima, No. 423;Saido-cho-Mirami-Ku, Yokohama-shi, Japan
Filed Aug. 28, 1968, Ser. No. 755,981
Int. Cl. F02m *9/12*
U.S. Cl. 261—23 **3 Claims**



A valve mechanism in a liquid gas carburetor for use in car, in which a pair of valve driving axles arranged symmetrically in juxtaposition are each provided with a reverse screw, with a plate valve being screwed thereto, and in which a cogwheel secured to an end of each of said valve driving axles is rotated by a rack so as to simultaneously slidingly open and close the plate valves screwed to the valve driving axles in a plate casing.

3,572,657
WATER BAFFLE

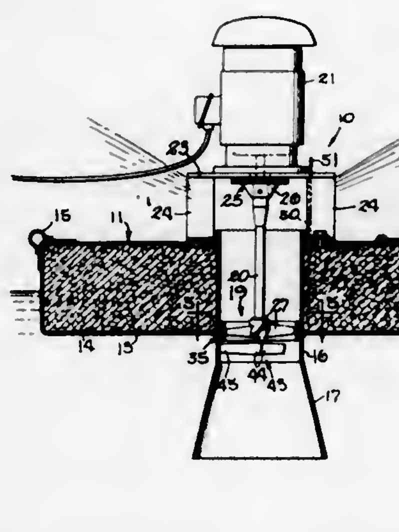
Wilson E. Bradley, Jr., Ellicott City, Md., assignor to Baltimore Aircoil Company, Inc., Baltimore, Md.
Filed June 4, 1969, Ser. No. 830,256
Int. Cl. B01f *3/04*
U.S. Cl. 261—30 **5 Claims**



A blow-through evaporative heat exchange apparatus having a blower section with a wet deck section above it and water baffles on the air fan ducts to prevent water from entering the fans when the air system is not being used.

3,572,658
FLOATING AERATOR

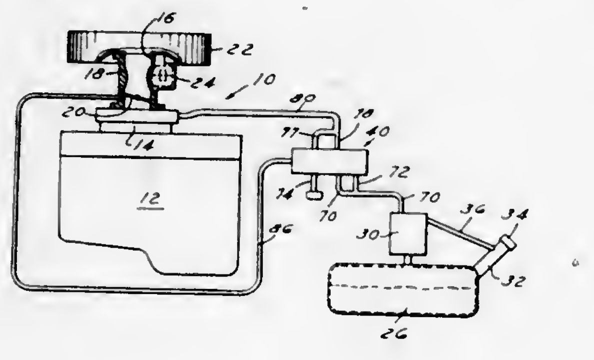
Richard B. Ravitts, Rockford, Ill., assignor to Richards of Rockford, Inc., Rockford, Ill.
Filed Jan. 15, 1968, Ser. No. 697,681
Int. Cl. B01f *5/12, 3/04;* **C02c** *5/00*
U.S. Cl. 261—36 **10 Claims**



A floating liquid aerator includes an axial flow propeller rotated by an electric motor and disposed within a tubular throat to pump water from a pond upwardly through the throat and against a rotatable diffuser which slings the water outwardly for interface contact with the surrounding atmosphere. Telescoped into the throat and over the propeller is a tubular ring duct which divides the upwardly flowing column of water into a central core and a surrounding outer cylinder to prevent the formation of a vortex within the throat and thereby increase the pumping efficiency of the aerator. More nearly laminar flow across the propeller is produced by a series of stationary infuser vanes positioned beneath the ring duct to feed the inflowing water inwardly to the propeller at a controlled angle. Increased transfer of oxygen to the water is achieved by introducing air into the upwardly flowing water, the air being admitted into the outer cylinder of water in the area of the ring duct to avoid cavitation at the propeller.

3,572,659
FUEL TANK VAPOR RECOVERY CONTROL

Kazimieras Kizlauskas, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Sept. 3, 1968, Ser. No. 756,781
Int. Cl. F02m *37/02*
U.S. Cl. 261—43 **7 Claims**

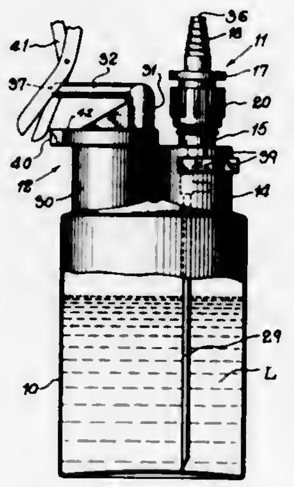


Vapors from the gasoline tank of a motor vehicle are connected by a line to the engine intake manifold to be burned. The line contains a fuel-air mixing valve that is opened by fuel tank vapor pressure to add air in the correct proportion to the fuel vapors so that the overall air-fuel ratio in the engine is unaffected by the addition of more fuel. A vacuum

override to shut the valve is provided to prevent excessive idle speed rpm. increase.

3,572,660
DEVICE FOR DISPENSING INHALABLE FLUIDS

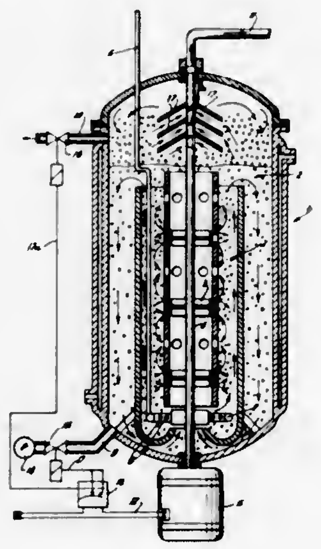
Thomas J. Mahon, Englewood, and Samuel Cherba, Totowa, N.J., assignors to Becton, Dickinson and Company
Filed Aug. 4, 1967, Ser. No. 660,170
Int. Cl. B05b *1/16;* **A61m** *11/02*
U.S. Cl. 261—78 **8 Claims**



A self-containing device for dispensing inhalable fluids, such as nebulized medicinal preparations or humidified breathable gas, including a container formed of cutable plastic and a sealed inlet formation and sealed outlet formations capable of being removed or cut away to establish the inlet and outlets. The container has an assembly at the inlet for aspirating a liquid with a gas to form a spray and a baffle in conjunction with the container wall and liquid surface for nebulizing the aspirated spray. The outlet construction consists of a large diameter tube and a small diameter tube extending therefrom, with a cutable blister formation between the two tubes. The outermost end of the smaller diameter tube forms the sealed outlet.

3,572,661
ADMIXING OF GASEOUS AND LIQUID PHASES

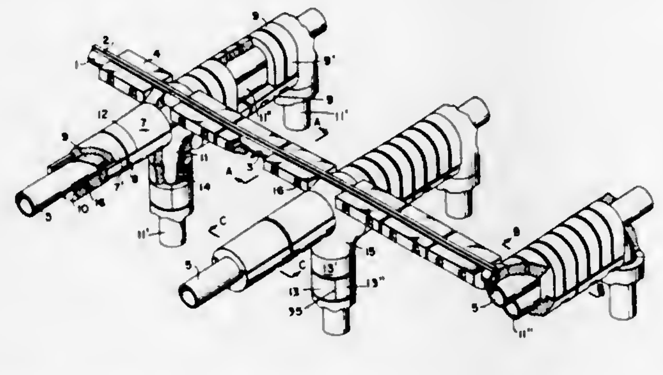
Hans Muller, Im Allmendli 1, Erlenbach, Zurich, Switzerland
Filed Apr. 1, 1969, Ser. No. 811,752
Claims priority, application Switzerland, Apr. 4, 1968, 5026/68
Int. Cl. B01f *3/04*
U.S. Cl. 261—86 **6 Claims**



A method and an apparatus for admixing a liquid phase and a gaseous phase. A mixing vessel has a mixing chamber and is provided with first and second inlet means for a gaseous and a liquid phase, respectively, and with first and second outlet means for removing the liquid and gaseous phase, respectively. Mixing means including rotary means is arranged in the chamber for admixing the two phases and is subjected to rotation to encountering varying degrees of retardation of its rotation as a function of the consistency of the mixture. Control means is associated with at least one of the first inlet and outlet means and with the mixing means and serves to control the flow of the liquid phase through the respective first inlet or outlet means, and thereby the level of the liquid phase in the chamber, in dependence upon the degree of retardation encountered by the mixing means.

3,572,662
SKID RAIL SYSTEM

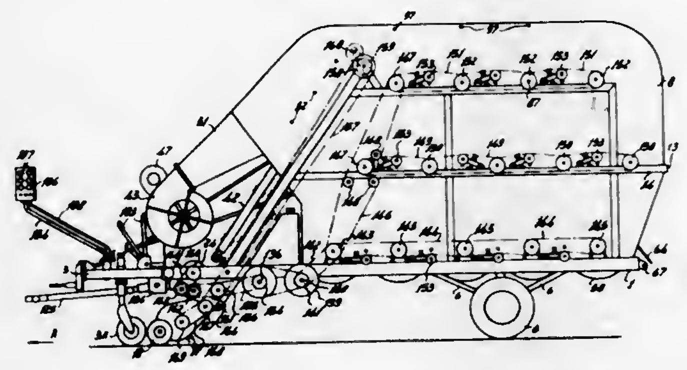
Earl L. Weaver, and John L. Freeman, Cook County, Ill., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed May 1, 1969, Ser. No. 820,969
Int. Cl. F16l *9/14;* **F27b** *9/24*
U.S. Cl. 263—6B **3 Claims**



A skid rail protection system for a furnace employing a skid rail supported by crossover members and upstanding support members, the skid rail, crossover, and support members carrying a plurality of specially designed, unmortared refractory shapes.

3,572,663
CROP DRIERS

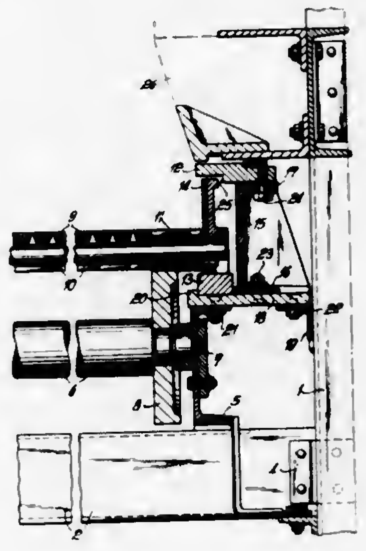
Cornelis Van Der Lely, 7 Bruschenrain, Zug, Switzerland
Filed Mar. 7, 1968, Ser. No. 711,450
Claims priority, application Netherlands, Mar. 17, 1967, 6,704,006
Int. Cl. F27b *3/00*
U.S. Cl. 263—21 **15 Claims**



A mobile crop drier wherein cut crop is gathered, crushed and conveyed obliquely into a large housing wherein a stream of air is introduced which is mixed with and heated by combustion products from a burner, the mixture of hot, gaseous material impinging on the conveyed crop in the forward upper interior of the housing and thereafter carrying it through a serpentine path in the housing for final discharge through the lower rear part of such housing. A series of rotating ejectors continuously underlie said path and toss the heavier, more moist crop back into the stream of hot, gaseous material at a selected angle which may be manually or automatically controlled responsive to the temperature of the stream at the particular location in the path. Also, the speed and direction of rotation of the ejectors are controllable. A cab may be mounted in the front of the housing and the operative speed of the drier may be automatically adjusted to accommodate the quantity of cut crop gathered by the drier. Controls and temperature indicators are within manual and visual range of the operator. A mobile wafer press combined with a receptacle is advantageously connected to the housing to receive and press wafers from the warm dried crop discharged from the housing, said wafer press including a receptacle to store wafers therefrom. The receptacle has a discharge conveyor for discharge of wafers therefrom. The dried crop is first pressed in a compression chamber in the wafer press which is as wide as the swath of crop lying on the ground and knives thereafter cut such initial compressed crop into wafers which have approximately square cross sections.

3,572,664
SINTER GRATE

Fritz Muller, Knapsack nr. Cologne; Winfried Schmidt, Kendenich nr. Cologne, and Hugo Werner, Hermulheim nr. Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Cologne, Germany
Filed Sept. 2, 1969, Ser. No. 854,391
Claims priority, application Germany, Sept. 11, 1968, P 17 58 983.2
Int. Cl. F27b *9/00*
U.S. Cl. 263—28 **6 Claims**

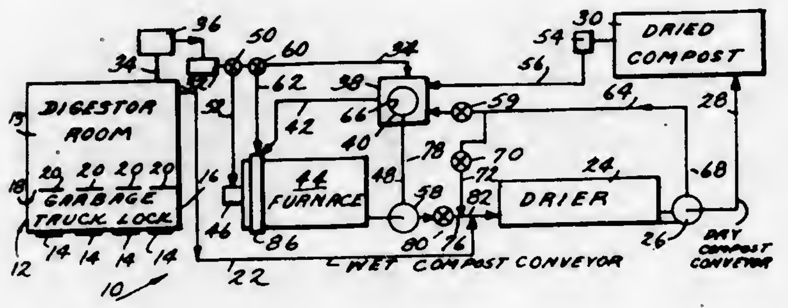


Apparatus for the drying, calcining and sintering of ores, minerals and similar materials. The apparatus is comprised of a grate which is arranged to be drawn by chains, to be supported by bearing rollers and is laterally bounded by sideplates positioned between an upper slide bar and a lower slide bar and mechanically connected to the grate plate, and sealing elements placed between the upper and lower slide bars. The lower slide bars and the sealing elements are arranged to be supported by common supporting plates secured to a supporting frame.

3,572,665
DESTROYING ODOROUS GASES EVOLVING FROM WET BIOLOGICAL MATERIAL

Daniel B. Vincent, P.O. Box 5478, and Daniel A. Vincent, P.O. Box 5045-Y, Tampa, Fla.
Filed Oct. 14, 1969, Ser. No. 866,262
Int. Cl. F26b *17/00*
U.S. Cl. 263—40 **7 Claims**

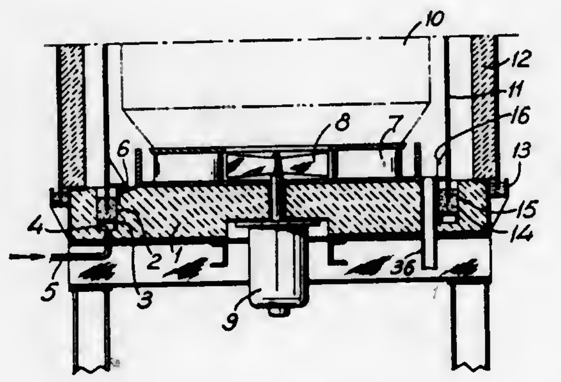
Ways and means are provided for destroying odorous components of gases released from garbage and food waste byproduct processing plants during receiving, storage and processing operations. Destruction is accomplished by collecting all such odorous gases and cycling them through a high temperature region, raising them to an odor-destroying temperature, of e.g. 1300° F., before releasing them to the atmosphere. Where wet composted material is to be dried in the plant, some of the gases are utilized in a direct contact dryer. The gases utilized in the dryer are preheated by indirect heat exchange with the deodorized gases, thus lowering the temperature of the exhausted, deodorized gases, to e.g. 600° F.



3,572,666

SAND SEAL

Pier N. Fehr, Milan, Italy, assignor to S. A. Heurtey, Paris, France
Filed Apr. 29, 1969, Ser. No. 821,169
Claims priority, application France, May 8, 1968, PV150963
Int. Cl. F27b *3/02;* **F27d** *7/00*
U.S. Cl. 263—47 **11 Claims**



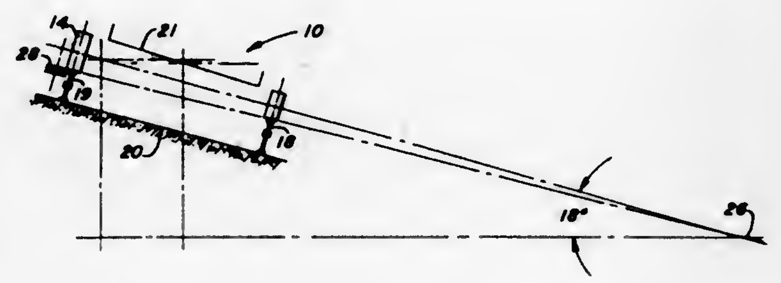
A seal for providing a substantially gastight connection between separable elements of a structure, such as a furnace base and a charge-enclosing bell or cover supported thereon, comprising a trough formed in one of said elements, a body of granular material such as sand in said trough, a fin or apron on the other of said elements and adapted to extend into said trough when the elements are assembled, and means for fluidizing the body of granular material in the trough while the apron is being inserted thereinto and, if desired, while it is being removed therefrom.

3,572,667

CIRCULAR TRAVELING GRATE MACHINE OR THE LIKE

Rudolf Hess, Frankfurt-Main, and Horst Seidel, Bischofsheim, Germany, assignors to Dravo Corporation, Pittsburgh, Pa.
Filed Oct. 10, 1968, Ser. No. 766,481
Claims priority, application Germany, Oct. 21, 1967, P 15 83 474.9
Int. Cl. F27b *21/02*
U.S. Cl. 266—21 **8 Claims**

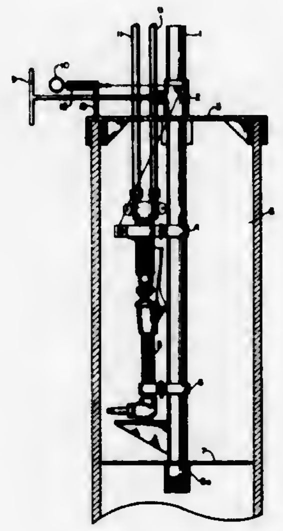
A circular traveling grate machine comprising an annular series of segment-shaped carriages is disclosed. Each of the carriages has inner and outer wheels and concentric inner and outer tracks are provided on which the inner and outer wheels respectively roll. The outer track is elevated above the inner one such that the surfaces of the carriages slope downwardly to the center of the machine.



3,572,668

APPARATUS FOR CUTTING DRIVEN METAL PILING

Irvin L. LeBlanc, 6215 S. Laverne St., New Orleans, La.
Filed July 19, 1968, Ser. No. 746,207
Int. Cl. B23k *7/04*
U.S. Cl. 266—23 **3 Claims**



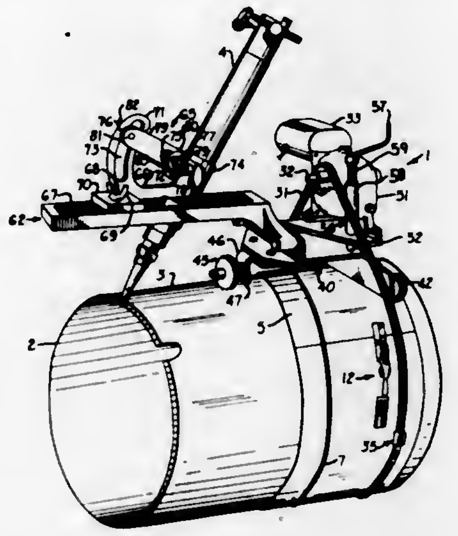
A graduated vertical pipe for holding and accurately positioning a cutting torch, said pipe being slidably mounted in a top centering ring that is mountable in rotation on the top of the piling to be cut, the bottom of said graduated pipe suspending a removable bottom centering guide, and the whole being rotatable 360°.

3,572,669

PIPE BEVELING MACHINE

Daniel Brand, 5207 S. Oxford, Tulsa, Okla.
Filed Aug. 19, 1968, Ser. No. 753,519
Int. Cl. B23k *7/06, 7/10*
U.S. Cl. 266—23 **4 Claims**

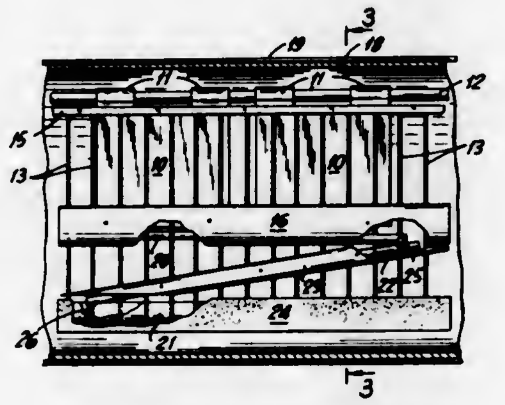
A pipe beveling machine travels around a track on an elongate band secured in encircling relation on a pipe to be cut adjacent the line of cut. The machine moves through engagement of a rotatable member with an endless flexible member encircling the pipe. A cutting torch is adjustably mounted on a bracket extending outwardly from a carriage which pivotally supports a platform having drive means thereon turning the rotatable member operatively engaged with the endless flexible member.



3,572,670

PURIFICATION OF ELECTROLYTIC COPPER

Thomas Gordon Hart, San Francisco, Calif., assignor to Phelps Dodge Corporation, New York, N.Y.
Original application Apr. 26, 1966, Ser. No. 551,828, now Patent No. 3,501,292. Divided and this application May 26, 1969, Ser. No. 847,760
Int. Cl. C22b *15/14*
U.S. Cl. 266—33 **8 Claims**



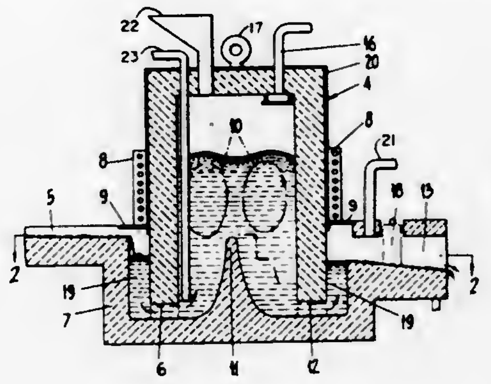
Apparatus for suspending and heating copper cathode plates in a hydrogen atmosphere for such purposes as oxygen removal, and in a vacuum for melting and removal of volatile or gaseous impurities by progressively melting with radiant heat the lower region of the suspended plates to create a thin molten film which drips off the plates.

3,572,671

CONTINUOUS DEGASSING OF METALS

Howard Knox Worner, Victoria, Australia, assignor to Conzinc Riotinto of Australia Limited, Melbourne, Victoria, Australia
Filed Oct. 1, 1968, Ser. No. 775,973
Claims priority, application Australia, Oct. 3, 1967, 27983/67
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 **14 Claims**

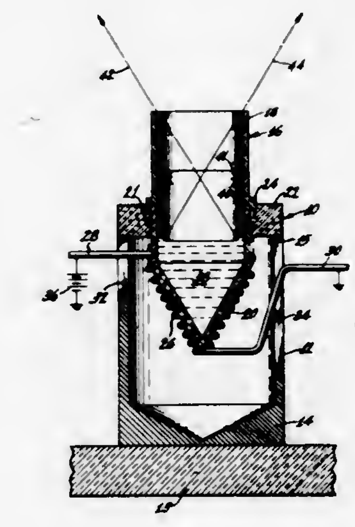
Method for continuously and simultaneously degassing, deoxidizing or desulfurizing of molten metallic material by flowing the material into a removable bell jar-like chamber placed over a dishlike refractory tank bottom while keeping the chamber under reduced pressure and then upwardly over a baffle projecting up into the chamber and electroinductively stirring the upper part of the material in the chamber and flowing it in degassed condition downward and out of the chamber by gravity. The degassing apparatus is a removable bell jar-like chamber placed over a dishlike refractory tank with an upwardly directed baffle to deflect the crossflow of molten metal, the chamber having an inlet and an outlet aperture on opposite sides of the lower rim and external electroinductive stirring coils around its midportion the roof of the chamber is provided with a vacuum line.



3,572,672

VACUUM EVAPORATION APPARATUS

Abraham Harel, Trenton, N.J., assignor to RCA Corporation
Filed Nov. 22, 1968, Ser. No. 778,130
Int. Cl. C23c *13/12*
U.S. Cl. 266—34 **4 Claims**



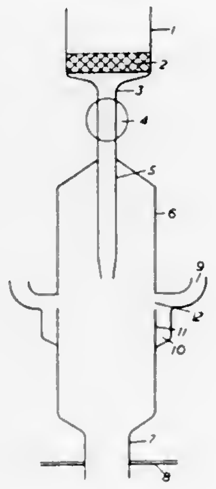
A crucible for holding a quantity of material to be evaporated in a vacuum evaporation system includes an elongated tubular upper portion and a heat shield to confine heat to the lower portion of the crucible so that the upper portion remains cooler than the lower portion. This prevents overflowing and serves to collimate the evaporant.

3,572,673

APPARATUS FOR DISSOLVING ALKALI METALS

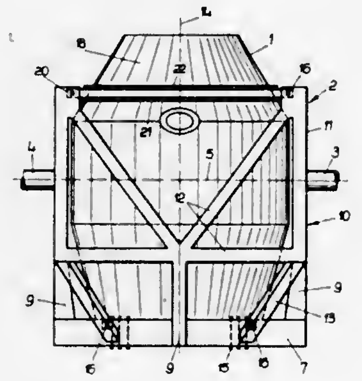
Albert Bryan Houghton, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
Continuation of application Ser. No. 500,069, Oct. 21, 1965, now abandoned. This application July 3, 1969, Ser. No. 845,622
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 **1 Claim**

Apparatus for dissolving molten solids in solvent liquids. The invention, which is especially useful for dissolving alkali metal in liquid ammonia, includes an inlet device for feeding the molten material into a dissolver vessel, the device comprising a feed pipe having means for irrigating the pipe's internal walls with a solvent liquid. The process involves dissolving the molten material by feeding the same to the dissolver vessel through the inlet device while the latter is irrigated with the solvent.



3,572,674
TILTABLE SUPPORT FRAME FOR A METALLURGICAL VESSEL

Friedrich Wilhelm Bornscheuer, Stuttgart-Botnang, Germany, assignor to Demag AG, Duisburg, Germany
Filed May 15, 1969, Ser. No. 824,839
Claims priority, application Germany, June 29, 1968, P 17 58 581.8
Int. Cl. C21c *5/50*
U.S. Cl. 266—36 **21 Claims**

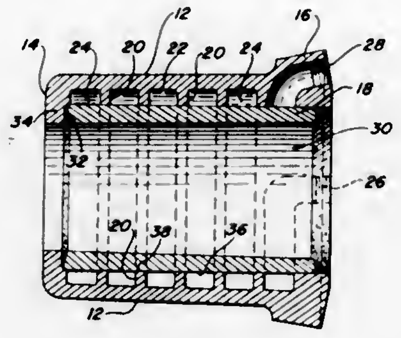


A tiltable frame structure for supporting a metallurgical converter. The frame structure is spaced from the converter to permit it to deform under thermal stress without restriction. The converter is secured within the frame by a plurality of flexible support rods. Preferably, the support rods are prestressed and extend in a direction perpendicular to one of the directions in which the converter deforms under thermal stress.

3,572,675
HIGH VELOCITY MULTIPIECE TUYERE AND METHOD OF CONSTRUCTING SAME

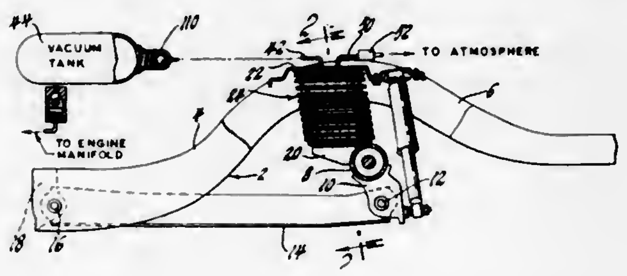
Lawrence G. Maloney, Munster, Ind., assignor to Inland Steel Company, Chicago, Ill.
Filed May 7, 1969, Ser. No. 822,371
Int. Cl. C21b *7/16*
U.S. Cl. 266—41 **6 Claims**

A high velocity tuyere having an outer member made of a first material, and formed with ribs and passageways, and an inner member made of a second material having a lower heat transfer coefficient than the outer member, the inner member being disposed within the outer member to provide a leak-free convolute-shaped passage.



3,572,676
FLUID SPRING INCORPORATING FLUID MEDIUM CONSERVING FLOW CONTROL MEANS

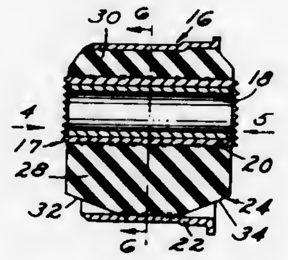
Ming-Chih Yew, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Dec. 23, 1968, Ser. No. 785,946
Int. Cl. B60g *17/04*
U.S. Cl. 267—34 **12 Claims**



A fluid pressure energized auxiliary spring connected to a source of fluid pressure by conduit means having a height sensing flow control valve disposed therein which incorporates a pressure sensitive device operative to disable communication between the spring and atmosphere whenever the level of fluid pressure in the source is less than the level of fluid pressure in the spring irrespective of the operating position of the flow control valve.

3,572,677
RESILIENT BUSHING

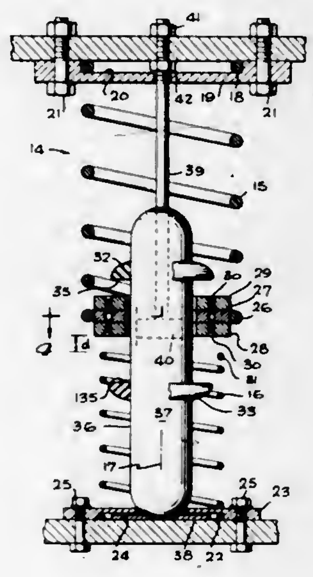
James J. Damon, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 11, 1968, Ser. No. 782,949
Int. Cl. F16f *1/38*
U.S. Cl. 267—57.1 **9 Claims**



A resilient pivot device which, in its presently preferred embodiment, is constructed to pivotally connect a vehicle suspension member to a vehicle body. The pivot device includes a resilient body that presents greater resistance to linear movement of the suspension member in one direction than to linear displacement in the opposite direction. When used in a vehicle suspension system, the unequal resiliency prevents a resonant condition from developing that might cause vehicle body shake.

3,572,678
OVERLOAD SPRING STRUCTURE

Joseph Jerz, Jr., 131 Wylerhorn St., Crestline, Calif.
Filed Oct. 17, 1968, Ser. No. 768,345
Int. Cl. B60g *11/02*
U.S. Cl. 267—60 **12 Claims**

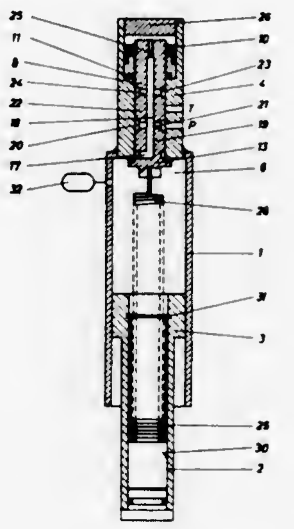


An overload spring assembly for a vehicle, including two coil springs or spring sections interposed between the sprung and unsprung masses of the vehicle, with one of the two springs being stiffer than the other, and with the springs being ineffective to assist the main suspension system under normal load conditions, but being movable into supporting relation under a predetermined overload condition. Stops associated with the springs, and preferably carried by a shock absorber within the interior of the springs, cause the springs when they do become effective to produce first a soft supporting action, and then a stiffer action dependent only upon the characteristics of the stiffer spring, with the stops preferably also serving in an extended or rebound condition to resiliently limit the separation of the sprung and unsprung masses.

3,572,679
HYDRO-PNEUMATIC OLEO STRUT OR SUSPENSION ASSEMBLAGE PROVIDED WITH LEVEL REGULATING MEANS LOCATED WITHIN THE CYLINDER HOUSING

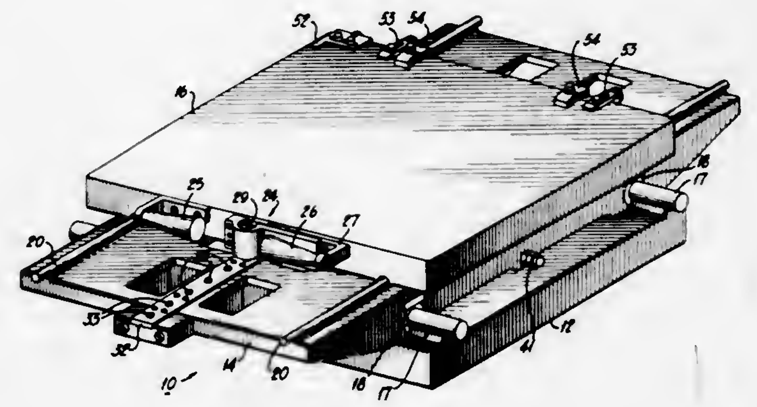
Gunter Strauff, Kaarst, Germany, assignor to Langen & Co., Dusseldorf, Germany
Filed Nov. 20, 1968, Ser. No. 777,398
Claims priority, application Germany, Dec. 15, 1967, P 16 30 752.1
Int. Cl. F16f *5/00*
U.S. Cl. 267—64 **2 Claims**

A hydropneumatic oleo strut or suspension assemblage adapted to be arranged between a wheel supporting means and a vehicle body in which the cylinder casing has located therein a level regulating means. The level regulating means is defined by a multiple way valve and which valve, dependent upon the relative position of the piston rod and cylinder, establishes in a first regulating position a fluid path between a pressure line or conduit which leads to the piston space and in a second regulating position a fluid path in a line leading between the piston space and a drain line or conduit. In a third regulating position, namely, a neutral position, the multiple way valve blocks the aforesaid fluid paths and a continuously operative spring means serves to move the control piston of the multiple way valve into a position which corresponds to the first regulating position, whereas an extension spring means operative only within a certain stroke range related to the piston or piston rod serves to move the control piston into the second regulating position in opposition to the force of the spring means.



3,572,680
MACHINE TOOL TABLE

Frederick R. Neff, 2993 Curtis Ave. D26, Des Plaines, Ill.
Filed Mar. 28, 1968, Ser. No. 716,958
Int. Cl. B25b *11/00*
U.S. Cl. 269—8 **10 Claims**

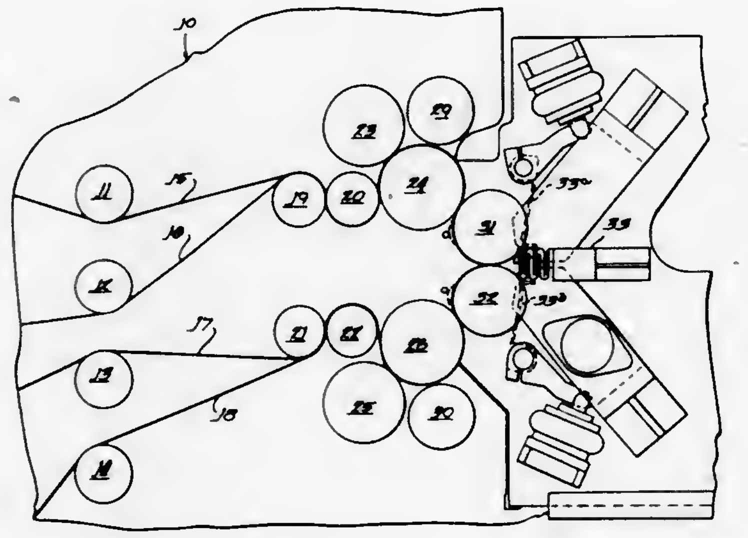


There is provided a machine tool table adapted for multiple positioning in a horizontal plane. The table includes a base member, an intermediate table member mounted for movement in a first horizontal direction on the base member, and an upper table member mounted for horizontal movement on the intermediate table member in a second or transverse horizontal direction. Locating means are provided for positioning the upper table member in a plurality of positions relative to the intermediate table. Moreover there is provided electromagnetic means for securely locking the upper table member relative to the intermediate table member in each of the selected plurality of positions.

3,572,681
APPARATUS FOR INTERFOLDING WEBS

Ernst Daniel Nystrand, Green Bay, Wis., assignor to Paper Converting Machine Company, Inc., Green Bay, Wis.
Filed June 3, 1969, Ser. No. 829,874
Int. Cl. B65h *45/24*
U.S. Cl. 270—39 **2 Claims**

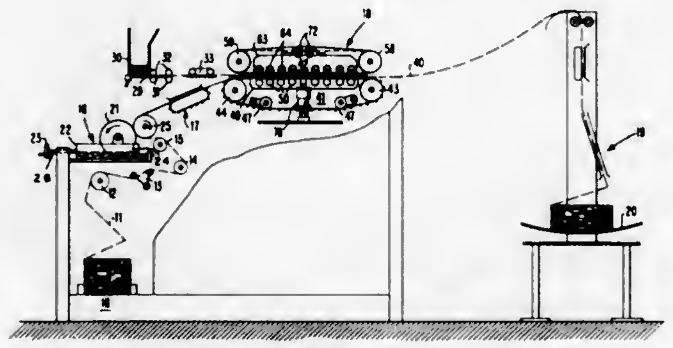
Folding apparatus for V-interfolded towels and the like in which transfer of severed webs is made directly from the cutoff bedroll to the gripper and tucker-equipped folding rolls, the tuckers being equipped with vacuum-actuated tips and



the grippers being housed within the folding rolls to provide pockets for the accommodation of slack webbing.

3,572,682
CONTINUOUS MOTION CARD AND WEB ASSEMBLY APPARATUS

David W. Leach, and Thonas W. McGrath, Trenton, N.J., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 6, 1968, Ser. No. 773,931
Int. Cl. B65h *3[illegible]/14*
U.S. Cl. 270—52 **9 Claims**



This apparatus provides a continuous form with a series of precut, longitudinally spaced record cards adhered thereto so as to be movable by conventional forms tractors through a high-speed printer. The cards have detachable marginal stub portions that are glued to the form by a heat-settable glue. After glue is applied to the form, the cards are fed onto the form. The card/form assemblage is then advanced through an elongated nip between two sets of opposing endless belts, at least one of the belts of each set being heated, to subject the assemblage to heat and pressure for a period of time proportional to the length of the nip and speed of the belts to set and dry the glue so as reliably to seal the cards to the form. Application of the glue to the form and of the cards to the glue is performed while the form and cards are in continuous motion, providing a high throughput.

3,572,683
DEVICES FOR SEPARATING FOLDED SHEETS OF PAPER AND THE LIKE

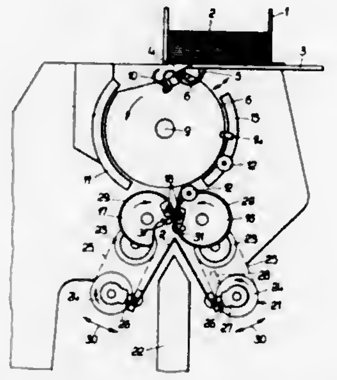
Rudolf Hepp, Schmidt-Ott-Strasse 7a, 1 Berlin 41, Germany
Filed Dec. 13, 1968, Ser. No. 783,593
Claims priority, application Germany, Apr. 19, 1968, P 17 61 209.8
Int. Cl. B65h *5/30*
U.S. Cl. 270—54 **5 Claims**

The present invention relates to a device for parting folded sheets of material, or assemblies of such sheets, in a manner such that where there are more than two leaves or pages in the assembly the internally disposed ones may also be parted

in a determinate manner by the creation in them of a bending stress consequent upon the intermittent introduction between them of a separator element.

3,572,684
FOLDED SHEET-OPENING MACHINE

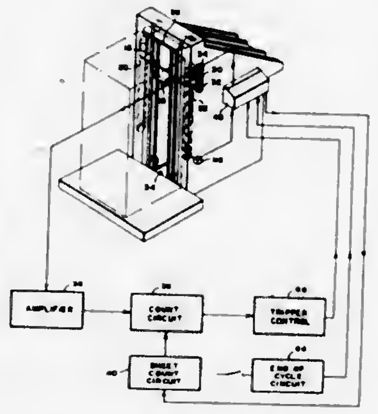
Rudolf Gorig, Muhlstrasse 34, 7067 Grunbach, Germany
Filed June 27, 1969, Ser. No. 837,020
Claims priority, application Germany, July 5, 1968, P 17 61 771.9
Int. Cl. B65h *5/30*
U.S. Cl. 270—54 **16 Claims**



Folded sheets are stacked on a stack magazine. A suction head locates the bottom sheet in position to be gripped by a pulling drum and the gripped sheet is conveyed around the periphery of the drum until the edge of the folded sheet engages a stopping means which prevents further conveyance of the sheet. Then, a pair of suction rollers located below the pulling drum engage the other end of the sheet and conduct the sheet therebetween and separate the ends of the sheet, thereby opening the sheet. A clamp-grab mechanism arranged below the suction rollers then grips the separated ends of the sheet and places the opened sheet upon a sheet-receiving saddle.

3,572,685
SHEET COLLATOR SYSTEM

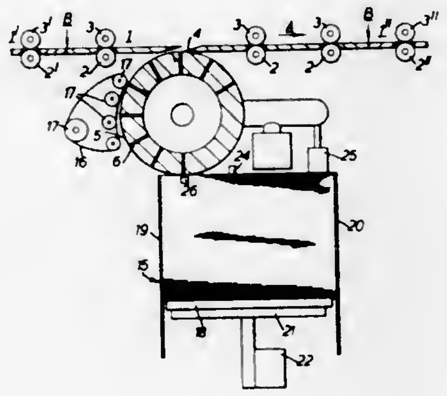
Donald L. Snellman, and Richard A. Marsen, Seattle, Wash., assignors to Norlin, Inc., Seattle, Wash.
Filed July 3, 1967, Ser. No. 650,856
Int. Cl. B65h *39/02*
U.S. Cl. 270—58 **10 Claims**



Sheet material is delivered seriatim from a distributor to a receiver at any of a plurality of stations in predetermined number and to a predetermined sequence of stations in accordance with sequentially recorded information that is advanced in synchronism with the sequential station-to-station progression of the distributor.

3,572,686
SHEET ASSOCIATING DEVICE HAVING ROTARY PNEUMATIC SEPARATORS

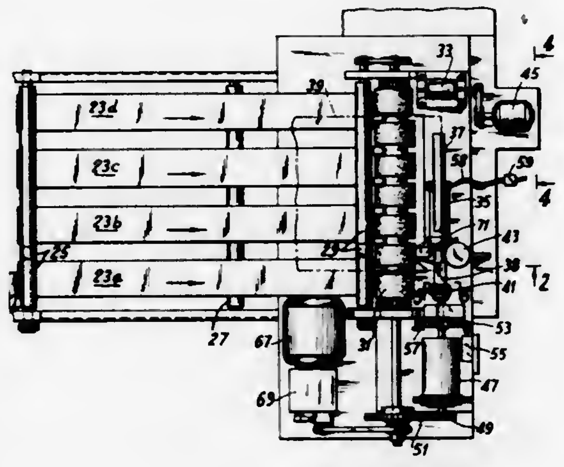
Alan K. Day, Ilford, England, assignor to The Plessey Company Limited, Ilford, England
Filed Aug. 15, 1968, Ser. No. 752,836
Claims priority, application Great Britain, Aug. 16, 1967, 37,756/67
Int. Cl. B65h *39/02, 3/10*
U.S. Cl. 270—58 **8 Claims**



To feed assorted documents in a predetermined order to an in-line conveyor track, individual modular sections of a stationary track having drive rollers for the paper are each provided with a feed throat to which documents from the top of a stack contained in a magazine are fed by a continuously rotating suction drum in which a valve restricts suction to the upwardly moving side while a solenoid valve applies suction only at the time when the supply of a document from the hopper in question is required.

3,572,687
APPARATUS FOR FOLDING SHEETED ARTICLES

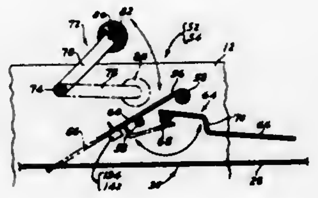
Donald C. Lindley, Tulsa, Okla., assignor to Poly-version, Inc., Tulsa, Okla.
Filed Mar. 12, 1968, Ser. No. 712,551
Int. Cl. B65h *45/00*
U.S. Cl. 270—61 **5 Claims**



Device for multiple folding various length sheets of flat material, utilizing a slotted rotating mandrel and flattening rollers to first roll and then flatten the sheets to form the folds.

3,572,688
FINAL FOLDER FOR FLATWORK

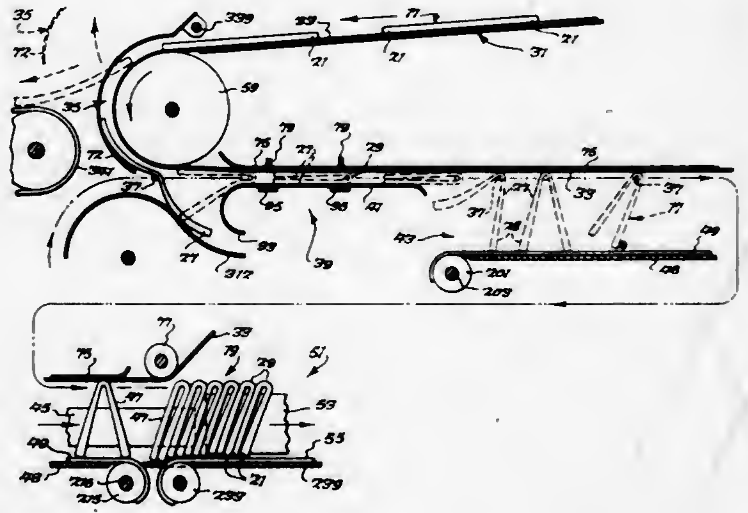
Dan D. Mazzolla, 2464 Raleigh Drive, York, Pa.
Filed Nov. 6, 1968, Ser. No. 773,766
Int. Cl. B65h *45/10*
U.S. Cl. 270—68 **2 Claims**



A flatwork final folder arranged to be used with a preliminary folder of the type capable of folding a flatwork piece such as a sheet or the like into an elongated arrangement of a multiplicity of overlying similar plies and then folding said elongated arrangement transversely onto itself a plurality of times in order to form a substantially square configuration, said final folder being arranged to receive said substantially square folded flatwork piece from said preliminary folder in a position wherein the leading edge is completely rounded while the trailing edge consists of a pair of overlapping ends lowermost and another rounded edge overlying the same, said final folder comprising a conveyor, a first manipulating means and a second manipulating means spaced longitudinally along said conveyor, said manipulating means being similar and each including in combination, a stationary anvil, a clamping member, retractable guide means, power means to operate said clamping member and guide means, and control means for said power means actuated by advancing flatwork pieces and adjusted and arranged to cause the first manipulating means to completely reverse the flatwork piece to dispose the entirely rounded, initial leading edge thereof so as to be the trailing edge and the second manipulating means being arranged to fold the substantially square flatwork piece about a transverse axis and in a direction that the folded leading edge thereof is completely rounded and the ends of said piece are sandwiched between trailing rounded edges and thereby facilitate the engagement of said rounded leading edge by an operator in stacking said folded flatwork pieces for storage or the like.

3,572,689
METHOD AND APPARATUS FOR FOLDING ARTICLES

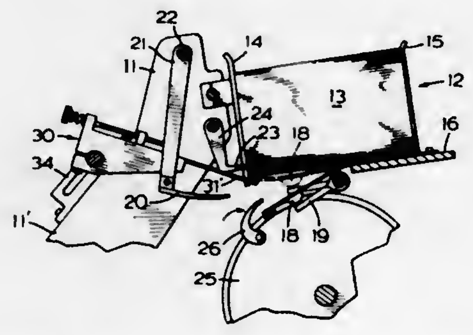
James A. Murphy, Toronto,Ontario, Canada; Charles A. Lee; Warren R. Furbeck, Knoxville, Tenn., and Philip G. Day, Cooksville,Ontario, Canada, assignors to International Paper Company, New York, N.Y.
Filed July 11, 1968, Ser. No. 744,009
Int. Cl. B65h *45/16*
U.S. Cl. 270—70 **13 Claims**



A series of flat articles are advanced along a path at regular intervals and are folded by continuously traveling fingers which engage an article intermediate its ends and fold the same. The fingers advance the articles to a station at which the folded articles are deposited as the fingers automatically withdraw from the folds. The folded articles may be abutted seriatim into a stack within an accumulator in the form of a conveyor traveling a speed considerably slower than the speed of the traveling fingers.

3,572,690
STUFFING MACHINE ATTACHMENT

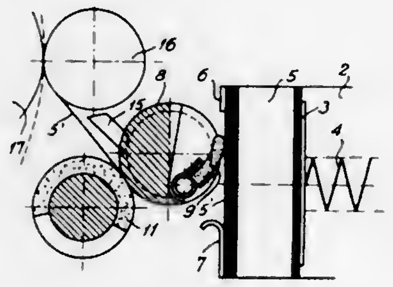
Philip T. Lillie, 3 Quinby Court, Rexdale, Ontario, Canada
Filed Jan. 24, 1969, Ser. No. 793,867
Int. Cl. B65h *1/06, 5/08*
U.S. Cl. 271—19 **1 Claim**



A stuffing machine attachment comprises a rigid support block which is universally adjustable in position with respect to the stuffing machine, and a resilient blade carried by the support block, the blade having a free unsupported end which is adapted to engage the bottom edge of a stack of inserts. The blade is located in a guideway provided in the support block and is adjustable therealong for varying the effective length of the free, unsupported portion of the blade.

3,572,691
MECHANISM FOR WITHDRAWING INDIVIDUAL SHEETS OF PAPER FROM A STACK

Gustav Heinricy, Toronto, Ontario, Canada, assignor to Canadian Stackpole Limited
Filed Oct. 28, 1968, Ser. No. 770,923
Claims priority, application Denmark, Nov. 1, 1967, 5,445/67
Int. Cl. B65h *3/02;* **B65c** *9/12*
U.S. Cl. 271—23 **13 Claims**

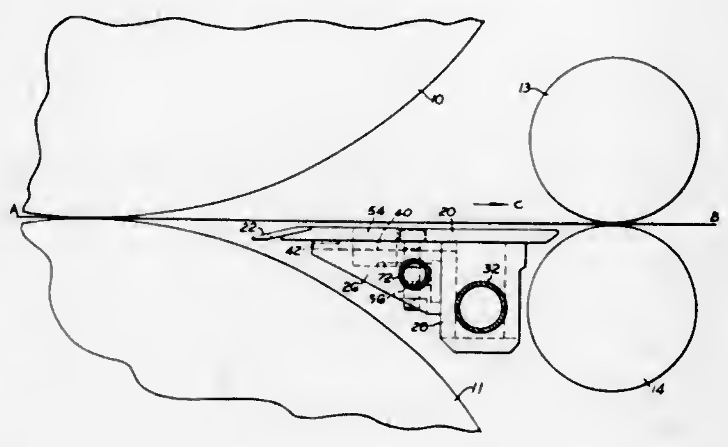


Mechanism for delivering a sheet from a magazine comprising a resiliently displaceable finger carried on a roller which wipes one edge of the foremost sheet from behind an edge of the magazine to drop into a recess in the roller behind the finger, and a second roller to cooperate with the first roller to grip the sheet edge and pull the sheet from the magazine.

3,572,692
BLANK FEEDERS

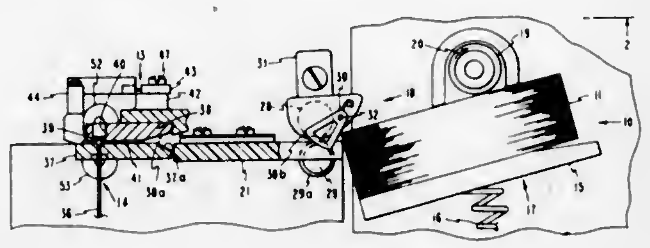
Thomas Desmond Bishop, Solihull, England, assignor to The Deritend Engineering Company Limited, Birmingham, England
Filed Feb. 17, 1969, Ser. No. 799,683
Int. Cl. B65h *3/08*
U.S. Cl. 271—26 **2 Claims**

The invention provides a feeder for thin card or like blanks having a table over which the blanks travel and with air jets for preventing the blank moving one way and also suction means for preventing the blank moving the other way, the two combining to hold the blanks in the desired plane.



3,572,693
CARD STOP-REGISTRATION DEVICE

Curtis A. Larson, and Donald J. Wanek, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 23, 1968, Ser. No. 786,167
Int. Cl. B65h *9/06*
U.S. Cl. 271—60 **8 Claims**

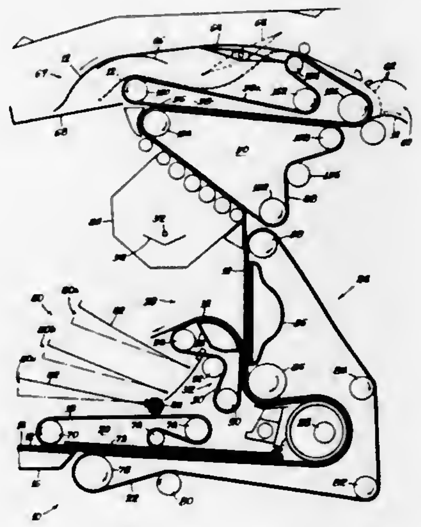


A document card positioning mechanism for accurately locating a moving document card at a predetermined station in its path of movement including a card stop movable into engagement with a stationary plate defining one boundary of the path of card movement with the stop having a slanted surface on which the leading edge of the card abuts, and a pivoted wedge element movable out of the path of card movement by the card as it passes along said path toward said stop and movable back into the path of card travel so as to wedge against the trailing edge of the card and hold it forcefully in engagement with the slanted stop surface.

3,572,694
SHEET- AND WEB-HANDLING ASSEMBLY FOR COPYING MACHINE

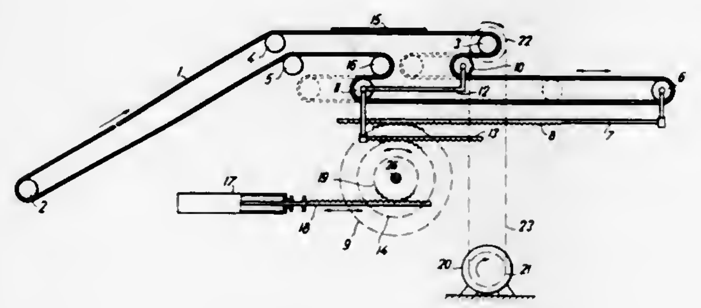
Frederick G. Wilde, Fairport, and L. Gordon Booth, Rochester, N.Y., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.
Original application Sept. 18, 1967, Ser. No. 683,421, now Patent No. 3,464,690, which is a division of application Ser. No. 415,540, Dec. 2, 1964, now Patent No. 3,362,314. Divided and this application Mar. 10, 1969, Ser. No. 805,443
Int. Cl. B65h *29/60*
U.S. Cl. 271—64 **9 Claims**

The application discloses a diazo copying machine using various lengths of original material and copy material. A first conveying means moves the copy and original material past an exposing station to a separating station in a superimposed relation. The separated original material from the separating station is discharged into an original material receiver which can be variously positioned on the apparatus to either receive lengths of original material or to roll up long lengths of original material. The separated copy material is moved past a developing station and discharged at a first outlet or is selectively moved over two different paths to a copy receiver at a second outlet. This movement of the copy material is controlled by the settings of gates in the copy material conveying path. These controls permit use of the copying machine with original and copy material of varying lengths.



3,572,695
CONVEYOR FOR TRANSPORTING AND DEPOSITING FLEXIBLE SHEET MATERIAL

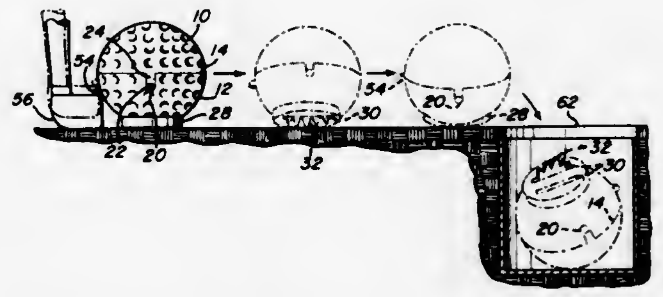
Vladislav Janirek, Gottwaldov, and Zdenek Miculka, Otrokovice, Czechoslovakia, assignors to Strojosvit, narodni podnik, Krnov, Czechoslovakia
Filed May 29, 1969, Ser. No. 828,998
Int. Cl. B65h *29/36*
U.S. Cl. 271—78 **9 Claims**



A conveyor for transporting flexible sheet material and depositing the same at a predetermined location includes an endless conveyor belt and a plurality of rollers around which the belt is guided. At least one of these rollers is driven by a suitable drive means while another of the rollers forms a delivery roller situated at an end of the endless belt where the sheet material which has been transported by the belt leaves the latter to be deposited at the predetermined location. A first shifting structure is operatively connected with the delivery roller for shifting the latter back and forth at a linear speed equal to the linear speed of movement of the conveyor belt itself. The rollers include an even number of length-compensating rollers around which length-compensating loops of the belt are guided to compensate for the extension and contraction of the belt required by the back-and-forth movement of the delivery roller. The length-compensating rollers are also shifted back and forth, but by a second shifting structure which shifts the length-compensating rollers at a speed equal to the quotient of the linear shifting speed of the delivery roller divided by the number of length-compensating rollers.

3,572,696
WALKING GOLF BALL

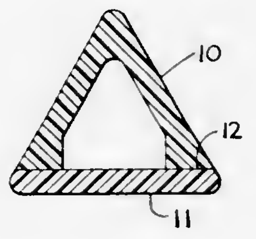
Donald B. Poynter, 7 Arcadia Place, Cincinnati, Ohio
Filed July 17, 1968, Ser. No. 745,605
Int. Cl. A63b *43/00*
U.S. Cl. 272—27 **6 Claims**



The walking golf ball comprises a spherical hollow casing containing a motor, and legs activated by the motor to cause the golf ball to advance with a walking motion toward a cup or other target selected by the player. Control of the motor preferably is by means of a small lever or the like projecting from the ball at a location of little prominence, and which may be manipulated more or less casually by the head of a golf club. The mechanism includes means for directing the ball along a generally straight course, with a deliberate side-to-side wobble.

3,572,697
POLE VAULT CROSSBAR

James A. Rappas, 101 Hampton Parkway, Kenmore, N.Y.
Filed Feb. 7, 1969, Ser. No. 797,449
Int. Cl. A63b *5/06*
U.S. Cl. 272—59 **5 Claims**

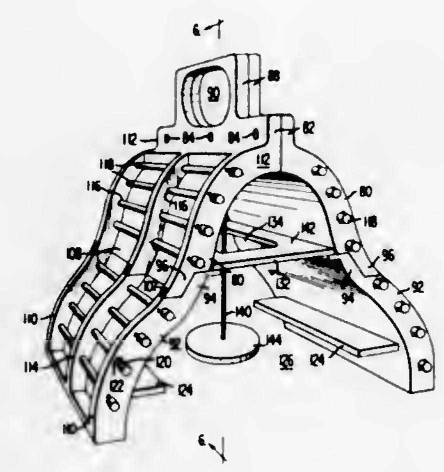


A crossbar for pole vaulting, high jumping and the like of triangular cross section is formed of two strips of synthetic resin, a generally flat base strip and an inverted V-shaped strip, the lower portions of the legs of the inverted V-shaped strip being cemented to the base strip. The crossbar is given a predetermined upward arch or camber to counteract the tendency to sag under its own weight. This may be done by cementing the two parts to each other and clamping them in an arched position while the cement is setting, or by applying a tensile stress lengthwise of the base strip and maintaining such tensile stress with the parts clamped in a straight line relationship while the cement is setting. In the latter case release of the clamping pressure causes the composite crossbar to assume an upwardly cambered form, due to internal tensile-compressive stress equilibrium.

3,572,698
PLAYGROUND SHELTER

Colin Greenly, 1153 Bellview Road, McLean, Va.
Filed June 5, 1968, Ser. No. 734,817
Int. Cl. A63b *9/00, 3/00*
U.S. Cl. 272—60 **17 Claims**

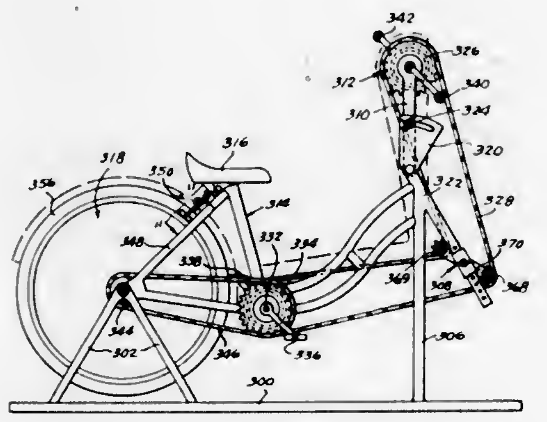
A children's playground shelter constructed of reinforced concrete, fiberglass, or the like, and formed of two mutually supporting, elongated wall members spaced apart at their lower ends and in an abutting relation at their upper ends to define a sheltered area. The external surface of the wall members is equipped with a plurality of vertically spaced handholds and foot supports to facilitate the climbing thereon by children. Apertured vertical extensions may be provided at the juncture of the wall members to provide the opportunity for a child to crawl therethrough in ascending one of the wall members and descending the other of the wall members. The width of the juncture may be sufficient to



allow a child to walk thereon. Seats may be provided within the sheltered area. These seats may also be apertured to further stimulate the imagination of the child at play within the sheltered area. In an embodiment for more advanced children, an upper level or raised platform may be provided within the sheltered area to which access may be gained only by the climbing of a rope, pole, or other climbing means through an aperture in the platform. Seats may also be suspended from the climbing means which depend from one of the wall members through the aperture in the raised platform or from the platform itself.

3,572,699
BICYCLE EXERCISER WITH INTERCONNECTED HAND AND FOOT PEDALS

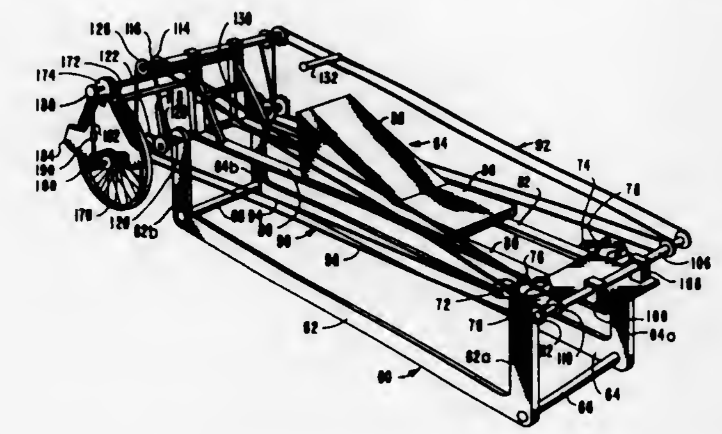
Harry B. Nies, P. O. Box 738, Parsons, Kans.
Filed May 21, 1969, Ser. No. 832,548
Int. Cl. A63b *21/00, 23/04, 69/16*
U.S. Cl. 272—73 **4 Claims**



A stationary exercise device is modified to record cyclic positional information of the hand and foot operated pedals against a variable load which load level is also recorded to indicate brain damage in terms of pedal lag for either set of pedals. The apparatus may be motor driven under a specified load for a partially or totally incapacitated person for therapy for the motor brain center. Alternatively, the apparatus may be a modified conventional bicycle with a foot pedal assembly and a hand-operated pedal assembly carried in place of the handlebars. A drive chain couples the foot pedal assembly and hand pedal assembly through separate drive sprockets. The drive sprockets consist of a series of different diameter sprockets which are selectively shiftable into engagement with the drive chain.

3,572,700
FRICTONAL TYPE EXERCISING DEVICE

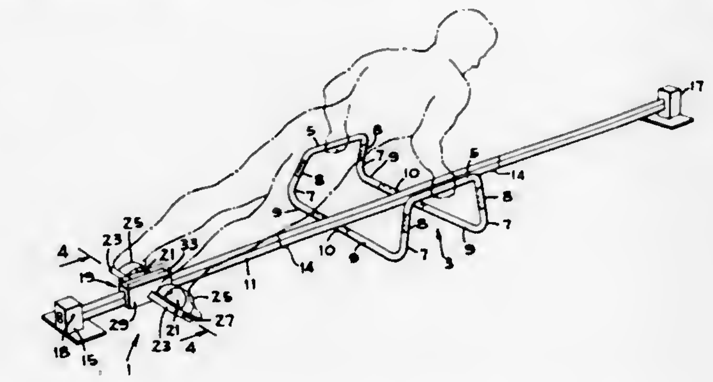
Joseph A. Mastropaolo, 16291 Magellan Lane, Huntington Beach, Calif.
Filed July 8, 1968, Ser. No. 743,092
Int. Cl. A63b *23/02, 23/04*
U.S. Cl. 272—79R **6 Claims**



Exercising device providing time-distributed, continuously varying uses of a high proportion of body muscle masses, through individual exercise cycles employing bidirectional operation against a resistance between fully flexed and fully extended positions of the subject. Arm and body travel against the resistance successively involves agonist and antagonist musculature, the work output rate or total work output being measurable. Programs of exercises employing selected work rates and work quantities provide total body conditioning without undue strain or tendency to loss of motivation.

3,572,701
PUSH PULL TYPE EXERCISING DEVICE

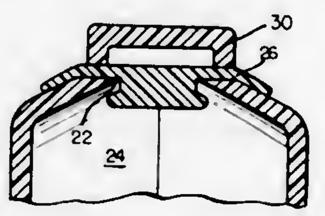
Alexander Agamian, 1366 Kotenberg Ave., San Jose, Calif.
Filed May 19, 1969, Ser. No. 825,577
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 **8 Claims**



An apparatus for physical exercise having a handrail support, a longitudinal guide track extending in a plane beneath and fore and aft of the handrail support, a carriage slideable along the rail and adapted to be engaged by the feet of an individual.

3,572,702
BARBELL WEIGHT

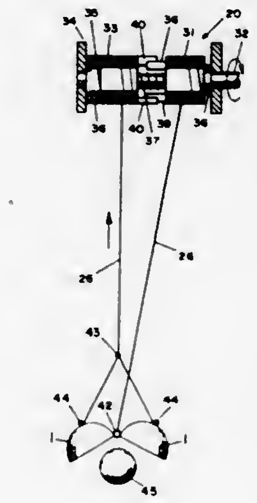
Harry M. Dorn, 1133 Broadway, Flushing, N.Y.
Filed Mar. 5, 1969, Ser. No. 804,588
Int. Cl. A63b *11/00, 11/02*
U.S. Cl. 272—84 **3 Claims**

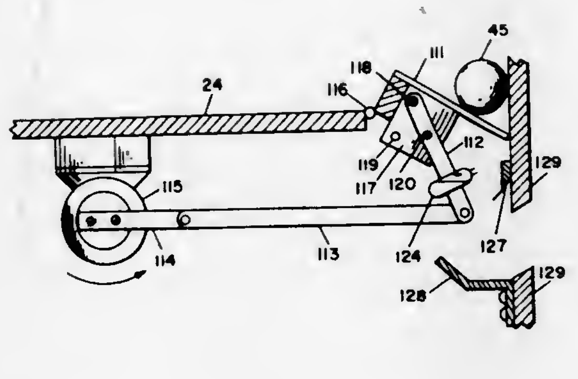


A rubber tire to keep a filling plug in place in a hollow barbell weight filled with a weighting material through a filling opening in the hollow weight and having a plug to close the filling opening.

3,572,703
THREE DIMENSIONAL GAME AND VENDOR APPARATUS

Henry Thomas Greene, Pasadena, Md., assignor to Chesapeake Automated Products, Inc.
Filed Apr. 25, 1968, Ser. No. 724,154
Int. Cl. A63f *9/00*
U.S. Cl. 273—1 **5 Claims**



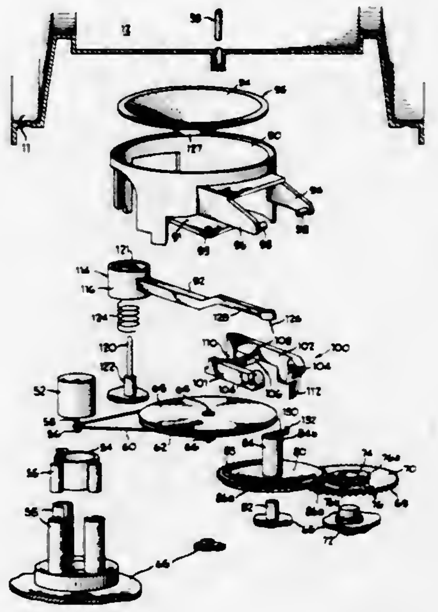


A three dimensional game and vending apparatus with opposing cups attached to a winch mechanism with this mechanism motor controlled for movement in a horizontal plane by movement of a rotatable pair of winch drums along a square support shaft mounted on a carriage mechanism. The drums are mounted on a common horizontal axis and each drum has protruding pins which engage the pins on the other drum. A ball or capsule of merchandise is dropped by the cups on a leaf mechanism which may be adjusted for either return to the game or dispensed in a vending machine.

3,572,704
DEXTERITY GAME WITH PHONOGRAPH

Marvin I. Glass, Chicago, and Gunars Licitis, Lombard, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Sept. 5, 1968, Ser. No. 757,549
Int. Cl. A63f *9/00;* **A63h** *5/00;* **G11b** *17/06*
U.S. Cl. 273—1 **9 Claims**

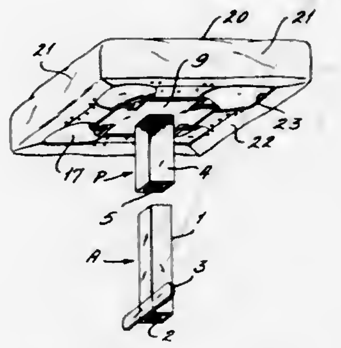
An electric game apparatus including a base structure housing a phonograph mechanism, and a simulated birdcage pivotally supported on the base by a center pole which extends upwardly from the base to the roof of the cage. The cage includes a comical figure, and each player in turn attempts to remove the comical figure through the bars of the



cage without disturbing the balance thereof. The means for controlling the operation of the battery-powered phonograph includes contact means which is responsive to movement of the cage to actuate the phonograph and produce a sound message. The phonograph includes indexing means for shifting the tone arm from one recorded message to the next and means for returning the tone arm to the starting position on the record after all of the messages have been played.

3,572,705
STRAPLESS COVERING FOR BASEBALL BASE

Bruce R. Wyble, Sikeston, Mo., assignor to Caproco, Inc., St. Louis, Mo.
Filed Nov. 8, 1968, Ser. No. 774,251
Int. Cl. A63b *69/40*
U.S. Cl. 273—25 **5 Claims**

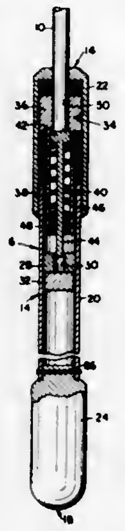


A baseball base having a plate, a filler, and a cover which completely surrounds the filler except over a portion of the bottom, the inner edges of said cover being connected to the plate, there being no straps or buckles or fastening means exposed to the baseball players.

3,572,706
SWING FORCE INDICATOR INCLUDING AN ACTUATOR FOR DISENGAGING A MAGNETICALLY ATTRACTED MOVABLE MEMBER

Burnos L. Schroder, 2460 Park Blvd., Palo Alto, Calif.
Filed June 9, 1969, Ser. No. 831,550
Int. Cl. A63b *69/36, 49/00*
U.S. Cl. 273—26 **9 Claims**

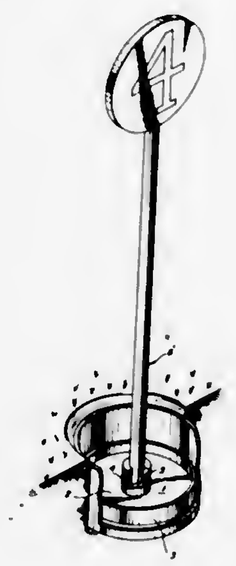
A swing force indicator for use with sporting implements such as golf clubs, baseball bats and the like having a shaft and a closed tubular housing at an end of the shaft. A magnetic sleeve is disposed midway between ends of the housing and an axially movable member is magnetically attracted to the sleeve. An axially movable plunger is disposed on the other side of the sleeve, is biased away from the sleeve and is



axially movable past the sleeve into engagement with the member to dislodge the member when the implement is swung with a predetermined force.

3,572,707
PRACTICE GREEN PIN HOLDER AND CUP

Thomas E. Stapleton, Jr, 6915 E. Windsor, Scottsdale, Ariz.
Filed Aug. 18, 1969, Ser. No. 850,872
Int. Cl. A63b *57/00*
U.S. Cl. 273—34 **1 Claim**

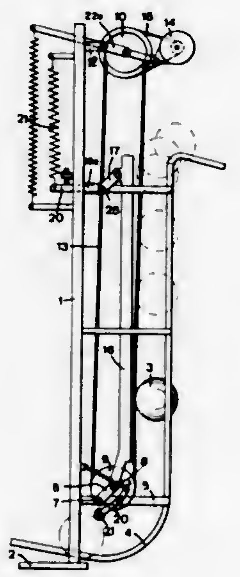


A pin holder with cooperating cup for use on golf practice greens. The upper surface of the pin holder includes a centrally located apertured boss designed to receive and hold in an upright position the staff of a practice green marker. The lower surface of the pin holder includes spikes so that it can be planted on the green in an upright position when out of the cup, thereby discouraging the throwing of the pin assembly on the green and obviating the inconvenience of stooping to pick up the pin. The cooperating cup includes a central aperture and a concentric groove to receive the spikes and hold the pin marker in a stable, upright position in the cup. The pin holder also includes an upwardly extending peripheral flange to prevent a golf ball from rolling off its upper surface.

3,572,708
BOWLING BALL LIFTING DEVICE FOR BOWLING INSTALLATIONS

August Schmid, Schwerzenbach, Switzerland, assignor to Patentverwertungs-und Finanzierungsgesellschaft Serania AG, Glarus, Switzerland
Filed Apr. 30, 1968, Ser. No. 725,335
Claims priority, application Switzerland, May 2, 1967, 6264/67
Int. Cl. A63d *5/02*
U.S. Cl. 273—49 **1 Claim**

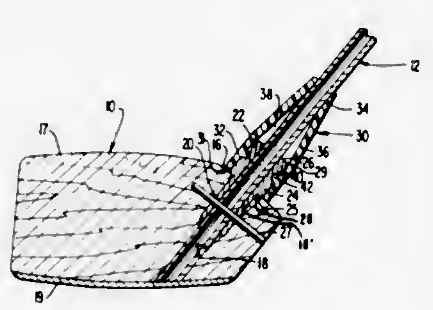
A bowling ball-lifting device for bowling installations comprising an upper and lower deflecting rollers which are pivotally mounted. An endless belt trained about the upper and lower deflecting rollers serves to raise the bowling balls. A train of rollers is disposed at the rear of the bowling ball-conveying run of the endless belt for supporting at least a



portion of the length of said conveying run of said endless belt. The lower deflecting roller is pivotally mounted so that it is raised when a ball is being elevated. A ball-blocking mechanism cooperates with the lower roller to prevent the infeed of further balls while a ball is being elevated.

3,572,709
GOLF CLUB CONSTRUCTION

John D. Risher, 127 Bonnett St, SW, North Canton, Ohio
Filed Oct. 14, 1968, Ser. No. 767,220
Int. Cl. A63b *53/02*
U.S. Cl. 273—80.2 **11 Claims**

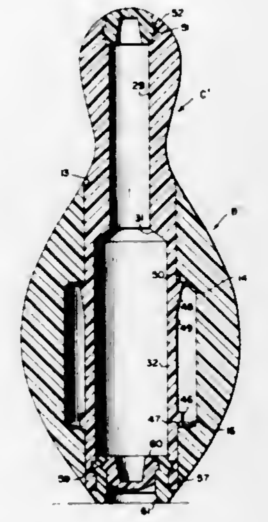


The inner sleeve joining the shaft of the golf club to the head projects but a small distance beyond the head and an outer sleeve of relatively stiff flexible materials forms in effect an extension of the inner sleeve and snugly embraces the shaft well beyond the inner sleeve. In this way, the shaft is allowed to flex along a greater extent of its length then would otherwise be possible.

3,572,710
PLASTIC BOWLING PIN

Maurice Anthony Negrini, 25 Quimby Ave, Woburn, Mass.
Original application June 25, 1969, Ser. No. 836,518. Divided and this application Dec. 4, 1969, Ser. No. 882,036
Int. Cl. A63d *9/00*
U.S. Cl. 273—82 **11 Claims**

This specification discloses a bowling pin of plastic that has the appearance of a wooden pin, sounds like a wooden pin, and scores like a wooden pin. These properties are imparted by the structure comprising a hollow main body, a hollow core with a space between the core and the body, a removable and replaceable cap plug for the upper end of the core, and a removable and replaceable base plug for the lower end

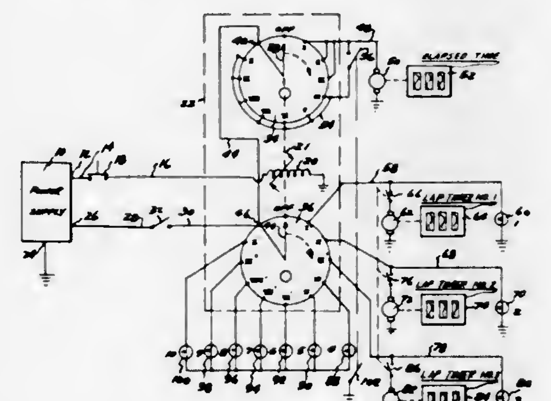


of the core; and method of manufacturing the pin of this construction.

The present invention relates to bowling pins, and is concurred primarily with a bowling pin of plastic that has all the properties that are of vital interest to a bowler, of a wooden pin and which properties are imparted to the pin by the structural characteristics thereof.

3,572,711
TIMER AND LAP COUNTER FOR SLOT CARS

Thomas H. Conklin, 2118 Windy Hill, Pontiac, Mich.; Donald D. Rice, Southfield (1015 Arbor Lane, Glenview, Ill. 60025), and Dimitri G. Theodorou, Oak Park, Mich. (1515 Industrial Way, Belmont, Calif. 94002)
Filed Mar. 21, 1966, Ser. No. 535,750
Int. Cl. A63f *9/14*
U.S. Cl. 273—86 **12 Claims**

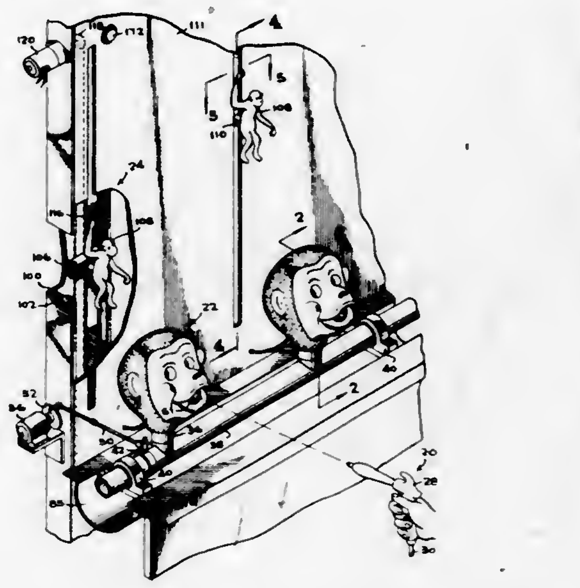


A timer and lap counter for slot cars and the like consisting of a switch disposed on the raceway on which the slot cars travel for producing an electrical impulse on passage of a slot car. The electrical impulses operate an electrical stepping switch which starts an elapsed time timer and one or a plurality of lap timers associated with each slot car. The stepping switch is also arranged to turn on or off one of a plurality of visual indicators such as lightbulbs for providing a visual display of the lap number travelled by every individual slot car.

3,572,712
MOVING TARGET AND WATER GUN WITH INDICATING MECHANISM

Ance M. Vick, 1715 Busch Blvd., Tampa, Fla.
Filed July 23, 1968, Ser. No. 746,927
Int. Cl. F41j *9/00*
U.S. Cl. 273—86 **9 Claims**

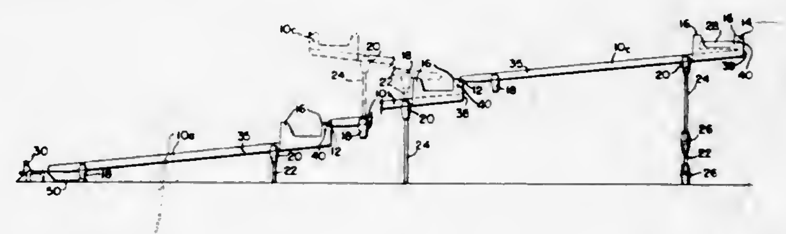
An oscillating water-gun target enclosing a mercury switch which, when struck by a stream of water from a water gun, completes a circuit to a drive motor for moving an animated indicator along a vertical track with the circuit being



interrupted upon failure of the water stream to strike the switch means and including a cutoff switch actuated by the indicator when it reaches the top of the track.

3,572,713
TOY RACE TRACK CONSTRUCTION SET

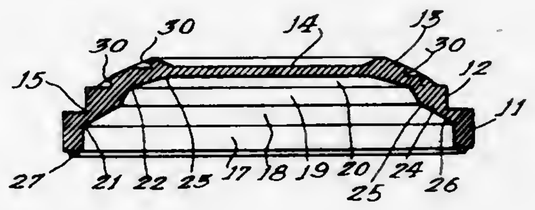
Daniel F. Krause, and Arnold E. Brown, Nashville, Tenn., assignors to Kusan, Inc., Nashville, Tenn.
Filed Apr. 4, 1969, Ser. No. 813,600
Int. Cl. A63f *9/14*
U.S. Cl. 273—86 **13 Claims**



A toy race track construction set comprising a plurality of interconnectable track sections each having mutually cooperating supporting elements for itself and for adjacent sections so arranged and arrangeable as to enable the assembly of a plurality of the sections in an inclined end-to-end, superposed or angular relationship, or in any desired combination thereof, each section having a separate chute for each of a plurality of racing elements which are movable down said cooperating sections by gravity.

3,572,714
FLYING TARGET FOR TRAP SHOOTING

Erwin M. Lau, Dolton, Ill., assignor to Black Products Co., Chicago, Ill.
Filed Dec. 30, 1968, Ser. No. 787,671
Int. Cl. F41j *9/16*
U.S. Cl. 273—105.4 **11 Claims**

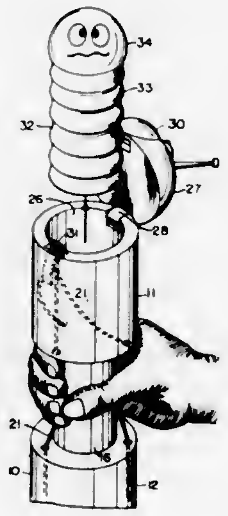


A flying target or clay pigeon molded from a frangible pitch and clay mixture having an internal surface with sharp interior angles of substantially 125° and 140° formed by intersecting conical surfaces. The 125° angle is located inwardly of the rim, and 140° angle is located beneath the dome. Between the two angles, there is an inwardly protuberant surface portion which provides a thickened wall section for the step to improve trapping strength. The sharp interior angles represent lines of potential fracture which extend circumferentially. A neck portion separates the rim from the step.

3,572,715
AERIAL PROJECTILE WITH JACK-IN-THE-BOX

Carlos Ramirez, Brooklyn, N.Y. (South Washington St., Hermann, Mo. 65041)

Filed July 25, 1969, Ser. No. 845,008
Int. Cl. A63h *11/06*; **A63f** *9/02*
U.S. Cl. 273—106 **10 Claims**

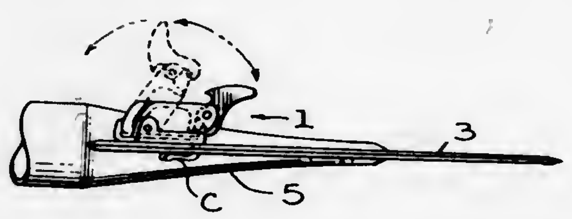


A toy to be tossed from one player to another has a shaft with enlarged portions and a jack-in-the-box-type device secured by at least one catch at one end, the shaft having trigger strings extending through the enlarged portions along the shaft to the at least one catch so that the touching of a trigger string releases the jack-in-the-box-type device.

3,572,716
HUNTING ARROW WITH DRUG DISPENSING POD

Fred B. Bear, Grayling, Mich., assignor to Victor Comptometer Corporation, Chicago, Ill.

Filed Nov. 25, 1968, Ser. No. 778,548
Int. Cl. F41b *5/04*
U.S. Cl. 273—106.5 **10 Claims**



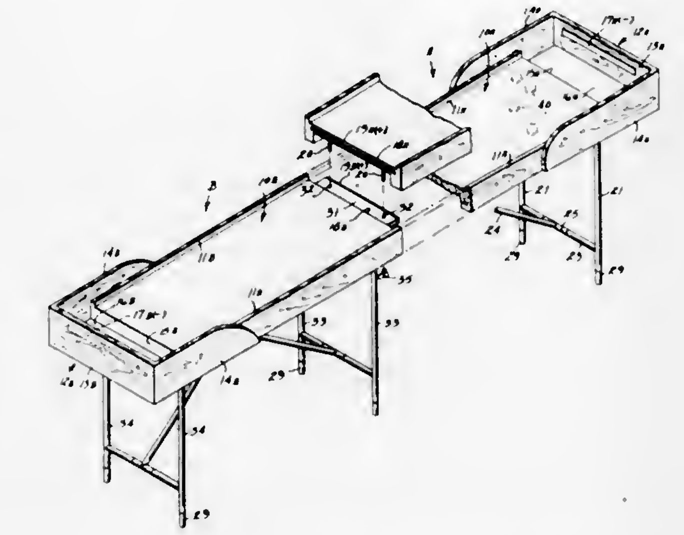
A hunting arrow including a pod readily attached to the broadhead for the automatic dispensing of a tranquilizing composition upon entry of the head into the flesh of game. Cover means normally encapsulates the composition but is displaced rearwardly by the animal flesh to expose the composition to the animal tissue to insure a quick, humane kill.

3,572,717
PORTABLE SHUFFLEBOARD

Frank Anguella, 1075 Applegate Ave., Elizabeth, N.J.

Filed Aug. 5, 1968, Ser. No. 750,252
Int. Cl. A63f *3/00*
U.S. Cl. 273—126 **1 Claim**

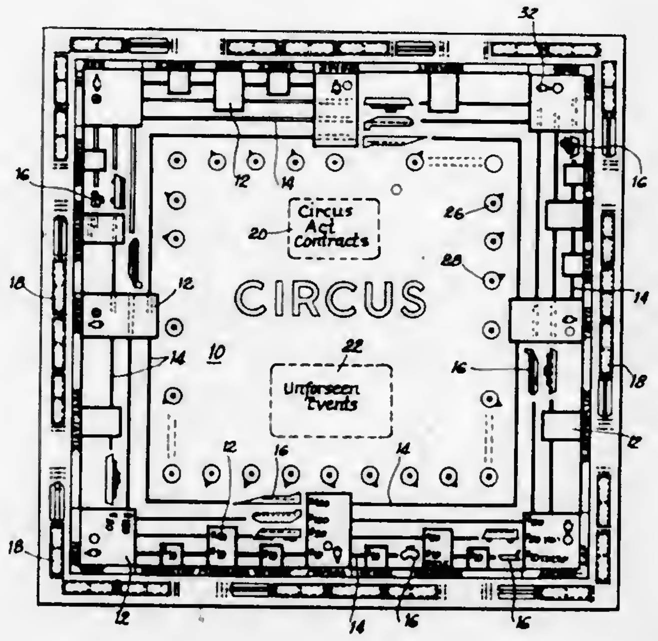
A miniature shuffleboard which comprises two sections capable of being quickly assembled to form a table shuffleboard for recreational play and quickly assembled into a neat package which may be easily transported by an individual from place to place. The shuffleboard features corresponding attachment means on each of the sections for aligning and connecting the sections to each other in the assembled position, pivotal legs on each of the sections for supporting the sections in the assembled position, said legs having a latch cooperative therewith for holding the legs in the disassembled position, and magnetic means for facilitating a holding of the sections in the disassembled position.



3,572,718
BOARD GAME APPARATUS

Robert L. Moore, 919 Coronet Lane, La Grange, Ill.

Filed Dec. 4, 1967, Ser. No. 687,879
Int. Cl. A63f *3/02*
U.S. Cl. 273—134 **8 Claims**

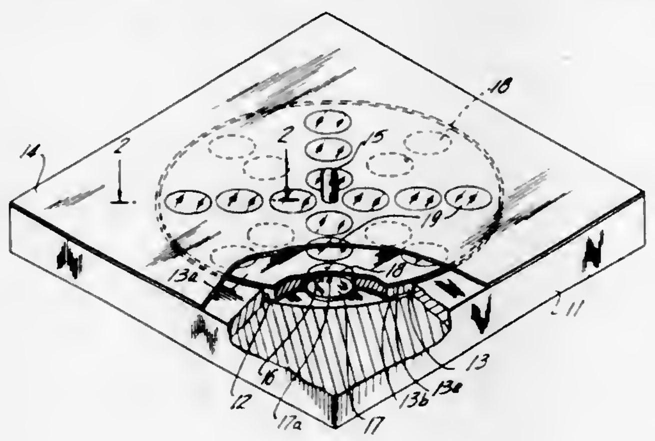


A game construction comprising a playing board having indicia thereon defining a path of travel on the board. Playing positions are included in the path of travel to be occupied by playing pieces with some of the playing piece positions being interconnected by a plurality of lines of travel whereby alternatives are available to the players. Vehicles are provided for playing pieces, and the distance of travel available is determined by the vehicle selected by the player. Pictorial representations are displayed on the board at playing piece positions with a plurality of such representations being displayed adjacent those playing piece positions having a plurality of lines of travel extending therefrom. The representations provide locating positions for vehicles as well as means for determining which vehicles can be used for travel from a particular playing piece position. The appearance of each of said representations is sufficiently similar to that of the corresponding simulated vehicle to enable identification of the vehicle by comparing its appearance with that of the representation.

3,572,719
MAGNETIC TOY GAME

Samuel Span, Teaneck, and Walter Thum, Fair Lawn, N.J. (93 Bellmont Ave., Paterson, N.J. 07509)

Filed Apr. 11, 1968, Ser. No. 720,505
Int. Cl. A63b *71/06*; **A63f** *9/00*
U.S. Cl. 273—139 **4 Claims**



A toy game using the force of a permanent magnet to make indicia on magnetically attractive disks, which are normally invisible below a translucent closure plate, visible through the closure plate by attracting them against the underface of the closure plate; a circular plate which can be rotated by hand, and radially arranged small transparent windows under which portions of the translucent closure plate over the disks may appear.

3,572,720
A GOLF PUTTING PRACTICE DEVICE

Edward T. Berg, 187 Fremont St., San Francisco, Calif.

Filed June 2, 1969, Ser. No. 829,353
Int. Cl. A63b *69/36*
U.S. Cl. 273—176 **7 Claims**

An aid in practicing putting comprising an elongated flat base and upon said base a channel of U-shaped cross-sectional contour with its side flanges disposed longitudinally of said base. Along their inner surfaces these side flanges are provided with rows of transversely aligned, longitudinally equispaced flaps of flexible material and of preferably semicircular contour. Transversely of the channel, these flaps are spaced from each other by a distance slightly larger than the length of the putter blade. Target means for a golf ball is arranged on the base in an area thereof spaced from one of the open ends of the channel in the vertical plane of symmetry thereof. When a golfer wishes to putt a golf ball from a point on the floor of the channel onto the target means, the blade of his putter must stay free of the opposed flaps on the side flanges of the channel for the stroke to be perfect. If his putter blade touches any one of these flaps, the golfer senses this immediately and knows that his putting stroke is faulty.

3,572,721
PLAY BALLS

Stanley R. Harrison, Castle Bromwich, near Birmingham, and Robert M. Broughton, Boldmere, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London County, England

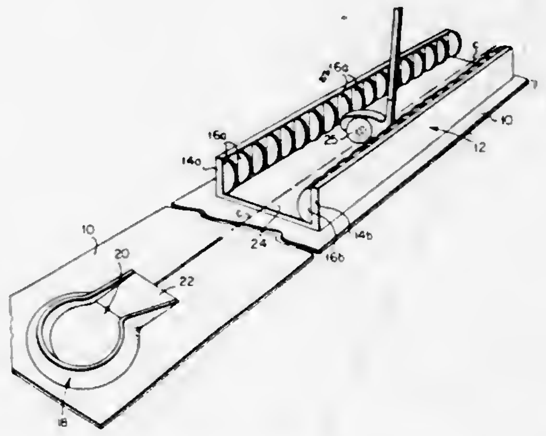
Filed June 29, 1967, Ser. No. 649,869
Claims priority, application Great Britain, July 22, 1966, Mar. 7, 1967, 32,952/66;10734/67
Int. Cl. A63b *37/00*
U.S. Cl. 372—218 **16 Claims**

Playballs, particularly golf balls, which are moulded from a composition which includes a blend of rubber with a thermoplastic homopolymer or copolymer of an alpha-olefine. The balls may be single-piece mouldings or mouldings of a one, two or more piece core encased in a cover.

3,572,722
PLAY BALLS

Stanley R. Harrison, Castle Bromwich, near Birmingham; and Robert M. Broughton, Boldmere, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London County, England

Filed July 5, 1967, Ser. No. 651,122
Claims priority, application Great Britain, July 22, 1966, Mar. 7, 1967, 32984/66;10736/67
Int. Cl. A63b *37/00*
U.S. Cl. 273—218 **13 Claims**

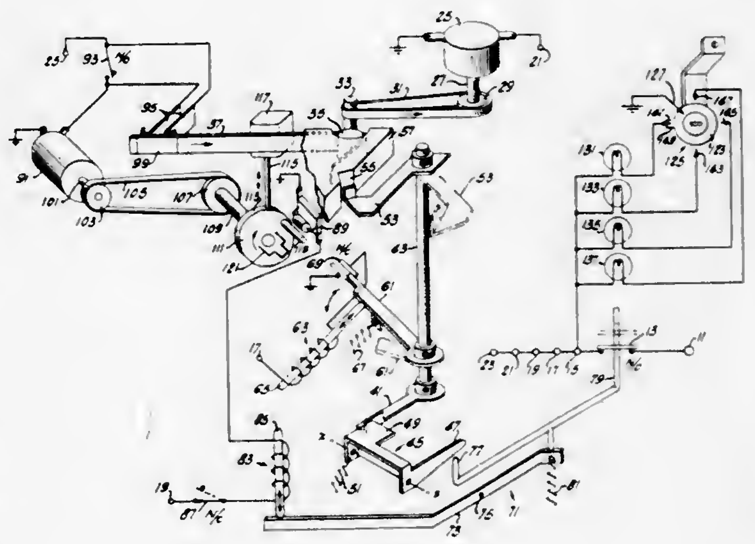


A playball comprising a blend of rubber and a thermoplastic homopolymer of a styrene or substituted styrene, or a thermoplastic copolymer, terpolymer or interpolymer of a styrene or substituted styrene with (i) acrylonitrile or substituted acrylonitrile and/or (ii) an alkyl ester of acrylic or methacrylic acid and/or (iii) a diene, the rubber being present in the blend in an amount of from 10 percent to 90 percent by weight of the blend. The diene is preferably butadiene or isoprene.

3,572,723
TAPE CARTRIDGE SYSTEM

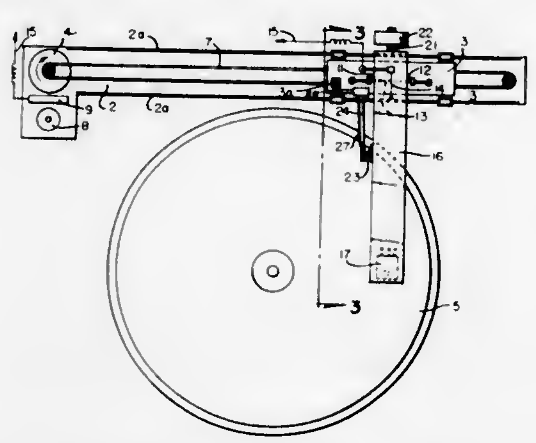
Carlton G. Jenkins, Clarendon; John Robert Peltz, Warren; Clayton Lewis Stoldt, North Warren, and Nikolaus Adalbert Szeverenyi, Warren, Pa., assignors to Sylvania Electric Products Inc.

Continuation of application Ser. No. 643,681, June 5, 1967, now abandoned. This application Oct. 31, 1969, Ser. No. 871,787
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 **2 Claims**



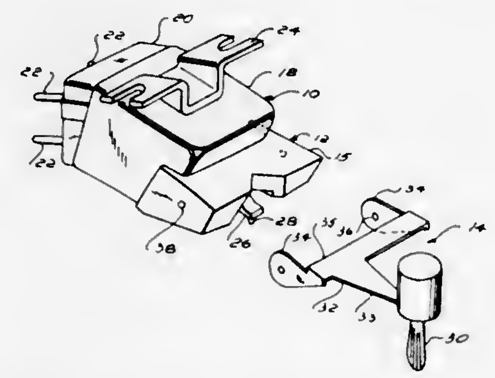
A tape cartridge player for multichannel endless loop tape cartridges having an automatic tape cartridge lock-in mechanism including a contact arm with a detent pawl at one end thereof, a straight angle magnetic head positioning and channel changing mechanism including a cam and follower operable both manually and automatically, and an automatic shutoff switch mechanism, but with an override which permits continuous play. When the cartridge is inserted in the player and the power is turned on, contact arm is moved by solenoid action so that the detent pawl contacts a detent in the cartridge and applies a fixed positive pressure thereto. Upon the completion of one channel of play, the cam is moved to the next channel position and the follower simultaneously moves the magnetic head to the next channel position. As an alternative, the channel changing mechanism may be manually actuated to switch from one channel to the next adjacent channel. After the last channel of recorded information has been played, as the channel changing mechanism is actuated, a wiper attached to the cam actuates a microswitch, which energizes a solenoid to thereby effect an automatic shutoff of the system which simultaneously acts to move the contact arm to its original position, releasing the pressure applied to the cartridge. The override switch when operative inhibits the activation of the shutoff solenoid to permit continuous operation.

3,572,724
SERVODRIVEN SPRING-SUPPORTED ARM FOR PHONOGRAPH PICKUPS
Jacob Rabinow, Bethesda, Md., assignor to Max L. Libman, Reston, Va., fractional part interest
Filed Aug. 27, 1968, Ser. No. 755,598
Int. Cl. G11b *3/10*
U.S. Cl. 274—13 **11 Claims**



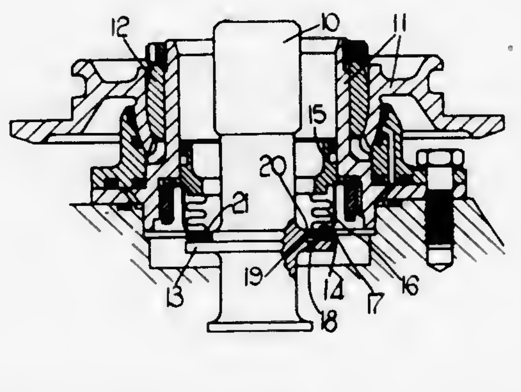
Instead of the delicate pivoted bearing ordinarily used to support a phonograph arm, a crossed spring suspension is used which permits limited motion of the phonograph pickup in the horizontal and vertical planes, but restrains the arm and pickup against motion in the direction of the longitudinal axis of the arm or rotary (torque wise) motion about this axis.

3,572,725
PHONOGRAPHIC PICK-UP AND STYLUS ASSEMBLY HAVING REMOVABLE ATTACHMENT FOR CLEANING RECORD
Stewart F. Murphy, Northport, N.Y., assignor to Pickering and Company, Inc., Plainview, Long Island, N.Y.
Filed Jan. 9, 1969, Ser. No. 790,053
Int. Cl. G11b *3/58*
U.S. Cl. 274—47 **2 Claims**



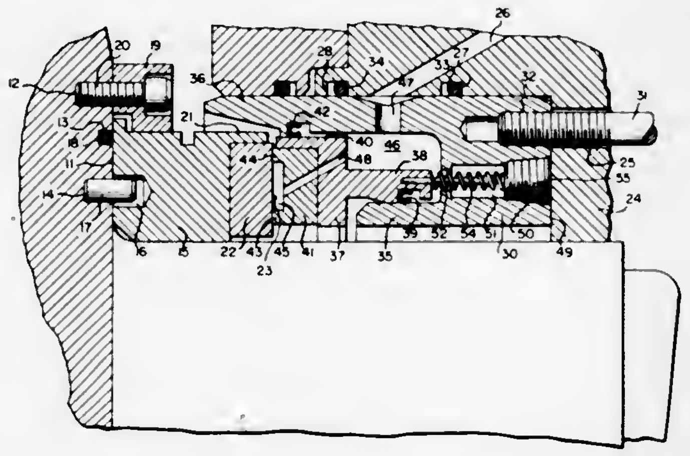
A replaceable stylus assembly for a phonographic pickup cartridge is provided with a removable brush for sweeping dust from the record grooves in advance of the path of the stylus. The brush, when mounted on the stylus assembly and when in an operative position is spaced radially inwardly of the stylus toward the center of the record disc and also projecting outwardly at a lateral or transverse angle extending toward the plane of the stylus whereby the brush serves to direct any dust inwardly toward the center of the record disc and away from the stylus.

3,572,726
SHAFT SEALS
Harry Simister Bottoms, Olton, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed May 17, 1968, Ser. No. 730,147
Int. Cl. F16j *15/16*
U.S. Cl. 277—74 **1 Claim**



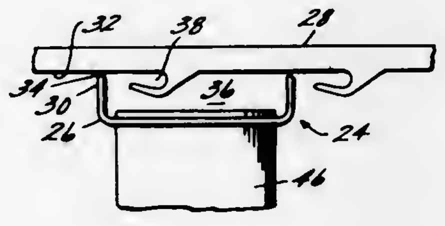
A shaft seal between a shaft and a structure comprising a sealing member with an axially presented surface carried on a bellows on the shaft or structure and an axially presented surface on the structure or shaft against which the sealing member engages, and the sealing member having a radially presented annular surface engaging with a complementary surface on the part having the other axially presented surface.

3,572,727
UNLOADING GAS BARRIER FACE SEAL
Harold Fredric Greiner, Warwick, R.I., assignor to Sealol Inc., Warwick, R.I.
Filed July 16, 1969, Ser. No. 842,203
Int. Cl. F16j *15/40, 15/54*
U.S. Cl. 277—74 **3 Claims**



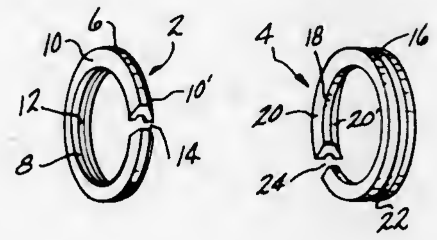
This specification discloses a dry running gas seal for gas processing systems in which a rotating shaft enters a high pressure area. The seal comprises a mating ring presenting a seal face and a seal ring providing two concentric seal faces engaging the seal face on the mating ring and cooperating therewith to define a pressure cavity. A chamber for an inert barrier gas is provided in a fixed housing and communicates with a supply of inert gas under pressure. The seal ring has throttling passage between the barrier gas chamber and the pressure cavity. The seal ring is biased towards the mating ring by springs mounted in the housing. These springs provide the loading force under which the seal faces are urged together. Increase in the pressure of the barrier gas is transmitted through the passages to increase the pressure of the gas in the pressure cavity. This increase results in a decrease of the loading forces.

3,572,728
ROTARY SEAL
Robert J. Smuland, Cincinnati, Ohio, assignor to General Eelctric Company
Filed June 17, 1968, Ser. No. 737,720
Int. Cl. F16j *15/48;* **F02f** *11/00;* **F01d** *1/04*
U.S. Cl. 277—57 **1 Claim**



An improved rotary seal having at least one seal tooth carried by a rotating or stationary member and extending into close or rubbing contact with a sealing surface carried by the other member and means downstream of the seal tooth to receive and direct leakage fluid toward the leakage passage to thereby increase the apparent downstream pressure, decrease the apparent pressure drop across the seal tooth and, hence, decrease the amount of fluid leakage across the seal tooth.

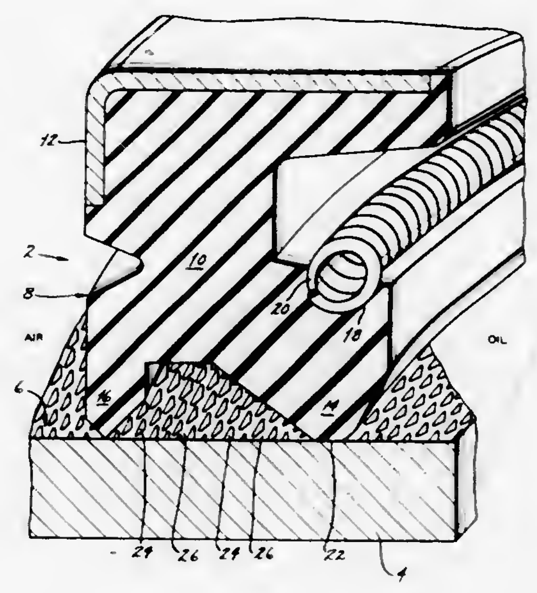
3,572,729
EXPANDING RING SEAL
Elmer Raleigh Hodil, Jr., New Haven, Conn., assignor to Olin Corporation
Filed May 23, 1968, Ser. No. 731,512
Int. Cl. B65d *53/00;* **F16j** *15/46*
U.S. Cl. 277—71 **2 Claims**



A fluid obturating device comprising at least two expandable rings which flex outwardly and inwardly respectively when subjected to fluid pressure.

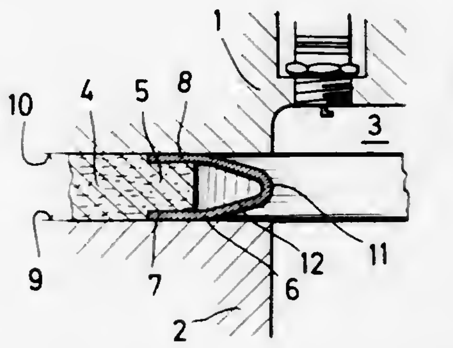
3,572,730
WEAR SURFACE FOR FACILITATING LUBRICATION OF ELEMENTS IN ENGAGEMENT THEREWITH
Dennis L. Otto, and Peter C. Paterson, Canton, Ohio, assignors to The Timken Company
Filed June 13, 1969, Ser. No. 833,022
Int. Cl. F16j *15/32*
U.S. Cl. 277—96 **19 Claims**

A wear surface composed of a multiplicity of closely spaced triangular asperities is engaged by an element which moves relative thereto. The triangular shape of the asperities enables them to pump a lubricant contained in the depressions between the asperities in a direction transverse to the direction of relative movement. The asperities may be provided with curved leading corners to force a portion of the lubricant across the lands of the asperities and thereby furnish additional lubrication to the element as it passes over those lands. The asperities may be arranged in overlapping rows so as to insure adequate support of the element. The wear surface may be utilized in thrust applications such as on



the thrust rib located at the large end of the frustoconical race on a tapered roller bearing.

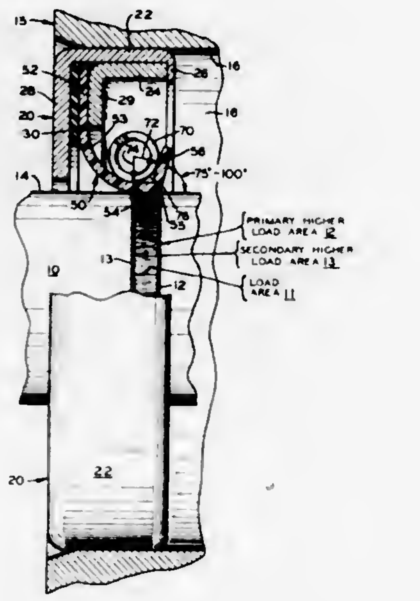
3,572,731
FLANGE SEAL
Friedhelm Stecher, Burscheid, Germany, assignor to Goetzewerke, Burscheid, Germany
Filed Nov. 19, 1968, Ser. No. 777,068
Claims priority, application Germany, Nov. 21, 1967, P 16 50 026.8
Int. Cl. F02f *5/00, 11/00*
U.S. Cl. 277—153 **11 Claims**



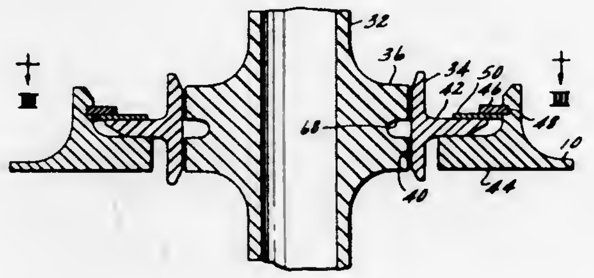
A flange seal for use in sealing flanges between internal-combustion engine parts and the like comprises a sheath member having a channel shaped cross section including two planar arms, a generally U-shaped intermediate portion connecting the arms, resilient supporting means located between the arms, the arms of the sheath, but not the connecting portion being engaged with the flanges of the joint to be sealed.

3,572,732
DOUBLE LOAD AREA LIP SEAL
Stephen A. Sekulich, Brighton, Mich., assignor to The Mather Company, Toledo, Ohio
Filed Feb. 26, 1969, Ser. No. 802,586
Int. Cl. F16j *15/32*
U.S. Cl. 277—153 **18 Claims**

A polytetrafluoroethylene elastomeric seal between two relatively movable parallel surfaces, such as for a shaft through a housing, which seal has a substantially uniform bent L-shaped transverse or radial cross section in which the top portion of the vertical leg of the L is fixed substantially perpendicularly to one of the parallel surfaces, such as by a press fit ring in the housing around the shaft, and the lower portion of the vertical leg of the L is bent so as to rest in parallel sliding contact with the other surface and the normally horizontal leg of the L extends substantially perpendicular to this other surface. The thus positioned seal forms a reverse J-shaped cross section bridging the space between the two parallel surfaces. That portion of the lower part of the normally vertical L which has sliding contact with the other surface, seals said surface both statically and dynamically, and is of sufficient width to provide two spaced increased or higher load areas, one adjacent the sharp angle portion of the horizontal leg of the L, and the other adjacent the bend in the vertical leg of the L. In the hook of this J-shaped cross section there may be located a garter spring to insure these two separate higher load areas at the two side edges of the wide contact area of this lip seal. Said other higher load area may also comprise a sharp ridge formed in the outer surface of the L-shaped leg, and/or have adjacent pumping vanes; and the inner surface opposite this ridge may also be provided with a ridge for better seating or pocketing the garter spring. Furthermore, a dust seal may be spaced outside of said other higher load area and attached to the means which anchors the upper portion of the L-shaped leg of the seal or to its housing.

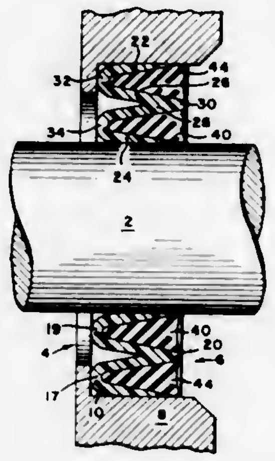


3,572,733
SHAFT SEAL USED IN GAS TURBINE ENGINES
Werner E. Howald, Cincinnati, and Thomas L. Hampton, Loveland, Ohio, assignors to General Electric Company
Filed Jan. 2, 1969, Ser. No. 788,406
Int. Cl. F16j *9/00;* **F16r** *41/00*
U.S. Cl. 277—173 **5 Claims**



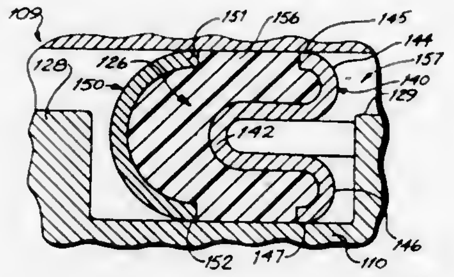
In a gas turbine engine an improved seal is provided for a shaft or the like projecting through a duct wall which defines a gas stream flow path. Two forms of seal are shown. Each provides, through the use of a sleeve, sealed axial movement and sealed lateral movement (in a normal plane) between the shaft and the duct wall. An effective seal is provided which accommodates differential thermal growth without stressing the components.

3,572,734
SHAFT SEAL
John E. Holt, Hampton, Conn.
Filed Sept. 27, 1968, Ser. No. 763,176
Int. Cl. F16j *9/08, 15/32*
U.S. Cl. 277—205 **8 Claims**



A shaft seal formed of nylon and having a W-shape in radial cross section with a central hinge portion interconnecting two oppositely disposed V-portions and elastomer bodies filling the cavities formed by the walls of said V-portions.

3,572,735
CAPTIVE PLASTIC SEAL
Eldon O. Dryer, Malibu, Calif., assignor to North American Rockwell Corporation
Continuation of application Ser. No. 571,886, Aug. 11, 1966, now abandoned. This application Nov. 17, 1969, Ser. No. 871,719
Int. Cl. F16j *15/06*
U.S. Cl. 277—235 **12 Claims**

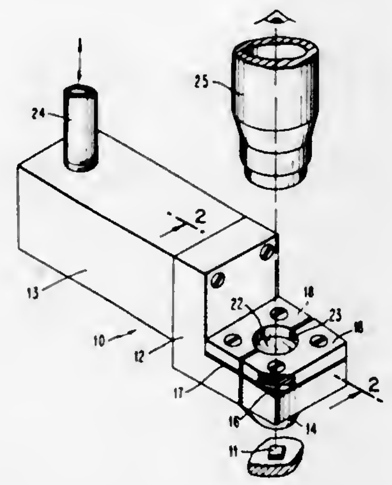


A seal in which a viscoelastic mass is contained by a means in a confined volume so that a peripheral surface of the mass is exposed for sealing and wherein, in operation, a means exerts a deforming pressure on the mass to provide intimate sealing with a surface to be sealed.

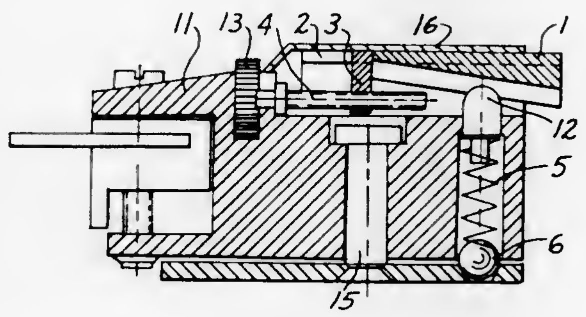
3,572,736
VACUUM CHUCK
John R. Lynch, Fishkill; Leonard E. Otten, Poughkeepsie, and Herbert Wenskus, Hopewell Junction, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 19, 1969, Ser. No. 834,783
Int. Cl. B23b *31/30*
U.S. Cl. 279—3 **10 Claims**

This patent discloses a vacuum operated chuck for clamping small workpieces such as integrated circuit chips. The chuck includes a housing having hingeably connected jaws, the jaws being biased apart or in the open position as by a biasing hinge. A chamber is located in the jaws and at the lower portion thereof is a workpiece receiver dimensioned for registration with a workpiece. At the upper portion of the housing is window means which is positioned to permit viewing of the receiver and thus the inwardly facing portion of any workpiece held thereby. The chamber is connected

through a conduit to a vacuum supply which causes pivotal action of the jaws permitting the receiver to grasp the workpiece when it overlies the workpiece and is in registry therewith.

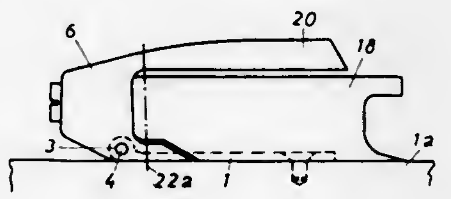


3,572,737
SPRING LOCK DEVICE
Thomas G. Smolka, Vienna-Mauer, and Walter Schwarz, Strasshof, Austria, assignors to Wiener Metallwarenfabrik Smolka & Company, Vienna-Schwechat, Austria
Filed Nov. 14, 1968, Ser. No. 775,693
Claims priority, application Austria, Nov. 21, 1967, A10514/67
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 **9 Claims**



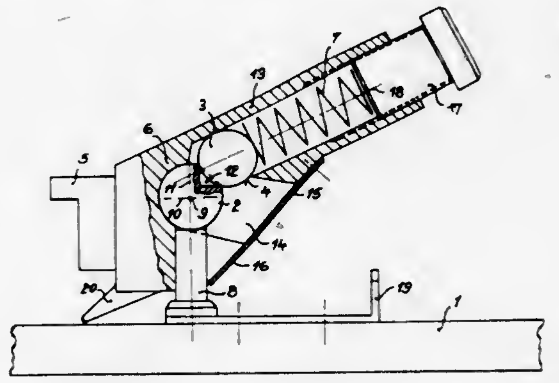
A spring-locking device for safety release ski bindings having a wedge-shaped member supported for adjustable movement in a guide and locking member resiliently engaging the wedge-shaped member to releasably lock the safety release ski binding so that an adjustment of the wedge-shaped member will vary the amount of force required to release the ski binding.

3,572,738
SECURING HEAD FOR SAFETY SKI BINDINGS
Hans Martin, 6 Volkmarstrasse, Zurich, Switzerland
Filed Sept. 24, 1969, Ser. No. 860,614
Claims priority, application Switzerland, Oct. 4, 1968, 14,825
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 **10 Claims**



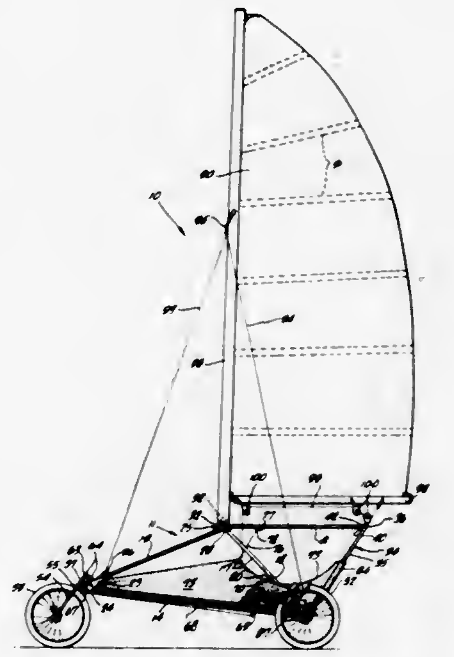
There is disclosed a securing head for a safety ski binding that is capable for use as either a toe binding member or a heel binding member which includes two lever shaped jaws engageable with a ski boot and each turnable about an axis that is approximately vertical in relation to the ski and said jaws being urged to boot engaging position by at least one spring. Both jaws being the long lever arms of double arm levers, the short arms of which are acted on by a spring through a stroke reducer or motion or displacement limiting member which functions to shorten the axial movement of the spring in relation to the displacement of or stroke of the short lever arms when a force is exerted tending to move the jaws to release position.

3,572,739
SAFETY SKI BINDING
Richard Erlebach, Riezlern-Kleinwalsertal, Germany
Filed Dec. 9, 1968, Ser. No. 782,361
Claims priority, application Germany, Dec. 19, 1967, P 15 78 761.8
Int. Cl. A63c *9/084*
U.S. Cl. 280—11.35 **6 Claims**



A safety ski binding in which a ball is mounted on the ski and engages the socket of ski boot engaging means. A detent recess is provided in the ball and receives a spring-backed holding device mounted in the ski boot engaging means. The ski boot engaging means is thereby normally held in a selected position as determined by said detent recess but same can move out of such normal position in any direction permitted by the ball-and-socket relationship upon application of sufficient force thereto.

3,572,740
COLLAPSIBLE SAIL-PROPELLED VEHICLE
Donald F. Rypinski, 23151/2 Glenneyre, Laguna Beach, Calif.
Continuation of application Ser. No. 717,254, Mar. 29, 1968, now abandoned. This application Apr. 10, 1970, Ser. No. 28,165
Int. Cl. B62b *13/04*
U.S. Cl. 280—16 **12 Claims**

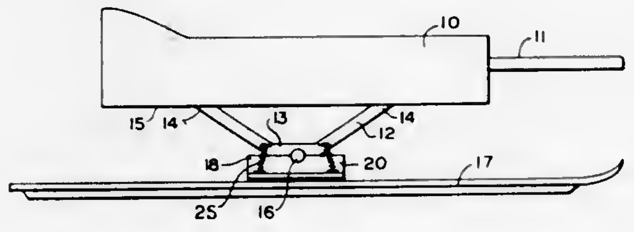


An iceboat or a wheeled land yacht for use on a hard surface and propelled by a sail. A metal-tube frame of the vehicle is assembled using pivoted connections and easily releasable fasteners, permitting the frame to be quickly collapsed for compact shipment or storage. A cockpit is formed from a flexible and foldable material such as canvas which is suspended in hammock fashion within the frame. The frame includes a roll bar to provide protection for an occupant if the vehicle capsizes. The frame carries two aft-mounted wheels or runners, and a single wheel or runner is centrally and steerably mounted at a forward end of the frame. A mast and sail are secured to and extend above the frame.

3,572,741

SKI MOUNTINGS FOR POWER TOBOGGANS AND THE LIKE

Nelson E. Shorrick, R.R. #1 S3 B-7, Dryden, Ontario, Canada
Filed Mar. 17, 1969, Ser. No. 807,833
Int. Cl. B62b *17/04*
U.S. Cl. 280—26 **1 Claim**

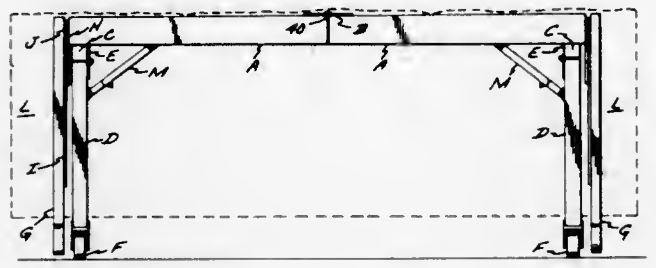


A ski mounting for power toboggans which includes a transverse pivot attached and check or shock absorber springs fore and aft of the pivot between the ski of the body frame.

3,572,742

COLLAPSIBLE DOOR-SUPPORTING DOLLY

Theodore L. Marker, 5713 Oliva Ave., Lakewood, Calif.
Filed June 16, 1969, Ser. No. 833,251
Int. Cl. B62b *5/00*
U.S. Cl. 280—42 **7 Claims**



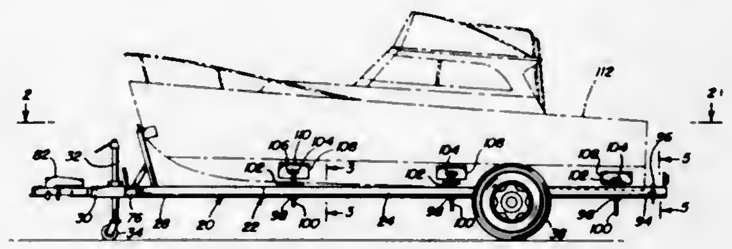
A collapsible door-supporting dolly that is adapted to hold a heavy door or the like object in a vertical position whereby the door may be moved to a desired destination, yet the dolly maintains the door in a horizontal position while work is performed thereon. When the dolly is not in use it may be collapsed to occupy a minimum of space, a highly desirable feature when the dolly is being transported from one job site to another, or when stored.

3,572,743

WHEELED VEHICLE FOR MOVING BOATS OR THE LIKE

Edward L. Parr, 301 N. Cuyamaca, El Cajon, Calif.
Continuation-in-part of application Ser. No. 679,032, Oct. 30, 1967, now abandoned. This application Oct. 20, 1969, Ser. No. 870,004
Int. Cl. B60p *3/10*
U.S. Cl. 280—42 **12 Claims**

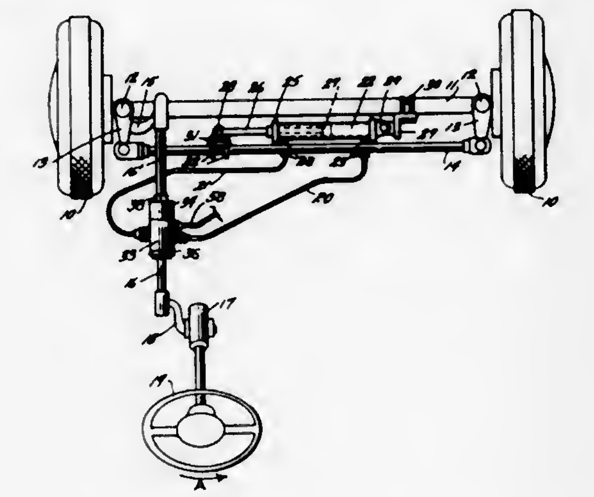
A wheeled vehicle for moving boats or the like, which vehicle includes a forklike frame, i.e. it includes two rearwardly extending and laterally disposed prongs. Each prong carries a bearing for a lever which is supported by a ground wheel. The bearings for the levers can be raised and lowered relative to the wheels to raise and lower the prongs with the boat thereon. The area between the prongs is unobstructed.



3,572,744

AUTOMOTIVE STEERING STABILIZERS

Richard L. Smith, 2624 W. Second Ave., Durango, Colo.
Filed May 16, 1969, Ser. No. 825,301
Int. Cl. B62d *9/00*
U.S. Cl. 280—90 **8 Claims**

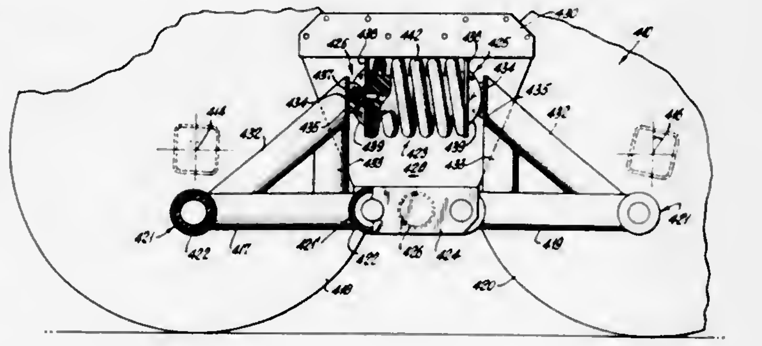


A double-acting hydraulic cylinder and piston positioned between, and connected to, the steering tie rod and the front axle of a vehicle. A bypass valve assembly, installed in the steering wheel drag link of said vehicle, hydraulically connected to opposite ends of said cylinder so that axial tension and axial pressure in said drag link will actuate said assembly to bypass hydraulic fluid to and from opposite ends of said cylinder.

3,572,745

MULTIPLE AXLE SUSPENSION

Elwood H. Willetts, 120 Penataquit Ave., Bay Shore, N.Y.
Continuation-in-part of application Ser. No. 721,558, Apr. 1, 1968, now abandoned , which is a continuation-in-part of application Ser. No. 562,344, July 1, 1966, now abandoned , and a continuation-in-part of 649,502, June 28, 1967, now abandoned. This application July 14, 1969, Ser. No. 843,288
Int. Cl. B60g *5/00*
U.S. Cl. 280—104.5 **10 Claims**

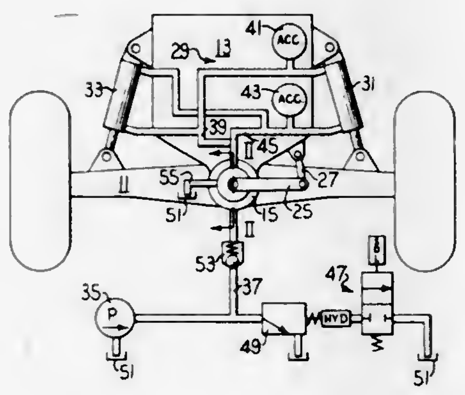


The present invention includes a multiple axle articulated suspension structure for vehicles wherein road and tire excitations of each axle are isolated from its opposing axle as well as from the sprung mass, through deflections of pressure-resistant, load-equalizing supports. The load-equalizing supports include elastomeric members which interconnect vertically extending arms of opposing rocker beams, said rocker beams being trunnioned to a supporting structure and having longitudinally extending arms supported by opposing axles. The elastomeric members exhibit varying spring rate when deflected.

3,572,746

VEHICLE STABILIZER

James P. Mueller, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed May 23, 1968, Ser. No. 731,433
Int. Cl. B60g *21/00*
U.S. Cl. 280—112 **10 Claims**

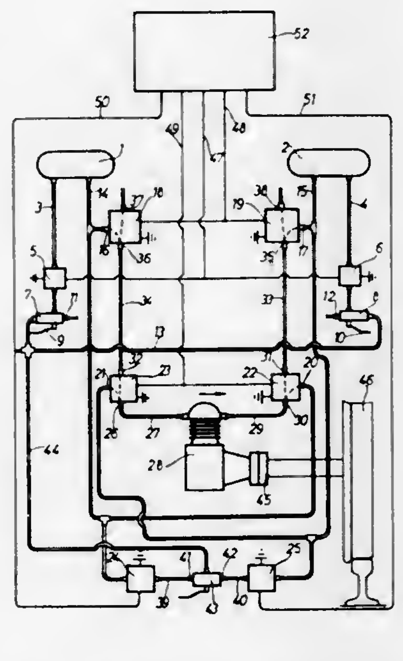


A stabilizing means for controlling the attitude of a vehicle having an oscillatable rear axle in which hydraulic jacks are mounted so as to operate between the vehicle body or frame and the oscillatable axle; the jacks are actuated in accordance with the fluid pressure received from a servovalve mounted on the axle.

3,572,747

AIR SUSPENSION SYSTEM FOR VEHICLES

Hans Pollinger; Alfred Strohmer, and Hans Kirchlechner, Munich, Germany, assignors to Knorr-Bremse, GmbH, Munich, Germany
Filed Mar. 18, 1969, Ser. No. 808,225
Int. Cl. B60g *21/06*
U.S. Cl. 280—112 **10 Claims**

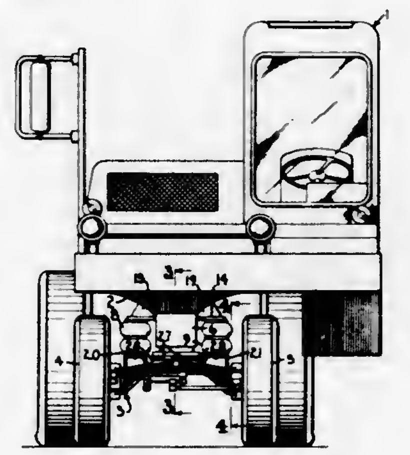


A vehicle having pneumatic bellows supporting both sides of the vehicle body is provided with a compressor which pumps air from the bellows on the inside of a curve to the bellows on the outside of a curve when the vehicle travels along a curved path. A valve system keeps the intake and discharge of the compressor open to the atmosphere when the vehicle is travelling in a straight line but is actuated in response to the angular acceleration of the vehicle about a vertical axis to connect the compressor intake and discharge to the bellows on both sides of the vehicle when the vehicle travels along a curved path. The compressor is driven from an axle of the vehicle through a speed responsive clutch so as to operate only when the vehicle travels above a predetermined speed. Level regulators are provided to regulate pressure in the bellows only when the vehicle travels in a straight line. A further level regulator is responsive to variations in the height of the longitudinal tilt axis of the vehicle.

3,572,748

SUSPENSION SYSTEM FOR VEHICLE WHEELS

Frank H. Vivian, Ottowa, Kans., assignor to Daybrook-Ottawa Corporation, Ottawa, Kans.
Filed Nov. 29, 1968, Ser. No. 779,990
Int. Cl. B60g *19/00*
U.S. Cl. 280—124 **5 Claims**

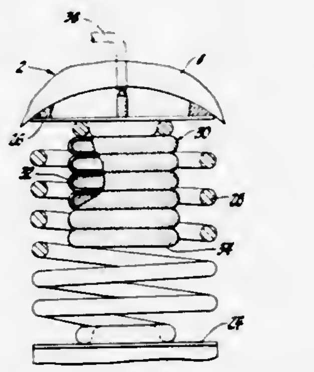


A suspension system for vehicles having a frame with a transverse frame member for carrying an elongate axle assembly below the transverse frame member, said axle having a pair of laterally spaced vehicle wheels rotatably and steerably mounted on opposite ends thereof. An elongate first housing on said frame member has a guide chamber of rectangular cross section with a bottom opening in which is slidably received an elongate second guide or slide housing with the axle assembly pivotally mounted on a lower end thereof. The structure has engageable portions for limiting vertical and rocking movement of the axle assembly with an elongate spiral spring having an upper end engaging said first housing and a lower end engaging the second slide or guide housing and a pair of elongate inflatable resilient members spaced on opposite sides of the first housing and each having a lower end mounted on the axle assembly and an upper end fixably mounted relative to the axle assembly.

3,572,749

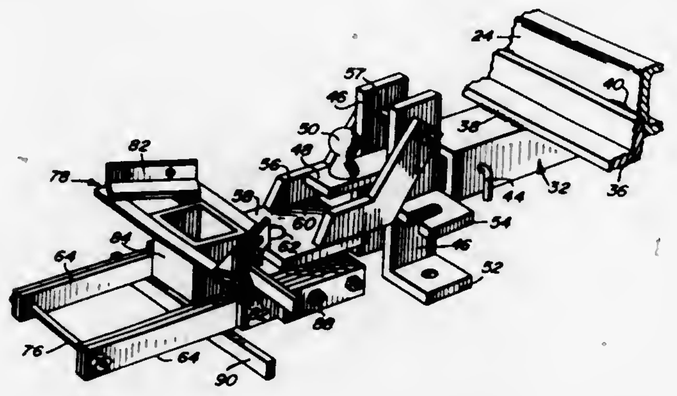
VEHICLE SUSPENSION WITH RETRACTABLE AUXILIARY OVERLOAD SPRING

Ming-Chih Yew, Utica, and John Robertson, Jr., Royal Oak, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 29, 1968, Ser. No. 779,784
Int. Cl. B60g *11/56*
U.S. Cl. 280—124 **4 Claims**



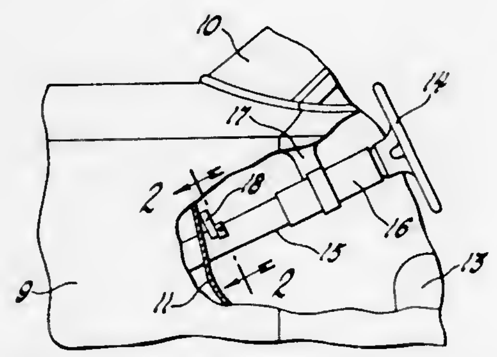
A vehicle suspension system in which a flexible bladder disposed within a primary suspension coil spring is inflated into axial abutting contact with the sprung and unsprung masses and radial contact with the inner surfaces of the spring coils to provide auxiliary leveling during greater than normal load conditions, and including control means for retracting the bladder axially and radially sufficient to withdraw it from contact with the spring coils and one of the masses when auxiliary leveling is not required.

3,572,750
ANTI-SWAY DETENT DEVICE
Millard A. Derr, Jr., 17 Richard Court, Orinda, Calif.
Continuation-in-part of application Ser. No. 785,536, Dec. 20, 1968, now abandoned. This application June 19, 1969, Ser. No. 834,622
Int. Cl. B62d *53/00*
U.S. Cl. 280—446 **7 Claims**



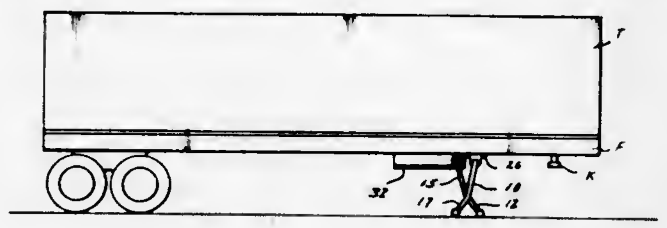
An elongated hitch member for attachment to and rearward projection from a towing vehicle and a trailer tongue with its forward end pivotally secured to the hitch member for oscillation about a first upstanding axis. An elongated connecting link is provided and supported at its forward end from the hitch member for oscillation about a second upright axis disposed rearwardly of the first axis and connected at its rear end to the tongue rearward of the second axis for angular displacement about a third upstanding axis relative to the tongue and in a manner to yieldingly resist such angular displacement from a position with the connecting link generally paralleling the longitudinal axis of the tongue.

3,572,751
DISLODGEABLE SCREW ANCHORS AND INSTALLATION
Larry W. Burr, and Harold V. Elliott, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed June 16, 1969, Ser. No. 833,562
Int. Cl. B60r *21/00*
U.S. Cl. 280—150 **17 Claims**



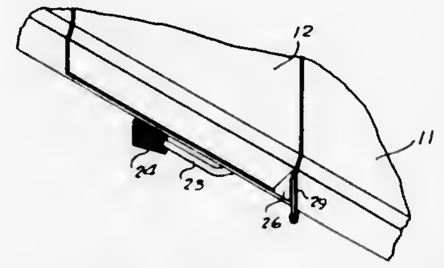
A neutral start and backup switch is mounted on a collapsible steering column by screws and screw anchors. The anchors have a breakaway feature so that the switch will not unduly hinder collapse of the steering column upon some casualty to the vehicle. This feature is provided by ramp surfaces on the legs of the screw anchor which enter a hole in steering column such that upon enforced relative movement of the switch and column the screw anchors are cammed out of the mounting holes in the column. The anchors may be metal or plastic.

3,572,752
LANDING GEAR FOR SEMI-TRAILERS AND THE LIKE
Charles E. Harp, 2110 Harper St., Pasadena, Tex.
Filed July 24, 1969, Ser. No. 844,434
Int. Cl. B60s *9/02*
U.S. Cl. 280—150.5 **3 Claims**



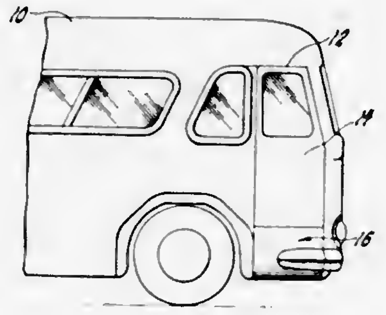
A landing gear for supporting the forward end of a semitrailer and the like after the prime mover or tractor has been removed. The landing gear comprises a pair of support members mounted on opposite sides of the forward end of the trailer and comprising a scissorlike construction which forms a triangular ground supporting portion which can then be collapsed and folded underneath the trailer when not in use.

3,572,753
FOLD-DOWN STEP FOR PICK-UP TRUCKS
Edmund H. Claassen, 1912 Grandview St., Medford, Oreg.
Filed Feb. 14, 1969, Ser. No. 799,317
Int. Cl. B60r *3/02*
U.S. Cl. 280—166 **8 Claims**



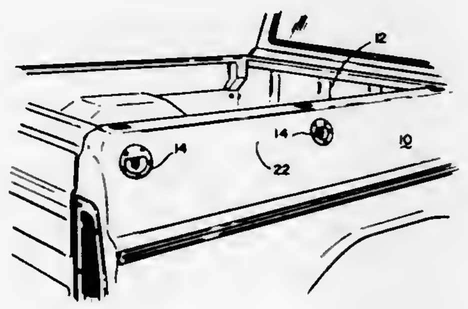
A step pivoted to the body of a pickup truck subjacent its door. The step is carried on a rod rotatably-mounted in a pivot sleeve. The rod has an arm connected by a cable to the door and by a spring to the truck body opposite the cable, to normally rotate the step to a retracted position beneath the truck body. Opening the door pulls the step to operative position.

3,572,754
VEHICLE STEP ARRANGEMENT
Stanley B. Fowler, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 11, 1969, Ser. No. 841,079
Int. Cl. B60r *3/02*
U.S. Cl. 280—166 **5 Claims**



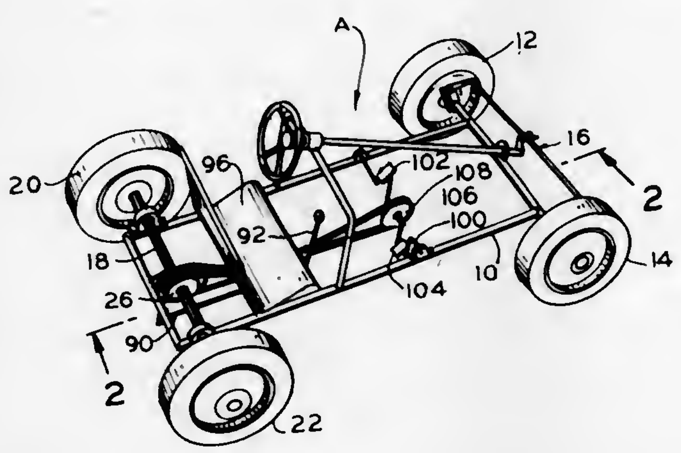
In a bus-type vehicle ingress and egress of passengers is carried out through a door opening the upper portion of which is closed by a swingably mounted door and the lower portion of which is closed by a step and platform arrangement selectively movable between a raised position wherein a portion of the step and platform structure is movable to either close the door opening or open the opening and provide a high level platform for passenger ingress and egress at vehicle floor level, and a lowered position wherein it provides a plurality of steps between ground level and vehicle floor level.

3,572,755
RECESSED ROPE ANCHOR FOR TRUCK BODIES
Harold C. Baldwin, 5225 E. Whitton, Phoenix, Ariz.
Filed Apr. 3, 1969, Ser. No. 813,044
Int. Cl. B60p *7/08*
U.S. Cl. 280—179 **2 Claims**



A recessed rope anchor for truck bodies, or the like, said anchor of generally cup-shaped form having a bolt receiving flange extending outwardly therefrom and a peg in a normally upper wall of the cup-shaped body and extending downward from the upper wall of the cup-shaped body into an open area thereof; said upper wall being relatively thicker than the lower wall of the cup-shaped body to provide a firm cantilever support for said peg.

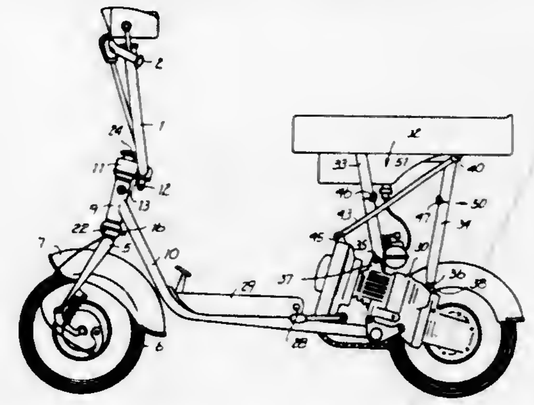
3,572,756
CHAIN-DRIVEN VEHICLES
Joseph C. Metzger, 4755a Alma, St. Louis, Mo.
Filed Apr. 28, 1969, Ser. No. 819,766
Int. Cl. B62m *25/06*
U.S. Cl. 280—238 **3 Claims**



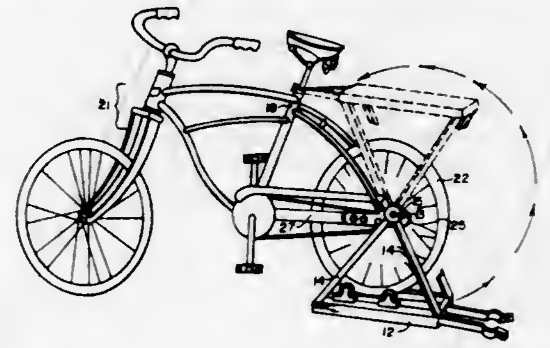
This invention relates to a chain-driven vehicle in which a new and unique selectable sprocket engagement system is utilized to provide an extremely wide range of power transfer ratios between the driving pedals and the driven wheels.

3,572,757
FOLDING FRAME FOR A MOTORCYCLE
Javier Sanglas Camps, Paseo de Gracia 29, Barcelona, Spain
Filed June 16, 1969, Ser. No. 833,468
Claims priority, application Spain, July 9, 1968, Pat. 356,171
Int. Cl. B62k *15/00*
U.S. Cl. 280—278 **5 Claims**

A folding frame for a motorcycle, providing means for folding the handlebars, the front wheel and a footrest, and a complete system for lowering the seat. The folding operations of the various elements are effected by rotation around particular axes. When in the unfolded or operative position the various elements are firm enough not to undergo any change when the motorcycle is moving. The handlebars and the front wheel are folded in directions of rotation which converge towards the frame, and the footrest rotates into a position contiguous with the engine and thus to provide space to receive the folded front wheel.

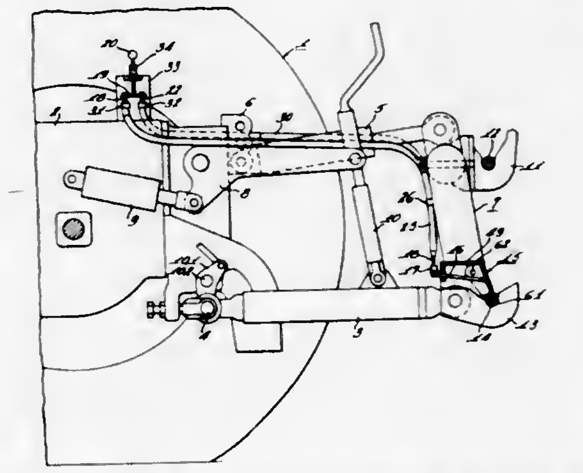


3,572,758
COMBINATION BICYCLE LUGGAGE CARRIER AND BICYCLE EXERCISE STAND
Robert E. Lee, 312 Eanes Road, Austin, Tex.
Filed Feb. 13, 1969, Ser. No. 799,054
Int. Cl. B62h *1/04*
U.S. Cl. 280—296 **7 Claims**



A multipurpose device for use in connection with a bicycle, said device being adapted for use in one of its positions as a bicycle luggage carrier and rotatable to a second position where it may serve as a bicycle stand to convert the bicycle into a physical-exerciser device.

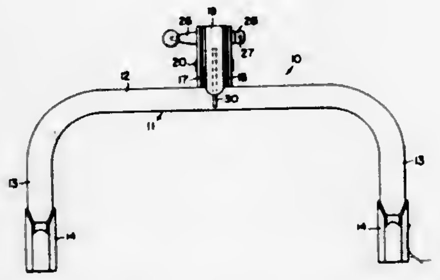
3,572,759
LATCH CONTROL MEANS
Robert T. Baugh, Brookfield, and Craig W. Cannon, New Berlin, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 23, 1968, Ser. No. 786,088
Int. Cl. B62d *53/00*
U.S. Cl. 280—461 **10 Claims**



A latching means on a vehicle-hitching device having remote latching control.

3,572,760
QUICK-COUPLER

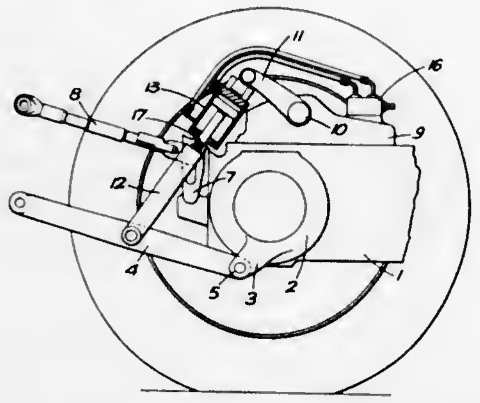
Jess Jerome Jones, Dixon, Calif., assignor to Deere & Company, Moline, Ill.
Filed Feb. 24, 1969, Ser. No. 801,642
Int. Cl. B60d *1/04*
U.S. Cl. 280—461 **4 Claims**



A quick-coupler having a pair of spaced upwardly open lower hooks and a centered upper hook for receiving the hitch pins of an implement. The upper hook is pivotally mounted for movement between a first position in which it is rearwardly open and a second position in which it is downwardly open. A latch lever is mounted adjacent the upper hook for movement in a path perpendicular to the path of movement of the upper hook between an open position and a locking position in which it extends across the path of movement of the upper hook to lock the upper hook in the second position.

3,572,761
THREE-POINT LINKAGES OF AGRICULTURAL TRACTORS

David Robert Frederick Tapp, Haslemere, and Geoffrey Edward Ernest Tapp, Farnham, Surrey, England
Filed Mar. 17, 1969, Ser. No. 807,819
Claims priority, application England, Mar. 20, 1968, 13549/68
Int. Cl. B60d *1/00*
U.S. Cl. 280—461 **5 Claims**

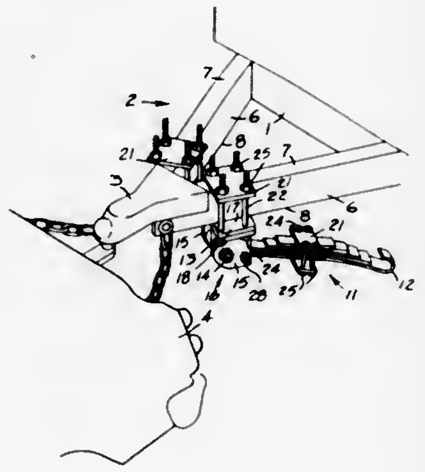


A three-point linkage for an agricultural tractor comprises two spaced draft links pivotally connected to the rear of the tractor and extending rearwardly therefrom, a rearwardly extending top link pivotally connected to the rear of the tractor at a point above and between the draft links, a linkage connecting the draft links to an hydraulically operated mechanism on the tractor which effects raising and lowering of the draft links, and a double-acting hydraulic ram incorporated in the linkage connecting the draft links to the hydraulically operated mechanism, operation of the ram being adapted to raise or lower one draft link relatively to the other in order to adjust the position of an implement carried by the links about a fore-and-aft axis.

3,572,762
EMERGENCY SAFEGUARD FOR TRAILERS

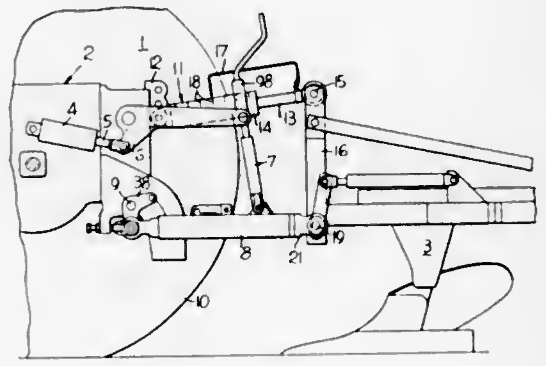
Jim T. Votaw, P.O. Box 864, Vallejo, Calif.
Filed Sept. 15, 1969, Ser. No. 857,874
Int. Cl. B60s *9/02*
U.S. Cl. 280—475 **7 Claims**

In the event the front end of the trailer is dropped by reason of the towing vehicle breaking away from the trailer, or blow out of a rear tire of the towing vehicle, or breaking of an axle of the towing vehicle on either side, or failure of either of the overload springs of the towing vehicle, or the like, a leaf spring mounted on each of the converging sides of the V-shaped forward end of the trailer frame safeguards the trailer against damage or fatal accident. Each leaf spring extends downwardly and rearwardly and the free end of each spring is formed into an upwardly curved shoe spaced from the ground so as to normally ride over bumps, high curbs, or other obstacles, and to skid along the road surface and support the forward end of the trailer when said forward end is dropped for any reason.



3,572,763
THREE-POINT HITCH

Craig W. Cannon, New Berlin, and Larry F. Stikeleather, Greendale, Wis., assignors to Allis-chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 22, 1968, Ser. No. 778,046
Int. Cl. B60d *1/00*
U.S. Cl. 280—479 **9 Claims**

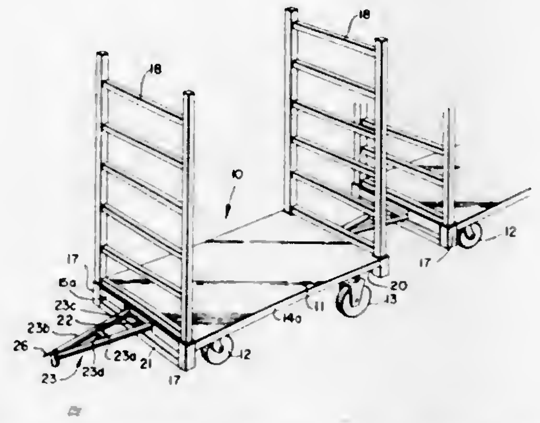


A three-point hitch having a powered upper link and draft arms to extend and contract the link and raise and lower the draft arms for easier connection of the tractor to the implement and better control of the implement during its operation.

3,572,764
RETRACTABLE HITCHING DEVICE

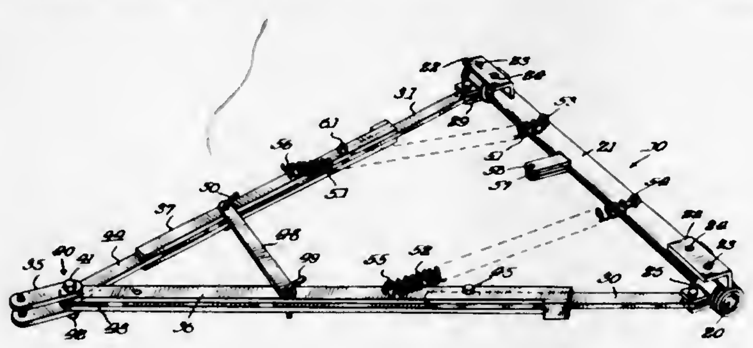
Richard J. Rubin, 39 Dolphin Road, Newton, Mass.
Filed Dec. 16, 1968, Ser. No. 784,131
Int. Cl. B60d *1/00*
U.S. Cl. 280—491 **10 Claims**

A retractable hitching device including a member having at least two pins extending therefrom and a pair of rails over which the two pins slide and in which there are provided holes for receiving the pins.



3,572,765
COLLAPSIBLE TOW HITCH

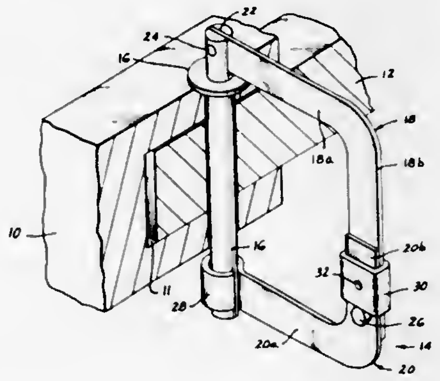
James B. Tieben, 106 Cottonwood, Dodge City, Kans.
Filed Sept. 12, 1969, Ser. No. 857,397
Int. Cl. B60d *1/00*
U.S. Cl. 280—491 **6 Claims**



A collapsible tow hitch is provided for use in towing a vehicle, such as a truck, behind a second vehicle, such as a tractor. The tow hitch is provided with a pair of swingable branch arms pivotally connected at their forward ends to a tow bar and individually pivotally connected at their rear ends to a pair of swingable support arms which are pivotally connected to the opposite ends of a horizontal elongated frame member. When the tow hitch is not in use it is easily collapsed into a readily accessible position in which the tow bar, branch arms and support arms are horizontally stacked alongside a mounting frame attached to the vehicle to be towed.

3,572,766
LOCKPIN ASSEMBLY

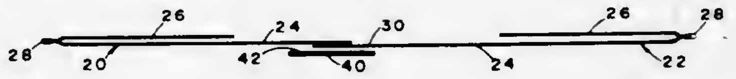
Henry J. Jezek, 1204 E. Downs Ave., Temple, Tex.
Filed July 23, 1969, Ser. No. 844,099
Int. Cl. B60d *1/02*
U.S. Cl. 280—515 **5 Claims**



The lockpin assembly disclosed includes a pin for inserting through the aligned holes of a tongue and drawbar to connect them together. To hold the pin in place two generally L-shaped members are used. They are pivotally connected together. One of them is pivotally connected to the top of the pin, while the free end of the other member has a sleeve that slides over the lower end of the pin underneath the drawbar and tongue. A collar is used to hold the two members from relative rotation, after the sleeve is in place over the end of the pin, to lock the pin in position to hold the drawbar and tongue connected together.

3,572,767
ADJUSTABLE PROTECTIVE COVER FOR BOOKS

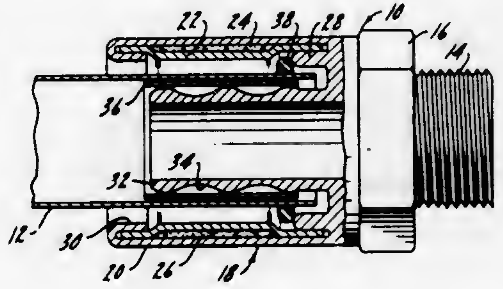
Samuel M. Learned, and Joseph E. Wisotzkey, York, Pa., assignors to The Maple Press Company, York, Pa.
Filed Mar. 18, 1969, Ser. No. 808,126
Int. Cl. B42d *3/04*
U.S. Cl. 281—34 **2 Claims**



An adjustable protective cover attachable to the exterior of either a casebound or a paperback book formed from flexible synthetic resin sheet material comprising two sections each having two overlying plies of said material connected permanently along three edges by heat-sealing to form pockets respectively positioned to receive the covers of a casebound or paperback book, one of said sections having one free edge extending laterally beyond the open edge of the pocket to provide a connecting panel adapted to extend around the spine of a casebound or paperback book, and adhesive means to connect the outer edge portion of said connecting panel to the other section of said cover to secure the sections together to provide a unitary cover. When used with paperback books, each of said pockets also is arranged to contain a thin stiffening board of substantially the same size as the covers of a paperback book which is to be received in the pockets, said boards being positioned adjacent the inner surfaces of said book covers when received within said pockets, whereby the entire exterior of a paperback book may be viewed through the transparent cover which overlies said outer surfaces thereof.

3,572,768
TUBING CONNECTOR

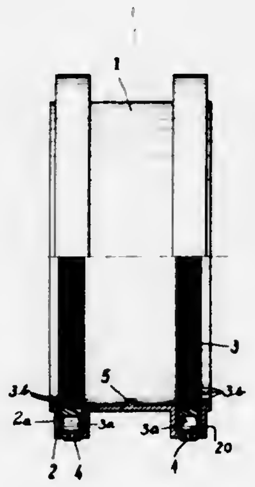
David T. James, De Kalb, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.
Filed Dec. 24, 1968, Ser. No. 786,644
Int. Cl. F16l *13/14*
U.S. Cl. 285—3 **10 Claims**



A tubing connector having an explosion chamber adapted to grip the connector firmly to the tubing after a charge within the chamber is exploded. One form of the invention provides a ferrule on the connector so that expansion of the explosion chamber deforms the tubing wall into gripping contact with the ferrule. An annular sealing member may be provided between the ferrule and tubing wall, and the ferrule surface may be rippled. An O-ring seal may also be provided whereby the expanded chamber forces the seal into sealing engagement with the connector and tubing wall.

3,572,769
PIPE COUPLING

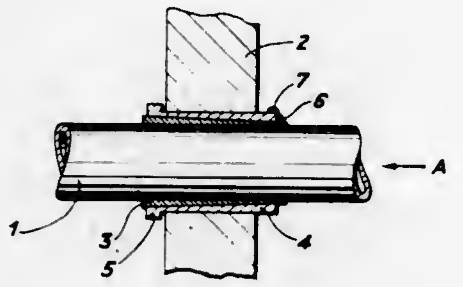
Johann Lingl, 70 Finninger St, Neu-Ulm, Donau, Germany
Filed Nov. 20, 1968, Ser. No. 777,255
Claims priority, application Germany, Nov. 29, 1967, L57978
Int. Cl. F16l *17/02*
U.S. Cl. 285—96 **4 Claims**



A pipe coupling for joining the free ends of pipe, including a coupling sleeve and a pair of annular sealing rings that fit within channels on the inner surface of the sleeve, each channel being disposed so that it surrounds one of the pipes near its end and positions one of the sealing rings for engagement with the outer surface of the pipe. Each sealing ring is formed of a deformable material and is provided on its inner sealing surface with a plurality of annular ribs which deform when compressed inwardly into sealing engagement with the surface of the pipe. A filler compound that is initially, at least, sufficiently flowable to be injected into the channels around the sealing rings expands as it sets, compressing the sealing rings inward and forcing the ribbed inner surfaces of the rings into sealing engagement with the pipes.

3,572,770
MOUNTING FOR A HEAT TRANSMITTER

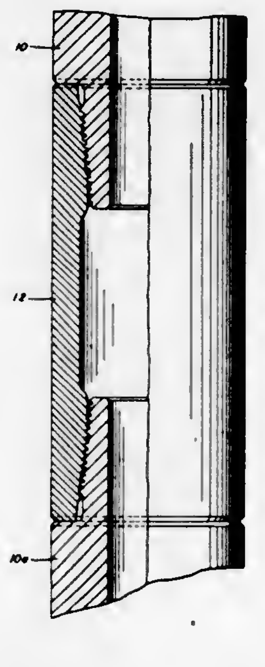
Jakob Kagi, Wiesendangen, Zurich, Switzerland, assignor to Sulzer Brothers, Ltd., Winterhur, Switzerland
Filed Jan. 17, 1969, Ser. No. 792,046
Claims priority, application Switzerland, Jan. 23, 1968, 1027/68
Int. Cl. F16l *41/00, 13/02*
U.S. Cl. 285—158 **11 Claims**



The tubes of the transmitter are mounted within the tube plate by a bushing and sleeve combination. The bushing is sized to slip over the tube while the sleeve is wedged between the tube and bushing so as to secure the bushing in place. The bushing prevents erosions and rupture of the tube occuring by vibration of the tube within the tube plate and is made of a material to prevent welding to the tube plate at high temperature.

3,572,771
DRILL-COLLAR CONSTRUCTION

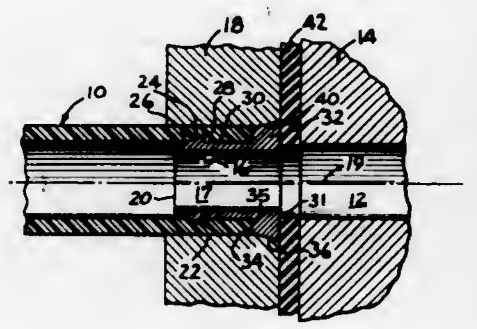
Fletcher Redwine, Irving, Tex., assignor to United States Steel Corporation
Filed Dec. 31, 1968, Ser. No. 788,305
Int. Cl. F16l *15/00;* **E21b** *17/02*
U.S. Cl. 285—173 **2 Claims**



A drill-collar construction for use in rotary drilling of wells. The individual collars are joined end-to-end with connectors which have greater fatigue resistance than the steel of the drill collars. The preferred metal for the connectors is titanium or a titanium-base alloy.

3,572,772
TUBE CONNECTOR

Karl A. Brandenberg, Hayward, Calif., assignor to The Aro Corporation, Bryan, Ohio
Filed Jan. 27, 1969, Ser. No. 794,334
Int. Cl. F16l *41/00*
U.S. Cl. 285—213 **3 Claims**

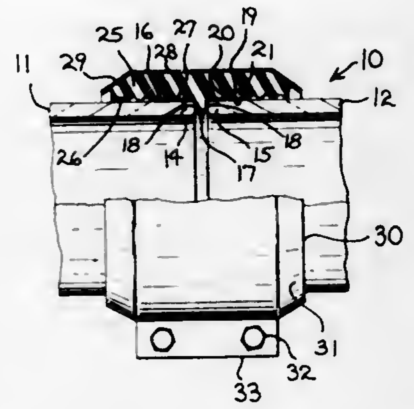


A barbed insert is fitted into the terminal end of a plastic tube. The tube and attached insert are then positioned through a hole in a plate. The insert is chamfered at one end to engage a counterbore opening in the plate and hold the plastic tube and attached insert in a fixed position in the plate.

3,572,773
GLASS PIPE JOINT

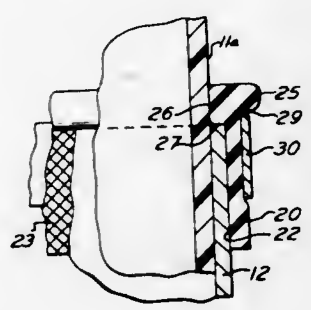
William B. Read, Sylvania, Ohio, assignor to Owens-Illinois, Inc.
Filed Sept. 15, 1966, Ser. No. 579,753
Int. Cl. F16l *9/10, 21/00*
U.S. Cl. 285—236 **11 Claims**

A pipe coupling adapted for coupling the ends of two axially aligned glass pipes. The coupling embodies a tubular sealing gasket positioned over the exterior end portions of the pipes, an elastomeric sleeve placed exteriorly over the gasket to contact the gasket and the pipes, and a metallic constricting band positioned around the sleeve. The band clamps the sleeve and the gasket tightly to the end portions of the aligned pipes.



3,572,774
GASKET SEAL

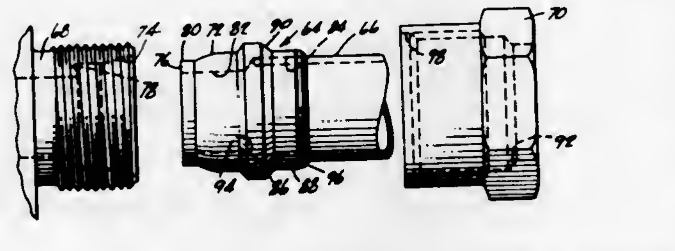
Clarence L. Sipler, Sipler Plastics, Inc. Central Bucks Airport Old Easton Road, Doylestown, Pa.
Filed Jan. 23, 1968, Ser. No. 699,897
Int. Cl. F16l *33/04*
U.S. Cl. 285—253 **3 Claims**



A gasket seal for use in the sealing of conduits with telescoped ends, the conduits being subjected to high vacuum flow therethrough, which seal consists of a flexible plastic band around the outside conduit with a lip extending over and beyond the outside conduit which lip engages the inner conduit and has an outer clamp extending to a rim on the lip and engaged with the lip and in overlapped relation to the end of the outer conduit to squeeze the band into engagement with the outside conduit and the lip into engagement with the inner conduit, and thereby provide an airtight seal.

3,572,775
BRAZED FITTINGS

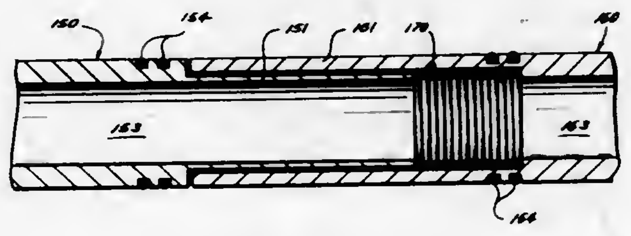
John C. Bloom, Inglewood; Frank J. Hanback, Palos Verdes; Masashi Hayase, Fountain Valley; Norman F. Robinson, Manhattan Beach, and Wayne S. Wheelock, Long Beach, Calif., assignors to McDonnell Douglas Corporation
Filed Mar. 10, 1969, Ser. No. 805,594
Int. Cl. F16l *13/08*
U.S. Cl. 285—287 **2 Claims**



Metal sleeves joined to metal tubing by brazing or welding processes permit the tubing to be removably secured to fittings in piping systems. Similarly, permanent brazed connections between tubing and fittings eliminates a substantial number of potential leak points and a saving in weight is accomplished.

3,572,776
FLUID FLOW APPARATUS

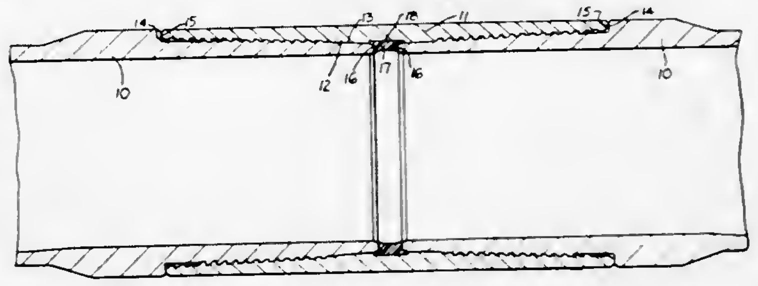
David P. Herd, Houston, and Charles D. Morrill, Bellaire, Tex., assignors to Rockwell Manufacturing Company, Houston, Tex.
Filed Feb. 27, 1969, Ser. No. 802,926
Int. Cl. F16l *15/02*
U.S. Cl. 285—302 **5 Claims**



Fluid flow apparatus for passage of through-flowline tools comprising two conduits having a common flow axis and adapted for limited longitudinal movement relative to each other while maintaining flow fluidtight communication therebetween provided with means for preventing the stopping of through-flowline tools within the conduits at any position of longitudinal movement. One embodiment comprises alternate longitudinal fingers and open end slots cut in the end of each conduit, the fingers of each conduit engaging the slots of the other conduit. Another embodiment comprises a spring mounted in an enlarged bore portion of one of the conduits and bearing against the end of the other conduit which telescopically engages the enlarged bore portion.

3,572,777
MULTIPLE SEAL, DOUBLE SHOULDER JOINT FOR TUBULAR PRODUCTS

Thomas L. Blose, Bradfordwoods, and Emilio A. Pontill, Conway, Pa., assignors to Armco Steel Corporation, Middletown, Ohio
Filed May 5, 1969, Ser. No. 821,842
Int. Cl. F16l *25/00*
U.S. Cl. 285—334 **8 Claims**

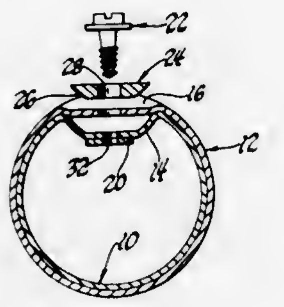


A threaded and coupled, or integral connection for tubular products (such as tubing, casing and drill pipe used in oil country service) comprising complementary tapered sealing surfaces, an annular external shoulder on the male element, and an annular internal shoulder on the female element, at least one of which shoulders provides a secondary seal.

3,572,778
PIPE COUPLING

Thomas R. Cassel, Birmingham, Mich., assignor to Thomas R. Cassel; Kenneth W. Cassel; R. Nelson Cooksey; William E. Neighbors, fractional part interest to each and Keevin J. Cassel
Continuation-in-part of application Ser. No. 657,823, Aug. 2, 1967, now abandoned. This application May 26, 1969, Ser. No. 837,985
Int. Cl. F16l *13/14*
U.S. Cl. 285—382 **35 Claims**

A pipe coupling as disclosed in which two pipe sections are joined together with the end of one being preformed and inserted into the end of the other. The inner pipe section is provided with a deformation so that its outer peripheral length is not substantially less and may be greater than the inner peripheral length of the outer pipe section. Force applying means, such as a threaded fastener, is adapted to act between the inner and outer pipe sections to apply a drawing



force in a vicinity of the deformation, whereby the walls of the pipe sections are caused to conform in close engagement. Securing means are provided to maintain the inner pipe section in compressive stress and the outer pipe section in tensile stress whereby a mechanically strong and fluid tight joint is produced.

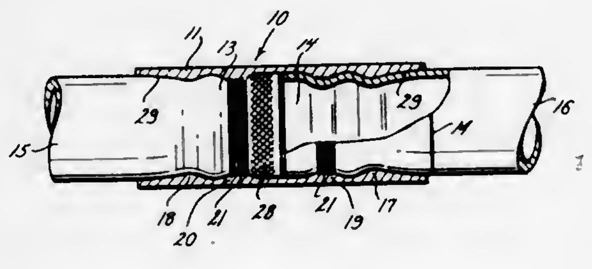
3,572,779
COUPLING FITTING FOR CONNECTING TWO PARTS

James A. Dawson, Hazelwood, Mo., assignor to McDonnell Douglass Corporation, St. Louis, Mo.

Filed June 24, 1968, Ser. No. 739,528

Int. Cl. F16l *13/14*

U.S. Cl. 285—382.2 **9 Claims**



A permanent coupling fitting for fluid systems in which the conduits sustain high-pressure and structural loads. The fitting is formed with an exterior shape of predetermined configuration and a standard internal shape to receive standard shaped parts or tubing. Swaging means is applied to compress the exterior shape of the fitting inwardly so that the exterior becomes substantially cylindrical and the interior assumes the exterior configuration so as to force the tubing to conform and establish leak resistant and structural strength characteristics.

3,572,780
LOCKING DEVICE

David Levin, Nassau, Bahamas, assignor to Abbey Manufacturing Company Limited, Dublin, Ireland

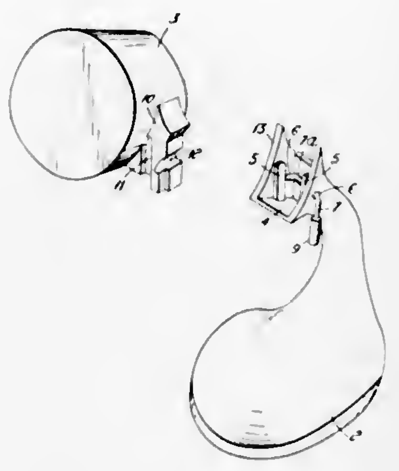
Filed July 15, 1969, Ser. No. 841,922

Claims priority, application Ireland, July 16, 1968, 851/68

Int. Cl. F16b *9/00*

U.S. Cl. 287—20 **5 Claims**

A locking device for further securing together two component parts of a domestic appliance in which one of the component parts is provided with a retaining recess with a rotatable bar mounted therein and the second component is provided with an insert member having a groove therein, operation of the device being carried out by locating the in-



sert member in the retaining recess and engaging the bar member in the groove of the insert member.

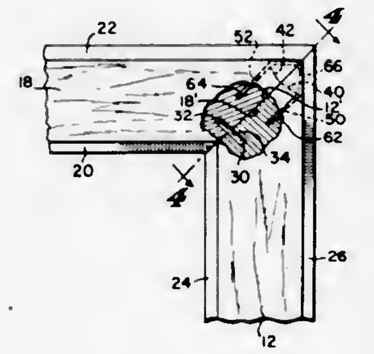
3,572,781
PICTURE FRAME JOINT

Douglas Merrilees, Northfield, and Quentin A. Malmquist, Post Mills, Vt., assignors to Weatherboard Products, Inc., Wolcott, Vt.

Filed Apr. 7, 1969, Ser. No. 813,920

Int. Cl. F16b *7/00*

U.S. Cl. 287—20.92 **3 Claims**



A picture frame includes a pair of members having beveled ends which are adapted to be positioned adjacent one another to form a miter joint. Dowel means is positioned within aligned holes formed in the beveled ends. Each of these beveled ends includes a groove formed therein, the grooves being aligned with one another, the members each also having a hole formed therein substantially at one end of the groove therein. A holding means in the form of a one-piece generally U-shaped resilient metal clip is provided, the legs of this clip fitting within the holes formed in the members, and the connecting portion of the clip between the legs being positioned within the aligned grooves.

3,572,782
MULTI-SPEED ENCODER DRUM LOCKING MEANS

Peter J. Waznys, Richmond Hill, N.Y., and John A. Garrido, Englishtown, N.J., assignors to Collectron Corporation, New York, N.Y.

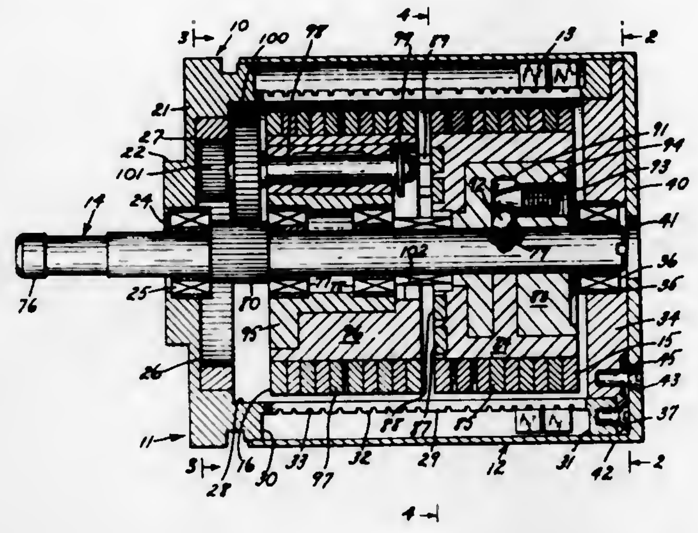
Original application Aug. 14, 1967, Ser. No. 660,252, now Patent No. 3,457,378. Divided and this application Feb. 17, 1969, Ser. No. 825,464

Int. Cl. F16d *1/06*

U.S. Cl. 287—52.08 **1 Claim**

A multispeed digital encoder employing a plurality of code

patterns, one of which moves at a submultiple of rotation with respect to the other, and including improved means



facilitating assembly, adjustment of brushes and mechanical durability.

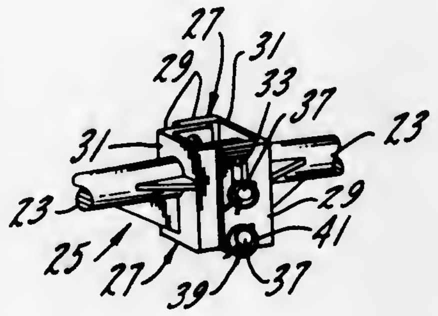
3,572,783
CONNECTOR

Harry L. Sosalla, Sac City, Iowa, assignor to Noble Manufacturing Company, Sac City, Iowa

Continuation of application Ser. No. 525,727, Feb. 7, 1966, now abandoned. This application Sept. 18, 1968, Ser. No. 766,364

Int. Cl. F16c *11/00*

U.S. Cl. 287—99 **10 Claims**



A connector for joining elongated members such as harrow crossbars which connector may be selectively adjusted to function as a rigid connector, a hinge connector or a hinge connector permitting limited vertical movement of the harrow crossbars relative to each other. The connector includes a U-shaped member connected to an end of each crossbar with one U-shaped member adapted to telescope in the other. Rectilinearly elongated and circular apertures are formed in the arms of the U-shaped members with similar openings in the arms of each U-shaped member being aligned. When the U-shaped members of adjacent crossbars telescope, similar openings in the arms of each member will be in alignment. Pivot pins may be installed through either the rectilinearly elongated or circular apertures or both to selectively connect the crossbars.

3,572,784
QUICK-COUPLING DEVICE OF THE SPRING CLAMP TYPE

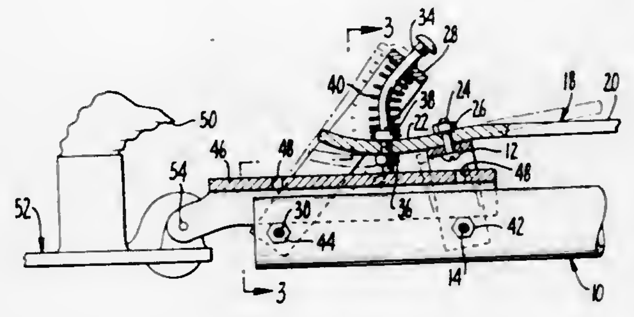
Andrew L. Pansini, 180 Los Cerros Drive, San Rafael, Calif.

Filed Mar. 24, 1969, Ser. No. 809,917

Int. Cl. B25g *3/36*

U.S. Cl. 287—103 **5 Claims**

A quick-coupling device whereby various tools and the like having half-round adapter ends may be quickly clamped to and quickly unclamped from a shaft or pole, the same being characterized by a pair of yokelike brackets pivotally connected to the shaft or pole, a lever attached to one bracket and pivotal therewith, the lever having tool clamping means adjacent one end thereof which is located between the brackets, the other end of the lever being adapted to be moved toward and away from the shaft or pole, and a com-



pression spring disposed between the other bracket and the tool clamping means of the lever to urge such means into clamping engagement with an adapter end of a tool.

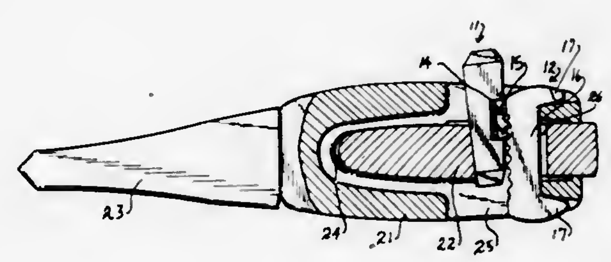
3,572,785
CONNECTING APPARATUS FOR POWER SHOVEL TOOTH ADAPTERS

Darrell R. Larson, Salt Lake City, Utah, assignor to Minneapolis Electric Steel Castings Company, Minneapolis, Minn.

Filed Dec. 22, 1969, Ser. No. 887,065

Int. Cl. B25g *3/36*

U.S. Cl. 287—103 **6 Claims**



The disclosure is directed to apparatus for connecting a digger tooth adapter to an excavating shovel. The apparatus consists of a C-shaped block having undulations formed on its back side, and a wedge having a resiliently mounted block-engaging member of the face of which is also undulated to cooperate with the block. The adapter and lip of the shovel fit together in overlapping relation, with openings in each aligning to form a passage which receives the block and wedge.

3,572,786
FIRE HYDRANT

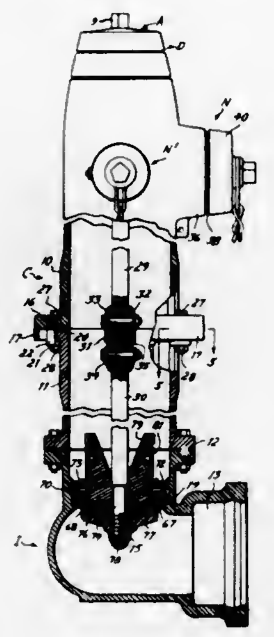
John T. Dunton, 134 School Street, Bradford, Pa.

Continuation of application Ser. No. 678,136, Sept. 20, 1967, now abandoned , which is a division of application Ser. No. 421,580, Jan. 18, 1965, now abandoned. This application Aug. 18, 1969, Ser. No. 853,592

Int. Cl. F16d *9/00*

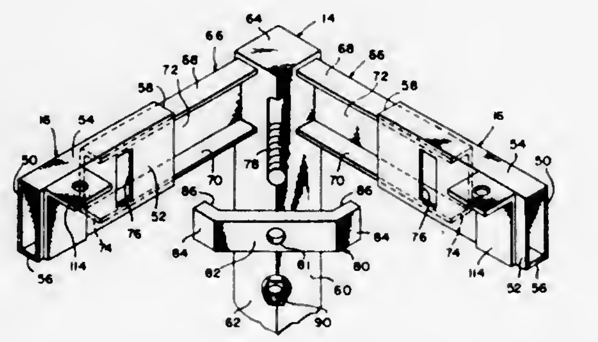
U.S. Cl. 287—108 **5 Claims**

A fire hydrant having a frangible stem operative to open and close the hydrant. The stem is comprised of tandem, axially aligned, noncircular shafts secured together by an interlocking sleeve. The sleeve provides a zone of increased fracture susceptibility located overlying one or the other shafts.



3,572,787
KNOCKDOWN JOINT CONSTRUCTION FOR FURNITURE FRAMES AND OTHER STRUCTURES

Gerald L. Timmerman, and Paul S. Timmerman, 5500 4th Ave South, Seattle, Wash.
Filed Oct. 8, 1969, Ser. No. 864,703
Int. Cl. F16b *7/00*
U.S. Cl. 287—189.36 **15 Claims**

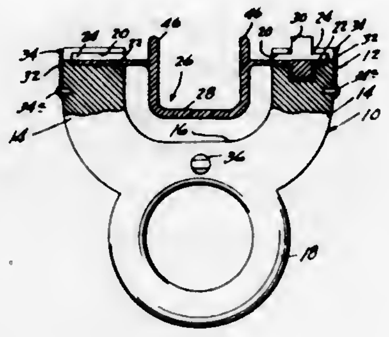


Joint construction in which individual corner members such as table legs are provided with sleeve guide extensions to receive tubular connecting apron or frame members. A bolt extends inwardly from the leg between the sleeve guides and receives a retainer member which engages the apron members to hold the apron members firmly in position on the sleeve guides and against the leg. A locking means holds the retainer in place. Panels or surfaces can then be connected to the apron or frame members.

3,572,788
PORTABLE DEVICE FOR KNOTTING CORD AND THE LIKE

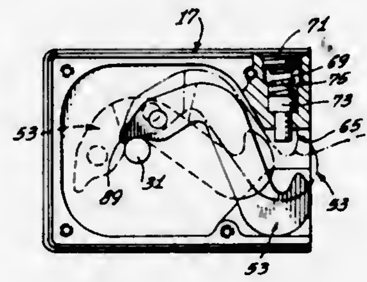
Shannon F. Cruzan, East 9605 Maxwell Ave., Spokane, Wash.
Filed July 18, 1969, Ser. No. 843,050
Int. Cl. D03j *3/00*
U.S. Cl. 289—17 **9 Claims**

A device for knotting a cord and the like comprising a substantially U-shaped element having a handle and with resilient leaf springs disposed on opposite sides of the leg members of the U-shaped element, with said element having slots therein for receiving slotted axle members therein with the slotted axle members being disposed on opposite sides of a U-shaped prong member and a knurled wheel member extending from one of said slots for rotating said prong member and slotted axle members.



3,572,789
LATCH

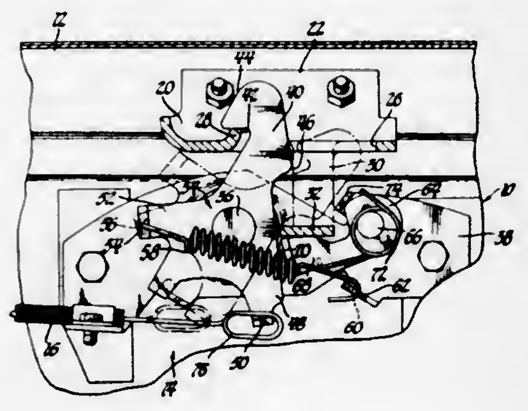
Robert M. McClintock, Northridge, and Howard T. Knox, Northridge, Calif., assignors to Fridair Industries, Redondo Beach, Calif.
Filed Apr. 17, 1969, Ser. No. 817,058
Int. Cl. E05c *5/00*
U.S. Cl. 292—114 **12 Claims**



A latch including a housing and first and second interlockable fastening elements. The first fastener element is mounted on a drive shaft which is rotatably mounted within the housing. A safety lock is mounted in the housing to prevent movement of the first fastener element to a locked position unless the second fastener element is in position to be engaged by the first fastener element.

3,572,790
AUXILIARY HOOD LATCH

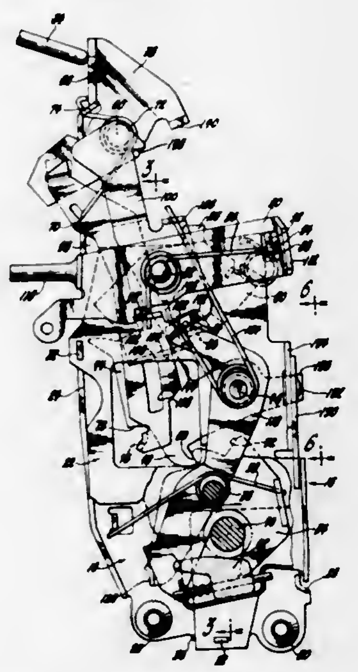
Harley L. Kapanka, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 5, 1969, Ser. No. 804,548
Int. Cl. E05c *19/12*
U.S. Cl. 292—125 **3 Claims**



An auxiliary hood latch includes a striker mounted to the hood and a bolt mounted pivotally to the body for movement between latched and unlatched positions. The bolt engages with the striker in the latched position to cooperate with the primary latch in holding the hood in closed position. A blocking member is pivotally mounted to the body for movement between a blocking position wherein the blocking member blocks the movement of the bolt to maintain the bolt in latched position and an unblocking position, when engaged by the striker, to permit the bolt to move to unlatched position.

3,572,791
CLOSURE LATCH

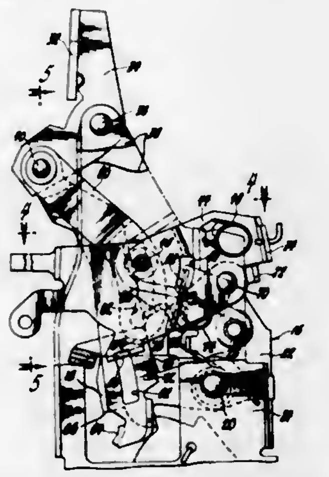
Charles W. Foley, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed May 16, 1969, Ser. No. 825,340
Int. Cl. E05c *3/26*
U.S. Cl. 292—216 **9 Claims**



A door lock of the freewheeling type includes a holding lever controlled by the locking lever and engageable with the outside operating lever when the door is open and the pushbutton is momentarily depressed to maintain the intermittent link in its upper bypass position with respect to the detent. A transfer lever engaged by the bolt releases the holding lever when the door is closed and the bolt reaches latched position. If the pushbutton is not momentarily depressed before the door is closed, the lock automatically undogs.

3,572,792
CLOSURE LATCH

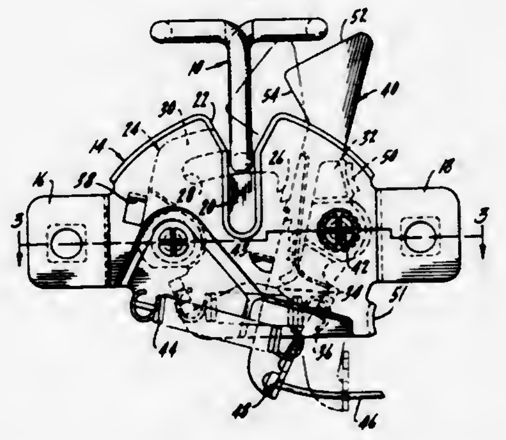
Charles W. Foley, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed May 27, 1969, Ser. No. 828,131
Int. Cl. E05c *3/26*
U.S. Cl. 292—216 **3 Claims**



A door lock of the freewheeling type includes a locking lever movable between locked and unlocked positions to move the intermittent link between uncoupled and coupled positions. An abutment member carried by the locking lever is moved to an engaging position with respect to the detent when the locking lever is in locked position to thereby provide for automatic reconnecting. A set lever controlled by the outside operating means is operable to move the abutment member to a bypass position to provide keyless locking. Momentary actuation of the outside operating means is all that is required.

3,572,793
HOOD LATCH WITH POSITIVE RETURN RELEASE LEVER

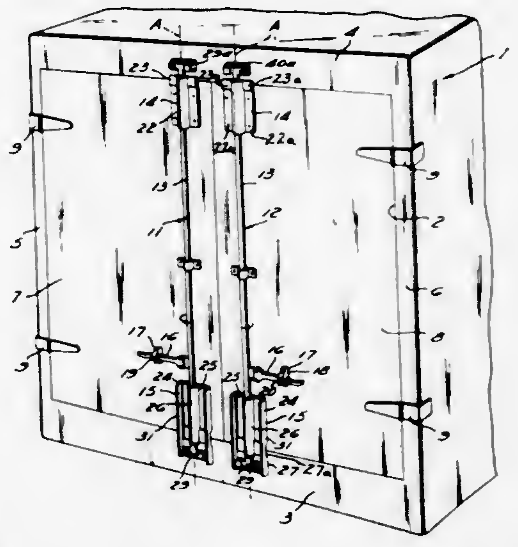
Clair I. Cole, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill.
Filed July 11, 1969, Ser. No. 840,957
Int. Cl. E05c *3/02*
U.S. Cl. 292—216 **11 Claims**



A hood latch for use in locking the hood of an automobile to the body which may be released from the driving compartment. The latch includes a plunger, normally mounted on the hood of an automobile, and a latching assembly, normally positioned on the body. The latching assembly includes a catch which holds the plunger in a locked position and a release member which releases the catch. The release lever is positively returned to its initial position by movement of the plunger in and out of the latching assembly.

3,572,794
DOOR-FASTENING APPARATUS

John V. Pastva, Parma Heights, Ohio, assignor to The Eastern Company, Cleveland, Ohio
Continuation of application Ser. No. 564,105, July 11, 1966, now Patent No. 3,484,127. This application Jan. 10, 1969, Ser. No. 790,398
Int. Cl. E05c *3/04*
U.S. Cl. 292—218 **17 Claims**

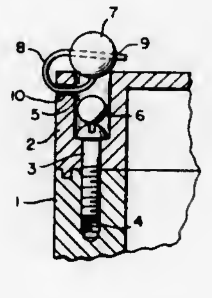


Door-fastening apparatus, particularly well suited for fastening in closed position the rear doors of truck bodies, comprises a shaft and its actuating means mounted on the door, a keeper lock member mounted on the door frame, and a latch lock member, actuatable by rotation of the shaft, mounted on the door. The keeper member has two spaced projecting members of which one has a stem portion and a transverse portion, and the other of which has a free end portion. The latch member has two forks one of which engages beneath the transverse portion of the first projecting member in straddling relation and the other of which straddles the second projecting portion. The door also carries a member having an extension portion that overlaps the door frame to prevent inward movement of the door. This member preferably extends around the keeper member and is engaged by the forked portion of the latch member when the latch member is in locking engagement.

3,572,795
TAMPER RESISTANT SEAL

James Y. Howard, Spencerport, and Loren R. Springett, Rochester, N.Y., assignors to General Signal Corporation, Rochester, N.Y.

Filed Nov. 25, 1969, Ser. No. 879,665
Int. Cl. E05c *5/04;* **B65d** *55/06*
U.S. Cl. 292—251 **4 Claims**

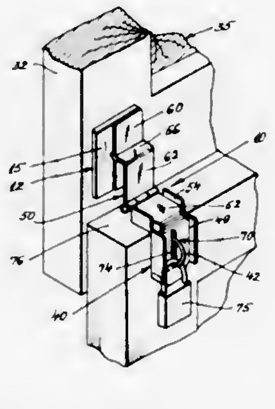


A tamper resistant seal for restricting access to a removal fastener in a receptacle has been provided. A loose fitting removal insert lodged in the receptacle covers the cross section of the receptacle and fastener and a sealing member passing through a hole in the sidewall of the receptacle and at the cross section of the receptacle restricts the removal of the insert and the sealing member must be broken to give access to the fastener.

3,572,796
WINDOW LOCKING DEVICE

Maurice A. Willner, 61 Greenway Road, New London, Conn.

Filed May 22, 1969, Ser. No. 826,809
Int. Cl. E05c *19/08, 19/18*
U.S. Cl. 292—281 **10 Claims**

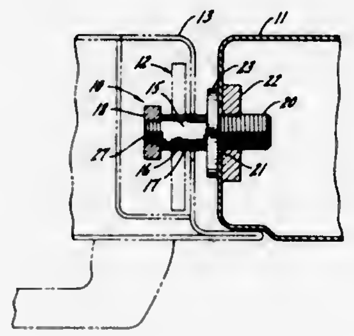


A window lock assembly includes a bracket which attaches to the upper sash of a window, and a plate which attaches to the lower sash. The plate has an outwardly projecting U-bolt. A hasp is provided with spaced plates which slide into engagement with the bracket. The hasp has a slotted hinged tongue which engages on the U-bolt. A padlock can be engaged on the U-bolt to lock the parts of the assembly together.

3,572,797
STRIKER FOR USE WITH A VEHICLE LATCH

Harry J. Shay, Rockford, Ill., assignor to L.W. Menziner Trustee, Rockford, Ill.

Continuation of application Ser. No. 614,196, Feb. 6, 1967, now abandoned. This application Apr. 17, 1969, Ser. No. 817,294
Int. Cl. E05b *15/02*
U.S. Cl. 292—341.12 **6 Claims**

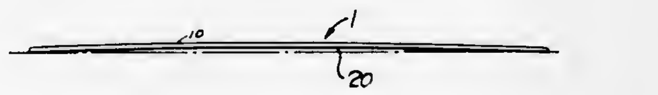


A striker for coacting with a latching device to hold an automotive vehicle door in a closed position. The striker includes a keeper pin for engaging the latching device, a shank threaded into the door post, and a washer formed integrally with the pin and the shank to permit the cross section and strength of the shank to be increased. A pair of diametrically opposed driving flats are formed in the peripheral edge of the washer and are adapted to be engaged by a tool for threading the shank into the door post.

3,572,798
RESILIENT BUMPER STRIP

Alex Kunevicius, Independence, Ohio, assignor to Custom Trim Products, Inc., Cleveland, Ohio

Original application Dec. 13, 1966, Ser. No. 601,473, now Patent No. 3,439,950, dated Apr. 22, 1969, which is a continuation-in-part of application Ser. No. 477,273, Aug. 4, 1965, now abandoned. Divided and this application Oct. 31, 1968, Ser. No. 772,125
Int. Cl. B60j *19/00;* **B60r** *5/04;* **B61f** *19/04*
U.S. Cl. 293—1 **2 Claims**



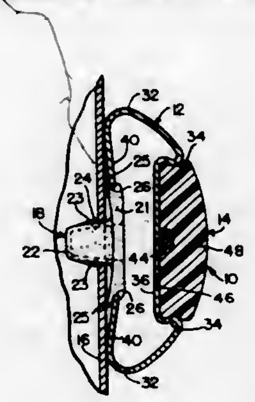
A protective decorative, and resilient buffer accessory molding for and in combination with motor vehicles and the like and a method for making the same.

3,572,799
RESILIENT BUFFER STRIP

Robert E. Truesdell, 887 Croyden St., Rochester, Mich., and William H. Nienstedt, 5202 Yorkshire St., Detroit, Mich.

Filed Mar. 24, 1969, Ser. No. 809,5[illegible]5
Int. Cl. B32b *5/00;* **B60r** *19/08;* **E04b** *1/62*
U.S. Cl. 293—1 **11 Claims**

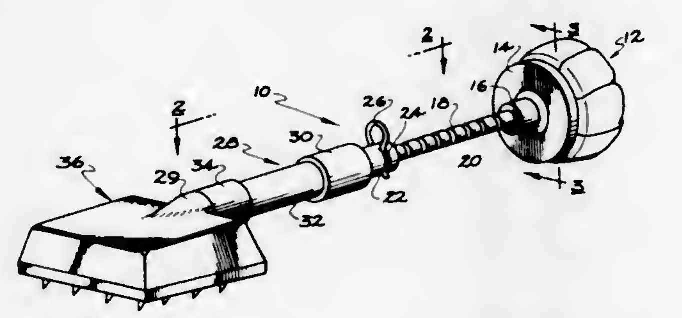
This invention pertains to an exterior molding structure for use on automobile doors and side panels as a resilient bumper strip adapted to receive blows from metallic bodies striking against such doors or panels. The bumper strip is formed of a longitudinally extending metallic molding, adapted to be secured to the panels by retaining members or an adhesive, and a longitudinally extending medially disposed strip of plastic material having an outer surface projecting beyond the plane of the metallic-molding strip and secured thereto by a welded element substantially embedded within the mass of plastic material and having a surface portion disposed closely adjacent a surface of the metallic molding strip with which it is welded, preferably by series welding.



3,572,800
PNEUMATIC CARPET KICKER

Anthony J. Graziano, 23211 Vanowen, Canaga Park, Calif.

Filed Nov. 21, 1968, Ser. No. 777,675
Int. Cl. A47g *27/04;* **B26f** *1/32;* **F04f** *21/20*
U.S. Cl. 294—8.6 **2 Claims**

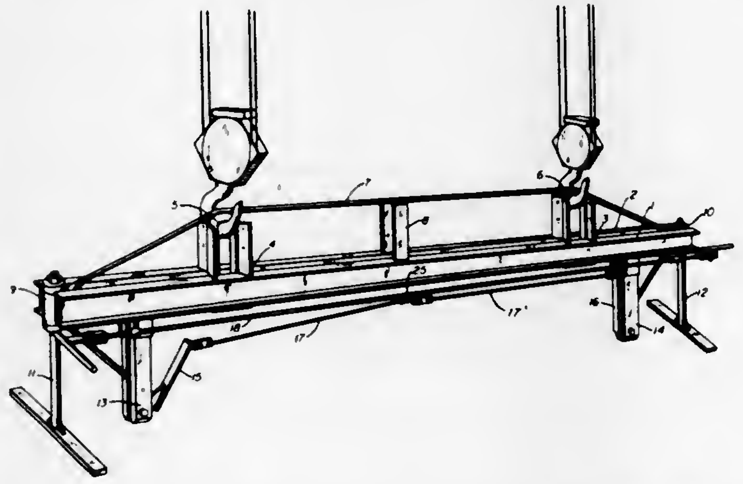


A shock absorbing carpet kicker comprising a cylindrical housing, a head for engaging a carpet affixed to said housing, means within said housing for absorbing shock, an adjustable shaft connected to said means within said housing for absorbing shock, and, a protective pad affixed to said shaft for absorbing the initial shock which is transmitted to said shock absorbing means within said housing.

3,572,801
MATERIAL HANDLING DEVICE FOR OPEN CRATING

Harry S. Howard, 1403 W. Archer St., Tulsa, Okla., and Audie E. Cantrell, 5909 South 89th St. West, Tulsa, Okla.

Filed Mar. 3, 1969, Ser. No. 803,721
Int. Cl. B66c *1/22, 1/28*
U.S. Cl. 294—67 **1 Claim**

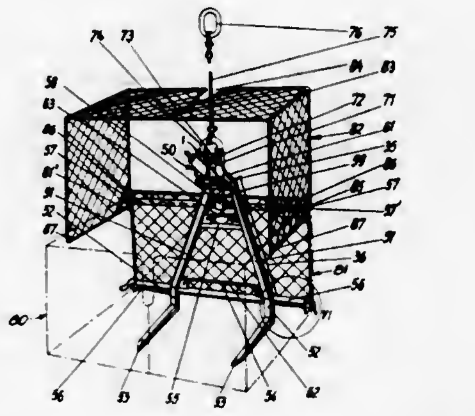


A material handling device suitable for use with open crating which includes switching means for automatically positioning the lower carrying members to a lifting position or a nonlifting position.

3,572,802
FORK LOADER WITH LIFT-CONTROLLED ENCLOSURE

Viktor Zupancic, Hubadova 7a, Ljubljana, Yugoslavia

Filed Nov. 15, 1967, Ser. No. 683,239
Int. Cl. B66c *1/00*
U.S. Cl. 294—67 **12 Claims**

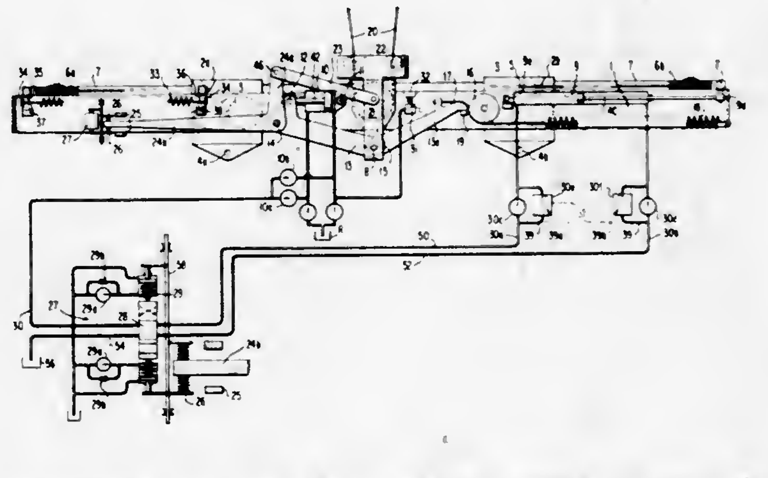


A fork loader has a wire-net enclosure giving access to a lifting fork when the latter is in its normal, unloaded state. A clevis articulated to the head of the fork, at an acute angle to the axis of a pneumatic cylinder rigid with the fork, acts through a plunger upon an air cushion in the cylinder when the clevis is lifted by a crane while the fork is weighted down by a load. The free end of the plunger thereupon releases a sickle-shaped arm on the pivotal shaft of a swingable front part of the enclosure whereby that part is allowed to drop down in front of the pallet, being subsequently locked in place by a pair of pins released from a withdrawn position by a further advance of the plunger into engagement with a spring-loaded camming lever.

3,572,803
METHOD AND APPARATUS FOR LIFTING A LOAD WITH A CRANE CABLE OR THE LIKE

Wilhelmus Antonius Maria Pompe, Tolhuislaan 4, Den Dolder, Netherlands

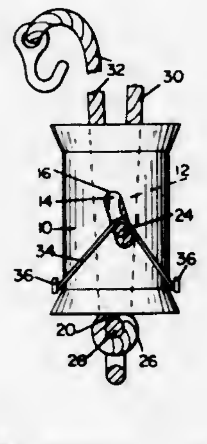
Continuation-in-part of application Ser. No. 581,832, Sept. 26, 1966, now abandoned. This application Nov. 7, 1968, Ser. No. 774,034
Int. Cl. B66c *1/00*
U.S. Cl. 294—81 **47 Claims**



Suspending the load from a body which in turn is suspended from the crane cable, and relatively shifting the positions of the suspension point on the cable and the center of gravity of the combined body and load until in vertical alignment with the body and load disposed in a predetermined position which is usually horizontal. The relative shifting of the suspension point of the body from the cable and the center of gravity of the combined body and load may be effected either by shifting the cable suspension point or by shifting the load along the body. In addition it may be accomplished by counterweights movable along the body. In certain embodiments, a control arm is movably mounted on the body to sense the eccentricity of the load suspended from the body when the body and its load are lifted by the crane cable. Upon sensing the eccentricity, the control arm is employed to actuate a device such as a fluid motor to bring the cable suspension point and the combined center of gravity of the body and load into vertical alignment with each other. In another embodiment, the eccentricity of the load suspended from the body is sensed by a liquid level device mounted on the body to control a motive device employed in producing the alignment. In order to restore the body in a balanced position relative to the cable after the load is released from the body, an energy accumulator is provided to be charged with energy by virtue of vertical displacement of the cable suspension point which occurs either before or during the alignment operation. After the load is released the charged energy which in one embodiment is in the form of an energized spring, is employed to move the body about the cable suspension point until the body is restored to horizontal position.

3,572,804
VARIABLE LENGTH LINE FASTENING DEVICE

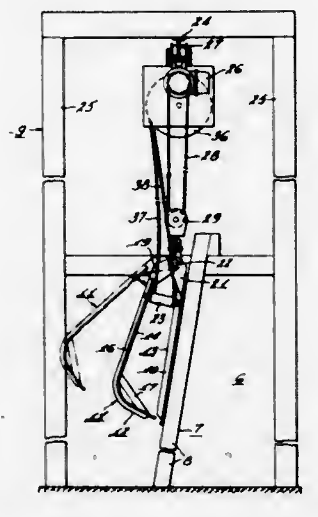
Robert C. Nims, and Geraldine A. Nims, 29 Peach St., South Barre, Mass.
Filed Apr. 16, 1969, Ser. No. 816,685
Int. Cl. F16g *11/14, 11/04*
U.S. Cl. 294—82 **4 Claims**



A blocklike member having a tapering longitudinal through passage, a transverse, intersecting slot on an incline relative to the axis of the passage, a doubled cord having its two ends extending through the passage and extending out both ends thereof, a ring or ringlike member through which the cord passes at the point of doubling, and a cord locking cross rod in the slot.

3,572,805
TRASH RAKE

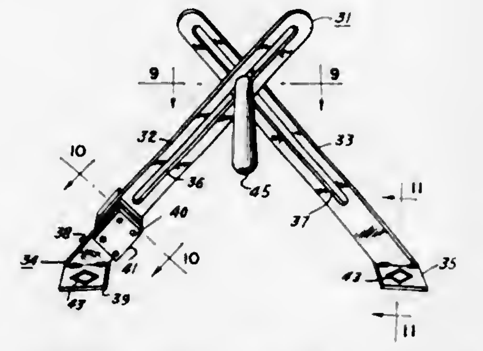
Edwin W. Murphy, York, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Sept. 4, 1969, Ser. No. 855,112
Int. Cl. B66c *1/00*
U.S. Cl. 294—88 **1 Claim**



The trash rake employs a double-acting hydraulic cylinder positioned between the rake teeth and rake tines. The hydraulic cylinder may be activated to hold the rake in any number of positions between the fully opened and fully closed positions. The rake is positively held in any of the adjusted positions due to the pressurized hydraulic fluid in the cylinder.

3,572,806
STORAGE BATTERY CARRIERS

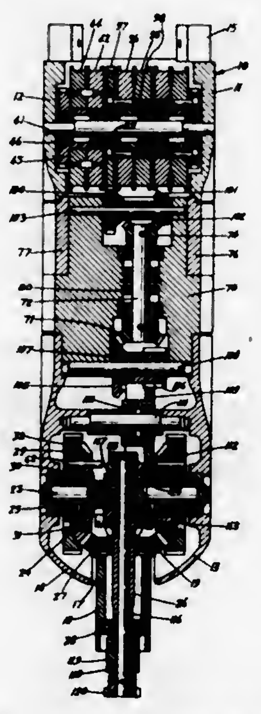
John F. Sivadon, 704 N. Robinson Drive, Waco, Tex.
Continuation-in-part of application Ser. No. 790,559, Jan. 13, 1969, now abandoned. This application Mar. 13, 1969, Ser. No. 812,546
Int. Cl. B25b *1/08*
U.S. Cl. 294—92 **5 Claims**



A storage battery carrier having a pair of members pivotally connected to each other and, if desired, with one of the members being of greater length and projecting above the pivot point to provide a handle. The members may be biased toward each other and have laterally or inwardly directed, angular lower end portions in which openings are formed for engagement with the terminal posts of a battery. The openings have transverse dimensions substantially equal to the post diameter whereby cramping engagement is provided when lifting force is applied to the handle of the carrier and, preferably, are polygonal. The major portions of the members may be slotted longitudinally for slidable as well as pivotal connection by the handle whereby the resultant vector of forces holds the openings at the lower ends of said members engaged with the terminal posts.

3,572,807
ROTARY TONG SQUEEZE SYSTEM

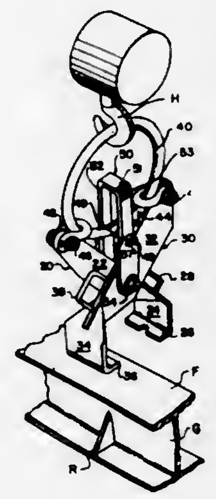
Lester W. Haaker, and Demetrius G. Jelatis, Red Wing, Minn., assignors to Central Research Laboratories, Inc., Red Wing, Minn.
Continuation-in-part of application Ser. No. 814,265, Apr. 8, 1969, now abandoned. This application June 6, 1969, Ser. No. 830,950
Int. Cl. B66c *1/00*
U.S. Cl. 294—106 **10 Claims**



A wrist joint for a remote control manipulator having a direct two-way drive rotary tong squeeze system. The rotary tong squeeze system replaces that utilizing a single linear motion tape or cable to close the tong and springs to return to open position. The present wrist joint allows the tong to be driven in both the opening and closing directions using a pair of opposing linear elements to transmit motions from the master arm to tape drums and then through differential gears to the operating members of the tong assembly.

3,572,808
LIFTING TONGS

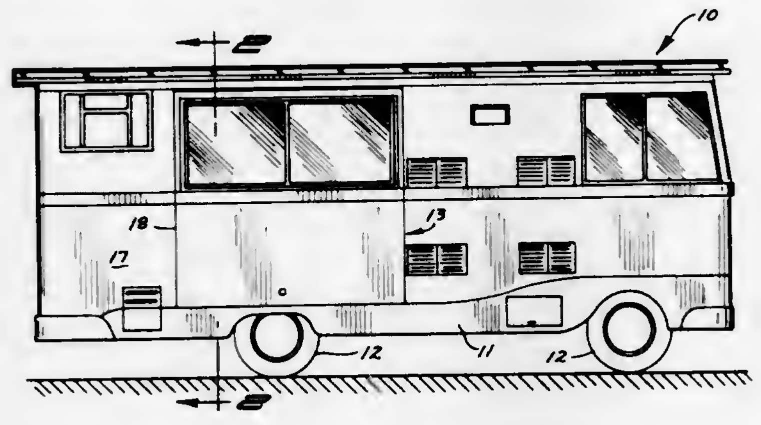
Boyd Columbus Miller, P. O. Box 1566, Salisbury, N.C.
Filed Nov. 12, 1968, Ser. No. 774,795
Int. Cl. B66c *1/00*
U.S. Cl. 294—118 **2 Claims**



The present invention is directed to an improved lifting device for lifting steel beams and girders such as the type used in heavy construction work and comprises a scissorslike pair of tongs with inturned flanges that are so formed as to close around one flange of a beam for lifting and transferring the beam, properly oriented, into position. A latch holds the arms of the tongs apart when no load is being carried, as for example, after a load has been deposited.

3,572,809
EXPANSIBLE MOBILE HOME AND FITTINGS THEREFORE

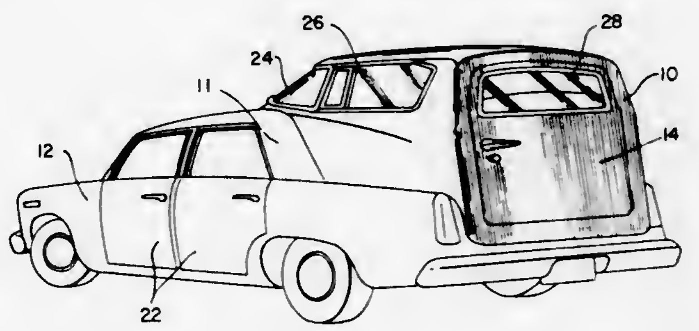
Arlo T. Buland, 1012 12th St, Moorhead, Minn.
Filed Nov. 26, 1968, Ser. No. 786,800
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 **4 Claims**



This invention relates to a mobile or transportable housing unit, having laterally extensible side portions, which portions during transportation are collapsible into the main body of the unit, and which laterally extensible unit is a completely sealed device retractable into the main unit. The extensible portions of the unit further include seating and bedding structures, which are adjustable to accommodate and provide a plurality of positionable elements adaptable for either sitting or sleeping purposes.

3,572,810
AUTOMOBILE OPERATOR'S CABIN

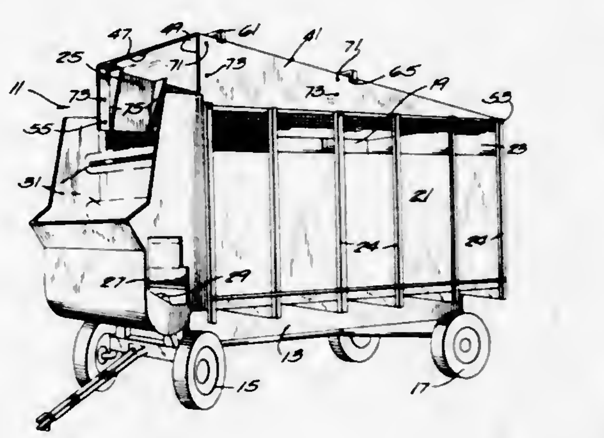
Walter W. Arakelian, Rte 3A, North Billerica, Mass.
Filed Dec. 23, 1968, Ser. No. 786,018
Int. Cl. B62d *33/08*
U.S. Cl. 296—24 **6 Claims**



An elevated cabin is provided at the rear of a passenger automobile to separate the operator from the passenger space and to provide him with an all-around view. The cabin may be part of the original construction of the automobile or may be made to be attached to the rear of a completed automobile.

3,572,811
FARM WAGON WITH HINGED ROOF

John E. Kasten, 136 Concord Lane, West BND, Wis.
Filed Aug. 6, 1969, Ser. No. 847,909
Int. Cl. B62d *33/08*
U.S. Cl. 296—26 **10 Claims**

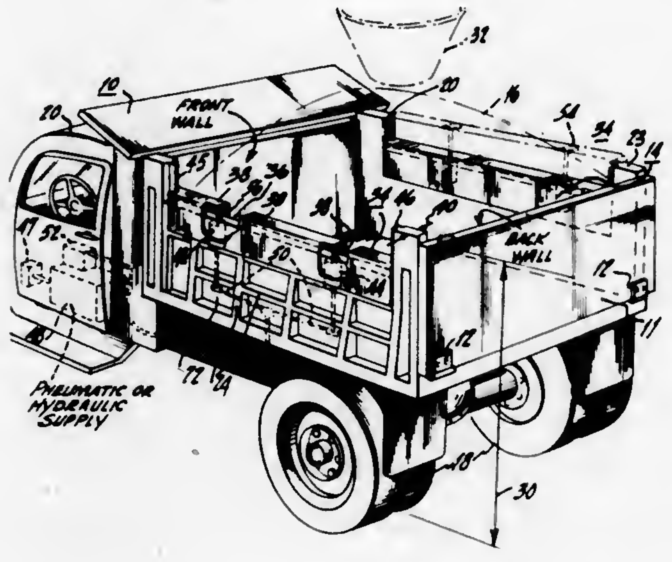


Disclosed herein is a farm wagon having a boxlike structure with a partially open end, together with a hinged roof which is selectively positionable between a lowered position and a raised position affording enlargement of the open end of the wagon and which materially transversely strengthens the sidewalls of the boxlike structure adjacent the upper ends and the open end.

3,572,812
RETRACTABLE SIDEBOARDS

John Norcia, R.F.D.4 Box 451, North Brunswick, N.J.
Filed Nov. 29, 1968, Ser. No. 779,969
Int. Cl. B62d *33/08*
U.S. Cl. 296—26 **8 Claims**

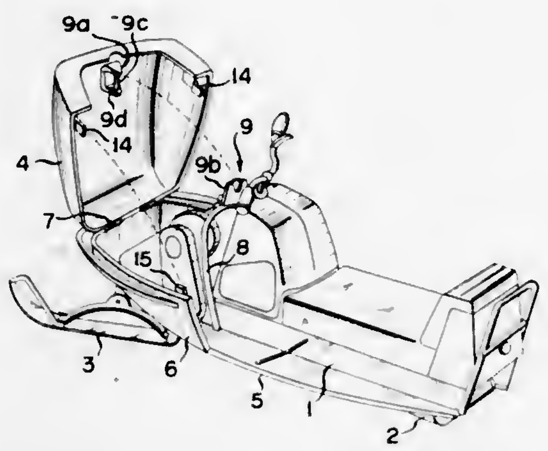
A truck, having a boxlike load accommodating structure, has mounted on each of the sides of the structure near the top surfaces thereof, a retractable sideboard assembly. The sideboard assembly has an inner member secured to the top of the sides of the box structure. The inner member contains piston units for vertically moving a second cover member slideably mounted over said first member. The pistons within said piston units are activated from a valve controlled energy source, such as a pneumatic or hydraulic unit, and serve to raise the second members, which effectively increases the height of the truck sides, protects the load and the operator, without substantially decreasing the effective legal payload of the vehicle.



3,572,813

DEVICE FOR ENGAGING A FRONT COVER WITH A SNOW VEHICLE BODY

Norio Takada, Hamamatsu-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-ken, Japan
Filed Mar. 25, 1969, Ser. No. 810,093
Claims priority, application Japan, Mar. 30, 1968, 43/25101
Int. Cl. B62d *25/10*
U.S. Cl. 296—28 **7 Claims**



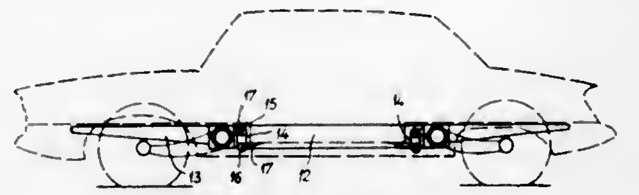
A front bonnet having a rear open end is removably engaged with the rear part of each front side frame of a vehicle body by coupling members so that the bonnet is reinforced in rigidity so as to assure a good connection with the vehicle body.

3,572,814

DEVICES FOR INTERCONNECTING THE BODY AND CHASSIS OF VEHICLES

Raymond A. Ravenel, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France
Filed Sept. 11, 1968, Ser. No. 759,061
Int. Cl. B62d *27/04*
U.S. Cl. 296—35 **4 Claims**

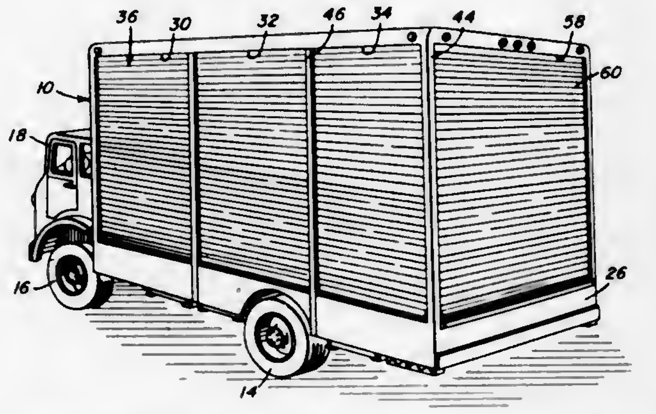
The connecting device between a body and a sprung chassis of a vehicle of which the body fits freely in an aperture of the chassis comprises, at their interfitting portions, connecting members providing a pendular suspension of the body in relation to the chassis in the longitudinal direction of the vehicle and permitting a limited movement of the body.



3,572,815

VAN BODY WITH OVERHEAD SIDE DOORS

Ralph Hodges Hackney, Washington, N.C., assignor to J. A. Hackney & Sons, Inc.
Filed July 14, 1969, Ser. No. 841,529
Int. Cl. B60j *5/08*
U.S. Cl. 296—40 **5 Claims**

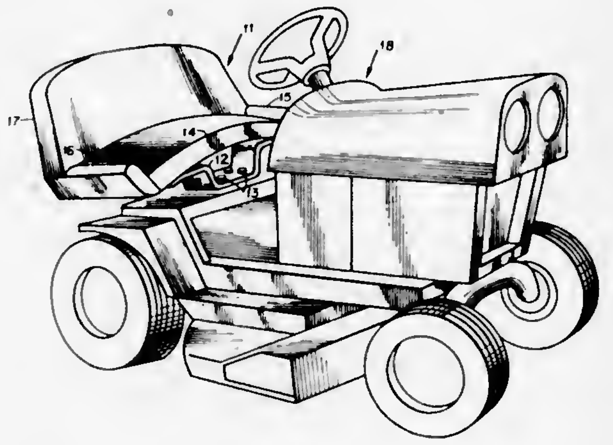


A van-type truck body having rear doors to enable a preloaded rack or cart of a size commensurate with the internal dimensions of the body to be loaded into the body combined with rollup-type overhead doors along each side of the van body to enable access to both longitudinal sides of the preloaded rack or cart throughout the longitudinal dimension thereof so that items to be delivered may be removed through the side doors. A slide-out step is provided below each side door to provide for easy access to items placed at the top of the preloaded rack or cart.

3,572,816

VEHICLE SEAT

Robert L. Brown, 322 Davis Drive, Kingston, Tenn.
Filed Mar. 12, 1969, Ser. No. 806,389
Int. Cl. B60n *1/00*
U.S. Cl. 296—63 **6 Claims**

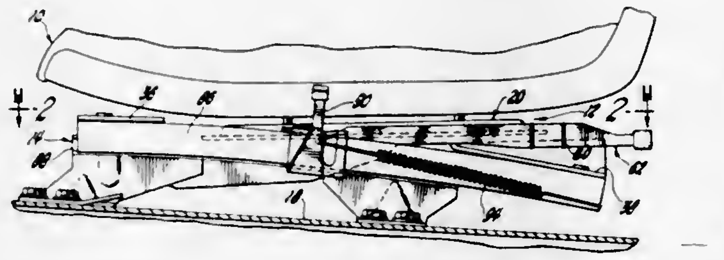


An arcuate seat for riding implements which extends transversely to the direction of travel of the implement, whereby a rider may change sitting positions along the seat when the implement moves over a nonhorizontal surface.

3,572,817

ADJUSTER MECHANISM FOR A VEHICLE SWIVEL SEAT

Albert J. Colautti, Windsor, Ontario, Canada, and Angelo Guarrasi, Harper Woods, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed July 16, 1969, Ser. No. 842,099
Int. Cl. B60n *1/04*
U.S. Cl. 296—65 **5 Claims**

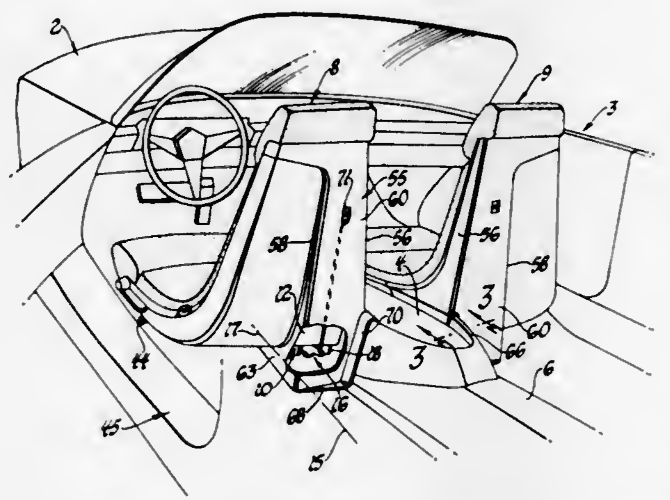


An adjuster mechanism interposed between a vehicle seat and the vehicle floor portion for supporting the seat for rotational movement about a vertical axis between a first position wherein the seat faces forwardly and a second position wherein the seat faces the vehicle door. The adjuster mechanism includes a disc-shaped member attached to the seat and having means formed thereon which cooperate with a manually operable handle for positively locking the seat in the first position and for detenting the seat in the second position.

3,572,818

VEHICLE SEAT CONSTRUCTION AND ARRANGEMENT

Thomas E. Lohr, Warren, Mich., assignor to Allied Chemical Corporation, New York, N.Y.
Filed July 22, 1969, Ser. No. 843,670
Int. Cl. B60n *1/04*
U.S. Cl. 296—65 **20 Claims**

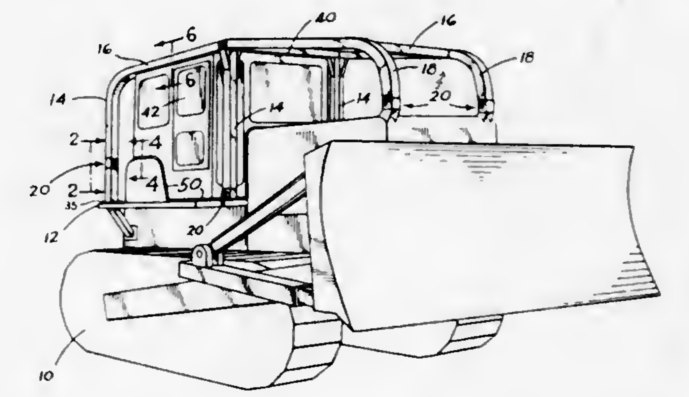


A vehicle seat construction and arrangement for an automobile having a passenger compartment with a console extending fore-and-aft along the central longitudinal axis of the automobile and including an operator's seat on one side of the console and a passenger seat on the other side of the console. Each of the seats includes a unitary frame having an upwardly extending back frame portion and a bottom frame portion extending forwardly from the back frame portion with support and adjustment mechanism for mounting the seat on the vehicle floor. The support and adjustment mechanism for the seat is mounted asymmetrically on the bottom frame portion to provide clearance between the floor and the bottom surface of the bottom frame portion on the opposite side of the fore-and-aft extending central axis of the bottom portion from the support and adjustment mechanism so that passengers in the rear do not have to straddle the support and adjustment mechanism with their feet. The seat construction further includes means defining an enclosure for the support and adjustment mechanism which includes an outer side panel extending rearwardly from the edge of the frame adjacent the support and adjustment mechanism and an inner side panel extending rearwardly from the back frame portion on the opposite side of the support and adjustment mechanism and near the upright central axis of the back frame portion with a rear panel extending between the rear edges of the side panels. The outer side panel includes an outwardly projecting flange which overlies the upper edge of the console to prevent trash and objects from becoming lodged between the seat and the adjacent side of the console.

3,572,819

ENCLOSED GUARD CANOPY FOR TRACTORS

James C. Moore, Portland, and Milton K. Leonard, Lake Oswego, Oreg., assignors to Tube-Lok Products, Portland, Oreg.
Filed Apr. 14, 1969, Ser. No. 815,613
Int. Cl. B62d *25/06*
U.S. Cl. 296—102 **2 Claims**

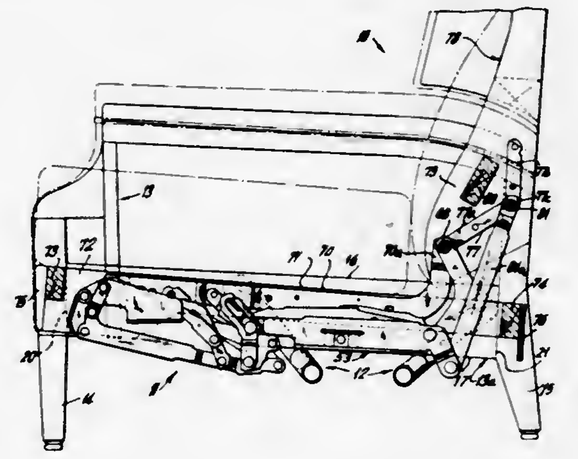


An enclosed guard canopy for tractors comprises a supporting guard frame defining an operator's cab having side openings. Sheet metal panels are hung in the openings by being secured to the guard members only. Resilient mountings mount the guard members on the tractor and flexible resilient sealing strips seal the space between the unattached lower margin of the panels and the top of the tractor. The operator in the cab thus is protected from vibration, noise and dirt and the cab structure is protected from working stresses.

3,572,820

TV AND FULLY RECLINING CHAIRS AND HARDWARE THEREFOR

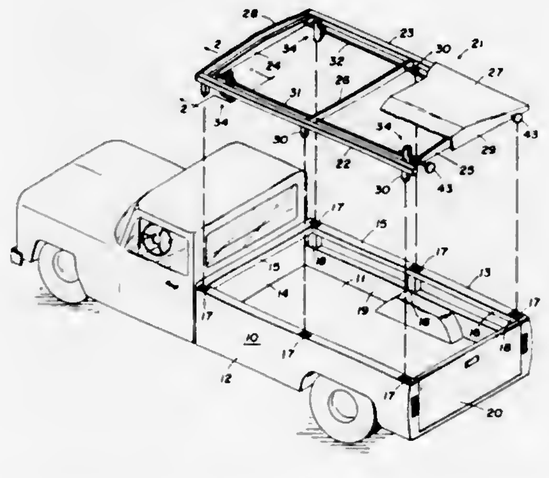
Arlen H. Ferguson, Tupelo, Miss., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Jan. 21, 1969, Ser. No. 792,419
Int. Cl. A47c *1/035*
U.S. Cl. 297—84 **16 Claims**



Two tubular cross braces interconnect the arms of a chair frame, to support the load on the seat and to keep the arms from spreading apart. The braces are at opposed upwardly divergent 45° angles to get the upper mounting points of the braces to the frame, further apart to get maximum bearing area. The braces have a middle downward bend to provide clearance for a soft seat and to strengthen the braces. The cross braces support reclining chair linkage hardware. These linkages are provided with sequencing mechanism so arranged that the chair goes from closed upright position to an intermediate TV position before going to a fully reclined position.

3,572,821
COVER FOR TRUCK BEDS

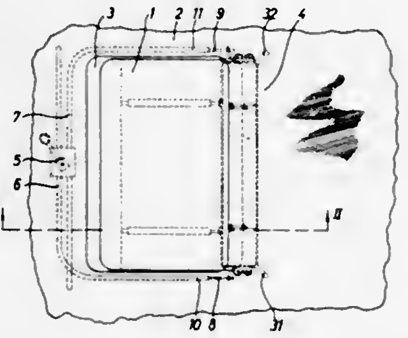
Danial Roe Van Antwerp, R.R. #1, Mystic, Iowa
Filed July 31, 1969, Ser. No. 846,342
Int. Cl. B60j *7/10*
U.S. Cl. 296—137 **7 Claims**



A removable cover for pickup truck bed is disclosed. The cover includes a rigid frame with stakes, the frame seating upon the top edges of the bed and the stakes fitting into recesses typically provided therein for that purpose. A pair of catches carried wholly by the cover along each side thereof engage the flanges typically provided along the two sides of the truck bed, the catches along each side being conjointly operated by a crankshaft. The catches are spring biased to resiliently hold the cover to the bed, and at the same time, when the two catches along one side of the cover are released, to permit that side to be lifted against the spring pressure of the two catches along the other side. Additionally, the catches may be designed so that the rear two only may be released, whence the rear of the cover may be lifted against the spring pressure of the front two catches.

3,572,822
SLIDABLE VEHICLE ROOF ASSEMBLY

Alfred Schmid, Munich-Furstenried, West Germany, assignor to Webasto-Werk, G.m.b.H., Munich, Germany
Filed Apr. 24, 1969, Ser. No. 818,943
Claims priority, application Austria, May 16, 1968, A4701
Int. Cl. B60j *7/04*
U.S. Cl. 296—137 **16 Claims**



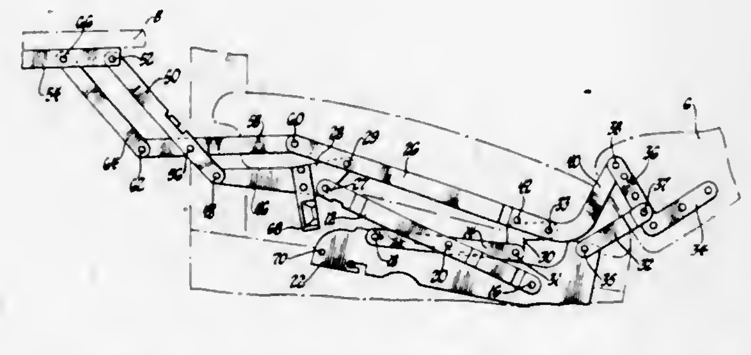
A sliding roof section for vehicles including a panel which is pivotally supported at the front, and supported at the rear by means of a support member which may move, with the roof, both horizontally and vertically so that when the rear of the panel is lowered, the panel may be slid rearwardly under the stationary part of the roof. Additionally, the rear of the panel may be moved upwardly from its normally closed position to provide ventilation.

ERRATUM

For Class 297—84 see:
Patent No. 3,572,820

3,572,823
RECLINING CHAIR

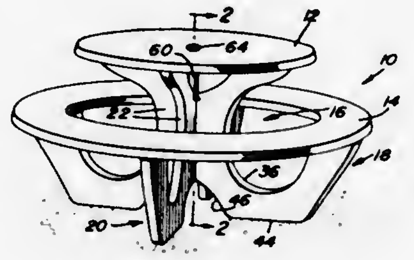
Edward L. Hampton, Louisville, Ky., assignor to Lear Siegler, Inc., Santa Monica, Calif.
Filed Jan. 3, 1969, Ser. No. 788,760
Int. Cl. A47c *1/02*
U.S. Cl. 297—85 **15 Claims**



A reclining chair having relatively movable base, seat and back portions with an extensible and retractable legrest operable between an upright position with the legrest retracted, a semireclined position with the legrest extended, and a fully reclined position with the back portion tilted rearwardly with respect to the seat and base portions. Interconnecting means between the base, seat and back portions actuates the seat portion to a raised, fully reclined position with respect to the base portion as the back portion is tilted to its fully reclined position.

3,572,824
TABLE AND BENCH CONSTRUCTION

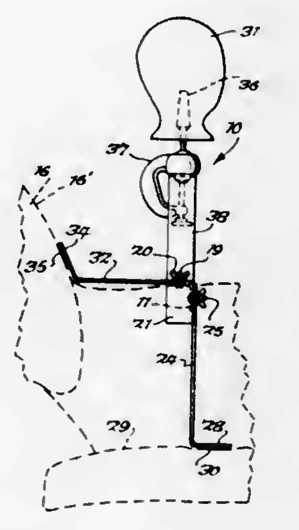
Melvin E. Schupbach; Elmer J. Schupbach, and Edward L. Boyden, Fenton, Mich., assignors to Schupbach Bros., Inc.
Filed Dec. 31, 1968, Ser. No. 788,123
Int. Cl. A47b *3/06, 7/00*
U.S. Cl. 297—157 **10 Claims**



A patio-type table and bench unit comprising a pair of base members nestable in crossed interlocked relation with each other. Each base member including opposed spaced upwardly directed table supports and relatively lower upwardly directed seat supports outwardly spaced in relation to the table supports. A table top engages on and is secured to the table supports of the combined base members and a table top encircling seat is supported on and secured to the combined seat supports. Each base member is formed as a single unit and configured so as to almost completely avoid any interference with the seating of persons on the surrounding seat about the table top. A pipe section can also be incorporated into the table for the selective reception of an umbrella or the like.

3,572,825
WIG STYLING RACK

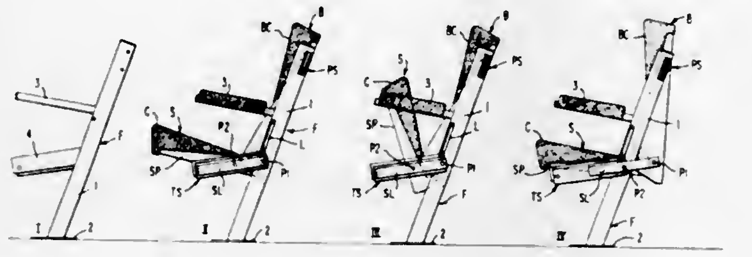
Harold L. Davis, 3649 Harlem Road, Cheektowaga, N.Y.
Filed Oct. 21, 1968, Ser. No. 769,172
Int. Cl. A47c *7/62*
U.S. Cl. 297—188 **5 Claims**



A wig styling rack for mounting on a chair having a back, a seat, and a pair of spaced arms consisting of a central portion having a pair of laterally adjustable arms for resting on said arms of said chair, a downwardly depending adjustable leg mounted on said central portion for resting on said seat of the chair for preventing pivotal movement of said body portion in a first direction, a rearwardly extending arm mounted on said central body portion for resting against the back of said chair and thus preventing pivotal movement of said central body portion in a direction which is opposite to said first direction, and a frame member extending upwardly from said central body portion for mounting a wig form at the top thereof.

3,572,826
PUSH BACK SEAT CHAIR

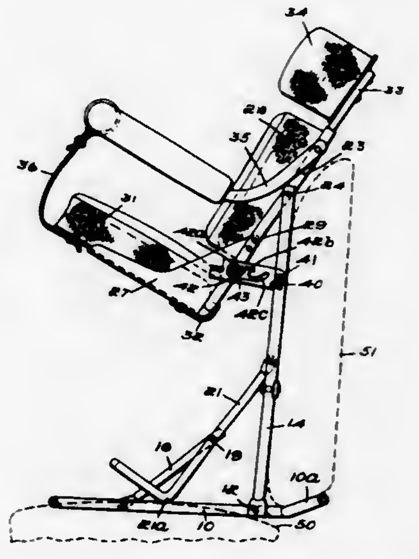
Raymond C. Barnes, Temple, Tex., assignor to American Desk Manufacturing Company, Temple, Tex.
Filed July 5, 1968, Ser. No. 742,881
Int. Cl. A47c *1/12*
U.S. Cl. 297—249 **14 Claims**



A push back seat chair has a seat mounted on two slides movable fore-and-aft of the chair in track structures on opposite sides of the chair. The track structures may be mounted on the chair frame so as not to move vertically but so that the rear portions of the track structures may swing transversely toward or away from the adjustment frame parts, thus enabling chairs to be mounted in arcuate rows of different radii. The rear parts of the slides are pivotally connected to the lower part of the chair back, the upper part of which is connected to the frame for both pivotal and vertical movements. The chair seat is pivoted on the slides and is controlled in its pivotal movement so as to occupy a position of use in which it is at a rearward-downward inclination conducive to comfort and to occupy a retracted position in which its front edge is relatively lower than when in its position of use but still not so low as to result in a forward-downward inclination. The seat pan and chair back are relatively less rigid than the frame, and have little but sufficient flexibility to permit enough warping or twisting to accommodate some misalignment of frame parts in mounting and thereby to prevent binding of relatively movable interengaging parts.

3,572,827
CHILD'S CAR SEAT

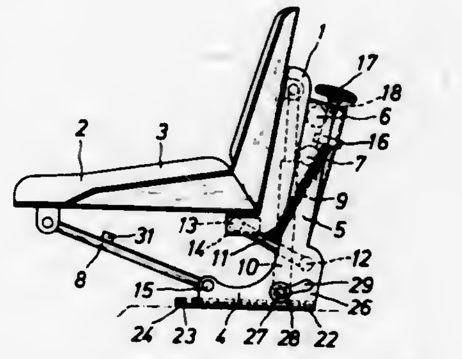
Morris C. Merelis, Brookline, and Ernest S. Sharaf, West Newton, Mass., assignors to Pyramid International, Inc., Ravenna, Ohio
Filed Oct. 15, 1968, Ser. No. 767,715
Int. Cl. A47d *1/10*
U.S. Cl. 297—253 **3 Claims**



A child car seat to be attached to an automobile seat. The seat has a supporting frame with legs which engage under the back cushion of the automobile seat. The seat is pivoted on the frame and swings from a sitting position to a reclining position. Lock plate on the sides of the frame have slots which engage pins on the seat. The slots have branches in which the pins engage to lock the seat in a selected position.

3,572,828
SEAT FOR VEHICLE PREFERABLY AGRICULTURAL VEHICLE

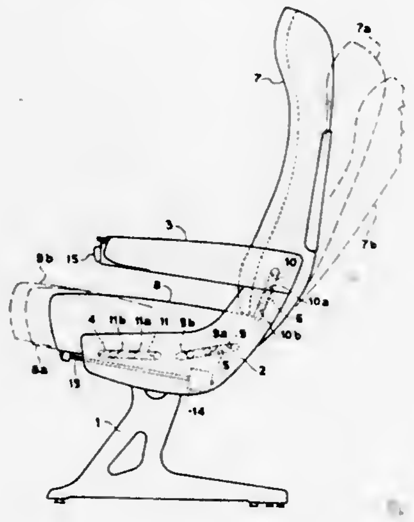
Wilhelm Lehner, Kummersbrucker-Strasse 6, Amberg Oberpfalz, Germany
Filed Oct. 21, 1968, Ser. No. 769,346
Claims priority, application Germany, Oct. 23, 1967, P 16 30 736.1
Int. Cl. A47c *3/22*
U.S. Cl. 297—308 **7 Claims**



The seat comprises an L-shaped carrying frame for the seat upholstery and an also L-shaped mounting frame for connecting the seat to the vehicle. The mounting frame has a rear part which forms a track for rollers carried by the carrying frame. The seat also comprises a rocker arm, which is disposed under the seat proper, and a spring mounting consisting of resilient elements and a vibration damper. The rocker arm is pivoted to the mounting frame and to the seat proper at the forward ends thereof, and the spring mounting elements are connected at one end to the rear part of the mounting frame and at the other end to a short compensating rocker arm, which is pivoted at one end to the rear part of the mounting frame and at the other end by a roller to a track, which is provided on that part of the carrying frame which is near the seat proper.

3,572,829
TILTABLE AIR PLANE SEAT

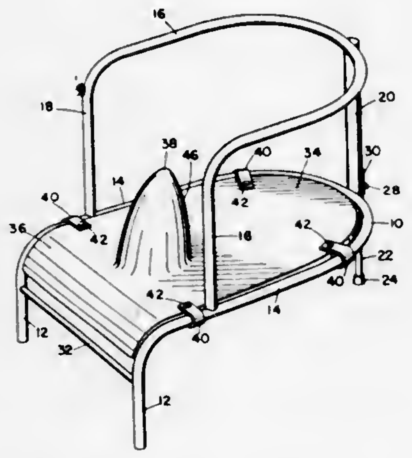
Robert L. Malitte, Paris, France, assignor to Companie Nationale Air France, Paris, France
Filed Dec. 2, 1968, Ser. No. 780,442
Int. Cl. A47c *1/032*
U.S. Cl. 297—317 **6 Claims**



This disclosure is concerned with a seat composed of a chassis, a back and a seat, the seat and the back at least being pivoted to one another and being able to move with respect to the chassis, the shaft around which the back tilts and the pivoting shaft of the back and of the seat being movable and guided both in slides made in the chassis the length of which and the direction of which determining the movement, the movement of the seat being itself guided by a third slide whose characteristics are also coherent with the form of the assembly.

3,572,830
CHILD'S ALL PURPOSE SEAT

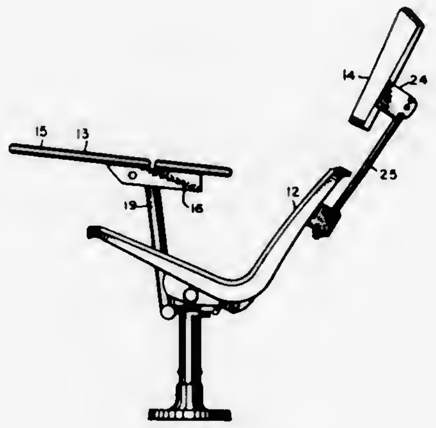
Arthur J. Storer, Mackay, Idaho
Filed Mar. 10, 1969, Ser. No. 805,570
Int. Cl. A47c *31/00;* **A47d** *15/00*
U.S. Cl. 297—390 **5 Claims**



The seat has a lightweight tubular frame which surrounds the child and has fixed front legs and a telescopically adjustable rear leg, which allows the seat to be self supporting or be placed on a chair or other support. An upwardly projecting horn incorporated into the seat fits between the child's legs and prevents him from sliding forward, and the frame provides convenient means for carrying the seat with the child in place.

3,572,831
STUDY UNIT

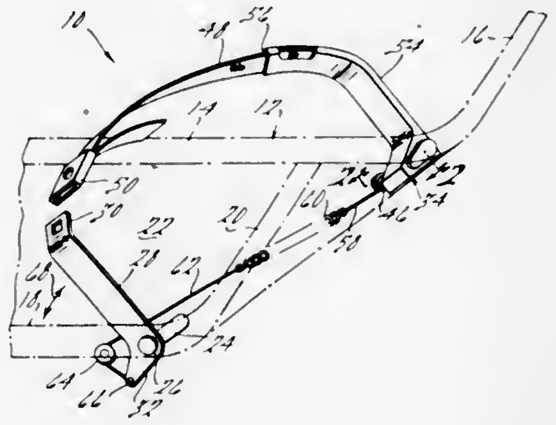
Chester J. Barecki, Grand Rapids, and Arthur J. Hogan, Jr., Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.
Filed Apr. 21, 1969, Ser. No. 817,653
Int. Cl. A47c *1/02, 1/10*
U.S. Cl. 297—349 **6 Claims**



A planetarium chair convertible to a lecture room chair which includes a chair having a back and seat mounted on a pedestal wherein the chair can both swivel and tilt, the chair being equipped with a headrest with means interconnecting the chair back and headrest for moving the headrest from a head-supporting position to a stowed position.

3,572,832
VEHICLE PASSENGER RESTRAINT ASSEMBLY

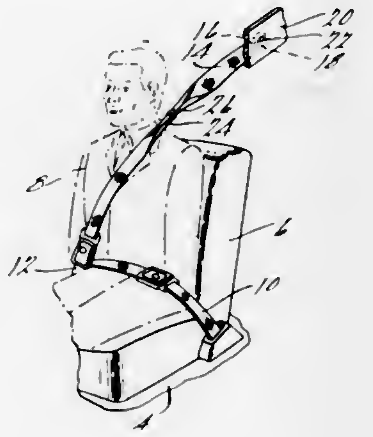
James W. Graham, and Jonas Valukonis, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Aug. 18, 1969, Ser. No. 850,714
Int. Cl. B60r *21/10;* **A47c** *31/00*
U.S. Cl. 297—388 **10 Claims**



A restraint assembly enabling a vehicle passenger supported on a seat to engage plural lap belt restraining segments using only one of his hands. One of these segments is an elongated rigid member pivotally movable between a horizontal position along one side of the seat and an upright position. The other segment is a flexible belt secured to a belt retractor at the other side of the seat. The retractor is interconnected with the rigid member so that movement of the former as the flexible belt manually is pulled from the retractor to an extended position causes movement of the rigid segment from the horizontal to upright position wherein a fastener tongue formed on the rigid segment may be engaged by a buckle carried on the flexible belt.

3,572,833
VEHICLE SHOULDER HARNESS ARRANGEMENT

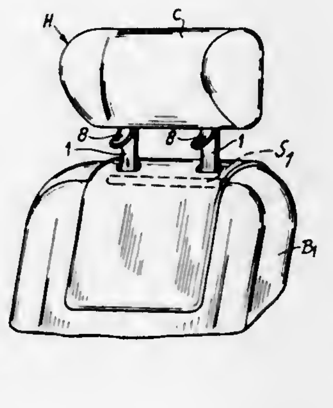
George M. Pavliscak, Inkster, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 6, 1969, Ser. No. 804,882
Int. Cl. B60r *21/10*
U.S. Cl. 297—389 **2 Claims**



A shoulder harness type occupant restraint arrangement for a motor vehicle including an outboard belt segment having one of its ends secured to vehicle body structure above and behind a forward facing passenger seat. Carried by this belt segment is a collar slidable along the length of the belt segment and adapted to be positioned on that portion of the belt segment that is proximate the neck of a seated passenger. This collar maintains a portion of the belt segment in an arcuate configuration to prevent chafing of the belt edge against the passenger.

3,572,834
ADJUSTABLE HEAD REST FOR VEHICLE SEATS

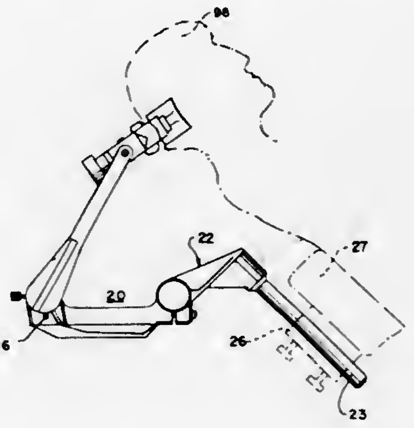
Kurt Herzer, Karlsruhe, Durlach, and Wolfgang Mertens, Karlsruhe, Germany, assignors to Kurt Herzer, Karlsruhe, Germany
Filed Nov. 19, 1968, Ser. No. 776,990
Claims priority, application Germany, Feb. 2, 1968, P 16 80 100.6
Int. Cl. A47c *7/36, 7/42*
U.S. Cl. 297—410 **7 Claims**



An adjustable headrest wherein the adjusting and locking means are contained within the upholstery and the manually accessible operator lever is disposed in such a manner that it constitutes no safety hazard in an automobile. The device comprises a support rack having a series of depressions along its length; a sleeve surrounding the rack and longitudinally slidable with respect thereto and securing means carried by said sleeve for immobilizing the sleeve with respect to said rack in a desired position by manipulating said accessible lever.

3,572,835
SURGICAL HEAD REST

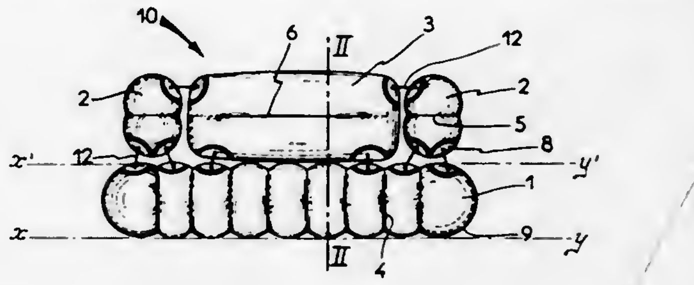
George Kees, Jr., Alexandria, Ky., and Horst R. Hickmann, Anderson Township, Hamilton County, Ohio, assignors to Kees Surgical Specialty Company, Cincinnati, Ohio
Filed Oct. 23, 1968, Ser. No. 770,041
Int. Cl. A47c *7/36, 7/42*
U.S. Cl. 297—410 **6 Claims**



A head support assembly including a slide base having an arc-shaped main portion, an arcuate slide complementary to and mounted on the main portion of the slide base in face-to-face relation thereto, the slide being slideable circumferentially of the arc-shaped main portion, a rocker arm pivotally mounted on the slide, and resilient cup members mounted on the rocker arm and engageable with a patient's head or other body part to support same.

3,572,836
INFLATABLE PIECE OF FURNITURE

Nguyen Manh Khanh, 20, rue Leverrier, Paris, Seine, France
Filed Nov. 12, 1968, Ser. No. 774,808
Claims priority, application France, Nov. 15, 1967, Oct. 28, 1968, 128,215;170,951
Int. Cl. A47c *27/08, 27/18*
U.S. Cl. 297—456 **3 Claims**

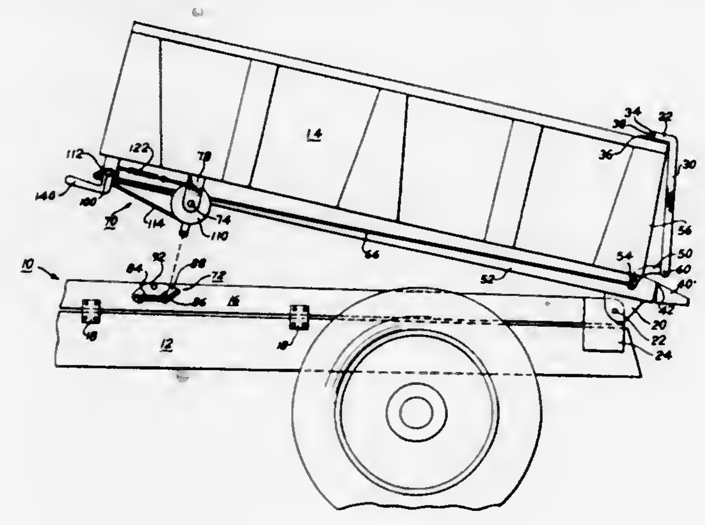


Inflatable piece of furniture comprising several gastight independent and separately dilatable elements, interconnected by means of a removable attachment device the support of which is disposed on said elements. Each element is formed of a flexible bag divided into compartments by inner membranes substantially of rectangular shape and secured inside the bag on two opposite longitudinal sides, the small sides of said membranes being free. The removable attachment device is an open ring, a strip-stud assembly, a bolt, clip or a T-shaped hook locked by a quarter turn rotation.

3,572,837
TRUCK TAILGATE OPERATING MECHANISM

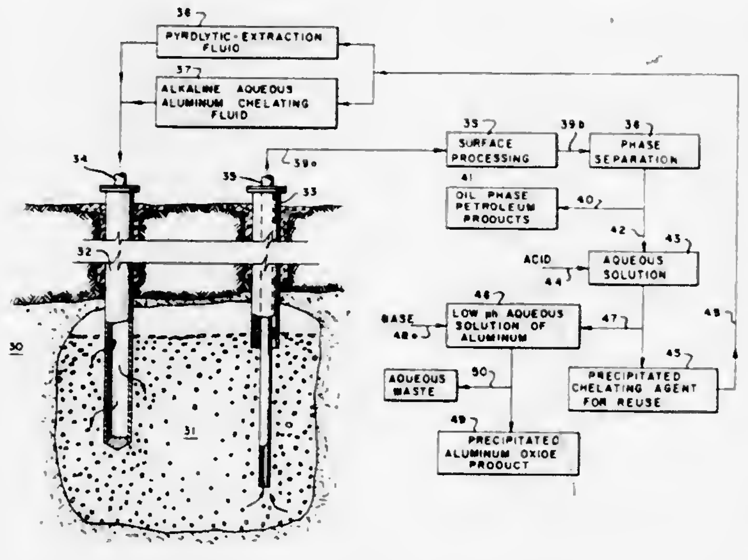
Joseph A. Lackey, 2718-D Blake Road, Portage, Ind.
Filed Jan. 14, 1969, Ser. No. 791,001
Int. Cl. B60p *1/26*
U.S. Cl. 298—23 **8 Claims**

A tailgate operating mechanism for a truck having a dump bed pivoted near the rear end and a tailgate pivoted near the top of the bed, including a means having a cam section and a cam driven section operable by the raising and lowering of the dump bed. The cam section is normally connected to the frame of the vehicle and the section operated by the cam is normally mounted on the underside of the bed near the front thereof where it will contact the cam section when the bed approaches its lowered position.



3,572,838
RECOVERY OF ALUMINUM COMPOUNDS AND OIL FROM OIL SHALE FORMATIONS

Charles C. Templeton, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed July 7, 1969, Ser. No. 839,350
Int. Cl. E21b *43/28*
U.S. Cl. 299—4 **7 Claims**


PYROLYTIC-EXTRACTION FLUID
ALKALINE AQUEOUS ALUMINUM CHELATING FLUID
SURFACE PROCESSING
PHASE SEPARATION
OIL PHASE PETROLEUM PRODUCTS
ACID
AQUEOUS SOLUTION
BASE
LOW pH AQUEOUS SOLUTION OF ALUMINUM
AQUEOUS WASTE
PRECIPITATED CHELATING AGENT FOR REUSE
PRECIPITATED ALUMINUM OXIDE PRODUCT
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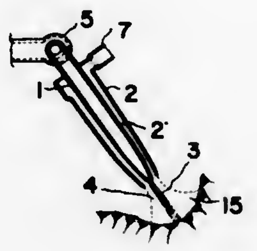
An improved, new and novel method of recovery of oil and aluminum-containing compounds from subterranean oil shale formations, by treating such formations with alternating slugs of a pyrolytically extractive fluid and an aqueous alkaline fluid containing an acid-insoluble chelating agent and recovering oil and aluminum compounds from said extractive fluids.

3,572,839
PROCESS FOR EXCAVATION OF HARD UNDERWATER BEDS

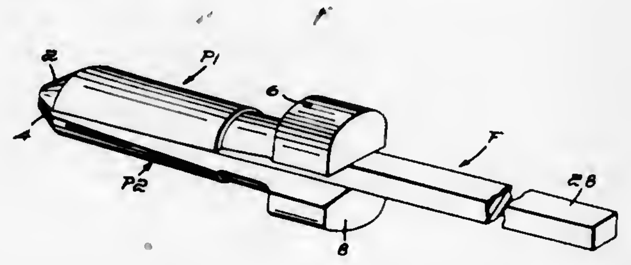
Saburo Okabe, Tokyo, Japan, assignor to Toa Kowan Kogyo Kabushiki Kaisha, Chiyoda-ku, Tokyo, Japan
Filed Aug. 28, 1968, Ser. No. 756,032
Int. Cl. E21c *45/00*
U.S. Cl. 299—17 **2 Claims**

A process for excavating hard underwater beds characterized in that compressed air is ejected around jets of high pressure water so as to blow off existing water from the peripheries of said water jets thereby to enhance the excavating efficiency of said hydraulical jets.



3,572,840
MEANS FOR APPLYING WEDGING FORCE TO MINERAL AND OTHER BODIES

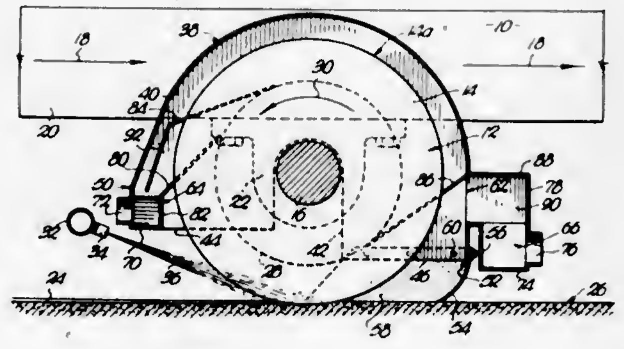
Ralph A. Fletcher, Bedford, N.H., assignor to H. E. Fletcher Co., Westford, Mass.
Filed Mar. 21, 1969, Ser. No. 809,282
Int. Cl. E21c *37/04*
U.S. Cl. 299—23 **3 Claims**



A reciprocating wedge device of the plug and feather class consists in a pair of wedge feathers and a wedge plug for use in a drilled hole. The wedge feathers are formed with inner recessed surfaces defined by spaced apart dovetailed edges. The recessed surfaces provide slideways for the wedge plug which has two opposite sides formed in tapered relationship to one another so that when the tapered sides are slidably advanced inwardly along the recessed surfaces, the wedge feathers are driven apart and exert splitting forces within the drilled hole. The two remaining edges of the wedge plug are further formed with dovetailed portions complementary to the dovetailed edges of the wedge feathers to allow the wedge plug to hold the wedge feathers in adjustably interlocked relationship and to draw them together when the wedge feathers and wedge plug are withdrawn from the drilled hole.

3,572,841
MATERIAL PICKUP FOR GROOVE CUTTERS

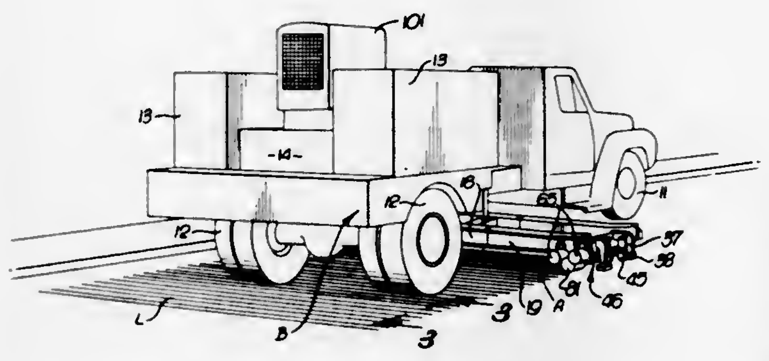
Harry W. Rhodes, Belton, Mo., assignor to Norton Company, Worcester, Mass.
Filed Jan. 15, 1969, Ser. No. 791,310
Int. Cl. E01c *23/09*
U.S. Cl. 299—39 **7 Claims**



A groove cutter for payments and the like has a rotatable cutter provided with a bank of cutting discs that are cooled by streams of water. The particles of material and the water form a slurry. The pickup of the slurry by the discs and the centrifugal force which tends to project the slurry outwardly in a tangent are utilized in the removal of the slurry, leaving the grooved surface essentially free of such slurry.

3,572,842
TRANSVERSE PAVEMENT TEXTURING APPARATUS

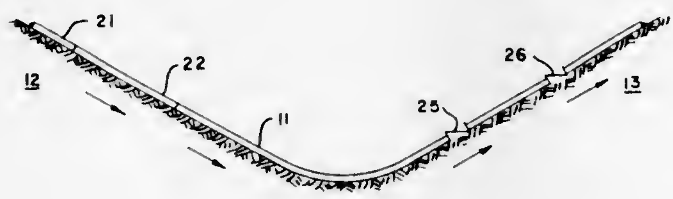
Takeshi Mori, Salt Lake City, Utah, assignor to Christensen Diamond Products Company, Salt Lake City, Utah
Filed Jan. 27, 1969, Ser. No. 794,216
Int. Cl. E01c *23/09*
U.S. Cl. 299—39 **32 Claims**



A horizontal frame carried by a hydraulic cylinder and piston mechanism under a vehicle truck chassis. Hydraulic motors rotate a cutter assembly while other hydraulic motors rotate pinions engaging racks fixed to the underside of the frame to propel the cutter assembly transversely across a pavement traffic lane to cut transverse grooves therein of a combined overall width corresponding to the cutter assembly length. The hydraulic mechanism elevates the frame and cutter assembly from the pavement to allow the truck to move along the traffic lane, or lowers the frame and cutter assembly to impose a portion of the truck weight on the cutter assembly. The end portions of the frame are foldable upwardly to reduce the width of the apparatus to within the legal limit for highway travel, and for storage.

3,572,843
CHECK VALVE ARRANGEMENT FOR PREVENTING PIPELINE SLUMPING

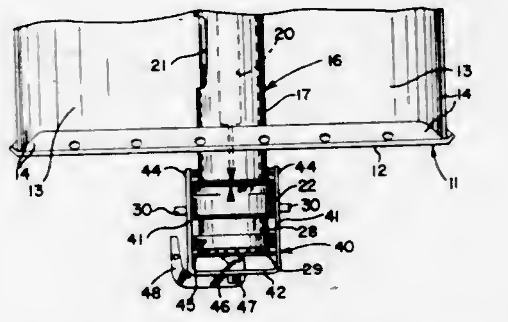
Haralambo G. Dimopoulos, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed May 9, 1969, Ser. No. 823,416
Int. Cl. B65g *53/30*
U.S. Cl. 302—14 **6 Claims**



Method and apparatus for preventing downhill slumping in a shutdown slurry pipeline. Automatic check valves are placed along the sloping portions of the pipe to prevent plug formation by the slurry material solid phase upon pipeline shutdown. In the downhill sloping portions the check valves are associated with loops in the pipeline to prevent movement of the slurry solid phase when the only driving force is gravity while permitting normal slurry transport.

3,572,844
PNEUMATIC DISCHARGE ARRANGEMENT FOR HOPPERS

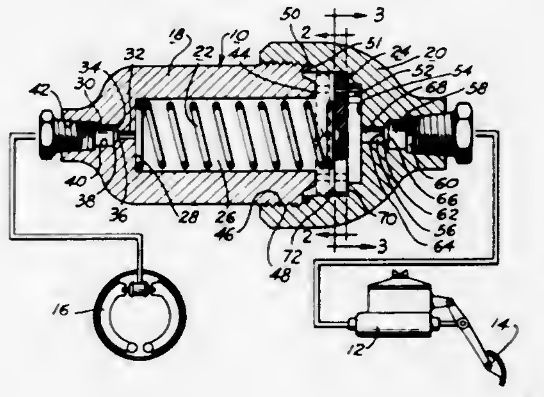
William D. Mundinger, and Arthur F. Calvin, Highland, Ind., assignors to Pullman Incorporated, Chicago, Ill.
Filed Oct. 2, 1968, Ser. No. 764,471
Int. Cl. B65g *53/40*
U.S. Cl. 302—52 **5 Claims**



A hopper includes a pneumatic discharge arrangement having an outer tube extending within the hopper and an inner rotatable tube adapted to discharge materials therefrom, said inner tube having opposite ends projecting from the hopper, and a closure member removably disposed over the opposite ends of said inner tube. A bail-shaped locking member is hingedly connected to each end of the inner tube and in the closed position locks the closure member in place. A stop on the bail limits the positioning of the bail in the closed position and is movable with the bail to an upright out-of-the-way position. The bail in the closed position prevents rotation of the tube and locks the same in a nonoperative position.

3,572,845
HYDRAULIC PRESSURE RATE-OF-CHANGE CONTROL

Donald D. Johannesen, South Bend, Ind., assignor to The Bendix Corporation
Filed Jan. 13, 1969, Ser. No. 792,213
Int. Cl. B60t *8/26, 15/00*
U.S. Cl. 303—6 **6 Claims**

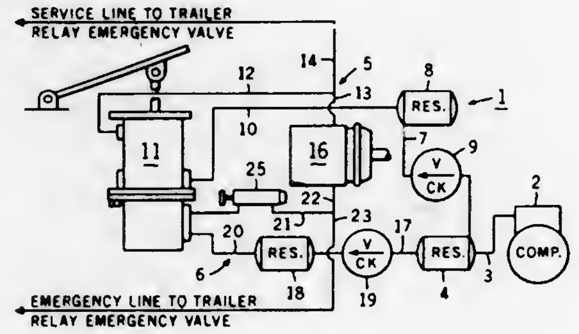


The subject invention relates to a hydraulic pressure rate-of-change control device, which is interposed between a brake assembly and a source of pressurizable hydraulic fluid for actuating the brake assembly, to protect against permanent damage to the brake assembly resulting from a sudden or panic pressurization of said hydraulic fluid.

3,572,846
CONTROL VALVE

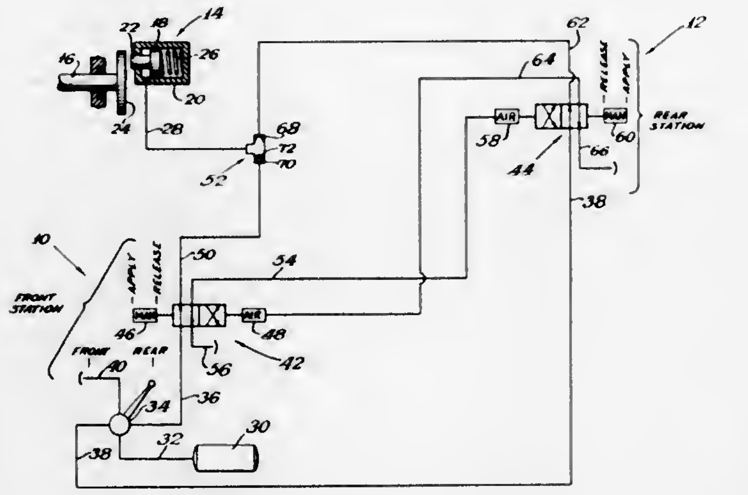
Oliver B. Cruse, Florissant, Mo., assignor to Wagner Electric Corporation, Newark, N.J.
Original application Oct. 29, 1968, Ser. No. 771,559. Divided and this application Nov. 25, 1969, Ser. No. 879,858
Int. Cl. B60t *13/38, 13/28*
U.S. Cl. 303—9 **11 Claims**

A control valve having a service member for applying service fluid pressure to the service portion of a spring set brake device to normally effect service energization of a brake connected therewith and an emergency member actuated by said service member in the event of the failure of the service fluid pressure for venting emergency fluid pressure normally applied to the emergency portion of said spring set brake device to the atmosphere to effect mechanical emergency energization of said brake, and a resilient member responsive to emergency fluid pressure less than a predetermined value for automatically isolating the emergency fluid pressure supply and venting the emergency fluid pressure applied to the emergency portion of said spring set brake device to the atmosphere.



3,572,847
DUAL STATION INTERLOCKING PARKING BRAKE

Robert G. Luft, Wildwood, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed Oct. 27, 1969, Ser. No. 869,716
Int. Cl. B60t *13/38, 17/18*
U.S. Cl. 303—13 **7 Claims**

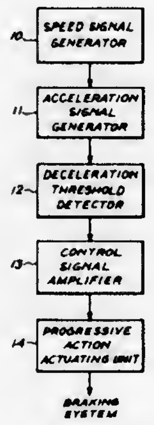


A brake control for a vehicle with a source of fluid pressure having a pair of actuator valves for directing fluid pressure from the source to the brake to effect its release and a selector valve for selectively directing fluid pressure from the source to one of said actuator means while isolating the other actuator means from said source.

3,572,848
ANTI-SKID DEVICE FOR A VEHICLE BRAKING SYSTEM

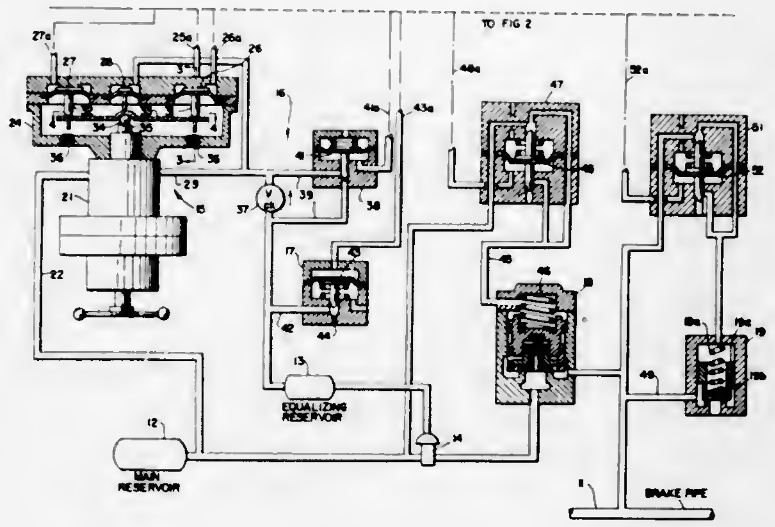
Guy Marouby, Neuilly, France, assignor to Societe Anonyme D. B. A., Paris, France
Filed May 15, 1968, Ser. No. 729,325
Claims priority, application France, June 22, 1967, 111,452
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 **3 Claims**

An antiskid device for a vehicle braking system utilizing an electronic sensing unit for sensing the vehicle wheel speed and elaborating therefrom a control signal which is applied to an actuating unit responding thereto by decreasing or cancelling the pressure in the vehicle braking system so as to prevent the wheel to lock up and the resulting skidding of the vehicle.


10
SPEED SIGNAL GENERATOR
11
ACCELERATION SIGNAL GENERATOR
12
DECELERATION THRESHOLD DETECTOR
13
CONTROL SIGNAL AMPLIFIER
14
PROGRESSIVE ACTION ACTUATING UNIT
BRAKING SYSTEM

3,572,849
BRAKE PIPE PRESSURE CONTROL SYSTEM

Thomas H. Engle, Cape Vincent, N.Y., assignor to General Signal Corporation
Filed Aug. 4, 1969, Ser. No. 847,054
Int. Cl. B60t *13/62*
U.S. Cl. 303—25 **11 Claims**

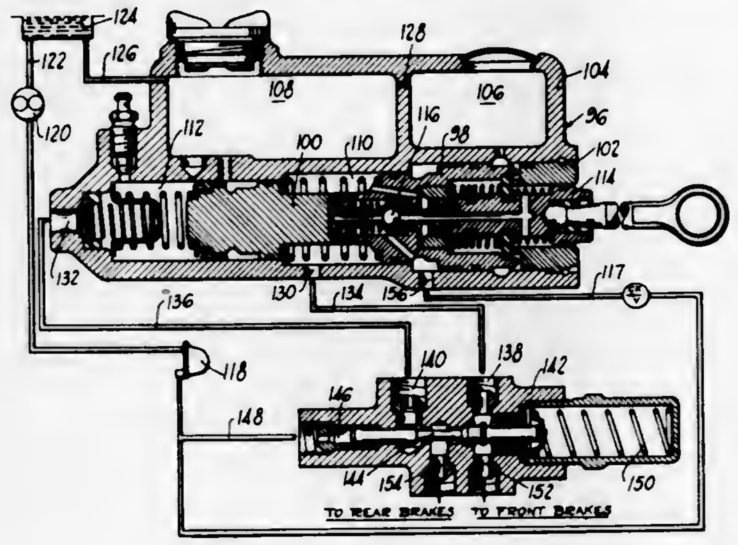


Apparatus for controlling the pressure in the brake pipe of an air brake system. The apparatus includes, as operative elements, a brake pipe pressure reduction controller, equalizing reservoir charging and discharge valves, and brake pipe cutout and vent valves, and the components are adapted to be controlled by low power digital or on-off signals. The control signals are furnished by a control mechanism, such as a fluidic logic circuit, which may include one or more controlling stations located either locally or remotely and operated either automatically or manually.

3,572,850
PRESSURE RESPONSIVE SPLITTER VALVE

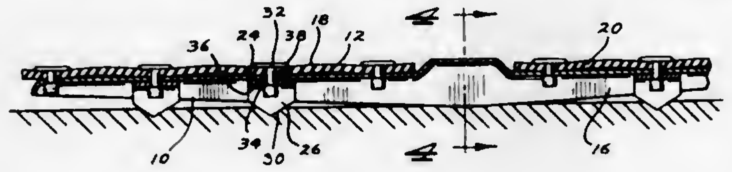
Harold B. Schultz, South Bend, Ind., assignor to The Bendix Corporation
Filed July 24, 1968, Ser. No. 747,256
Int. Cl. F16k *11/04, 11/06*
U.S. Cl. 303—84 **7 Claims**

A control device in a braking system for scheduling hydraulic pressures from separate sources to front and rear wheel brakes with equal intensity. A housing with separate inlet and outlet ports for each system has a resiliently biased valve member which extends into a control chamber. The control chamber is connected to one of the sources of hydraulic pressure. When the pressure in the control chamber reaches a predetermined value the resilient member collapses allowing the valve to move. The valve upon moving closes the communication of one inlet port and opens the discharge ports to the other source of hydraulic pressure assuring the same line pressure in the different wheel brake systems.



3,572,851
SNOWMOBILE TRACK CLEAT STUD

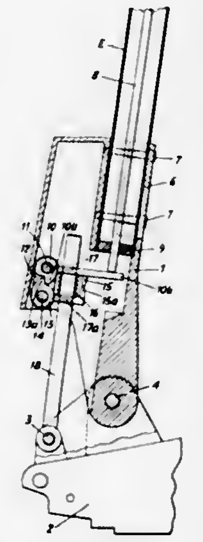
Paul W. Schuler, 2201 Payne Ave., St. Paul, Minn.
Filed Jan. 27, 1969, Ser. No. 794,271
Int. Cl. B62d *55/24*
U.S. Cl. 305—35 **6 Claims**



A studded cleat for snowmobile endless driving track including a channel having parallelly disposed spaced sidewalls connected to a bottom, a stud having parallelly disposed side portions connected to a bottom at the edges thereof, the side portions being tapered at the outer ends thereof with the stud secured within the sidewalls of the channel.

3,572,852
HANDLE-SWIVEL ARRANGEMENT

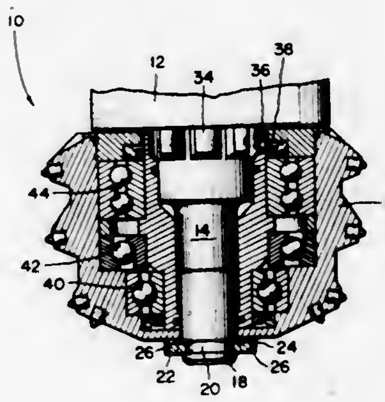
Leon Seilaz, Koppigen, Switzerland, assignor to J. & L. Seilaz A.G., Koppigen, Switzerland
Filed Aug. 22, 1969, Ser. No. 852,365
Int. Cl. B25g *3/38*
U.S. Cl. 306—4 **6 Claims**



Two pivotally mounted clamping levers, biased apart by a spring, clamp on a pivotal rod that remains parallel to the pipe handle. The clamping holds the pipe handle in any desired angular position.

3,572,853
ROCK BIT MOUNTING ASSEMBLY

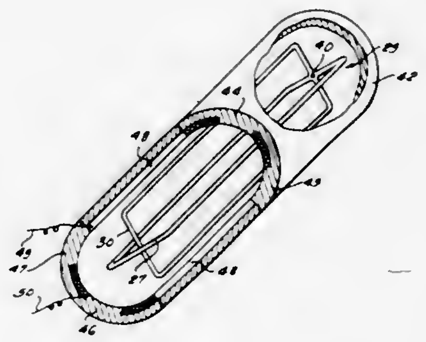
William D. Coski, Mercer Island, Wash., assignor to Lawrence Manufacturing Company, Seattle, Wash.
Filed Mar. 12, 1969, Ser. No. 806,570
Int. Cl. F16c *19/14*
U.S. Cl. 308—8.2 **8 Claims**



A mounting assembly in which a rock bit is retained on a member, together with others thereof, by a two-piece locking plate and in which easy removal of the plate demounts the bit. The bit is rotatable on a shaft, and the shaft has a splined section which interlocks with a splined section of the hub of the bit. This splining prevents the hub from rotation on the shaft in the event the bearings freeze up.

3,572,854
ELECTROMAGNETIC SUSPENSION AND POSITIONING DEVICE WITH INHERENT DYNAMICAL STABILITY IN THREE DIMENSIONS

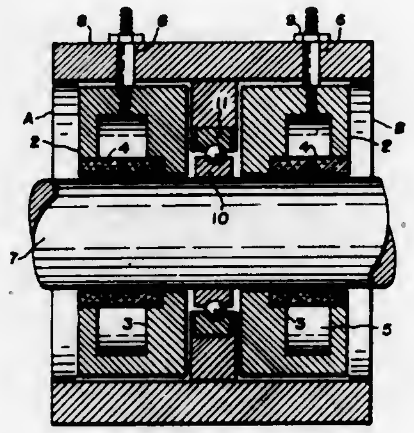
Gordon T. Danby, Box 12, Wading River, N.Y.
Filed Jan. 5, 1968, Ser. No. 696,069
Int. Cl. F16c *39/06*
U.S. Cl. 308—10 **16 Claims**



Machine bearings and positioning devices are disclosed which utilize electromagnetic induction between a quadrupole component of magnetic field and a pair of orthogonally arranged closed inductor loops. A quadrupole magnet (a magnet which generates a quadrupole component of magnetic field) is rigidly mounted either upon the movable (or rotor) member or upon the stator member of the device. The closed loops are rigidly mounted upon the other member. The quadrupole magnet is composed of permanent magnets or of ferroelectromagnets, or is an air-cored electromagnet structure. Either or both the magnet and the closed loops can be superconductors. Axial stability is provided either by locating the closed loops partially within and partially without the quadrupole component of magnetic field or by utilizing auxiliary electromagnetic thrust sensitive devices at one or both ends of the shaft of the device.

3,572,855
FLUID SEALS

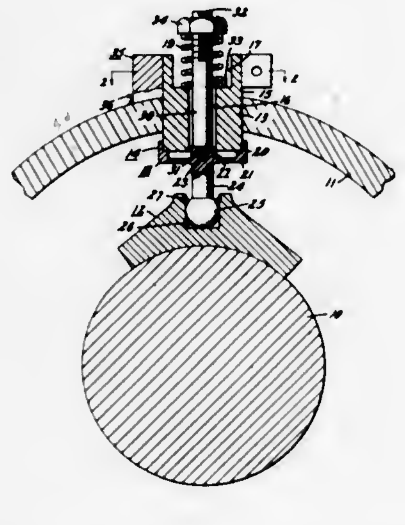
Richard H. Weichsel, Hudson, Ohio, assignor to Apex Bearing Company
Filed Oct. 28, 1968, Ser. No. 771,201
Int. Cl. F16c *33/78*
U.S. Cl. 308—36.1 7 Claims



A fluid seal including a housing having a substantially circular outer wall and first and second spaced inwardly extending circular sidewalls, one of which is longer than the other and has a circular offset end portion to receive one end portion of a porous collar, the opposite end portion of the collar being secured to the inner periphery of the other sidewall to provide a circular channel, and means for passing a fluid through the channel and porous collar.

3,572,856
APPARATUS FOR PRODUCING SMALL DISPLACEMENTS

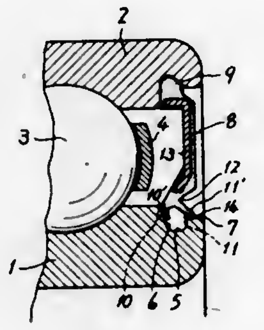
James D. McHugh, San Jose, Calif., assignor to General Electric Company
Filed Sept. 27, 1968, Ser. No. 763,210
Int. Cl. F16c *17/06*
U.S. Cl. 308—73 8 Claims



A pair of coaxially aligned resilient members or spring members of large and small spring gradients are secured in opposed relationship with respect to a point of reference. A centrally disposed rod is fixedly secured to the remote end of the spring member of higher spring gradient and is adjustably connected to the remote end of the spring member of smaller spring gradient. A relatively large displacement of the remote end of the spring member of small spring gradient in relation to the fixed reference point causes a relatively small displacement in the spring member of larger spring gradient.

3,572,857
ANTIFRICTION BEARING SEAL

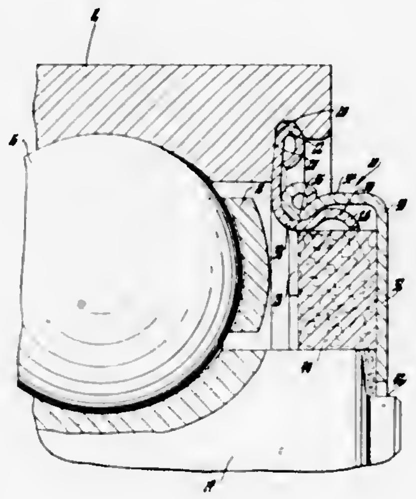
Hisao Hasegawa, Nagoya, Japan, assignor to The Toyo Bearing Manufacturing Company Limited, Osaka City, Japan
Filed Oct. 7, 1968, Ser. No. 765,458
Int. Cl. F16c *1/24*
U.S. Cl. 308—187.2 4 Claims



A seal for an antifriction bearing in which the seal has at least two sealing lips on the sealing edge thereof, the other edge being carried by a bearing race, the first such lip abutting a bearing race and providing a positive closure for the bearing grease chamber, and the second such lip defining a labyrinth closure preventing egress of dirt, dust, etc. when the first lip is in operative abutment for positive sealing, the seal being fixed during operative abutment of the first lip with a bearing race and, when flexure is relaxed by wear of the first lip, the second lip moves to a position of abutment with the bearing race, providing a secondary positive closure for the grease chamber.

3,572,858
REMOVABLE FELT SEAL

Salvatore J. Pompei, Port Clinton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 11, 1969, Ser. No. 848,964
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.2 5 Claims



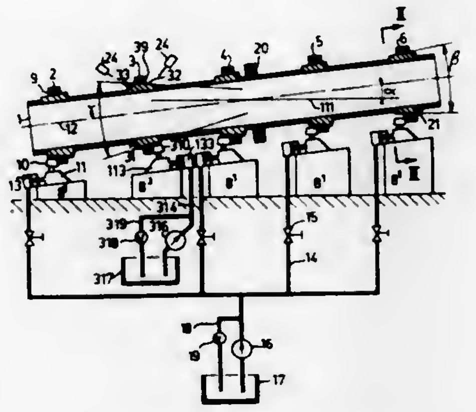
A felt-type seal has a two-part casing with one part removably mounted on the other so that the felt element is replaceable when the seal is permanently mounted on a bearing race. The bearing itself may be relubricated when the felt element is replaced.

3,572,859
ROTATING DRUM WITH RACE RINGS

Hans Sommer, Obourg-lez-mons, Belgium, assignor to Cementfabrik Holderbank-Wildegg AG, Holderbank, Switzerland
Filed Aug. 7, 1969, Ser. No. 848,318
Claims priority, application Switzerland, Aug. 28, 1968, 12568/68
Int. Cl. F16c *19/00*
U.S. Cl. 308—203 6 Claims

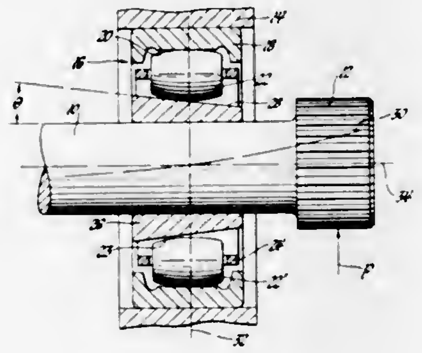
A rotating drum with race rings radially supported by bearing rollers and axially supported by supporting rollers, the

latter bearing the axial thrusts to which the race rings are subjected due to inclination of the drum and/or mechanical means acting on the drum in axial direction. In the axial region of each race ring an axial portion of the drum has an external conical surface tapering in the direction of the associated supporting roller, and each race ring comprises a corresponding internal conical surface. In operating such a drum with an inclined axis, the majority of the race rings abutting with their downwardly facing end faces on supporting rollers and at least one race ring abutting with its upwardly facing end face on its associated supporting roller, said supporting roller situated at the supper side of its associated race ring being pressed against the latter only at the time of starting and/or in cold state of the drum.



3,572,860
MODIFIED CYLINDRICAL ROLLER BEARING

Robert F. Hart, Downers Grove, Ill., assignor to General Motors Corporation, Detroit, Mich.
Filed June 19, 1969, Ser. No. 834,703
Int. Cl. F16c *13/00*
U.S. Cl. 308—213 7 Claims



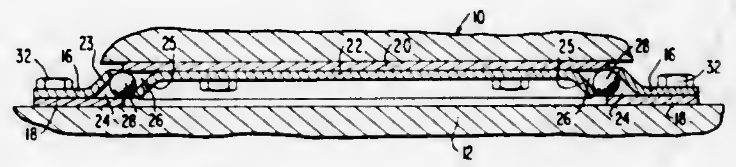
A roller bearing comprising crowned cylindrical rollers in combination with a cylindrical outer race and an inner race is disclosed. In a second configuration, the cross section of the inner race is in the form of an arc with the high point offset from the center plane of the bearing. Both bearings improve life in situations where the rotatably supported member imposes a misalignment between the bearing races.

3,572,861
SWIVEL AND METHOD OF MAKING SAME

Walter Clark Rogers, Jr., 3417 Greenhill Dr., High Point, and Morton Snitzer, 3217 Ridge Crest Dr., Rocky Mount, N.C.
Filed Jan. 15, 1969, Ser. No. 791,474
Int. Cl. F16c *14/10*
U.S. Cl. 308—227 3 Claims

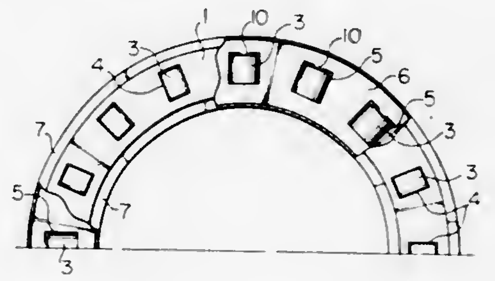
A swivel comprising a first pair of plates fixed together in overlying relationship and having an aperture with the edges of one of the plates defining the aperture deformed outwardly to provide an outer race; a second pair of plates fixed together in overlying relationship and received in the aperture of said first pair of plates with the peripheral edges of one of said second pair of plates being deformed outwardly to provide an inner race; and ball bearing members received in said races. In applying the swivel to a swivel chair, one pair of plates is secured to a seat member while the other pair of plates is secured to a base member such that the seat member may rotate about a vertical axis relative to the base and with the weight of the seat member being transmitted to the base solely through the swivel.

One method of forming the swivel includes cutting out a pair of identical circular portions from two plates, preferably when in overlying relationship, to provide a first pair of plates having similar circular apertures and a second pair of circular plates dimensioned to be received in said apertures. The cut edges of one plate in each pair are then deformed to define inner and outer races when the plates are subsequently assembled in overlying relationship with the circular plates received in the first pair of plates. The first pair of plates are then welded together and placed on a jig in overlying relationship and with their apertures aligned and receiving one of the circular plates to form an open trough into which ball bearings are then placed. The other circular plate is then welded to the associated circular plate to close the trough and complete the assembly.



3,572,862
THRUST ROLLER BEARING

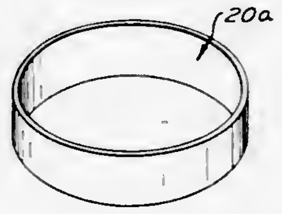
Hiroshi Teramachi, Tokyo, Japan, assignor to Nippon Thompson Co. Ltd., Tokyo, Japan
Filed Oct. 16, 1969, Ser. No. 866,971
Int. Cl. F16c *33/38*
U.S. Cl. 308—235 1 Claim



A thrust roller bearing in which an annular flat plate is used as an intermediate guide plate whereby rollers are guided always precisely and the contact area between each roller and guide plates is minimized to provide highly smooth rotation of the rollers, and which is less expensive to manufacture.

3,572,863
ASBESTOS-BASE WEAR RING

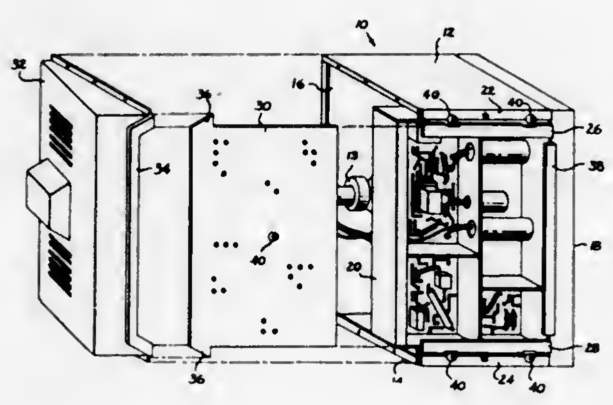
Walter S. Josephson, Skippack, Pa., assignor to Greene Tweed & Co. Inc.
Filed Dec. 26, 1967, Ser. No. 693,195
Int. Cl. B32b *19/02;* **F16c** *9/00, 33/20*
U.S. Cl. 308—238 5 Claims



A bearing formed of asbestos fibers, phenol-formaldehyde resin, nitrile rubber and lubricant. Such bearing is made by forming a preform of the components, and then molding the preform to the desired shape.

3,572,864
TELEVISION CABINET PROVIDING FULL ACCESS TO CHASSIS UNDERSIDE

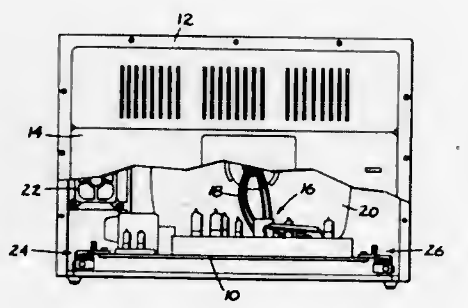
William L. Arrington, Batavia, and Patrick J. Micari, Fairport, N.Y., assignors to Sylvania Electric Products, Inc.
Filed May 21, 1969, Ser. No. 826,349
Int. Cl. A47b *81/06*; **H05k** *5/00*
U.S. Cl. 312—7 **5 Claims**



A television receiver construction wherein an enclosure includes a pair of side panels and a chassis is attached to the side panels to provide the major bottom structural support for the side panels. Access to the chassis underside is effected by a separable bottom cover slidably engageable by guide supports affixed to the side panels and held captive by a cabinet back cover.

3,572,865
TELEVISION CHASSIS SLIDE MOUNTING

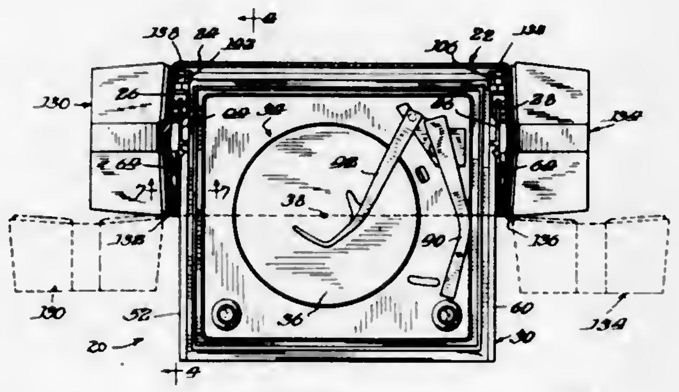
Alfonso S. Attardi, Batavia, N.Y., assignor to Sylvania Electric Products Inc.
Filed May 21, 1969, Ser. No. 826,350
Int. Cl. A47b *81/06*; **H05k** *5/00*
U.S. Cl. 312—7 **7 Claims**



A slide mounting for supporting a television chassis in a cabinet and enabling partial withdrawal or complete removal of the chassis for servicing. The mounting comprises a pair of outer members affixed to the cabinet and a pair of inner members attached to opposite ends of the chassis and each having a tongue portion slidably engaging a groove in the corresponding outer member. A spring latch flexibly mounted on each outer member locks the chassis in a normal operating position by engaging a first notch in the corresponding inner member tongue portion. For servicing, the spring latches are manually deflected to disengage the first set of tongue notches, and the chassis is withdrawn until locked in a service position by the spring latches engaging a second set of tongue notches. Complete removal of the chassis is facilitated by deflecting the latch springs sufficiently to engage step portions in the outer members.

3,572,866
PORTABLE PHONOGRAPH RECORD PLAYER

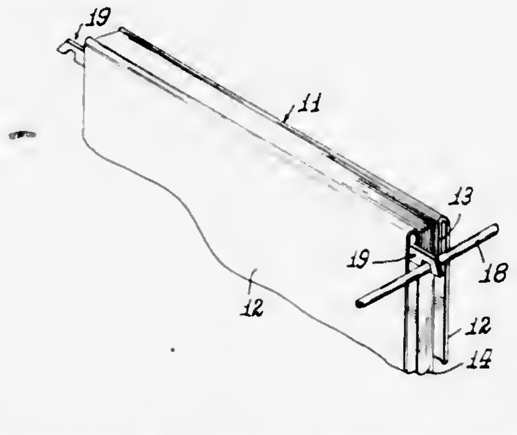
Gerald L. Wolanin, Baroda, Mich., assignor to V-M Corporation, Benton Harbor, Mich.
Filed Feb. 25, 1969, Ser. No. 802,043
Int. Cl. A47b *81/06*
U.S. Cl. 312—8 **10 Claims**



A phonograph record player of the type having a generally upright carrying case or housing, having a backwall, front wall and spaced sidewalls, and a turntable tray or base positioned in an enlarged opening in, and forming a closure portion of, the front wall of the carrying case or housing. A double pivot arrangement is used to support the turntable base between the sidewalls of the housing for movement between a stable generally upright storing position and a stable generally horizontal record playing position.

3,572,867
HANGER HOOK ASSEMBLY FOR SUSPENSION FILE FOLDERS

Edward W. Cooper, Scarborough, Ontario, Canada, assignor to Gary Industries, Inc., d/b/a Acco Products
Filed Feb. 27, 1969, Ser. No. 802,986
Int. Cl. A47b *63/00*
U.S. Cl. 312—184 **10 Claims**

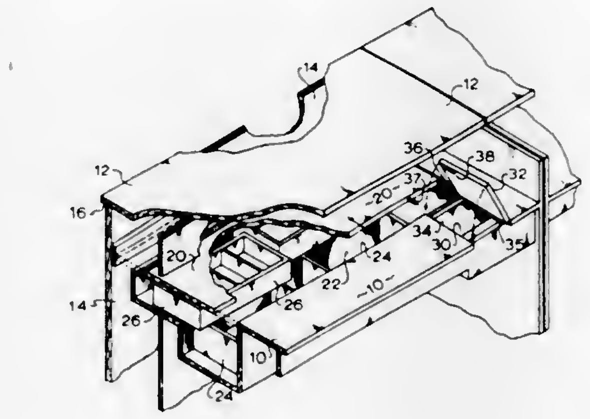


The invention is concerned with suspension file folders having suspension hooks on its edges which may be slidably retracted into an ineffective position or readily removed therefrom.

3,572,868
BANK TELLER'S WORKTABLE

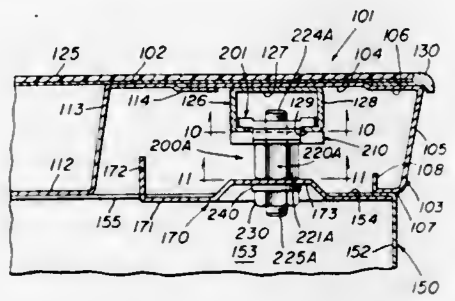
Francis E. Legge, Don Mills, Ontario, Canada, assignor to The Bank of Nova Scotia, Toronto, Ontario, Canada
Filed Aug. 25, 1969, Ser. No. 852,764
Int. Cl. A47b *17/00*
U.S. Cl. 312—194 **5 Claims**

A teller's desk having a table with subsurface repository served by an opening in the table and a closure slidable in the plane of the table between respository covering and uncovering positions; said opening and repository being overhung by a relatively wide counter paralleling and spaced above the table; the disposition of the repository in the table and the spacing and width of the counter cooperating with each other to shield the repository opening and contents from the view and reach of persons at the front of the desk.



3,572,869
MOUNTING ASSEMBLY

Robert A. Studinski, and Florian A. Walter, Aurora, Ill., assignors to Lyon Metal Products Incorporated, Aurora, Ill.
Original application Jan. 12, 1968, Ser. No. 697,490, now Patent No. 3,521,935, dated July 28, 1970. Divided and this application Sept. 29, 1969, Ser. No. 871,039
Int. Cl. A47b *17/00, 19/00, 27/00*
U.S. Cl. 312—194 **4 Claims**

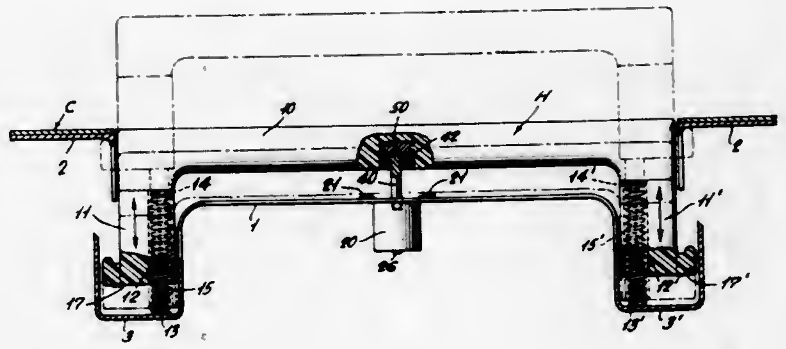


The mounting assembly is used for attaching a member to a mounting channel including inwardly directed retaining flanges disposed on the lower edges of a pair of downwardly extending sidewalls. The assembly comprises a threaded nut positioned on the upper surfaces of the retaining flanges, the distance between a pair of longer sides of the nut being less than the distance between the retaining flanges to permit insertion of the nut in the channel, a washer positioned against the lower surfaces of the retaining flanges, the nut and the washer each having abutment surfaces spaced apart a distance slightly less than the distance between the retaining flanges to limit rotation of the nut and the washer, a fastener including a spacer portion and a threaded shank extending therefrom and through the washer and engaging the nut, and an attachment device engaging the fastener for holding the member against the spacer portion.

3,572,870
EXTENSIBLE AND RETRACTABLE HANDLE ASSEMBLY WITH LATCHING MEANS THEREFOR

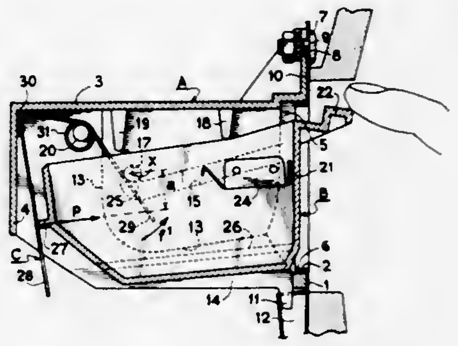
Lou F. Marks, and Bela G. Szabo, Pittsburgh, Pa., assignors to Bruce Plactics, Inc., Moon Run, Pa.
Filed June 3, 1969, Ser. No. 830,053
Int. Cl. A47b *95/02*; **A47j** *45/00*; **A45c** *13/76*
U.S. Cl. 312—244 **11 Claims**

An extensible and retractable handle assembly for portable cases, and the like, which is spring biased to its extended operative position and which is moved to its inoperative position by an inward movement of the handle, in which position the same is retained by a latching assembly comprising a rotary member, which member is adapted to be rotated by the reciprocating movements of the handle. An inward movement of the handle for a slight extent in the same direction as the previous movement affects the rotary member and the latching device to effect the release of the handle, which is extended by the spring biasing means acting thereon.



3,572,871
ASHTRAY

Michel Bonnaud, Montbeliard, France, assignor to Automobiles Peugeot, Paris and Regie National Des Usines Renault, Billancourt, France
Filed Nov. 14, 1968, Ser. No. 775,661
Claims priority, application France, Dec. 6, 1967, 131,117
Int. Cl. A47b *67/02*; **A47f** *5/08*
U.S. Cl. 312—248 **9 Claims**

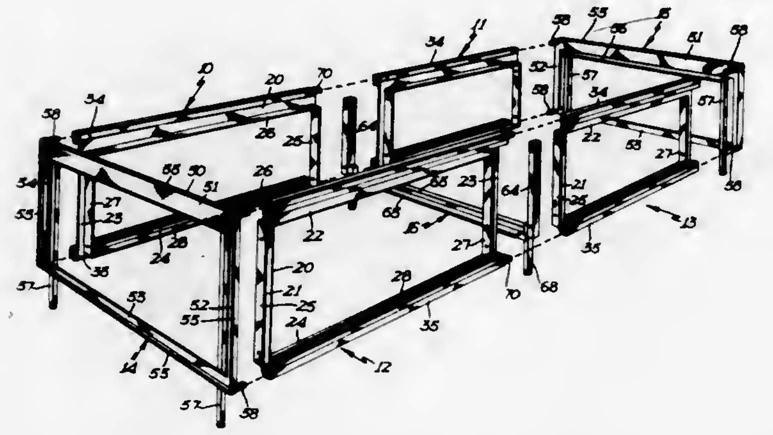


"Ashtray structure for a vehicle comprising a drawer pivotably mounted at its rear end in a housing carried by the wall with which the ashtray structure is combined. The wall and housing have coincident apertures. The drawer pivots between a stable inoperative position and a stable position of use in which position it is downwardly and forwardly inclined and presents its interior in front of said apertures."

3,572,872
TANDEM TABLE FRAME ASSEMBLY

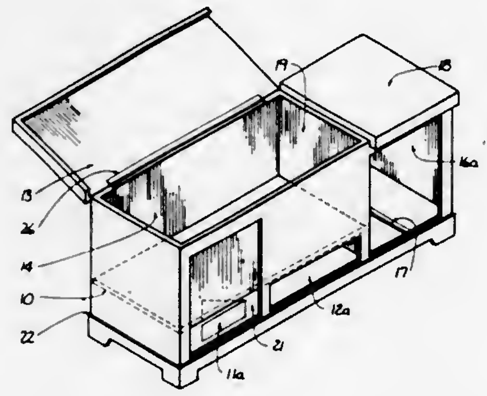
Jay G. Fenwick, Albert Lea, Minn., assignor to Streater Industries, Inc., Albert Lea, Minn.
Filed Sept. 29, 1969, Ser. No. 861,665
Int. Cl. A47b *47/00*
U.S. Cl. 312—263 **5 Claims**

A frame assembly for a display table of the type commonly used in department stores for the display and storing of software goods. The frame assembly has three types of frame sections which are a side frame section, an end frame section and an intermediate frame section. Any even number of side frame sections may be used to provide a tandem assembly of any desired length. The side frames have upper and lower door tracks for sliding doors which tracks are continuous for the entire length of a tandem unit. The side frames have upper and lower tubular members which are also continuous for the entire length of a tandem unit and facilitate the assembly of a unit.



3,572,873
STEREO HOPE CHEST

Harry W. Harting, Jr., 276 N. 8th St., Lander, Wyo.
Filed May 29, 1968, Ser. No. 740,391
Int. Cl. A47b *81/06*
U.S. Cl. 312—290 **3 Claims**

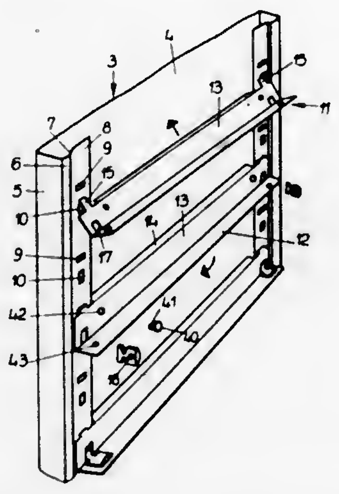


A stereo hope chest lined with cedar and having a record player or cartridge tape player, and a tuner. The chest includes two sidewalls, a backwall, a front wall and an extreme bottom portion with a false bottom defining a space between the chest interior and the extreme bottom. A recessed opening is provided in the front wall adjacent to a sidewall, and a speaker for the stereo unit is provided in the space between the false bottom and the extreme bottom adjacent to the recessed opening, which speaker is covered by a decorative grill. The space between the false bottom in the chest interior and the extreme bottom portion also provides an opening into which a storage drawer is installed. A partition separates the chest interior partitions and a cover for creating a covered cavity serving as a storage space. The lid of the chest is attached to the backwall by means of a hinge.

3,572,874
METAL CABINETS

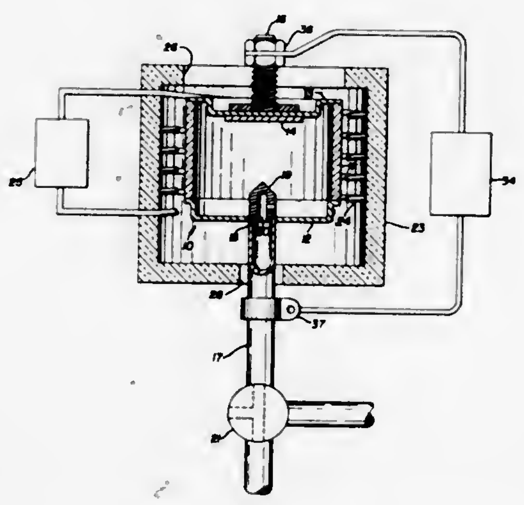
Ernst Hassel, Neunkirchen, Salchendorf, Germany, assignor to Fritz Schafer GmbH,, Neukirchen, Germany
Filed Oct. 20, 1969, Ser. No. 867,826
Claims priority, application Germany, Oct. 23, 1969, G6,803,906
Int. Cl. A47b *88/00*
U.S. Cl. 312—350 **7 Claims**

A sheet-metal cabinet having drawers slidable on rails fitted in the cabinet body, each rail having horizontal and vertical flanges wherein at the extremities of the vertical flanges are arranged lugs which engage in horizontal slots in the cabinet body and beneath the lugs there are perforations in the vertical flanges which correspond to perforations in the cabinet body and are traversed by locking elements resting on the upper side of the horizontal flanges so that the upper side of the locking elements provides a sliding surface for the underside of the drawers.



3,572,875
VACUUM TUBE

Lowell A. Noble, Hillsborough, Calif., assignor to Varian Associates
Filed July 28, 1960, Ser. No. 46,025
Int. Cl. H01j *9/38;* **G21g** *3/04*
U.S. Cl. 316—13 **3 Claims**



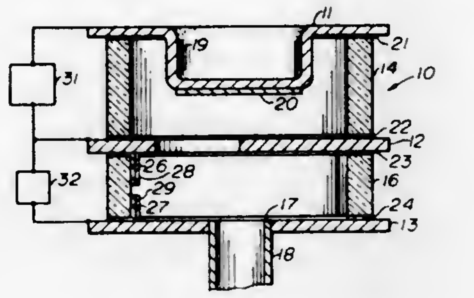
2. A process for making a pulsed-neutron tube containing an active metal having sorbed therein a gas chosen from the group consisting of deuterium and tritium, said process comprising the steps in sequence of heating said tube to an elevated temperature while maintaining a vacuum therein, introducing said gas into said tube, cooling said active metal, below said elevated temperature while forming an electrical discharge in said gas, and sealing said tube permanently closed.

3,572,876
METHOD OF MAKING A NEUTRON SOURCE TUBE

Lowell A. Noble, Hillsborough, Calif., assignor to Varian Associates
Original application Aug. 9, 1960, Ser. No. 48504. Divided and this application Oct. 6, 1964, Ser. No. 402,022
Int. Cl. H01j *9/38*
U.S. Cl. 316—20 **3 Claims**

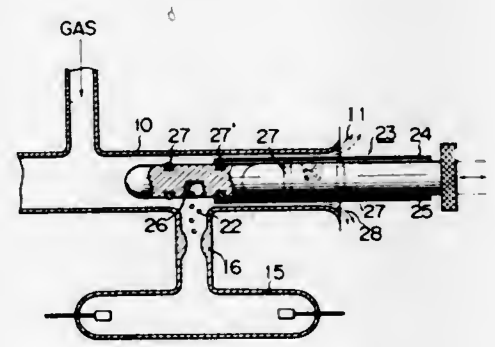
A method of making a neutron source tube having active metal areas spaced apart on the envelope thereof, in which

such active metal areas are heated or cooled in order to cause them to respectively sorb or not sorb an isotope of hydrogen during processing of the neutron source tube prior to the final sealing thereof.



3,572,877
APPARATUS FOR MANUFACTURING DISCHARGE TUBES

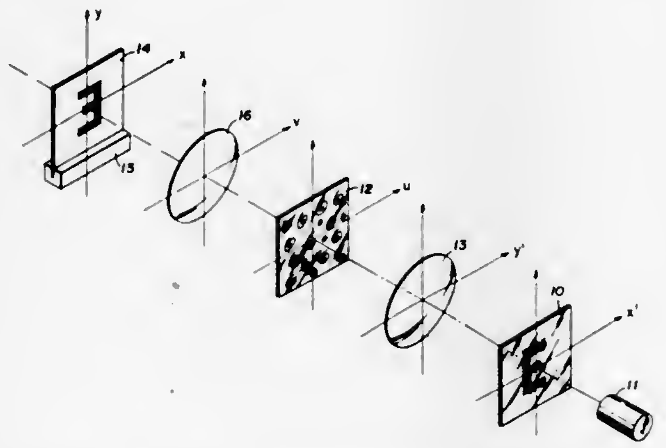
Kazuyuki Ogawa, Yokohama-shi, and Satoshi Nagano, Kawasaki-shi, Japan, assignors to Tokyo Shibura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Mar. 10, 1969, Ser. No. 805,412
Claims priority, application Japan, Mar. 12, 1968, Aug. 23, 1968, 43/15580;43/59833
Int. Cl. H01j *7/20*
U.S. Cl. 316—30 **7 Claims**



In a method and apparatus for manufacturing a discharge tube wherein an envelope of the discharge tube is connected to an evacuating pipe system to be evacuated and charged with an inert gas and operating substances required through the evacuating pipe system, said system is provided with a closable opening and while the inert gas is being discharged through the opening a capsule carrying the operating substance is inserted into the pipe system through said opening to charge the operating substance into the envelope.

3,572,878
COMPLEX SPATIAL FILTER SYNTHESIS

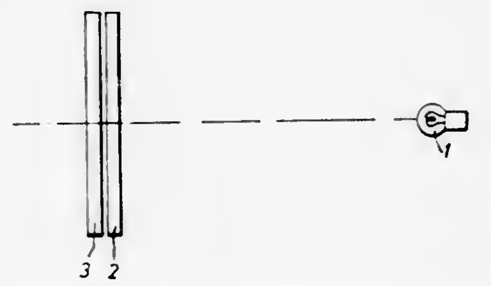
Sun Lu, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Sept. 11, 1967, Ser. No. 666,584
Int. Cl. G02b *27/22*
U.S. Cl. 350—3.5 **6 Claims**



An optical filter in the form of a synthetic hologram of an aggregation of point sources recorded on a photographic plate using a standard two-beam holographic system. The required filter function of the optical filter is established and generalized into a periodic function which is then synthesized by a finite number of harmonics in a spatial frequency domain. Where the filter function has a degree of symmetry, the synthesis process is comparatively simple with only the first several harmonics needed to construct the optical filter. Both the amplitude and phase of the desired function are recorded on the synthetically generated hologram.

3,572,879
PRODUCING HIGH QUALITY HOLOGRAMS BY COPYING

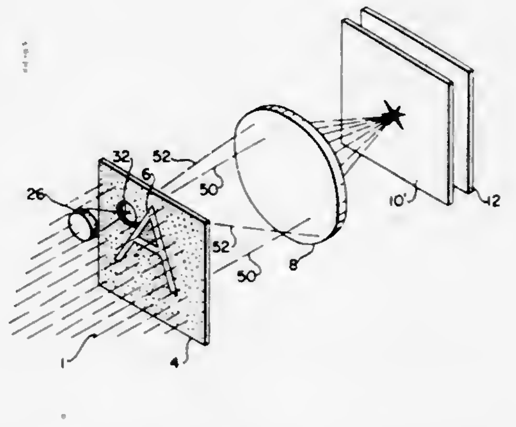
Heinrich Nassenstein, Leverkusen, and Manfred Kliemann, Schildgen, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed July 30, 1968, Ser. No. 748,635
Claims priority, application Germany, Aug. 18, 1967, A56531
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **3 Claims**



The production of a hologram free from undesirable line structures by forming a phase hologram by bleaching an absorption hologram and then copying the phase hologram using a gas discharge tube to radiate the phase hologram with and thus produce a hologram completely free from coarse residual fringes.

3,572,880
METHOD OF ELIMINATING A PERTURBATION WHEN FORMING A HOLAGRAPHIC SPATIAL FILTER

Thomas J. Negrelli, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
Filed Dec. 31, 1968, Ser. No. 788,152
Int. Cl. G01b *27/00, 27/38*
U.S. Cl. 350—3.5 **4 Claims**



The present invention relates to a method of eliminating perturbation between a reference beam and a source beam during the formation of a hologram. A Fraunhofer diffraction pattern of the subject of the hologram is placed in front of a recording medium in which a hologram of the subject is to be formed. Perturbation between the reference beam and the source beam is thus eliminated. A hologram, such as is used in a character recognition system, may be improved by the method of the present invention.

3,572,881
LARGE-CAPACITY ASSOCIATIVE MEMORY EMPLOYING HOLOGRAPHY

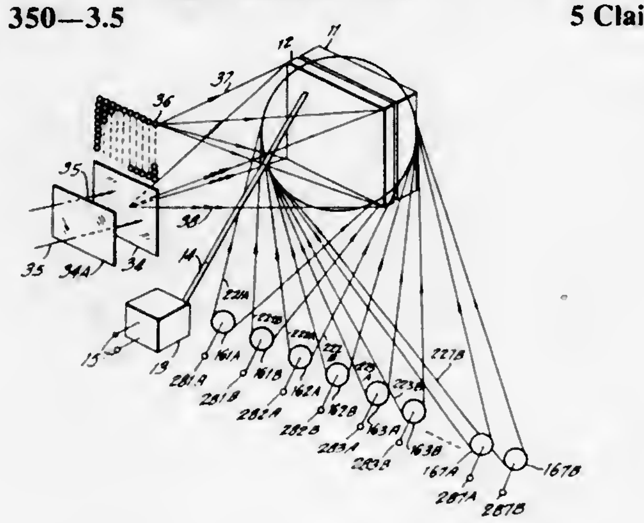
Nobuo Nishida, and Mitsuhito Sakaguchi, Tokyo-to, Japan, assignors to Nippon Electric Company Limited, Tokyo-to, Japan

Filed July 28, 1969, Ser. No. 845,243

Claims priority, application Japan, Aug. 16, 1968, 43/58819

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **5 Claims**



Interference patterns representing data groups are formed in recording plates, which patterns are aligned in a direction transverse to the surface of the recording plate to provide volume, as opposed to surface, recording. The interference patterns are formed by the combination of:

1. spatially modulating a first coherent light source with one of a plurality of data plates; only one region of the recording plate is exposed to the above combination of light rays for each data plate;
2. parallel coherent beams spatially modulated in accordance with a binary code and its complement, said code being unique to each data plate;
3. a third coherent light source whose angle of incidence on the recording plate varies for each data plate.

Retrieval is performed by:

1. spatially modulating the data parallel light beams with the complement of at least selected bits of the binary code;
2. observing, behind the recording plate, those regions which do not pass a light ray; and
3. exposing the recording plate to the parallel light rays in sequential fashion only those regions which do not pass light rays so as to view the data groups having binary code positions common to the retrieval data applied, in complementary form, to modulate the parallel coherent light rays.

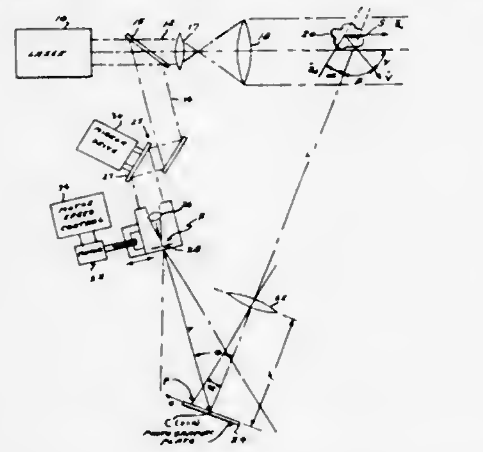
3,572,882
VARIABLE REFERENCE PHASE HOLOCAMERA TO COMPENSATE FOR OBJECT MOTION

Don B. Neumann, Ann Arbor, Mich., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Nov. 28, 1969, Ser. No. 880,624

Int. Cl. G02b *27/00*

U.S. Cl. 350—3.5 **2 Claims**



A variable reference phased holographic system for recording holograms of objects having some movement with respect to the photographic plate which has the conventional signal beam and reference beam provided by a beam splitter having a phase shifter in the reference beam path to adjust the phase of the reference beam to correspond to phase shifts in the signal beam at the center of the hologram recording plate due to the movement of the object. The reference beam is brought to a focus and passed through an aperture between the phase shifter and hologram recording plate. The aperture is moved to adjust the reference beam for phase shifts in the signal beam at points not at the center of the hologram recording plate. In one embodiment the phase corrections are made by sensing means which sense movement of interference fringes at the center and one edge of the hologram recording plate with the output of the sensing means being applied to phase shifters in the reference beam.

3,572,883
STRUCTURE FOR CONE AND PERISCOPE OF SPIRAL PATH SCANNING MECHANISM

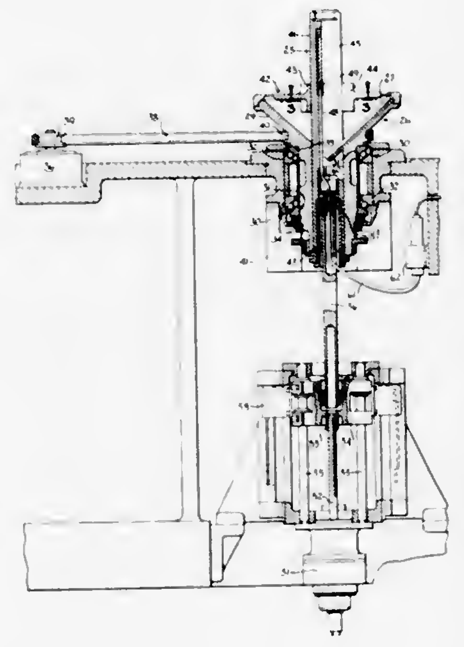
Sten Nordlund; Bengt Wetterbrandt, and Lars-Johan Persson, Jonkoping, Sweden, assignors to Saab Aktiebolag, Linkoping, Sweden

Filed Aug. 27, 1969, Ser. No. 853,244

Claims priority, application Sweden, Aug. 28, 1968, Aug. 29, 1968, 11,530;11,531

Int. Cl. G02b *17/00*

U.S. Cl. 350—6 **9 Claims**



A scanner for bubble chamber photographs comprises a rotatable mirror-carrying outer member and an inner periscope member that rotates with and moves lengthwise relative to the outer member. The periscope member has accurately straight track surfaces along its length that parallel the rotational axis and lie in substantially perpendicular planes which respectively extend to opposite sides of said axis. Each of said tracks is engaged by rollers carried by the outer member at fixed axially spaced locations. Other rollers on the outer member engage the periscope member under radially inward bias to maintain the track surfaces guidingly engaged with the first mentioned rollers.

3,572,884
PROJECTION MICROSCOPE

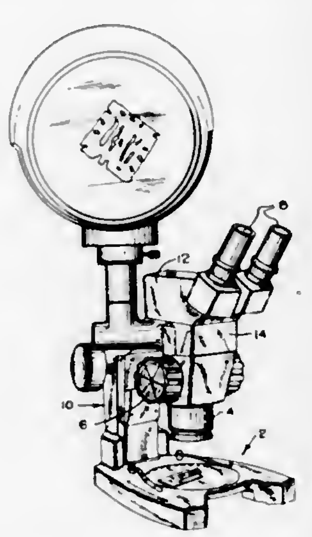
John Balan Chirayath, Amherst, N.Y., assignor to American Optical Corporation, Southbridge, Mass.

Filed June 5, 1969, Ser. No. 830,639

Int. Cl. G02b *21/22, 21/36*

U.S. Cl. 350—9 **1 Claim**

A stereoscopic microscope having an illuminator disposed in one optical path and a projection lens and screen in the other. The illuminator provides light through one optical path to the object plane, from which it reflects along the other optical path. The projection lens projects a greatly magnified image onto the screen for viewing without conventional eyepieces.



3,572,885
POLARIZING MICROSCOPE HAVING BERTRAND LENS

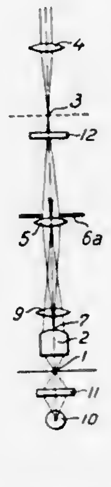
Gunter Reinheimer, Amberg, and Walter Klein, Auf der Hohl, Germany, assignors to Ernst Leitz G. m. b. H., Optische Werke, Wetzlar, Germany

Filed May 15, 1967, Ser. No. 638,282

Claims priority, application Germany, July 16, 1966, L54089

Int. Cl. G02b *27/28*

U.S. Cl. 350—14 **3 Claims**



In a polarizing microscope having conoscopic and orthoscopic viewing modes a Bertrand lens for conoscopic observation is employed. A diaphragm is arranged close to said Bertrand lens, and in addition to the Bertrand lens a further lens is insertable in the path of the light rays. The focal length of this lens is calculated as to produce — in combination with the microscope objective — an image of the object in the plane of the diaphragm located adjacent said Bertrand lens. It has proven particularly useful to insert said additional lens as close to the image-side focal plane of the objective as possible. During orthoscopic viewing the Bertrand lens, diaphragm, and additional lens are removed from the optical path of the microscope.

3,572,886
DUAL POWER TELESCOPE

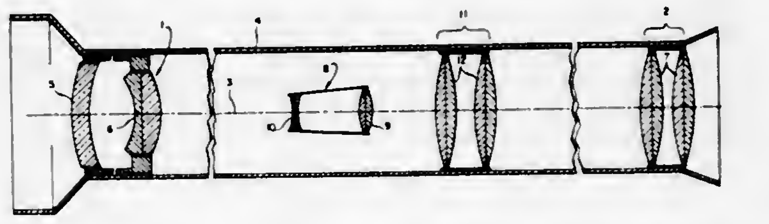
Robert E. Curtiss, Cupertino, and Frank F. Rand, Jr., Los Altos Hills, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Apr. 28, 1969, Ser. No. 819,794

Int. Cl. G02b *23/00*

U.S. Cl. 350—20 **1 Claim**

A dual-power telescope is disclosed comprising objective means, an eyepiece, and a Galilean telescope adapted to be interposed therebetween with the Galilean ocular positioned between the objective means and its focal plane and the Galilean objective positioned between the eyepiece and the focal plane of the objective means.



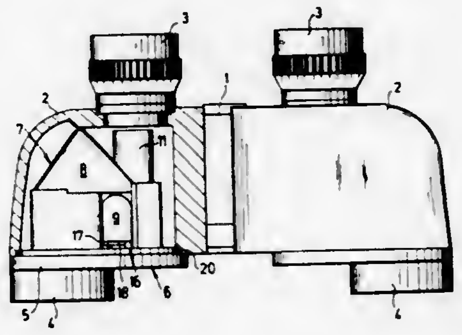
3,572,887
OPTICAL INSTRUMENT FOR VIEWING DISTANT OBJECTS

Horst Leitzsch, Neuenreuth near Creussen, Germany, assignor to Steiner-Optik Karl Steiner, Postfach, Bayreuth, Germany

Filed Feb. 25, 1969, Ser. No. 802,183

Int. Cl. G02b *23/02*

U.S. Cl. 350—51 **4 Claims**



In an optical instrument for viewing distant objects, and in particular in a binocular, the eyepiece is mounted directly in the casing of the instrument and the prism system and the objective are mounted on a common carrier which is inserted into the casing and retained therein in the correct optical position by locating means on the carrier and in the casing.

3,572,888
ROTARY AND TRANSVERSELY ADJUSTABLE MICROSCOPE STAGE

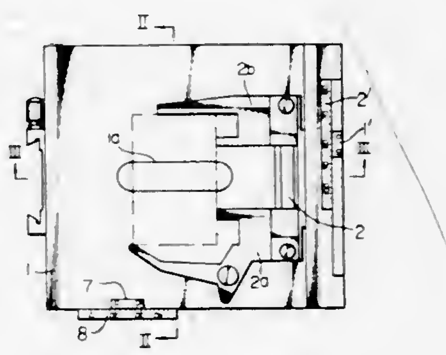
Takashi Kawashima, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Sept. 3, 1969, Ser. No. 854,833

Claims priority, application Japan, Sept. 10, 1968, Sept. 10, 1968, 43/64674;43/64675

Int. Cl. G02b *21/26*

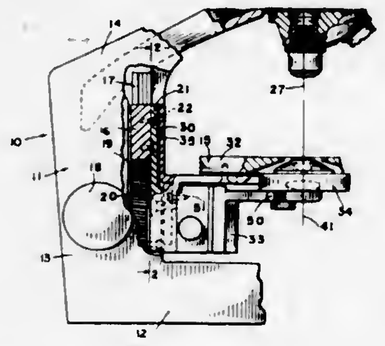
U.S. Cl. 350—86 **5 Claims**



Cross-moving stage of a microscope comprising a lower stage member supported by a support member of the microscope rotatably about the optical axis of the microscope, an upper stage member slidably supported on the lower stage member, and a clamping holder for a slide glass slidably supported on the upper stage member by a slide member guided in the upper stage member. The support member mounts thereon rotatably a first handle and a second handle coaxially with the first handle. The first handle moves the upper stage member regardless of the rotational position of the lower stage member while the first handle is kept stationarily with respect to the microscope. The second handle moves the clamping holder relative to the upper stage member by operating the second handle independently from the displacement of the upper stage member relative to the lower stage member regardless of the rotational position of the lower stage member.

3,572,889
MOUNTING AND ALIGNMENT MECHANISM FOR MICROSCOPE STAGE

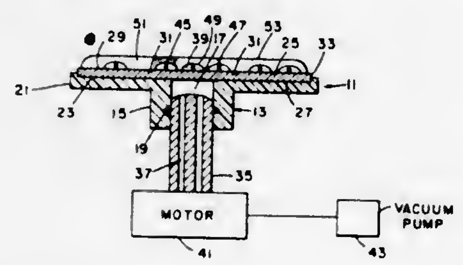
Kenneth G. Bloomfield, Rochester, N.Y., assignor to Bausch & Lomb, Incorporated, Rochester, N.Y.
Filed Apr. 21, 1969, Ser. No. 817,725
Int. Cl. G02b *21/26*
U.S. Cl. 350—87 **8 Claims**



A mechanism for quickly mounting and aligning any one of a variety of stages on a microscope stand in such a manner that automatic mechanical and optical alignment between the objective nosepiece and each different stage is assured.

3,572,890
MICROSCOPE SLIDE AND SPINNER

Emil R. Adamik, Laurel, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 18, 1968, Ser. No. 776,736
Int. Cl. G02b *21/34*
U.S. Cl. 350—92 **6 Claims**

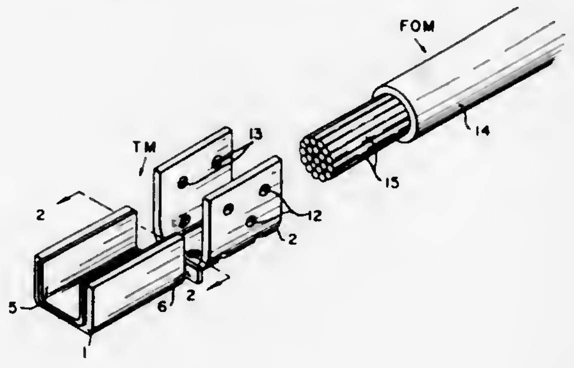


Means for examining biological cells of the type deposited from sera and used in blood-cell studies, comprising a slide having barrier means supported on a rotatable platform formed with a flat depressed portion for receiving, supporting and rotating the slide to produce a monolayer of cells confined on the slide by the barrier means for examination by conventional microscopy, as well as automatically.

3,572,891
TERMINATION MEMBER FOR FIBER OPTIC MEMBERS

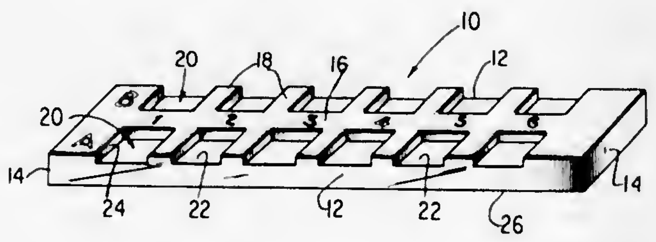
Bruce Cameron Longenecker, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 30, 1966, Ser. No. 583,372
Int. Cl. G02b *5/16*
U.S. Cl. 350—96 **8 Claims**

A termination member for terminating an end of fiber optic means comprises a first section and a second section interconnected by a bridge section. The first section is adapted to be secured onto stripped fiber optic elements of the fiber optic means and being formed into a desired geometric configuration thereby maintaining the stripped ends in a dense state within the first section and in alignment. The second section is adapted to be secured onto a covering member of the fiber optic means and it includes means to penetrate the covering member to secure the second section on the covering member. The sections are secured onto the stripped ends and covering member with a minimum of deformation to the fiber optic means to maintain the transmission characteristics of the fiber optic means at almost its original amount.



3,572,892
MULTIPLE WELL TISSUE CULTURE SLIDE

Don P. Metzgar, and James V. Sorrentino, Stroudsburg, Pa., assignors to Richardson-Merrell Inc., New York, N.Y.
Filed Feb. 10, 1969, Ser. No. 797,822
Int. Cl. G02b *21/34*
U.S. Cl. 350—95 **5 Claims**

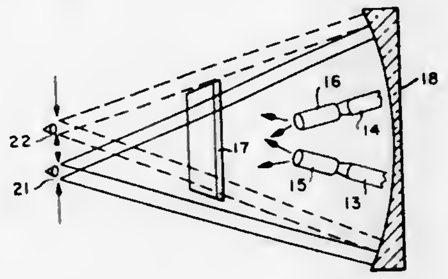


A tissue culture microscope slide comprising a transparent flat plate having depressions or wells on the top surface thereof. The walls defining each well have an opening extending from the top to the bottom of the well adjacent to an edge of the plate to facilitate the drainage of liquids therefrom. The bottom surface of each well is substantially parallel with the bottom surface of the plate. The tissue culture slide after preparation with fixed, confluent, viral infected tissue culture cells can be used with fluorescent labeled reagents and a fluorescent microscope to provide the technologist or clinician with a tool for rapidly screening the sera of patients or animals for a variety of viral agents as measured by the presence in the patients' or animals' serum of antibody against a specific viral agent.

3,572,893
STEROSCOPIC IMAGE DISPLAY DEVICE

Harold F. Bennett, Pasadena, Calif.; Howard T. Betz, Chesterton, Ind.; Ronald L. Ohlhaber; Donald A. Pontarelli, and Arthur V. Appel, Chicago, Ill., assignors to the United States of America as represented by the Secretary of the Navy
Filed Apr. 14, 1969, Ser. No. 815,688
Int. Cl. G02b *27/22*
U.S. Cl. 350—130 **2 Claims**

An image display system for an aircraft having first and second fiber optic bundles connecting separate periscopes and projection lens and having a first mirror for reflecting images from said projection lens to a spherical mirror which reflects these images into the eyes of an observer.

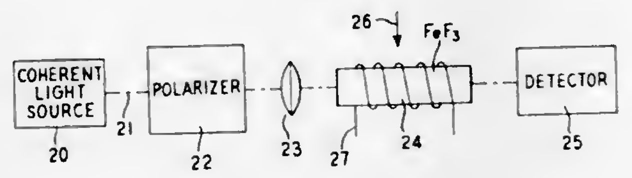


ERRATUM

For Class 350—150 see:
Patent No. 3,572,941

3,572,894
FERRIC FLUORIDE DEVICES

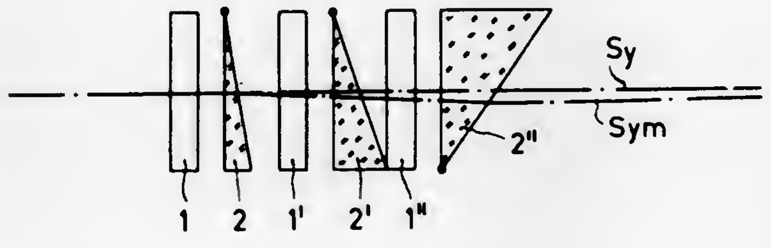
Howard J. Guggenheim, Somerville, and Hyman J. Levinstein, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Dec. 27, 1968, Ser. No. 787,376
Int. Cl. G02f *1/22*
U.S. Cl. 350—151 **6 Claims**



Ferric fluoride evidences a magneto-optic effect of device interest over a broad frequency range including the major part of the visible spectrum. Modulators and isolators, either continuous or pulsed, may be operated over this entire frequency range at room temperature. Precautions to be taken to avoid flawing during growth of the material are described.

3,572,895
OPTICAL DEFLECTION SYSTEM INCLUDING AN ALTERNATING SEQUENCE OF BIREFRINGENT PRISMS AND POLARIZERS

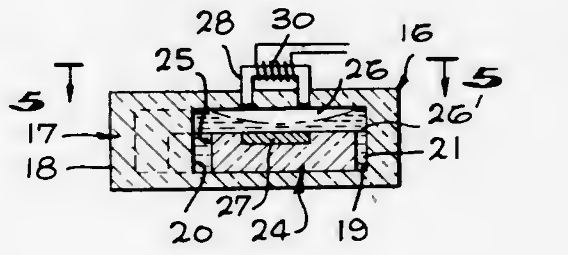
Uwe Schmidt, Pinneberg, and Walter Thust, Hamburg-Niendorf, Germany, assignors to U. S. Philips Corporation, New York, N.Y.
Filed Dec. 3, 1968, Ser. No. 780,743
Int. Cl. G02f *3/00*
U.S. Cl. 350—157 **7 Claims**

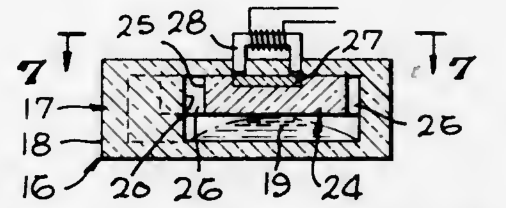


An optical deflection system including a plurality of birefringent prisms separated by polarizers arranged in a sequence. At least one of the prisms has a refracting angle greater than that of any of the other prisms, and is oriented in a direction substantially opposite to that of the refracting angles of the other prisms.

3,572,896
SWITCHABLE LIGHT MODULATING DEVICE

Sidney Bertram, Los Angeles, Calif., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif.
Filed June 26, 1967, Ser. No. 648,781
Int. Cl. G02f *1/28*
U.S. Cl. 350—160 **9 Claims**

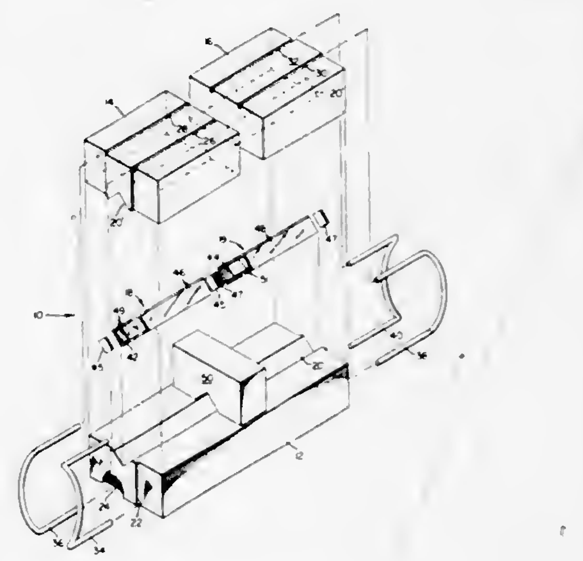




A controllable light reflective device made up of a chamber having at least a portion of its walls transparent to form a window therein with a light reflective structure forming part of or associated with said window. A fluid is placed in the chamber with structure for controllably displacing the fluid to and from a selected portion of the chamber and in optical cooperation with the reflective structure so as to control the amount of incident light which is reflected by the device through the window.

3,572,897
OPTICAL MODULATOR HAVING DISSIPATIVE MATCHING BOUNDARIES

Samuel Bousky, Woodside, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Mar. 6, 1968, Ser. No. 711,032
Int. Cl. G02f *1/28*
U.S. Cl. 350—160 **8 Claims**



An improved optical modulator having means for dissipating the various, extraneous internal energies within the optical crystal, to thus improve the frequency response of the modulator, the means including impedance matching acoustic boundaries and refractive index matching optical boundaries disposed along selected sides and ends of the optical crystal, as well as acoustic and light dissipative or absorbing materials selectively disposed about the sides of the crystal. The acoustic matching on the surfaces of the crystal may be quarter-wave plates which provide an impedance match to the surrounding material to dissipate internal energy due to piezoelectric effects and the like. The refractive index matching on the surfaces of the crystal may also be quarter-wave transparent films of appropriate indices of refraction between the various mediums of the modulator through which the light beam passes. The dissipative materials absorb acoustic energies released to the surround, and extraneous light scattered or internally reflected within the crystal as the beam passes therethrough.

3,572,898

Z-CUT CRYSTAL ELECTRO-OPTICAL MODULATOR

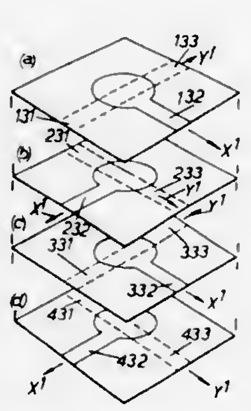
Charles Cecil Eaglesfield, Harlow, Essex, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 12, 1968, Ser. No. 751,910

Claims priority, application Great Britain, Oct. 12, 1967, 46,532/67

Int. Cl. G02f *1/24*

U.S. Cl. 350—160 **7 Claims**



A plurality of Z-cut KDP-type crystal optical modulators, each having a fast axis and a retard axis associated therewith, are arranged in a stack so as to require a potential lower than that required for modulation utilizing a single crystal. Each crystal is formed with an annular recess around a center island on the upper and lower surface and recessed tails extending, in orthogonal relationship one to the other, from each annular recess. The crystals are stacked with alternate plates similarly aligned and adjacent plates oppositely aligned with respect to their fast and retard axes. A conductor is connected between each annular recess and one of two terminals of a source of potential in such manner that the effect of successive plates is additive.

3,572,899

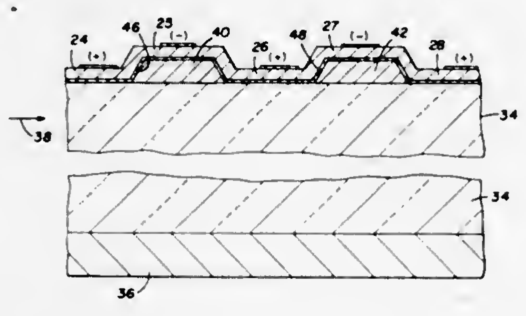
ACOUSTO-OPTICAL MODULATOR

de Lamar T. Bell, Jr., Dallas, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.

Filed Feb. 13, 1968, Ser. No. 705,196

Int. Cl. G01f *1/32*

U.S. Cl. 350—161 **5 Claims**



A modulator including an array of electroacoustic transducers for generating and steering an acoustic wave front in a light transmissive body. The acoustic wave front propagates through the transmissive material at an angle approximately proportional to the frequency deviation from a center frequency of an electrical signal applied to the transducers. An acoustic delay means displaces every other electroacoustic transducer an acoustic one-half wavelength from the transmissive body to compensate for the phase inversion produced by the interconnecting arrangement of the transducers. This interconnecting arrangement produces an electrical phase shift between the signals applied to every other transducer in the array.

3,572,900

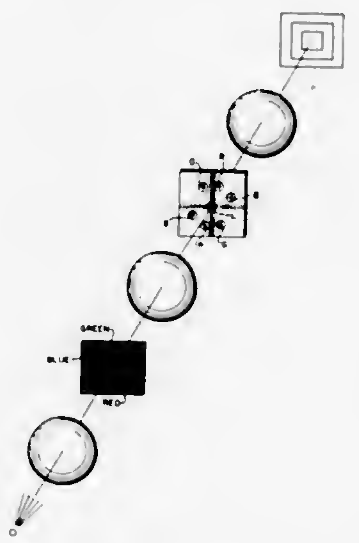
COLOR TV FILM REPRODUCTION SYSTEM COMPATIBLE WITH DIFFRACTION PROCESS COLOR PROJECTION SYSTEMS

Edmund L. Bouche', Lexington, Mass., assignor to Technical Operations, Incorporated, Burlington, Mass.

Filed Apr. 29, 1969, Ser. No. 820,181

Int. Cl. G02b *27/38*

U.S. Cl. 350—162SF **11 Claims**



This disclosure depicts methods and apparatus for improving the fidelity of displays produced by diffraction process color recording and reconstruction systems. More particularly, the disclosure concerns color TV film reproduction systems which are capable of displaying with enhanced fidelity either conventional color transparency cine film, or alternatively, monochrome cine records in which color information is stored on spatial carriers. The illustrated systems and methods involve, inter alia, predetermining the azimuthal orientation of color-encoding spatial carriers and decoding filter means in order to suppress moire patterns and minimize color distortions in color displays.

3,572,901

WIDE ANGLE OBJECTIVE LENS HAVING A FIELD ANGLE OF 108°

Ikuo Mori, Kawasaki-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

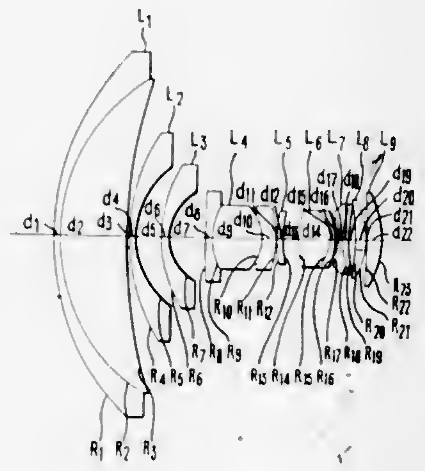
Filed May 7, 1969, Ser. No. 822,466

Claims priority, application Japan, June 5, 1968, 43/38012

Int. Cl. G02b *9/64*

U.S. Cl. 350—176 **2 Claims**

This invention relates to a retrofocus type extreme wide-angle objective lens having an angle of field of over 108° and comprising a front group dispersing lens system and a rear group convergent lens system on both sides of the diaphragm, wherein the lens system is formed by the front group dispersing system comprising a cemented positive meniscus lens L_1, negative meniscus lenses L_2 and L_3, and a cemented positive lens 4, and a negative meniscus lens l_5, and the rear group convergent system comprising a cemented positive lens L_6, a cemented negative lens L_7, and positive meniscus lenses L_8 and L_9 having the concave surface faced to the direction of incoming light respectively, and the above mentioned two groups are arranged on both sides of the diaphragm, and the aberrations are balanced and the sagittal image surface which tends to become positive in the marginal region of the picture is well corrected by widening the position of inflecting point of the meridional image surface by giving the following conditions:



$R_{11} < R_{12}$

II $d_{13} > d_{12}$

III $d_{14} + d_{15} > d_{16}$

Where *R* is a radius of curvature and *d* is the center thickness of a lens or lens spacing.

3,572,902

HIGH MAGNIFICATION ACHROMATIC MICROSCOPE OBJECTIVE HAVING A WIDE, FLAT FIELD

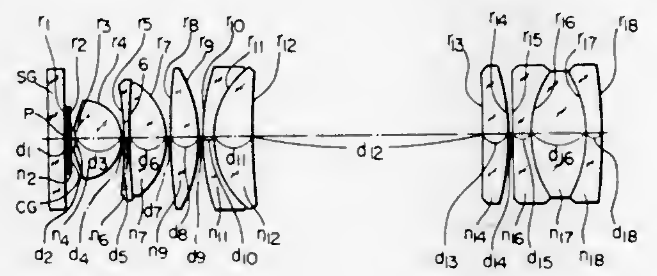
Toshifumi Uetake, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 8, 1969, Ser. No. 814,239

Claims priority, application Japan, Apr. 15, 1968, 43/24886

Int. Cl. G02b *9/64, 21/02*

U.S. Cl. 350—177 **1 Claim**



A high magnification microscope objective which has a wide field of about the field number of 30; in which the curvature of the field is sufficiently eliminated and the in-axis chromatic aberration is completely eliminated to the extent which is achieved by an apochromatic objective.

3,572,903

SPHERICALLY CORRECTED FRESNEL LENSES

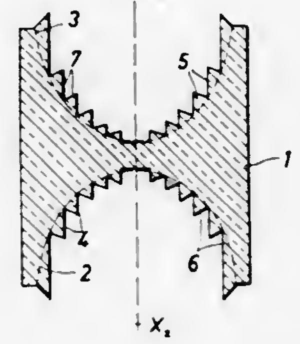
Christian Hofmann, Jena, Germany, assignor to Jenoptik Jena G.m.b.H., Jena, Germany

Continuation-in-part of application Ser. No. 559,686, June 20, 1966, now abandoned. This application June 6, 1969, Ser. No. 831,281

Int. Cl. G02b *3/08*

U.S. Cl. 350—211 **1 Claim**

The optically effective face of a Fresnel lens is so shaped that two separate points in its optical axis are imaged without spherical aberration. Said face carries the Fresnel echelons. If there are echelons on both sides of the Fresnel lens, both



echelon carrying faces have a form which is defined by an equation.

3,572,904

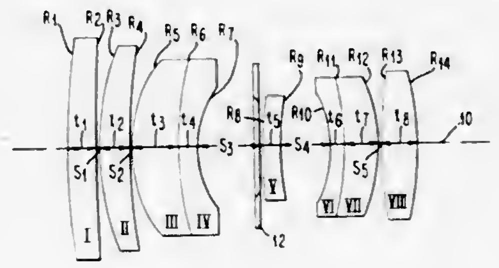
OPTICAL REDUCTION LENS SYSTEM

Raymond E. Tibbetts, Mahopac, and Janusz S. Wilczynski, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of application Ser. No. 573,698, Aug. 19, 1966, now abandoned. This application May 5, 1969, Ser. No. 825,120

Int. Cl. G02b *9/62*

U.S. Cl. 350—215 **4 Claims**



A lens group is described for use as a reduction lens. The lens group consists of eight lens elements. The first and second lens elements are meniscus singlet lenses. The third and fourth lens elements are cemented together to form a meniscus doublet lens. The fifth lens element is a negative meniscus singlet lens and the sixth and seventh lens elements are cemented together to form a meniscus doublet lens. The eighth lens element is a biconvex lens. The lens group has a high uniform resolution over the useable field, a flat image field with practically no zonal astigmatism, no mechanical vignetting, and virtually unmeasurable distortion.

3,572,905

LENS HOOD

Werner Schlapp, Asslar Kreis Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed Apr. 4, 1969, Ser. No. 813,509

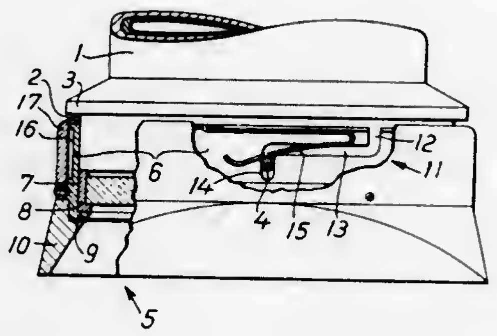
Claims priority, application Germany, Apr. 10, 1968, Jan. 7, 1968 L47,154; P 19 00 547.1

Int. Cl. G02b *7/02*

U.S. Cl. 350—257 **8 Claims**

In the tubular rear member of a lens hood is provided at least one slot extending in axial and in circumferential direction. The slot is adapted to receive a pin stationarily secured on the front portion of the objective mount, and spring means are arranged near the slot for resiliently locking the pin in the slot when the hood is mounted on the lens.

The inner diameter of the tubular member corresponds to the standardized diameter of a filter series so that different filters can be inserted into the hood prior to mounting. The inner surface of the tubular member is provided with a shoulder against which the filters abut, and in one particular embodiment of the invention means for rotating the filter are incorporated.



3,572,906

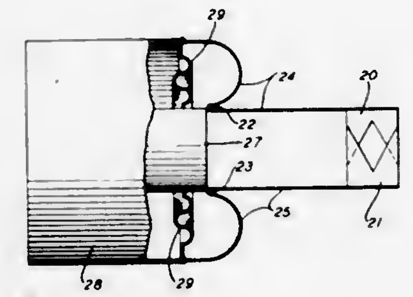
AUTOMATIC ELECTRORESPONSIVE LIGHT REGULATOR UTILIZING TRANSLATIONAL DRIVE MOTOR

Sotirios C. Kitsopoulos, Summit; Rembert R. Stokes, Middletown, and Werner Thommen, Marlboro, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 5, 1968, Ser. No. 734,745

Int. Cl. G02f *1/30*

U.S. Cl. 350—269 **5 Claims**



The effects of friction and vibration are eliminated from an automatically regulated iris, optical filter, or similar arrangement by employing an electroresponsive drive motor with translational drive means. Iris blades or the like are secured to flexible members, the flexure of which is varied by translational motion of the drive system in response to low-power control signals. With this construction, sliding friction is avoided and the system is virtually nonresponsive to vibration.

3,572,907

OPTICAL CELL FOR ATTENUATING, SCATTERING AND POLARIZING ELECTROMAGNETIC RADIATION

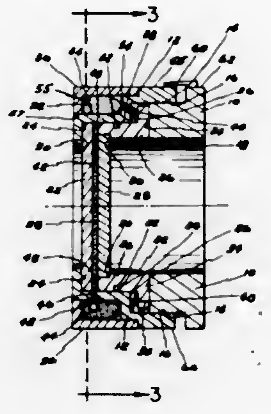
Ivan Cindrich, Southfield, Mich., assignor to Chain Lakes Research Corporation, Detroit, Mich.

Filed Apr. 28, 1969, Ser. No. 819,733

Int. Cl. G02b *5/24*

U.S. Cl. 350—312 **3 Claims**

An optical cell for attenuating, scattering or phase shifting electromagnetic radiation such as light comprising an annular member telescopically engaged with a mounting ring to thereby define a chamber. The ends of the chamber are formed by windows supported in the mounting ring and in a cylindrical frame in contiguous relationship with the annular member. A fluid having light affecting properties fills the chamber and is transferable between the chamber and a reservoir in fluid communication with the chamber. Telescopic operation of the optical cell varies the length of the fluid light path between the windows, to thereby cause variable attenuating and the like effect upon traversing light.



3,572,908

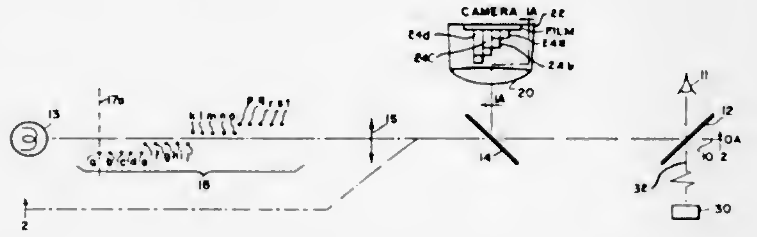
APPARATUS FOR MEASURING AND RECORDING REFRACTIVE ERRORS OF A PATIENT'S EYE

Bernard Grolman, Worcester, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 24, 1969, Ser. No. 809,526

Int. Cl. A61b *3/14, 3/10*

U.S. Cl. 351—6 **6 Claims**



Apparatus for determining the refractive errors in a patient's eye while avoiding any impediment to normal binocular vision of the patient. Measurements of sphere, cylinder, and axis are accomplished without making use of subjective patient oral response and without stimulating uncontrolled accommodation by the patient, which accommodation would make the measurements inaccurate.

3,572,909

INFRARED OPTOMETER

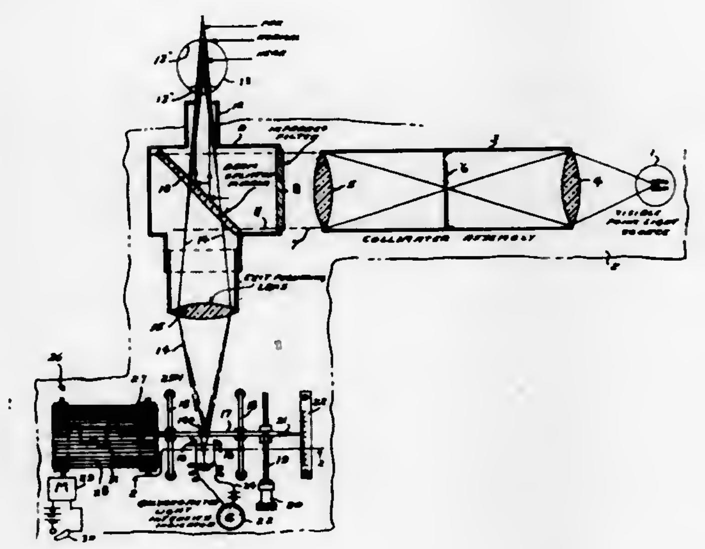
Robert E. VanPatten, Dayton, Ohio, and Paul W. Lappin, San Antonio, Tex., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Aug. 5, 1969, Ser. No. 847,585

Int. Cl. A61b *3/10*

U.S. Cl. 351—6 **5 Claims**

An infrared optometer device which allows manual or automatic measurement, under either local or remote control, of the refractive index of a man or animal eye in which a collimated beam of light is directed through an infrared filter and by a "beam splitter" mirror at 90° into a subject's eye, and the light reflected by the fundus of the eye and exiting back through the lens of the eye from the interior through the beam splitter is converged by a suitable lens toward a focal point at which is located an adjustable photo sensor which detects maximum intensity of the exit beam illumination, calibrated in terms of dioptric change in refractive status. The positioning of the photo sensor in order to detect the maximum intensity of the reflected illumination through the lens of the eye is calibrated in terms of dioptric change in the reflective status. The positioning of the photo sensor is controlled manually or remotely, and completely automatic and continuous operation is contemplated.



3,572,910

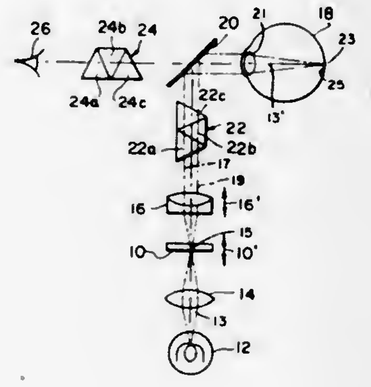
APPARATUS FOR MEASURING THE REFRACTIVE ERRORS OF AN EYE

Charles J. Koester, Sudbury, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 24, 1969, Ser. No. 809,781

Int. Cl. A61b *3/10*

U.S. Cl. 351—13 **6 Claims**



Apparatus for determining refractive errors of a patient's eye including means for projecting an image of a white light source pattern which is wavelength-dispersed into said eye and onto the retina thereof and means for enabling a refractionist or the like to observe the wavelength recombined image reflected by the retina for determining the sharpness of focus thereof. During the observation, the apparatus is adjusted to focus the image for maximum sharpness upon the retina and the amount of focusing required from a normal eye refraction position measured to determine the refractive error of the patien's eye.

3,572,911

NEAR-POINT CARDS FOR BINOCULAR REFRACTION

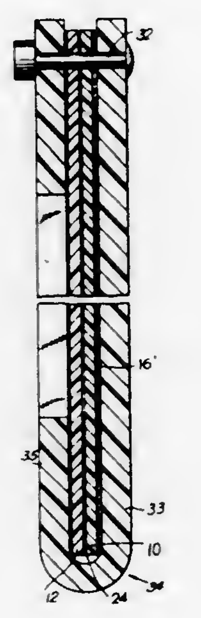
Bernard Grolman, Worcester, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed June 30, 1969, Ser. No. 837,631

Int. Cl. A61b *3/02, 3/08;* **G02b** *5/30*

U.S. Cl. 351—33 **6 Claims**

Near-point cards for binocular refraction and a lamination process for producing them are described wherein the product comprises a film having thereon a reproduction of the target for one eye with its image side upward cemented to a film having thereon a reproduction of the target for the other eye with its image side downward. The back of the film for the one eye is silvered and the two films are provided with a single frame which is riveted to center the targets. The process includes the steps of aligning the films, laminating them, realigning if necessary, spraying the back of the bottom film, and mounting the laminated films in a frame.



3,572,912

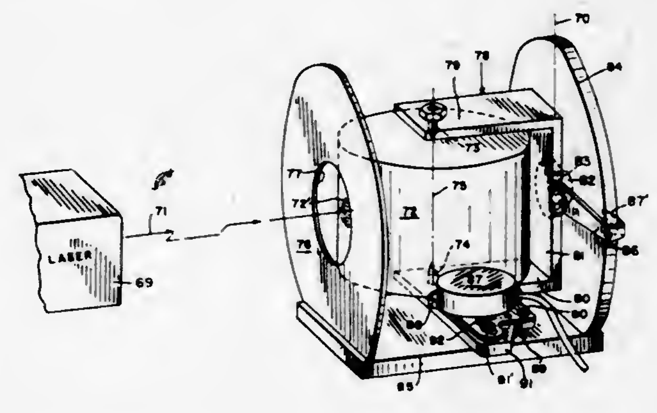
METHOD OF AND APPARATUS FOR TESTING AMETROPIA BY LASER REFRACTION

Henry A. Knoll, Penfield, N.Y., assignor to Bausch & Lomb, Incorporated, Rochester, N.Y.

Continuation of application Ser. No. 555,438, June 6, 1966, now abandoned, which is a Continuation-in-part of application Ser. No. 441,141, Mar. 19, 1965, now abandoned. This application Oct. 6, 1969, Ser. No. 866,425

Int. Cl. A61b *3/02*

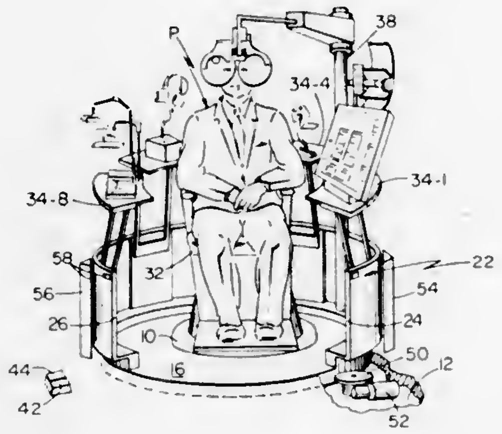
U.S. Cl. 351—36 **24 Claims**



A method of and apparatus for testing eyes by laser refraction are provided in which a laser beam is projected onto a distant rotating and diffusing screen which is viewed by the patient. A visual pattern is formed on the screen which, to eyes having abnormal refractive condition, appears to move when the screen is rotated. The direction and rate of the apparent movement are indications of the type and magnitude of refractive abnormality present in the eyes. By rotating the screen along an axis parallel to the laser beam, astigmatic abnormalities are determined. The system in combination with various other equipments such as refractors and variable focal length telescopes provides direct correction of the refractive abnormalities of the eyes being tested. The direct correction is achieved by either terminating the apparent motion of the pattern, or by quantitatively determining the direction and rate of the motion.

3,572,913
COMPREHENSIVE SUPPORT FOR OPHTHALMIC EXAMINATION APPARATUS AND INSTRUMENTS

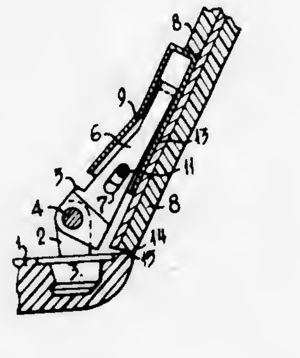
Donald R. Korb, Boston; Donald W. Horley, Arlington, and Peter L. Lindenmuth, Boston, Mass., assignors to Boylston Research Associates, Boston, Mass.
Filed Feb. 3, 1969, Ser. No. 795,864
Int. Cl. A61b *3/00*
U.S. Cl. 351—38 **9 Claims**



Ophthalmic examination apparatus includes a fixed base structure that includes a circular track and a patient support chair positioned within the circular track. A generally cylindrical instrument support structure is supported for rotation on the circular track and has an aperture in it so that a patient may enter and so that the examiner may have direct access to the patient. An electrical motor drives the support structure on the circular track and a position switch and a series of spaced switch actuators control the positioning of particular instruments in proper position for examination purposes.

3,572,914
ARRANGEMENT FOR HINGING A SIDEPIECE TO THE LENS BOW OF A SPECTACLES FRAME

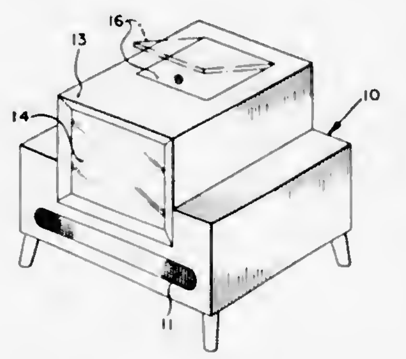
Roger Piola, Geneva; Andre Guenin, Petit Lancy, Geneva, and Conrad Zellweger, Chene-Bougeries, Geneva, Switzerland, assignors to La Nationale S. A., Geneva, Switzerland
Filed Jan. 3, 1969, Ser. No. 788,751
Claims priority, application Switzerland, Jan. 4, 1968, 83/1968
Int. Cl. G02c *5/6*
U.S. Cl. 351—113 **12 Claims**



A hinge pin connecting together a hinge member fixed to the lens retaining portion and a hinge member resiliently connected to a temple is constrained so to move that the temple outer corner pressing against the lens retaining portion substantially serves as the virtual pivoting axis for the temple.

3,572,915
APPARATUS FOR PRODUCING FORMS AND COLORS IN MOTION

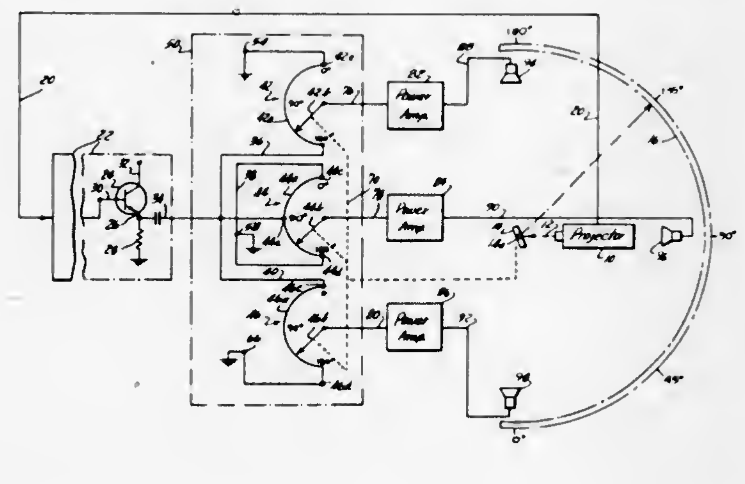
James F. Butterfield, North Hollywood, Calif., assignor to James F. Butterfield, fractional part interest to each and Edward Levitt, North Hollywood, Calif., fractional part interest to each
Original application Dec. 11, 1963, Ser. No. 336,091, now Patent No. 3,343,453, which is a division of application Ser. No. 46,726, Aug. 1, 1960, now Patent No. 3,122,966. Divided and this application Sept. 13, 1967, Ser. No. 688,634
Int. Cl. G03b *31/00*
U.S. Cl. 352—1 **2 Claims**



Music and other sounds are combined and synchronized with images in motion. This is done with a phonograph disc which has sound tracks on one portion and image bands on another portion. A picture-sound projector reproduces the sound through a loudspeaker while the images are simultaneously projected on a screen. The images may be picked up simultaneously from several bands on the disc and superimposed on the screen so that continuous motion of patterns may occur simultaneously in several directions. The patterns are turned on and off by a programming means on the disc, which actuates the illumination means for each image band in the picture-sound projector, thereby permitting animation of the images, and other visual effects.

3,572,916
SOUND SYNCHRONIZATION WITH A PROJECTED IMAGE

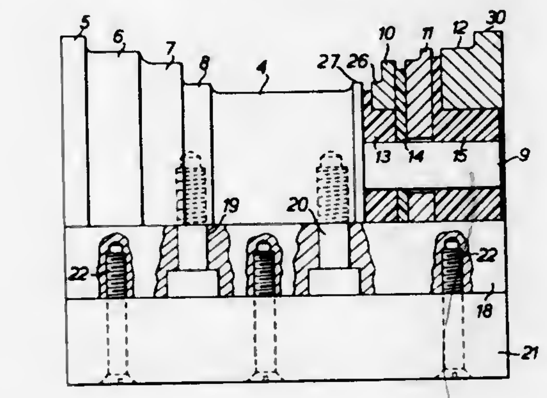
John P. Belton, Jr., Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Feb. 20, 1969, Ser. No. 801,055
Int. Cl. G03b *21/32*
U.S. Cl. 352—11 **2 Claims**



A binaural or stereo sound system for use with a dirigible projection system having a single sound track, the sound system including a plurality of speakers and corresponding power amplifiers, a preamplifier for amplifying signals from the sound track pickup, and a distribution means comprising ganged potentiometers receiving the preamplifier output and having wipers positioned with the dirigible projection system. The potentiometer wipers are connected to respective ones of the power amplifiers whereby the speakers provide a stereo sound reproduction corresponding to the position of a projected image.

3,572,917
PICKUP DEVICES

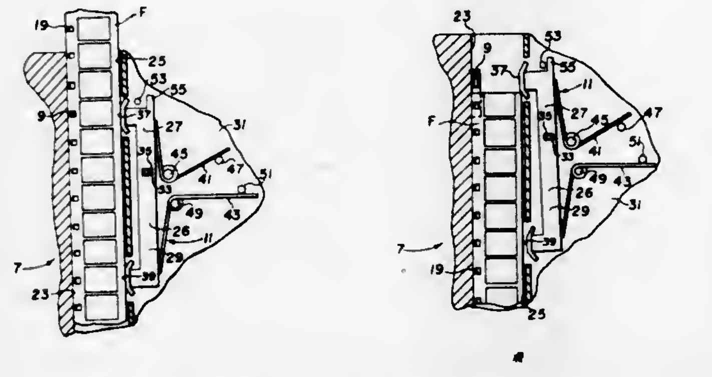
Bernard Albert Bentley, Camberley, England, assignor to Essoldomatic Limited, London, England
Filed Sept. 16, 1968, Ser. No. 753,255
Claims priority, application Great Britain, Aug. 17, 1967, 37,994/67
Int. Cl. G03b *21/52*
U.S. Cl. 352—92 **5 Claims**



An electrically conductive pickup for sensing electrically conductive areas on a moving flexible film comprising a fixed support curved in a plane normal to the surface of the film for effecting sliding contact therewith, and having at least two mutually insulated conductive surfaces spaced apart in the direction of the film width.

3,572,918
FILM GUIDE CHANNEL FOR SPROCKETLESS CINEMATOGRAPHIC DEVICE

Kurt Steisslinger, Stuttgart-Wangen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 26, 1968, Ser. No. 755,322
Claims priority, application Germany, Sept. 1, 1967, K63253
Int. Cl. G03b *1/44, 1/48;* **B65h** *23/02*
U.S. Cl. 352—224 **5 Claims**

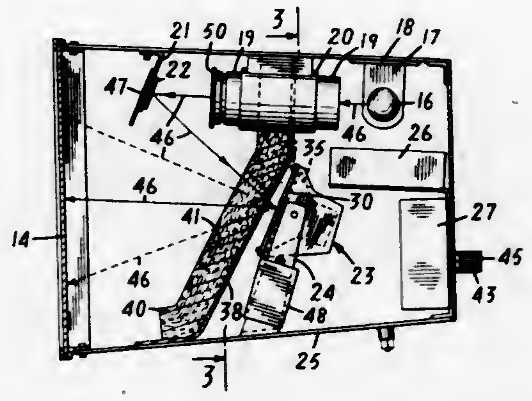


A film guide channel at the projection gate of a sprocketless motion picture projector or the like includes a film-aligning pressure member which releases its pressure from the trailing end of the film after the trailing end passes the pull-down claw to facilitate automatic withdrawal of the trailing end from the gate.

3,572,919
SOUND TO LIGHT VISUAL VOCALIZATION SYSTEM

Wilson C. Hayes, Oakmont, Calif. (634 Sheridan Square, Evanston, Ill. 60202)
Filed Mar. 11, 1968, Ser. No. 711,944
Int. Cl. A63j *17/00*
U.S. Cl. 353—15 **11 Claims**

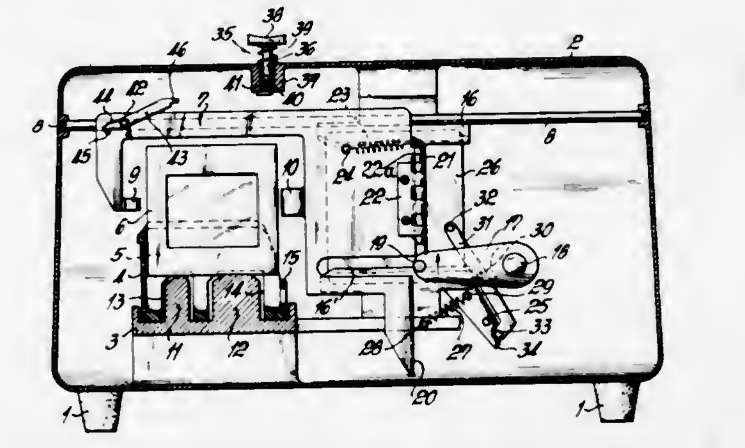
A loudspeaker is closed by a resilient membrane mounted across its mouth and at least one reflective surface is attached to the membrane. The reflective surface receives a beam of light from a stationary source and reflects a spot of light onto a screen positioned in front of the resilient membrane. Sound waves emanating from the speaker cone cause the resilient membrane and attached reflective surface to



vibrate in response thereto, thereby causing the reflected light spot to trace visible different patterns on said screen. These patterns help deaf persons learn to vocalize much sooner than they would with conventional therapies.

3,572,920
PROJECTOR FOR PHOTOGRAPHIC TRANSPARENCIES

Rolf Heinzmann, Schmiden, Germany, assignor to Robert Bosch Elektronik Und Photokino GmbH, Stuttgart-Unterturkheim, Germany
Filed Sept. 19, 1969, Ser. No. 851,168
Claims priority, application Germany, Aug. 20, 1968, P 17 97 132.3
Int. Cl. G03b *23/02*
U.S. Cl. 353—103 **11 Claims**

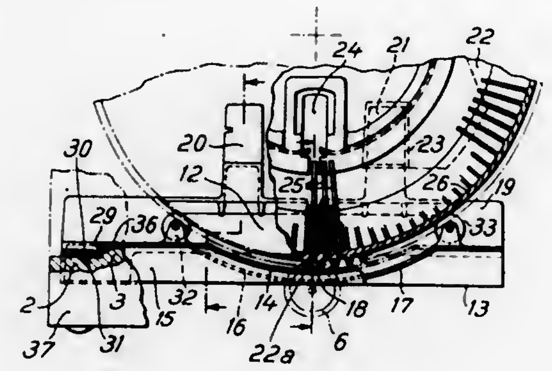


A slide projector wherein the slide changer is reciprocable between two end positions and through a median position in which a slide which is transported by the slide changer from the tray to projection position begins to open a diaphragm. The drive for the slide changer comprises a disengageable coupling which yields when the slide changer offers excessive resistance to movement in a direction to place a slide into projection position. A manually operable blocking device intercepts the slide changer before the latter reaches its median position so that the coupling is then disengaged and the slide which is pushed by the slide changer cannot reach its projection position and cannot open the diaphragm.

3,572,921
SLIDE PROJECTOR FOR STRAIGHT AND CIRCULAR SLIDE TRAYS

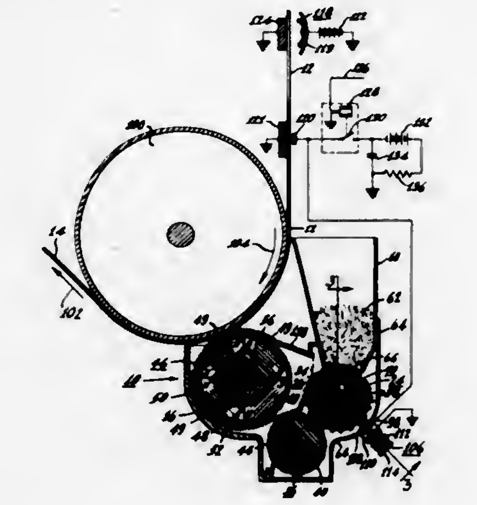
Hans Mulch, Wetzlar, Germany, assignor to Ernst Leitz GmbH Optische Werke, Wetzlar Lahn, Germany
Filed May 2, 1969, Ser. No. 821,356
Claims priority, application Germany, May 8, 1968, June 19, 1968, P 17 72 391.0; P 17 72 682.8
Ir.. Cl. G03b *23/06*
U.S. Cl. 353—117 **15 Claims**

An adapter is disclosed which can be removably positioned in the tray receiving chute for a slide projector. The chute normally receives straight trays. The adapter positions circular trays in proper position relative to the slide exchange mechanism. The adapter may additionally be provided with a transmission to change the effective step length as between the regular tray moving projector pinion and the required angle for rotating a circular tray from compartment to compartment.



3,572,922
APPARATUS FOR DEVELOPING ELECTROSTATIC IMAGES

Roger G. Olden, Gwynedd, Pa., assignor to RCA Corporation
Filed Dec. 19, 1968, Ser. No. 785,239
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 **18 Claims**

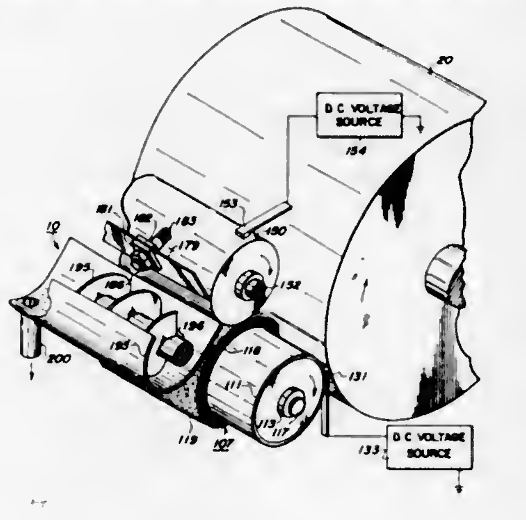


Developing apparatus for an electrostatic printer comprises a roller formed by a plurality of peripherally-slotted wheels frictionally mounted on a shaft for rotation therewith. The roller is in contact with a source of toner particles. Either manually or electrically operated means are provided to overcome the driving forces selectively between one or more of the wheels and the rotating shaft to stop them from rotating with the shaft. Thus, selected portions of the toner particles, in the peripheral slots of the rotating wheels, can be conveyed to electrostatic images on a recording medium according to the charge patterns thereon.

3,572,923
CLEANING METHOD AND APPARATUS FOR ELECTROSTATIC COPYING MACHINES

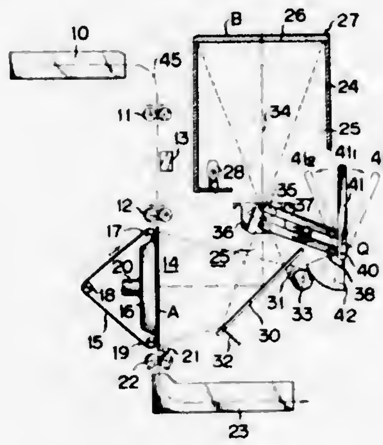
Donald J. Fisher, and Gerard T. Severynse, Fairport, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed Aug. 26, 1968, Ser. No. 755,267
Int. Cl. G03g *15/00*
U.S. Cl. 355—15 **7 Claims**

Method and apparatus for removing residual images from a recording surface for reuse in a copying system. This is effected by wiping the electrostatic recording surface with an electrically nonconductive element to mechanically remove the toner particles from the surface. At the same time, an electrical bias of a polarity opposite that of the toner particles of sufficient magnitude is applied to the element so as to pull toner from the surface onto the element thereby removing substantially all of the toner from the surface. The element is advanced past an electrically biased means to remove the toner from the element thereby freeing it of the residual toner so that continuous cleaning action is obtained. After this, the toner is removed from the electrically biased means and collected for reuse in the system.



3,572,924
COPYING APPARATUS

Yushi Matsumoto, and Tsuneo Tashiro, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 9, 1968, Ser. No. 766,124
Claims priority, application Japan, Oct. 12, 1967, 42/65,181
Int. Cl. G03b *27/70*
U.S. Cl. 355—27 **9 Claims**



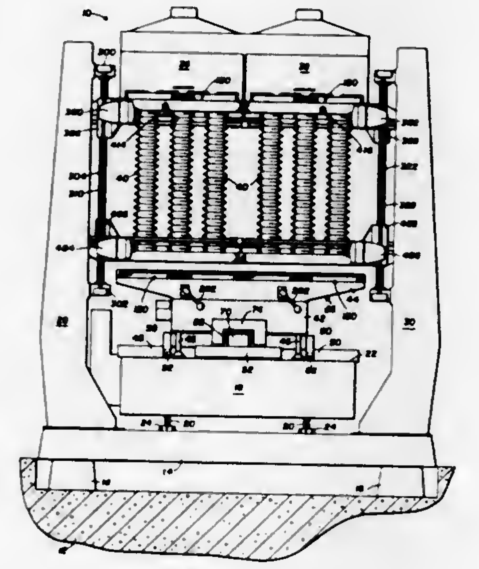
A copying apparatus including an optical system for reproducing an original on a copying paper, each of the original and the copying paper having its one edge located at a definite position. The optical system is arranged such that the edge of the original is always focused on the edge of the copying paper with the original reproduced in a predetermined area of the copying paper irrespective of the multiplying power.

3,572,925
STEP AND REPEAT CAMERA WITH COMPUTER CONTROLLED FILM TABLE

Billy D. Ables, Richardson; Charles Fort, Dallas, and Edmund D. Jackson, Richardson, Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.
Filed Oct. 18, 1967, Ser. No. 676,211
Int. Cl. G03b *27/44*
U.S. Cl. 355—46 **13 Claims**

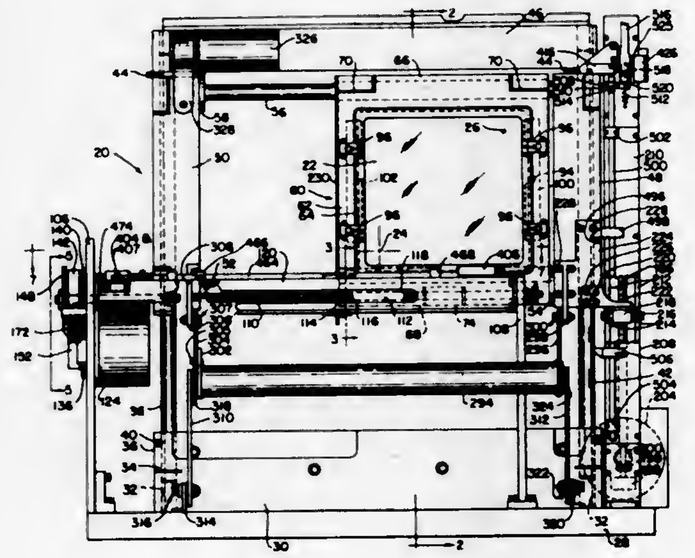
A film support table is movable in the X and Y coordinate directions by X and Y drive systems. A laser interferometer

and fringe counter detects movement of the table in the X and Y coordinate directions by fringe counts. A projection system simultaneously projects a plurality of images onto the film carried by the table after the table is moved to each of a plurality of predetermined exposure positions. A reference detector system detects when the table is at a zero reference position and resets the counters. A digital computer is programmed to compute the coordinate of each exposure position and then, based on the current barometric pressure, compute the number of fringe counts from the reference position to the first exposure position. The computer then operates the drive system in such a manner as to move the table to the exposure position by continuously computing the position and velocity of the table from the readings of the fringe counters. Then the table is maintained at the exposure position during the exposure period by continuously determining the position of the table from the fringe counters and operating the drive system to produce forces for correcting the positional error.



3,572,926
X AND Y COORDINATE AXES POSITIONING MECHANISM

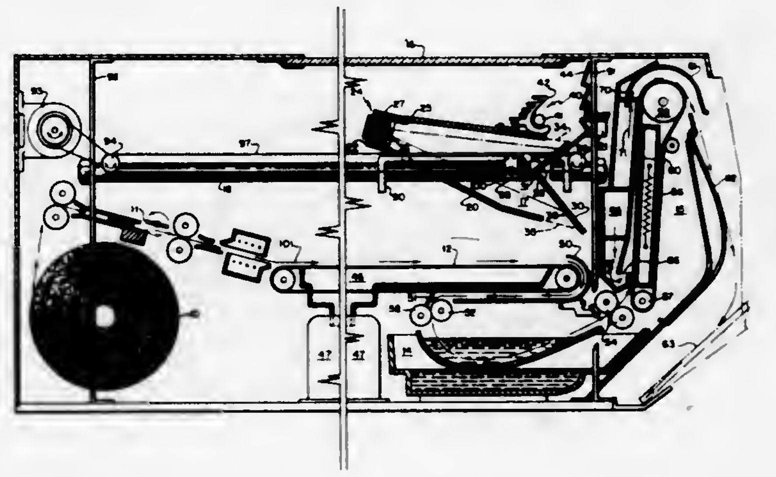
Stanley F. Coil, Washington, and William R. Horst, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Sept. 27, 1968, Ser. No. 763,159
Int. Cl. G03b *17/32*
U.S. Cl. 355—53 **14 Claims**



A positioning mechanism for moving a film carrier in a plane along *x* and *y* coordinate axes therein. The means for supporting and moving the film carrier in said plane includes a torsion bar which facilitates accurate movement along said axes, which is necessary when the mechanism is used to produce or locate extremely small images of the photochromic type on a film. Simple controls including electrical relays and solenoids are used to control the indexing of the film carrier.

3,572,927
REPROGRAPHIC SCANNING OPTICS

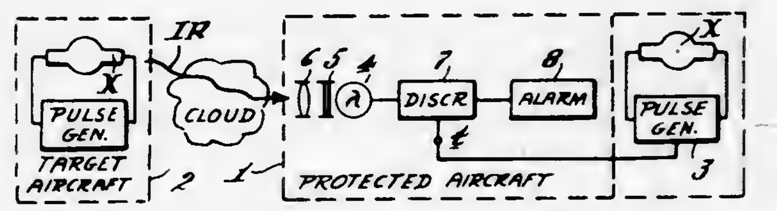
Kenneth M. Li Donnici, Brooklyn, and Richard B. Kosten, Bayside, N.Y., assignors to Ing. C. Olivetti & C., S.p.A.
Filed Oct. 31, 1968, Ser. No. 772,290
Int. Cl. G03b *27/50, 27/70*
U.S. Cl. 355—66 **6 Claims**



An optical system in reprographic apparatus having substantially parallel subject and copy planes. A folded optical system is provided in conjunction with orthogonally related mirrors for extending the focal path between the subject and copy planes. The main optical axis of the optical system is tilted relative to the subject and copy planes to gain bulk space for compact packaging. The angular displacement of the main optical axis with respect to the subject and copy planes is compensated for by orienting the orthogonally related mirrors so that a line bisecting the right angle which they form makes an angle with respect to the subject and copy planes of substantially one-half the angular displacement of the optical axis.

3,572,928
AIRCRAFT PROXIMITY WARNING SYSTEM

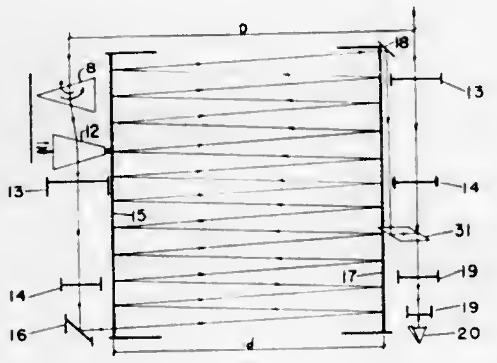
John A. Decker, Jr., Concord, Mass.; Martin O. Harwit, Ithaca, N.Y., and Melvyn G. Morris, Sharon, Mass., assignors to Comstock & Wescott, Inc., Cambridge, Mass.
Filed May 19, 1969, Ser. No. 825,741
Int. Cl. G08g *5/04;* **G01c** *3/08*
U.S. Cl. 356—4 **11 Claims**



An airborne system to be carried by each protected aircraft includes a pulsed, infrared emitting xenon flash lamp and a photoelectric circuit for sensing the flashes from other target aircraft controlling an alarm or display. The photocell is IR filtered to discriminate against light sources low in IR. The sensing circuits discriminate against light from steady and intermittent sources other than the xenon lamp. Reflections of flashes from the protected craft's lamp are rejected by blocking the sensing circuit during the duration of the lamp flash, and to avoid coincidence of the protected and target craft flashes the flash repetition is randomly varied about the mean rate. An array of photoelectric cells viewing different zones ahead of the protected aircraft controls a visual display indicating the location and range of target aircraft.

3,572,929
RANGE FINDER WITH ROTATING PRISM & SUCCESSIVE REFLECTIONS

Jamshid Hassibi, 600 Worth St., Pittsburgh, Pa.
Filed Apr. 9, 1968, Ser. No. 719,961
Int. Cl. G01c *3/12*
U.S. Cl. 356—16 **1 Claim**

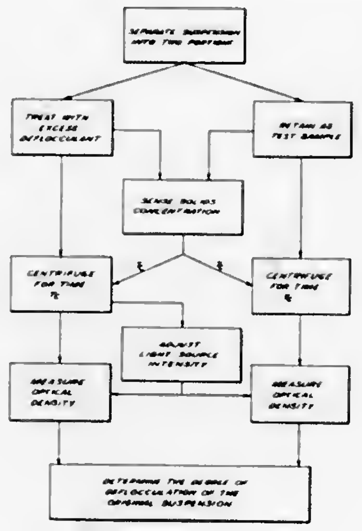


This is a high accuracy range finder employing a rotating prism and successive reflections to increase the resolving power of the range finder. The rotating prism is rotated about an axis distant from the axis of the prism and preferably perpendicular to the surface of light path throughout the prism. In the preferred embodiment, the axial-displacement of the light rays, which displacement is a function of the rotational angle of the first prism is corrected by a second prism which is displaced longitudinally in a direction parallel to its axis. A plurality of fixed mirrors are employed to cause successive reflection of the light rays from the prisms between two widely spared parallel surfaces so that when the prisms are out of adjustment the offset of light rays is amplified. Preferably the number of the successive reflections should be at least 20 reflections if the two surfaces are 20 centimeters long.

3,572,930
APPARATUS AND METHOD FOR MEASURING THE DEGREE OF DEFLOCCULATION OF A SUSPENSION OF FINE PARTICLES

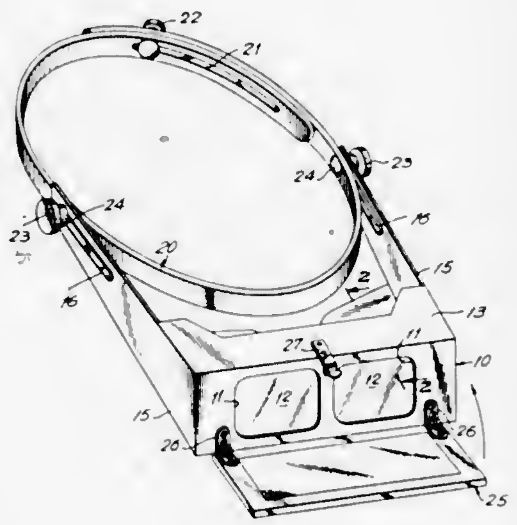
Archibald James Morcom; Kenneth John Burr, and Terence Wilfrid Webb, Cornwall, England, assignors to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwall, England
Filed Aug. 1, 1968, Ser. No. 749,507
Claims priority, application Great Britain, Aug. 7, 1967, 36220/67
Int. Cl. G01n *1/00, 15/04, 21/00*
U.S. Cl. 356—36 **9 Claims**

An apparatus and process for measuring and controlling the degree of deflocculation of a suspension of fine particles. The apparatus includes a centrifuge having two separate compartments into one of which there is introduced a portion of the suspension under examination and into the other of which there is introduced a further portion of the suspension under examination which has been treated with excess deflocculant so as to completely deflocculate said further portion. The compartments of the centrifuge are each provided with a window whereby light can be passed through the portions of the suspension thereunder. Photocells are employed to measure the optical densities, and thus the solids concentrations, of the parts of the suspension in the compartments through which the light is passed and this enables the degree of deflocculation of the suspension to be ascertained.


SEPARATE SUSPENSION INTO TWO PORTIONS
TREAT WITH EXCESS DEFLOCCULANT
RETAIN AS TEST SAMPLE
SENSE SOLIDS CONCENTRATION
CENTRIFUGE FOR TIME
CENTRIFUGE FOR TIME
ADJUST LIGHT SOURCE INTENSITY
MEASURE OPTICAL DENSITY
MEASURE OPTICAL DENSITY
DETERMINE THE DEGREE OF DEFLOCCULATION OF THE ORIGINAL SUSPENSION

3,572,931
SURFACE COMPARATOR

Hans Adler, New York, N.Y., assignor to Florence Wexler, New York, N.Y. and Hans Adler, New York, N.Y.
Filed May 19, 1967, Ser. No. 639,872
Int. Cl. G01j *5/52, 3/46, 3/48*
U.S. Cl. 356—46 **12 Claims**

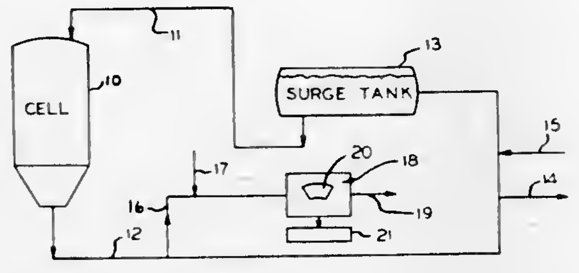


For purposes of color and surface structure visual comparison, the placement of a color temperature changing light filter in the optical path of light reflected from an object or objects to an observer.

3,572,932
METHOD OF MEASURING ACTIVE GRIGNARD CONCENTRATION OF A GRIGNARD ELECTROLYTE

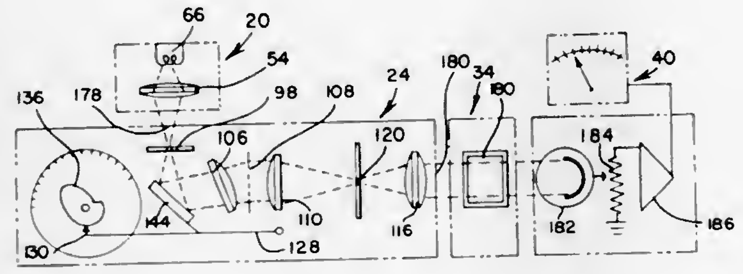
Edward E. Johnson, Sweeny, Tex., assignor to Nalco Chemical Company, Chicago, Ill.
Filed Aug. 14, 1969, Ser. No. 850,193
Int. Cl. B01k *1/00;* **G01j** *3/00*
U.S. Cl. 356—74 **14 Claims**

The active Grignard concentration in an electrolyzed Grignard electrolyte is measured by mixing a sample of the electrolyte with a solution of an oxidation-reduction indicator and subjecting the mixture to spectrophotometric analysis to determine the percent transmittance which is directly related to the Grignard concentration.



3,572,933
COMBINATION TEACHING AID AND MONOCHROMATOR UNIT

Roy E. Boostrom, Elmhurst, Ill., assignor to Sargent-Welch Scientific Company
Filed Dec. 29, 1967, Ser. No. 694,518
Int. Cl. G03b *27/30;* **G09b** *23/06*
U.S. Cl. 356—100 **5 Claims**



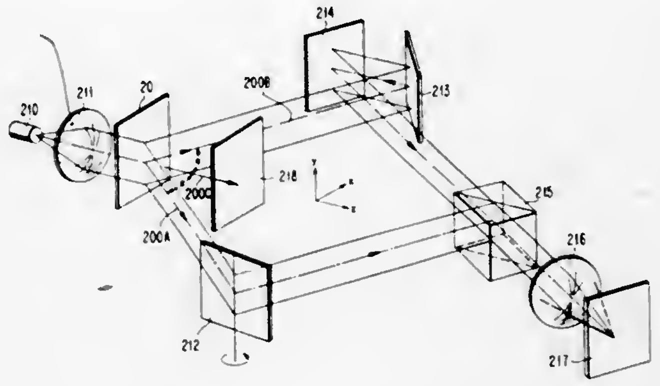
A monochromator unit adapted to diffract light into monochromatic components and to simplify teaching of a theory of optical instrumental analysis, wherein a housing having an operable top cover portion and a component-protecting but optically transparent cover unit thereunder is provided, said unit also including a mirror means for directing an incident light beam onto a diffraction grating, and wherein the means supporting the mirror means is movable by a cam which is mounted in association with an indicator means and an index for indicating the wavelength of the beam produced, and wherein collimating slits are provided for the incident beam and for directing the beam of monochromatic light onto a directed target area.

In a preferred embodiment, the monochromator includes a cardioid profile cam arrangement, a support for the mirror unit which is supported by a leaf spring on one end and rests on the cam on the other end, and the optical components are mounted on a common base to simplify assembly of the unit. In addition, a construction is described wherein the base of the unit includes two mounting flanges or legs having screw means thereon for providing alignment of said monochromator in relation to a base unit and provides means for locking said monochromator unit in place on a base, said adjustment means and locking means being simple and independent of each other in operation.

3,572,934
LONGITUDINALLY REVERSED SHEARING INTERFEROMETRY

Olof Bryngdahl, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 9, 1968, Ser. No. 758,535
Int. Cl. G01b *9/02*
U.S. Cl. 356—106 **8 Claims**

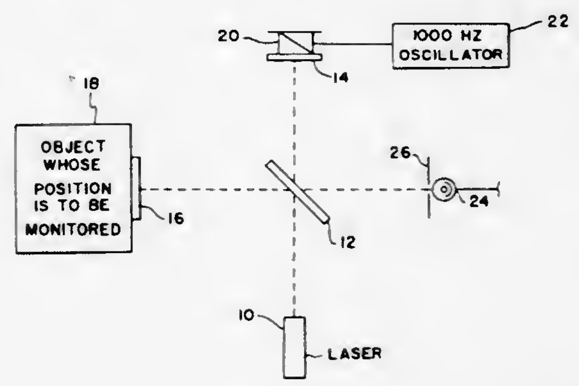
A type of shearing interferometry is presented in which an interferogram is formed by the object wavefront and its replica folded in the longitudinal direction. An off-axis hologram of the object is first made in a conventional manner. The hologram is then illuminated to form a real and a virtual image. The real and the virtual images are superimposed.



The result is a longitudinally reversed shear interferogram which indicates twice the phase variation of the object.

3,572,935
FRINGE COUNTER FOR INTERFEROMETERS

William E. Howell, Yorktown, and Kazmere C. Romanczyk, Chesapeake, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 9, 1968, Ser. No. 766,245
Int. Cl. G01b *9/02;* **G06f** *7/38*
U.S. Cl. 356—106 **7 Claims**

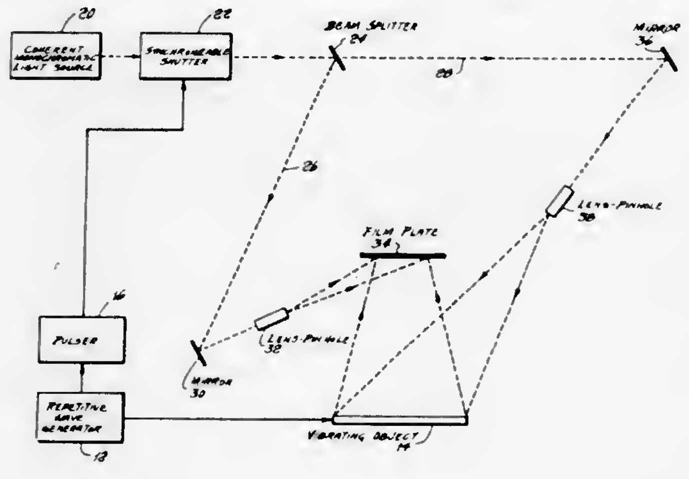


A device for counting fringes produced by an interferometer. An interferometer with a single photomultiplier is used to determine the magnitude and direction of motion of an object to a digital sensitivity of one-eighth of a wavelength. By an electronic squaring technique the digital sensitivity of the device can be increased to one-sixteenth or one thirty-second of a wavelength.

3,572,936
STROBOSCOPIC INTERFEROMETRIC HOLOGRAPHY

Cameron D. Johnson, Gales Ferry; Gerald M. Mayer, East Lyme, Conn., and Peter Shajenko, Hampden, Mass., assignors to the United States of America as represented by the Secretary of the Navy
Filed Apr. 14, 1969, Ser. No. 815,597
Int. Cl. G01b *9/02*
U.S. Cl. 356—109 **7 Claims**

Means and method for stroboscopic interferometric holography consisting of passing the laser beam which is used to illuminate the object through a Pockels cell and pulsing the Pockels cell by means of a pulse which is derived from, and therefore synchronized with, a sine wave generator whose output is used to vibrate said object. The pulse duration and its phase position with respect to the sine wave are variable. A double-image hologram is made consisting of a stroboscopic (pulsed) exposure at the positive peak of the sine wave and at either the zero value or the negative peak, resulting in a hologram of the object including a gross interference fringe pattern. The hologram can then be converted to a conventional photograph. A second technique includes rotation of the object through a small angle before the second image is made.

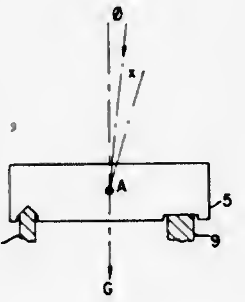


3,572,937

METHOD AND APPARATUS FOR INTERFEROMETRIC MEASUREMENT OF MACHINE SLIDE ROLL

Richard R. Baldwin, Clinton, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 4, 1968, Ser. No. 773,113
Int. Cl. G01b *9/02*
U.S. Cl. 356—110 7 Claims



A method and apparatus for interferometric measurement of machine slide roll has been provided wherein split beams from a laser mounted on a machine bed are intersected to generate a fringe pattern extending along and normal to an axis which is parallel to the axis of a machine slide. A light-transmitting hologram previously provided with a similar fringe pattern is mounted to the slide and is oriented relative to the generated pattern so as to transmit light characterized by a "no-roll" Moire fringe pattern. Any roll of the machine slide rotates the hologram, producing a proportional change in the "no-roll" Moire fringe spacing.

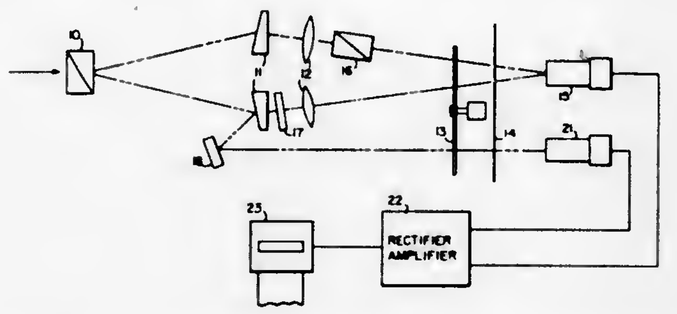
3,572,938

POLARIMETER

James N. Bradford, Falls Church, Va., assignor to the United States of America as represented by the Secretary of the Navy

Filed Feb. 18, 1969, Ser. No. 800,211
Int. Cl. G01n *21/40*
U.S. Cl. 356—116 5 Claims

A polarimeter devised to measure very small changes in the state of polarization of polarized light by the use of a prism which splits the incident light into two beams or light paths of orthogonal polarization, the intensity of each path being the intensity of that polarization component in the original beam. The polarimeter includes a differential measuring and recording system that compares the relative intensities in the two paths to determine the polarization of the incident light.

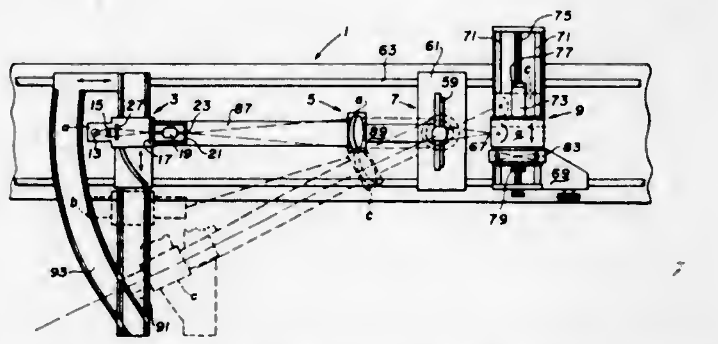


3,572,939

PHOTOELECTRIC LENS BENCH AND METHOD FOR TESTING OPTICAL SYSTEMS

Bruce C. Burdick, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 22, 1968, Ser. No. 746,571
Int. Cl. G01b *9/00*
U.S. Cl. 356—124 11 Claims



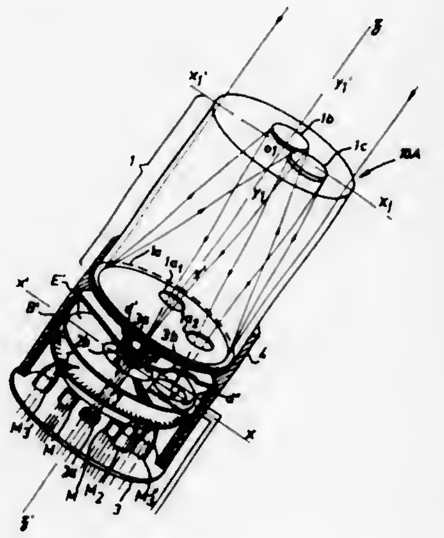
An improved method and apparatus for testing optical systems utilizing one or more cosine potentiometers to correct for errors resulting from perspective and magnification foreshortening or lengthening when off-axis measurements are made.

3,572,940

METHOD AND A DEVICE FOR MEASURING THE SIGHTING ERROR OF AN OPTICAL APPARATUS

Pierre Poubeau, Gif-sur-Yvette, France, assignor to Nord-Aviation Societe Nationale De Constructions Aeronautiques, Paris, France

Filed Jan. 25, 1968, Ser. No. 700,423
Claims priority, application France, Jan. 27, 1967, 92,877
Int. Cl. G01b *11/26*
U.S. Cl. 356—141 7 Claims



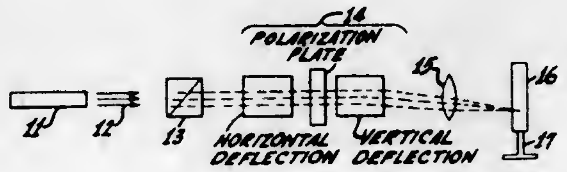
A method and a device for measuring the sighting error of an optical apparatus, particularly of a star sight for artificial satellites, in which the image of the star, formed on the focal plane of an optical apparatus, is detected by a detecting means associated with a time basis and detecting one signal varying as a function of the illumination of the detector, the said signal having an anomaly or discontinuity characteristic of the position of the image to be fixed, so as to constitute at least one detection signal and lead to one coordinate in a system of references associated with the above detector.

3,572,941

PHOTOCHROMIC DEVICE BASED UPON PHOTON ABSORPTION

Zoltan Kiss, Belle Mead, N.J., assignor to RCA Corporation

Filed Dec. 7, 1967, Ser. No. 688,779
Int. Cl. G02b *1/26*, *1/36*
U.S. Cl. 350—150 10 Claims



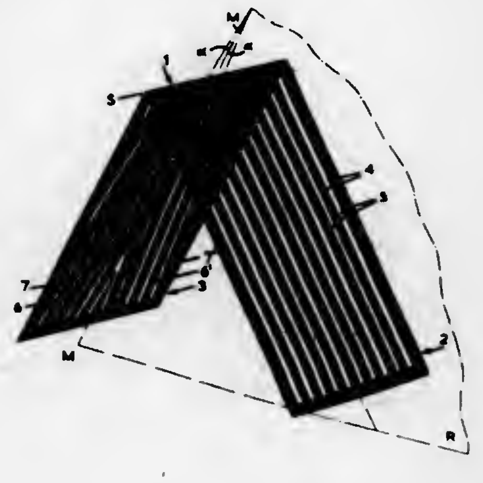
A device capable of displaying and storing three dimensional images comprises a photochromic target and a light source. The light source emits light of a power density and a frequency so as to be substantially transmitted by the photochromic target. The power density and frequency of the emitted light is such that when light is focused at a spot to provide an increased power density at this spot, double photon absorption of the light by the photochromic target occurs and causes a change in the optical density characteristics of the photochromic target in the region of absorption. The device therefor includes means for focusing the light.

3,572,942

POSITION INDICATING INSTRUMENT

Gerrit Hendrik teKronnie, and Karel Hero Volkers, Van Breestraat 171, Amsterdam, Netherlands

Filed Aug. 1, 1968, Ser. No. 749,563
Claims priority, application Netherlands, Aug. 10, 1967, 6,711,045
Int. Cl. G01b *11/27*; G02b *5/18*
U.S. Cl. 356—154 3 Claims



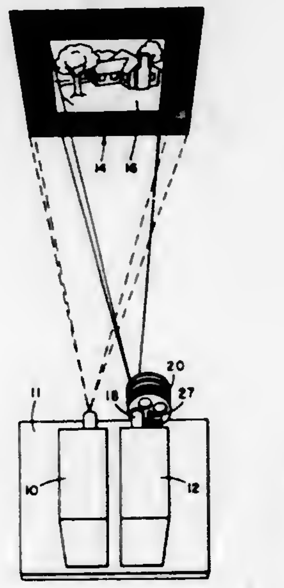
An instrument enabling a distant observer to locate a point in a plane of reference defined by the instrument. It contains two line grid structures spaced apart in planes perpendicular to the reference plane and presenting a symmetrical phantom or moire pattern to a distant observer when in the reference plane. The grid halves of one screen on both sides of the reference plane are slightly angularly displaced with respect to the corresponding halves of the other screen to provide moire bars which are coincident at the centerline as a test for symmetry.

3,572,943

COLOR FILM EVALUATION SYSTEM

Ferrand D. E. Corley, 2 Wimbleton Crescent, Islington, Ontario, Canada

Filed Apr. 22, 1968, Ser. No. 722,867
Int. Cl. G01j *3/46*, *3/52*
U.S. Cl. 356—175 4 Claims



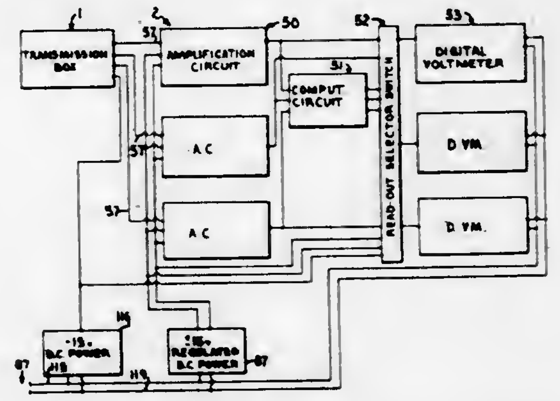
This specification discloses a system for evaluating the color balance density and contrast of color film by means of projecting the color film onto a screen and visually comparing it with a standard reference image on the screen, and to apparatus for such system.

3,572,944

SYSTEM FOR ANALYZING COLOR SAMPLES

John V. Hanline, Kansas City, Mo., and Daniel M. Chapin, Shawnee Mission, Kans., assignors to Film Equipment Manufacturing Co., Kansas City, Mo.

Filed Feb. 24, 1969, Ser. No. 801,308
Int. Cl. G01j *3/46*; G01n *21/22*; G01j *1/46*
U.S. Cl. 356—177 7 Claims



A system for analyzing color samples, such as film and filters, has a light-transmission box and a signal processor wherein a color sample to be analyzed is placed over an aperture through an illuminated translucent window in an upper surface of a transmission box. A lamp is mounted to direct a light beam through a plurality of infrared filters into an entrance of an integration bar having an exit aligned with the aperture through the translucent window thereby directing a diffused light beam through the color sample into a light-collecting member. A plurality of color-sensitive phototubes are each responsive to a chromatically differing component of the light directed through the color sample and are positioned to receive light from the light collecting member. The color-sensitive phototubes are operatively connected to the signal processor wherein computation means analyze the light received by the phototubes and display numerical density values.

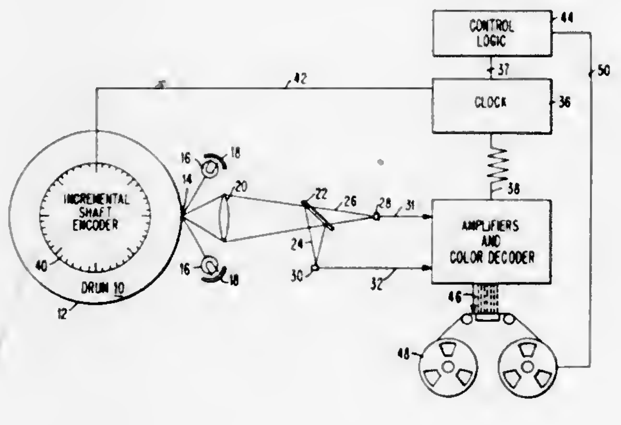
3,572,945
METHOD AND SCANNING APPARATUS FOR COLOR SEPARATION AND IDENTIFICATION

Donald R. Thompson, Woodstock, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 25, 1968, Ser. No. 762,517

Int. Cl. G01j *3/46;* **G01n** *21/02, 21/18*

U.S. Cl. 356—178 **11 Claims**



A method and system for scanning color information such as a cartographic map and detecting a possible number of 3^{n-1} colors. The color information is reduced to digital information which may be recorded in a storage device.

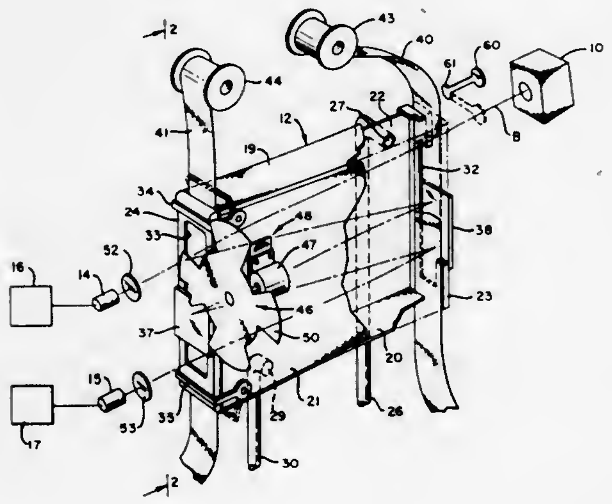
3,572,946
FLUID ANALYZER APPARATUS

John C. Little, Menlo Park, Calif., assignor to Sylvania Electric Products Inc.

Filed Feb. 26, 1969, Ser. No. 802,541

Int. Cl. G01j *3/46;* **G01n** *1/10*

U.S. Cl. 356—181 **4 Claims**



A hollow cell with opposed windows is connected in series with conduits through which automobile exhaust gas to be analyzed flows continuously. A broadband infrared source directs a beam through the windows to a first photodetector which measures the absorption of light at one wavelength to which one of the gas components, such as carbon monoxide (CO), is responsive. This beam is alternately directed over a longer path through the cell by a reflective chopper wheel adjacent the exit window and by mirrors mounted outside both windows to another photodetector which measures absorption of light at a different wavelength corresponding to another component, such as a hydrocarbon (HC). The outputs of both photodetectors are utilized to give continuous direct readout of the concentrations of the components. Each window is formed with a length of transparent plastic tape releasably sealed against the cell body and connected to a roll of the tape mounted adjacent to the cell. A clean window is provided by simply advancing a fresh length of tape into the cell and discarding the used portion.

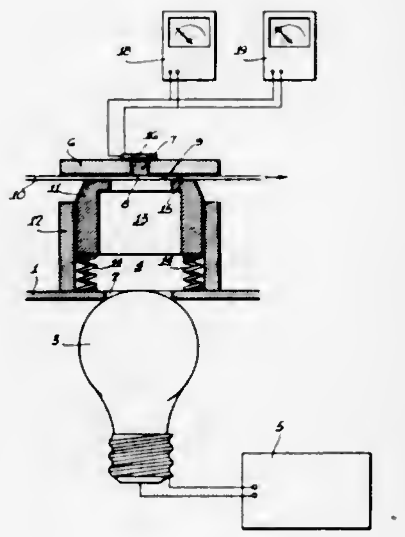
3,572,947
APPARATUS FOR MEASURING UNIFORMITY OF SHEET MATERIAL BY LIGHT TRANSMISSION

Ola Sepall, Quebec City, Quebec, Canada, assignor to Anglo Paper Products, Limited, Quebec City, Quebec, Canada

Filed Nov. 29, 1968, Ser. No. 780,036

Int. Cl. G01n *21/32*

U.S. Cl. 356—200 **5 Claims**



The sheet to be tested for uniformity is moved past a light-transmitting element having a surface in engagement with one side of the sheet. Light is applied to the opposite side of the sheet over a surface area at least as great as the area of the element surface and in opposed relation thereto. The light transmitted by the element is sensed to determine the average intensity and magnitude of variation thereof.

3,572,948
APPARATUS FOR MEASURING THE ELECTRON DENSITY OF A PLASMA

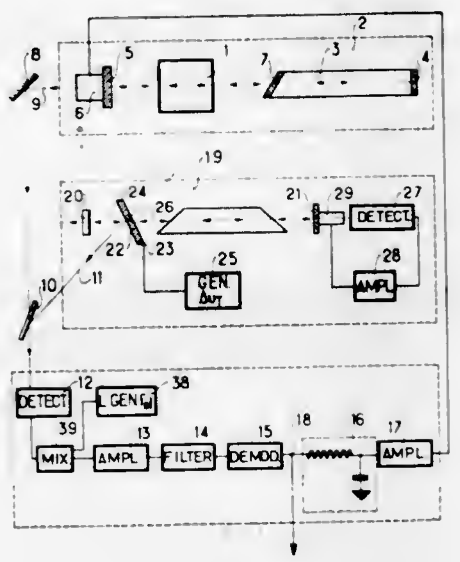
Jean-Michel Catherin, Savigny-Sur-Orge, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed Oct. 30, 1968, Ser. No. 771,788

Claims priority, application France, Oct. 31, 1967, 126,657

Int. Cl. G01n *21/20;* **H01s** *3/00*

U.S. Cl. 356—204 **3 Claims**



A device for measuring the electron density of a plasma. A first laser beam is slowed by a plasma in an amount depending upon the electron density. A second laser beam is mixed with the first to obtain a beat frequency as a function of the electron density.

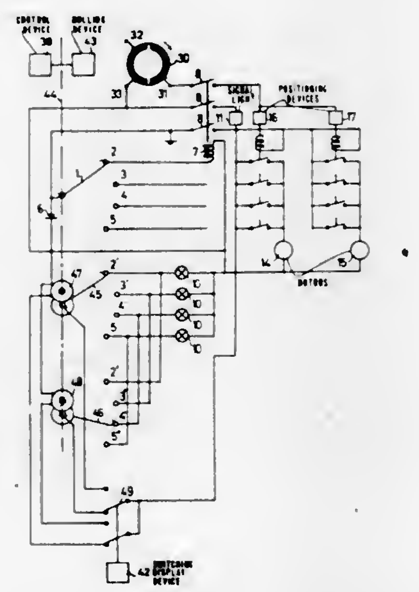
3,572,949
AN INSTALLATION FOR MEASURING THE MAXIMUM VISUAL DISTANCE IN THE FOG INCLUDING A SERIES OF SIGNAL LIGHTS

Paul Rouet, Marcinelle, Belgium, assignor to Ateliers De Constructions Electriques De Charleroi (ACEC), Brussels, Belgium

Continuation-in-part of application Ser. No. 494,537, Oct. 11, 1965, now Patent No. 3,501,239. This application Dec. 13, 1967, Ser. No. 690,344

Int. Cl. G01n *21/22*

U.S. Cl. 356—206 **5 Claims**



An installation for measuring the maximum visual distance in the fog which consists of a series of progressively distant lights, an optical system for projecting few of said lights on a screen, and a control device for simultaneously lighting and focusing the said few lights. Such series of signal lights are arranged in a plurality of approximately parallel rows in such a way that consecutive signal lights are located in different rows to eliminate the disadvantages resulting from the halos encircling the signal lights when such signal lights are projected on the screen. The same results may be obtained by flashing selected signal lights while the others are constantly lit or vice versa.

3,572,950
PROCESS FOR DETERMINING THE MAGNETIC ORIENTATION IN MAGNETIC RECORDING MATERIALS

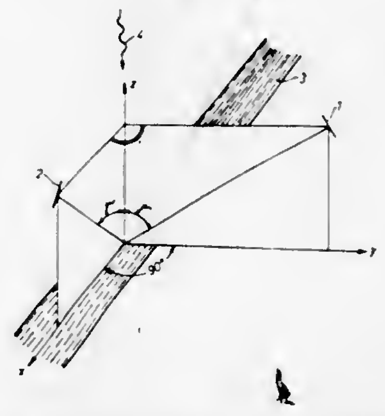
Wilhelm Abeck; Wolfgang Eichler; Richard Menold, Leverkusen, and Bernhard Seidel, Gruenwald, near Munich, Germany, assignors to AGFA-Gervaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 12, 1968, Ser. No. 759,435

Claims priority, application Germany, Sept. 21, 1967, A56845

Int. Cl. G01n *21/48*

U.S. Cl. 356—210 **3 Claims**



Process for the measurement of the orientation of magnetizable particles in magnetic recording materials by determining the intensity of the scattered radiation obtained from incident beams of electromagnetic waves at the angle of scatter γ' as a function of the angle of rotation Φ, whereby the measurement is carried out in such a manner that the plane of scatter is perpendicular to the surface of the recording material, i.e.: the incident light beam, the normal to the surface and the scattered light beam lie in one plane.

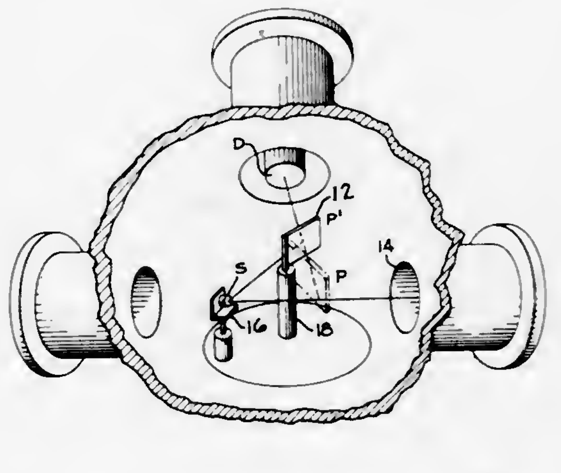
3,572,951
SINGLE MIRROR NORMAL INCIDENCE REFLECTOMETER

Frederick Rothwarf, and Robert Esposito, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army

Filed Oct. 29, 1968, Ser. No. 771,540

Int. Cl. G01n *21/48*

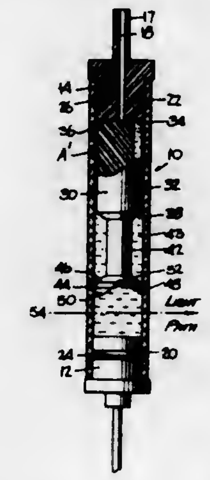
U.S. Cl. 356—212 **4 Claims**



A single beam reflectometer adaptable for use with commercial monochromators and employing a vacuum chamber which houses a mirror pivotable to either one of two positions. In the reference position, the mirror reflects the light beam emanating from the monochromator directly into a phototube detector. In the reflected position, the mirror reflects the beam reflected from the sample to be tested to the detector. The beam reflected from the sample strikes the mirror at the same incident angle and at the same point as the beam does when the mirror is in the reference position and thus falls on the detector at the same point and the same incident angle.

3,572,952
FLOAT CUVETTE

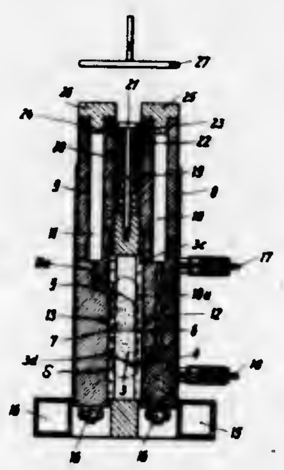
Erik W. Anthon, Kensington, Calif., assignor to American Optical Corporation, Southridge, Mass.
Filed Feb. 20, 1968, Ser. No. 706,812
Int. Cl. G01n *1/10*
U.S. Cl. 356—246 **3 Claims**



A novel cuvette assembly consisting of the combination of a hollow transparent cuvette element containing a float in which the float is so shaped as to control the path of a fluid sample entering the cuvette and cause it to wash the interior of the cuvette. As the float rises in the cuvette, it carries with it the initial wash portion of the sample preventing mixing with the test portion of the sample entering the cuvette.

3,572,953
APPARATUS FOR DETERMINATION OF DIFFUSION OF A PAIR OF SOLUTIONS INTO EACH OTHER

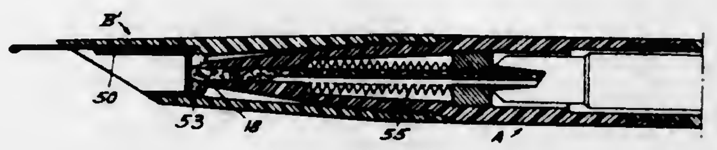
Hans Beutelspacher, Braunschweig, Germany, assignor to Heraeus-Christ G.m.b.H., Gipsmuhlenweg, Osterode Harz, Germany
Filed Sept. 8, 1969, Ser. No. 855,823
Claims priority, application Germany, Sept. 23, 1968, P 17 98 300.5
Int. Cl. G01n *13/00*
U.S. Cl. 356—246 **9 Claims**



A pair of upright spaced parallel plates are held into a frame, to define a chamber therebetween which is in the shape of an upright parallelogram; inlet means for the heavier, and lighter liquids, respectively, are located at the lowest and highest points of the parallelogram, and a pair of overflow outlets are located in aligned horizontal position along the vertical upright lines of the parallelogram. The entire assembly can be incorporated together with a slide valve and pump combination, to admit the liquids whose diffusion constants are to be determined, to the respective inlets, and to open the outlet passages to a drain. The plates can be surrounded by a holder, for example of metal, formed with a slit to permit optical determination of diffusion.

3,572,954
WRITING DEVICE

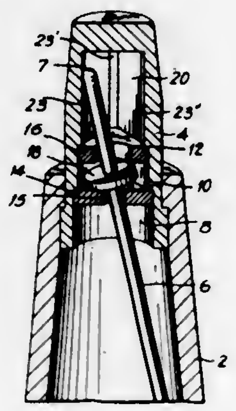
Raymond Cheron, Villeneuve Saint-Georges, France, assignor to Le Foyer Et Cie, Paris, France
Filed June 30, 1969, Ser. No. 837,792
Claims priority, application France, Apr. 2, 1969, Feb. 18, 1969, 6,910,013;6,903,984
Int. Cl. B43k *27/08*
U.S. Cl. 401—18 **10 Claims**



A writing device with a tracing point comprises detachable head fitted with a writing member and ink conducting means so that when the head is mounted on the writing device ink is fed to said member enabling one to write with the same. The member is a nib or a ball.

3,572,955
WRITING PEN

Gerold Andreka, Hamburg, Germany, assignor to Riepe-Werk, Hamburg, Germany
Filed Dec. 12, 1969, Ser. No. 884,640
Claims priority, application Germany, Dec. 18, 1968, P 18 15 321.4
Int. Cl. B43k *27/14*
U.S. Cl. 401—33 **8 Claims**

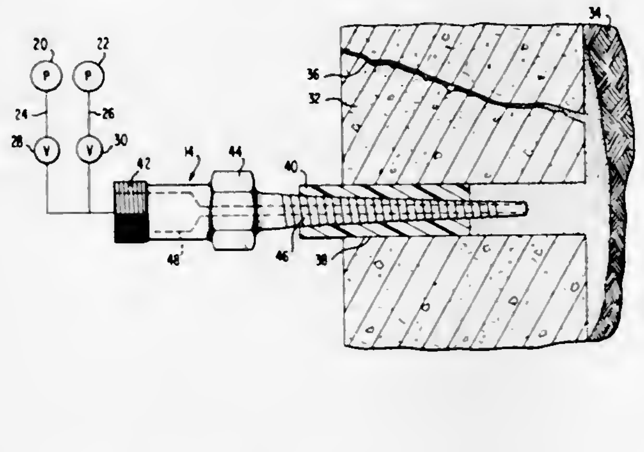


A writing pen or pencil having a plurality of refills, a pushrod suspended from a pushbutton and being movable into selected positions defined by a positioning contour, such as a square recess.

3,572,956
APPARATUS FOR GROUTING

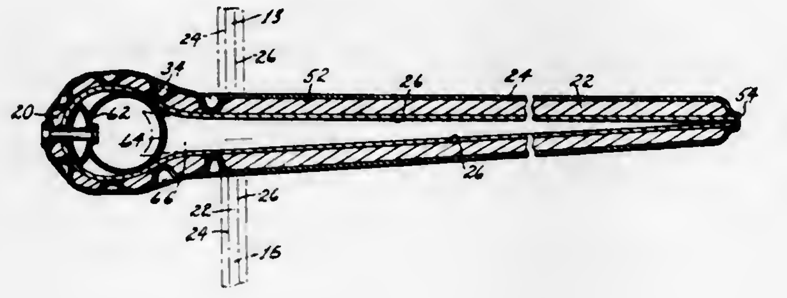
Frank N. Liscum, Dallas, Tex., and Forrest C. Pittman, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Continuation of application Ser. No. 529,857, Feb. 24, 1966, now abandoned. This application July 30, 1968, Ser. No. 757,178
Int. Cl. B43k *5/02;* **F16l** *41/06*
U.S. Cl. 401—188 **6 Claims**

Apparatus for injecting grouting materials under pressure into a wall structure through a hole. A grouting nozzle is attached by a hose to a pump. A tube of elastic material is inserted in the cylindrical drilled hole in the wall. The nozzle has a tapered shank portion with screw threads that have a long axial face and a short radial face. After the tube is placed in the hole, the nozzle is inserted in the tube and rotated until the nozzle is secured in the hole. The pump can then be operated to inject fluid under pressure through the nozzle to the interior of the wall structure. The nozzle can be easily removed from the hole unscrewing the nozzle relative to the tube.



3,572,957
RIBBED-BACKBONE BINDER CONSTRUCTION

Gerson Strassberg, 28-62 208th St., Bayside, N.Y.
Filed Aug. 2, 1968, Ser. No. 749,795
Int. Cl. B42f *3/04;* **B42d** *3/06*
U.S. Cl. 402—75 **1 Claim**

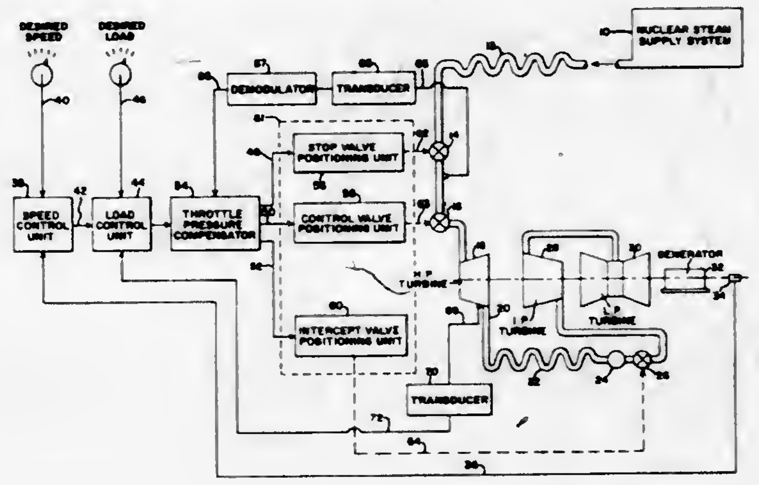


A ribbed-backbone binder construction for use in a looseleaf binder having a typical snap ring mechanism. The board stiffener has a plurality of elongated openings extending substantially the entire width of the stiffener and on either or both sides of the ring mechanism support section. The outer and inner covers are joined through the openings to form a plurality of alternating ribs and hinges, allowing the backbone portion to expand for accommodation of increased capacities within the binder.

3,572,958
ELECTROHYDRAULIC CONTROL WITH THROTTLE PRESSURE COMPENSATOR

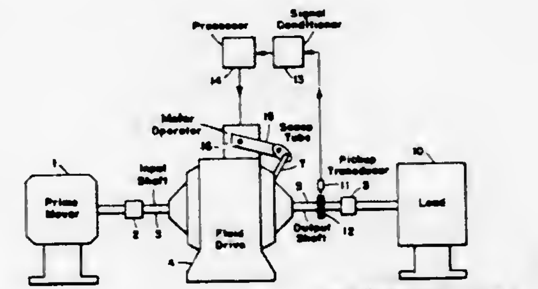
Jens Kure-Jensen, Schenectady, N.Y., assignor to General Electric Company
Filed May 27, 1969, Ser. No. 828,287
Int. Cl. F01b *25/00*
U.S. Cl. 415—17 **11 Claims**

An adaptive control system with an electrical throttle pressure compensator is disclosed for adjusting the gain of the control valves of a prime mover in a manner inversely proportional to the instantaneous throttle pressure. In one embodiment a first stage pressure feedback goes into service automatically when the load increases above a certain low level. The feedback operates to further reduce changes in incremental regulation so as to supplement the action of the throttle pressure compensator in reducing the effects of varying throttle pressure. Upon the failure of one or more of the critical components of the throttle pressure compensator or feedback loop, the gain of the overall system is caused to go to a safe value so as to preclude overloading of the prime mover.


DESIRED SPEED
DESIRED LOAD
NUCLEAR STEAM SUPPLY SYSTEM
DEMODULATOR
TRANSDUCER
STOP VALVE POSITIONING UNIT
SPEED CONTROL UNIT
LOAD CONTROL UNIT
THROTTLE PRESSURE COMPENSATOR
CONTROL VALVE POSITIONING UNIT
H P TURBINE
I P TURBINE
L P TURBINE
GENERATOR
INTERCEPT VALVE POSITIONING UNIT
TRANSDUCER

3,572,959
COUPLING CONTROLLER

William James Shaughnessy, Brookfield Center, Conn., assignor to American Standard, Inc., New York, N.Y.
Filed May 1, 1969, Ser. No. 821,018
Int. Cl. F01b *25/06;* **F16d** *33/14;* **F15b** *13/16*
U.S. Cl. 415—30 **19 Claims**

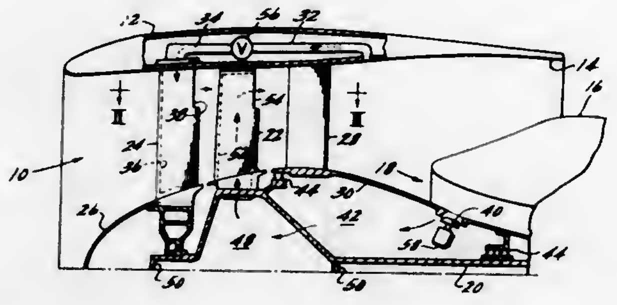


Covers equipment employing a sensor, such as a magnetic pickup, which senses the speed of the output shaft of a fluid drive apparatus, and determines whether the output shaft speed differs from a predetermined reference speed. If there is a difference or error, a correction signal is generated for correspondingly controlling the fluid drive apparatus to reduce the error signal, step by step, to a substantially zero magnitude. The correction signal, derived from the magnetic pickup which is spaced from but coupled to a gear device on the output shaft, is converted into a series of variable width pulses which are employed for the control function.

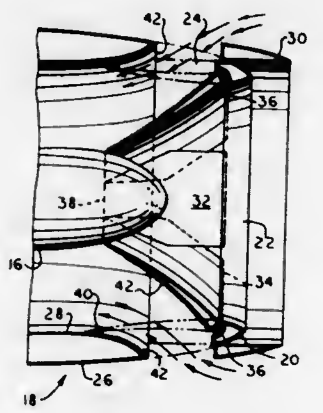
3,572,960
REDUCTION OF SOUND IN GAS TURBINE ENGINES

James W. McBride, Cincinnati, Ohio, assignor to General Electric Company
Filed Jan. 2, 1969, Ser. No. 788,358
Int. Cl. F01d *5/14, 5/16;* **F04d** *29/66*
U.S. Cl. 415—115 **3 Claims**

The disclosure shows a representative axial flow compressor in the form of a fan employed in reaction type propulsive engines. The inlet guide vanes and the rotor blades of this fan are provided with slots lengthwise of the outer portions of their trailing edges. Pressurized air is discharged from these slots to minimize circumferential velocity gradients immediately downstream of the vanes and blades. By minimizing such velocity gradients, sound generated by the air entering the rotating blades and the outlet guide vanes is minimized.



3,572,961
COMPRESSOR NOISE-SUPPRESSION SYSTEM
George E. Medawar, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed July 9, 1969, Ser. No. 840,402
Int. Cl. F01d *5/10*
U.S. Cl. 415—119 **14 Claims**

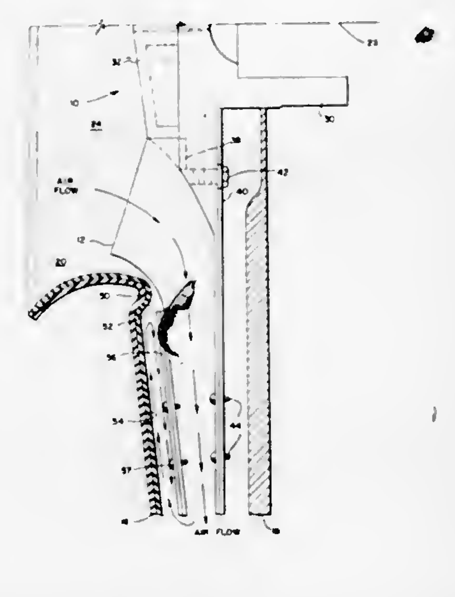


Basic purpose of system is to prevent "line of sight" emission of compressor whine sound waves out through entrance throat of typical engine cowl. Peripheral series of vanes pivoted at leading edge to inner wall of cowl swing toward axis to block axial emission of sound waves and also cut off ingress of air. Peripheral auxiliary air inlet passage means is provided at locus aft of leading edge to allow lateral inflow of air when normal path is blocked. A blocking ring normally overlies inlet passage and moves axially forward to uncover it. Deployment of ring causes deployment of vanes. Sound suppression surfacing is applied to rear faces of vanes and throat of auxiliary inlet passage. Total area of auxiliary passage is approximately equal to area of cowl inlet throat.

3,572,962
STATOR BLADING FOR NOISE REDUCTION IN TURBOMACHINERY
Tony F. W. Embleton, and George J. Thiessen, Ottawa. Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
Filed June 2, 1969, Ser. No. 829,428
Int. Cl. F01d *5/10, 25/04*
U.S. Cl. 415—119 **5 Claims**

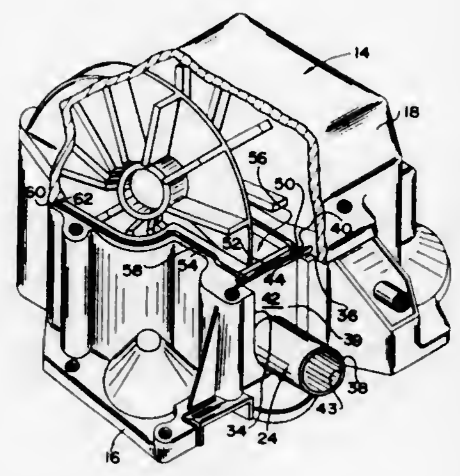
The invention relates to a configuration of stator blading, particularly for the reduction of noise in axial compressors. Each stator blade is comprised of two or three sections, with one of the sections being spaced circumferentially from the other section or sections. Circumferentially, disposed webs connect the sections to one another. The sectional blade divides the sound source at each blade into separate sound sources which are out of phase with one another. Sound waves at different phases interfere destructively so that the total sound output is reduced.

3,572,963
INLET TURNING RING SEAL
John A. Marino, Palmyra, Pa., assignor to Hauck Manufacturing Company, Lebanon, Pa.
Filed July 15, 1969, Ser. No. 841,737
Int. Cl. F04d *29/66*
U.S. Cl. 415—174 **10 Claims**



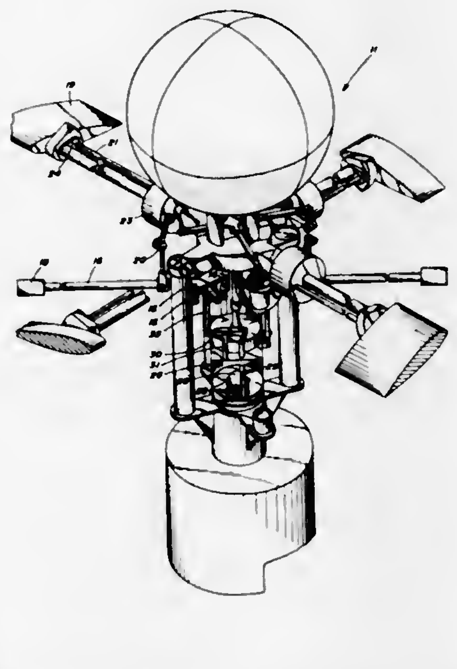
An improved turning ring seal is provided at the inlet of a turboblower to prevent high pressure fluid from discharging back into the inlet of the impeller. The stationary portion of the seal is provided by an integral curved annular shoulder around the inlet of the casing. The rotating portion of the seal is provided by the inner diameter of the blade shroud.

3,572,964
MOTOR-PUMP HOUSING
Robert Dyer, North Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio
Filed May 23, 1969, Ser. No. 827,339
Int. Cl. F01d *25/24;* **F03b** *11/02*
U.S. Cl. 415—219 **4 Claims**



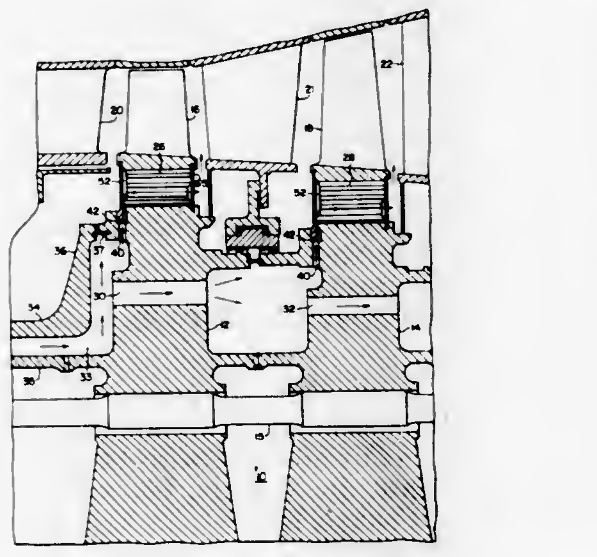
An integral motor-pump for a wet pickup floor conditioner has a housing comprising pump and motor chamber, the housing is divided along a horizontal parting line to form upper and lower housing sections having mating peripheral surfaces for sealing the pump chamber. An outlet port for the pump chamber comprises a U-shaped opening, in the lower housing section, in an outer wall of the pump chamber, extending from the parting line. An insert element has a planar vertical body with a tubular portion extending outwardly therefrom in a general horizontal direction. The marginal edge of the planar body fits in a recess in the opening in the lower housing section while the top edge of the insert element coincides with the parting line of the housing sections. A pump outlet passage extends coaxially through the tubing portion and the planar body of the insert element into the fan chamber. A flexible outlet hose is mounted on the tubing portion. The outlet port is fabricated in this fashion so that reasonably inexpensive molds may be used to fabricate the upper and lower housing sections of the motor-pump housing as unitary members.

3,572,965
HELICOPTER CONTROL MEANS
Harold R. Scheibe, King George, Va.
Filed Apr. 23, 1969, Ser. No. 818,625
Int. Cl. B64c *27/74*
U.S. Cl. 416—18 **8 Claims**



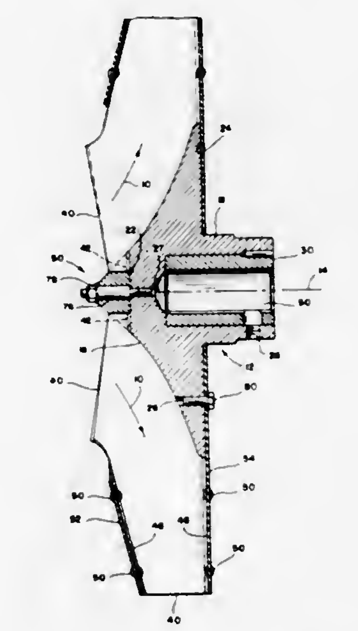
Torque motors are interposed in the control linkages used for processing the control gyro of a rigid rotor helicopter. Due to the inherent characteristics of a DC torque motor, this arrangement damps unwanted nutations of the control gyro while at the same time allowing accurate control of the processing of the control gyro.

3,572,966
SEAL PLATES FOR ROOT COOLED TURBINE ROTOR BLADES
James H. Borden, Springfield, and Augustine J. Scalzo, Philadelphia, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 17, 1969, Ser. No. 791,892
Int. Cl. F01d *5/08*
U.S. Cl. 416—95 **10 Claims**



The invention comprises a structure for cooling the root portions of turbine rotor blades of the side entry type. The root portions are preferably of the serrated or fir-tree type and are received in complementary serrated recesses provided in the periphery of a rotor disc, the recesses extending axially through the disc. The root portions and recesses are formed to mate with each other, but provide clearance passages along the sides of the root which extend from the upstream face thereof to the downstream face thereof. Cooling fluid is directed to and past the roots by plate structures secured in an annular, peripheral channel provided in the disc, the channel and disc being provided with mating inclining surfaces extending in a radially outward direction towards the groove opening. With rotation of the rotor, the plates wedge in the opening to provide a sealed channel for directing the cooling fluid from internal passages provided in the rotor to the root portions of the blades.

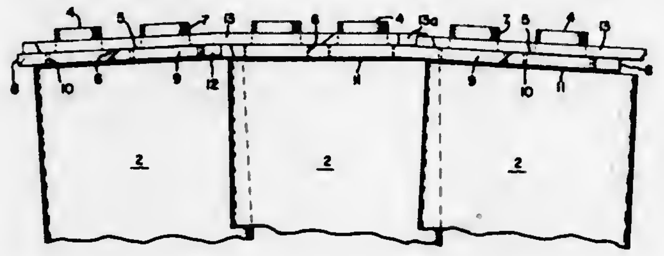
3,572,967
FABRICATED CENTRIFUGAL IMPELLER ASSEMBLY
Robert E. Schreter, Lebanon; John A. Marino, Palmyra, and John O'Hara, Annville, Pa., assignors to Hauck Manufacturing Company, Lebanon, Pa.
Filed July 15, 1969, Ser. No. 841,736
Int. Cl. F01d *5/04*
U.S. Cl. 416—185 **10 Claims**



A fabricated centrifugal impeller assembly is provided which resists failure due to cyclic stressing. The impeller assembly includes a hub, and a plurality of blades. Each blade has a tab adjacent its axis of rotation, with the tab extending generally perpendicularly to the radially extending main portion of the blade. A blade retainer is positioned with its back surface adjacent the hub to clamp the tabs between the blade retainer and the hub. The blade retainer includes a plurality of slots that permit insertion of a blade therethrough with the tab of each blade extending in generally abutting contact with the back surface of the blade retainer. Compression means connect the blade retainer and the hub and exert a compressive force that clamps the blade retainer and the tabs against the hub. The tabs and blade retainer permit attaching separate fabricated blades to the hub of an impeller assembly in a manner which does not disrupt the flow contours of the impeller inlet area.

3,572,968
TURBINE BUCKET COVER
Victor S. Musick, Scotia, and Joseph H. Ouellette, Albany, N.Y., assignors to General Electric Company
Filed Apr. 11, 1969, Ser. No. 815,450
Int. Cl. F01d *5/22*
U.S. Cl. 416—190 **7 Claims**

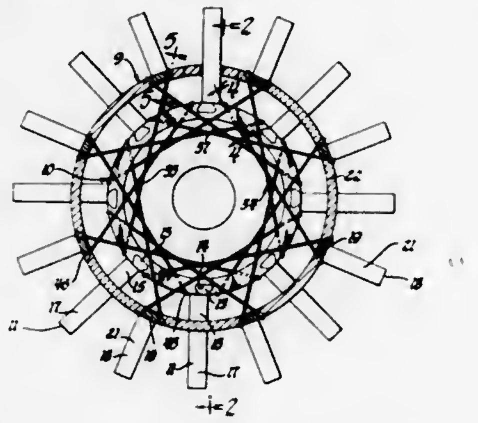
A damping-type shroud covering for turbine buckets wherein one embodiment consists of a double layer of overlapping cover bands each spanning two adjacent buckets. The inner bands are loosely disposed between buckets whereas the outer layer rigidly joins two buckets. Another embodiment consists of an over and under cover band



wherein each cover band is tightly joined to one bucket and loosely joined to the adjacent one.

3,572,969
TURBOMACHINE ROTOR

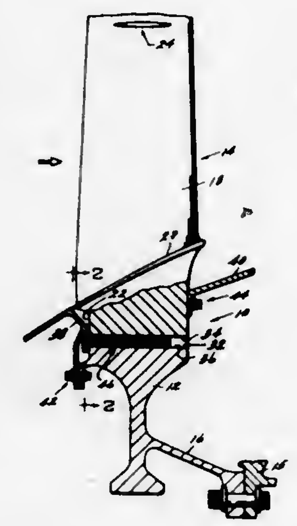
Henry S. McLimore, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed May 13, 1969, Ser. No. 824,077
Int. Cl. F04d *29/26;* **F04f** *5/00*
U.S. Cl. 416—194 **8 Claims**



A bladed rotor drum or wheel for an axial flow compressor or turbine is made up of an outer ring and an inner ring within the outer ring and spokes connecting the two rings, the spokes being so directed as to exert an inward component of force on both rings. Blades extend into the gas path from the inner ring through openings in the outer ring. Preferably, blades are also mounted on the outer ring. End bells or discs may be provided on the one or the other or both of the rings.

3,572,970
TURBOMACHINERY BLADE SPACER

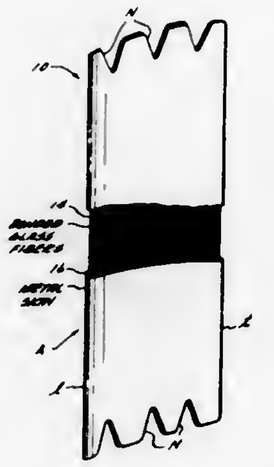
Robert J. Smuland, Cincinnati, Ohio, assignor to General Electric Company
Filed Jan. 23, 1969, Ser. No. 793,322
Int. Cl. F01d *5/32*
U.S. Cl. 416—221 **5 Claims**



A blade spacer having a shank portion formed of a resilient, low-set, nonmetallic material and adapted for insertion beneath a turbomachinery blade so as to maintain the blade in tight radial abutment with its disc slot.

3,572,971
LIGHTWEIGHT TURBO-MACHINERY BLADING

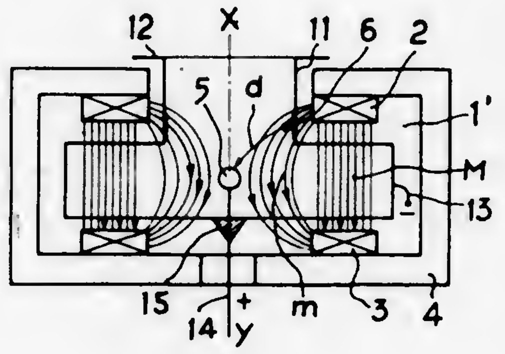
David L. Seiwert, West Chester, Ohio, assignor to General Electric Company
Continuation-in-part of application Ser. No. 666,373, Sept. 8, 1967, now abandoned. This application Sept. 29, 1969, Ser. No. 861,975
Int. Cl. F01d *5/14*
U.S. Cl. 416—230 **6 Claims**



The disclosure shows two lightweight, aerodynamic blades for use in lightweight compressors and, particularly, as stator vanes therefor. One blade comprises a core formed by bonded, longitudinally extending glass fibers, clad within a metallic skin bonded thereto. The other blade comprises a core of longitudinally extending, bonded graphite fibers, clad within a titanium skin of a selected thickness bonded thereto.

3,572,972
SELF-STARTER DEVICE FOR PENNING-TYPE ION PUMPS

Charles Biguenet, and Jean Pontvianne, Paris, France, assignors to Thomson-CSF
Filed Apr. 2, 1969, Ser. No. 812,620
Claims priority, application France, Apr. 11, 1968, 147,816
Int. Cl. F04b *37/02*
U.S. Cl. 417—49 **7 Claims**

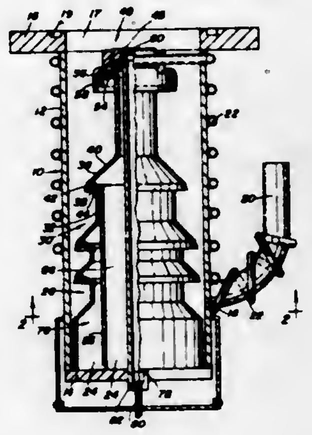


An ion pump provided with an additional anode which is used for the self-starting of the pump, in particular when the pressure in the enclosure to be evacuated is too high for the penning electrodes to operate properly.

3,572,973
HEATER AND VAPOR NOZZLE ARRANGEMENT FOR A VACUUM DIFFUSION PUMP

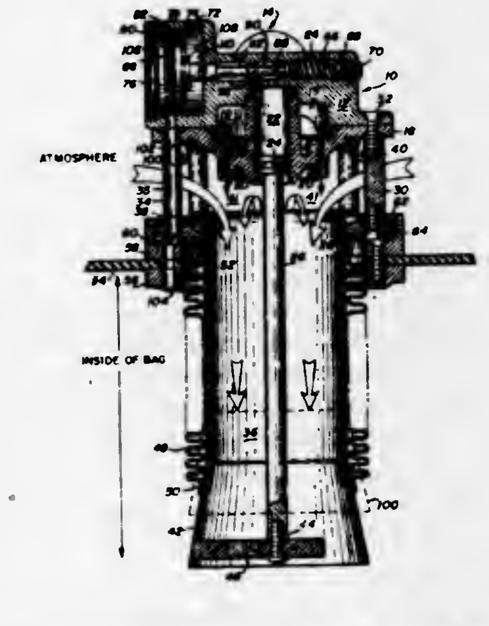
Joseph A. Le Blanc, Jr., Chicago, Ill., assignor to Precision Scientific Co., Chicago, Ill.
Filed Apr. 4, 1969, Ser. No. 813,565
Int. Cl. F04f *9/00, 9/04*
U.S. Cl. 417—154 **10 Claims**

An improved vacuum diffusion pump includes a pair of heated caps provided adjacent the pump inlet and forming portions of two vapor jets, or nozzles each of which is designed to minimize the migration of vapor molecules issuing therefrom, toward the pump inlet. An improved diffusion pump also includes a heating element provided in the interior of the pump's jet assembly in order to minimize vapor condensation on the pump assembly.



3,572,974
ASPIRATOR APPARATUS FOR BAG INFLATION SYSTEMS

Ronald H. Day, Mill Valley, Calif., assignor to Sargent Industries, Inc., Los Angeles, Calif.
Filed Apr. 4, 1969, Ser. No. 813,660
Int. Cl. F04f *5/16*
U.S. Cl. 417—179 **13 Claims**

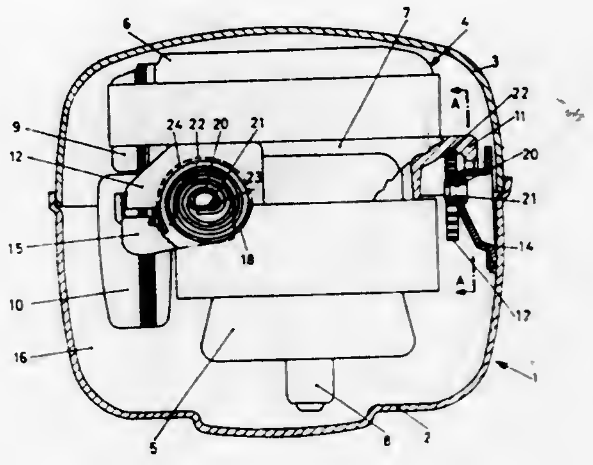


An improved aspirator device for bag inflation systems and the like, which is rotationally symmetric about the axis of the device and includes an annular atmospheric flow path concentric with one or more rings of aspirating jets to provide a high efficiency aspirating function. The aspirator includes a single operation closure component which acts to open the atmospheric flow path upon actuation of the device and close the atmospheric flow path when a predetermined pressure has been built up within the inflated device. Means are provided for allowing a selected inflated device pressure to initiate closure of the atmospheric flow path.

3,572,975
MOTOR COMPRESSOR RESILIENTLY SUSPENDED IN A CASE

Knud V. Valbjorn, Augustenbord; Bendt Wegge Romer, Nordborg, and Bent Melchior Karlsen Holme, Humbaek Pr. Skovby, Denmark, assignors to Danfoss A/S, Nordborg, Denmark
Filed Apr. 28, 1969, Ser. No. 819,699
Claims priority, application Germany, Apr. 27, 1968, P 17 51 259.3
Int. Cl. F04b *39/00*
U.S. Cl. 417—363 **8 Claims**

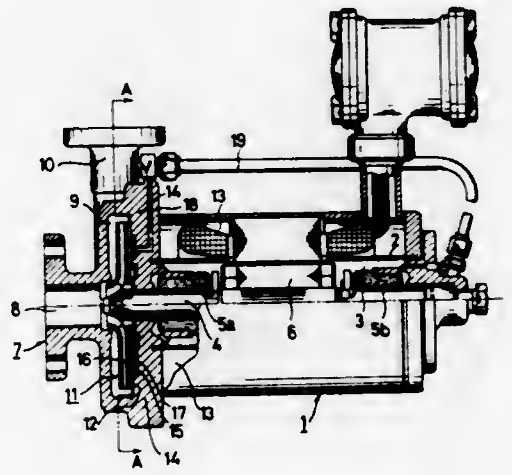
The invention relates to a motor compressor assembly of the type used for small refrigeration machines. The assembly has an outer casing in which a motor compressor unit is suspended by springs. The springs are of the spirally wound



type and are disposed, in vertical planes, between the motor compressor unit and the casing.

3,572,976
FLUID TAKEOFF DEVICE FOR CANNED MOTOR DRIVEN PUMP

Ryuichi Sato, Tokyo, Japan, assignor to Nikkiso Co., Ltd., Tokyo, Japan
Filed Oct. 1, 1968, Ser. No. 764,242
Claims priority, application Japan, Oct. 9, 1967, 42/64,837
Int. Cl. F04d *13/02;* **H02k** *9/00, 5/16*
U.S. Cl. 417—369 **2 Claims**

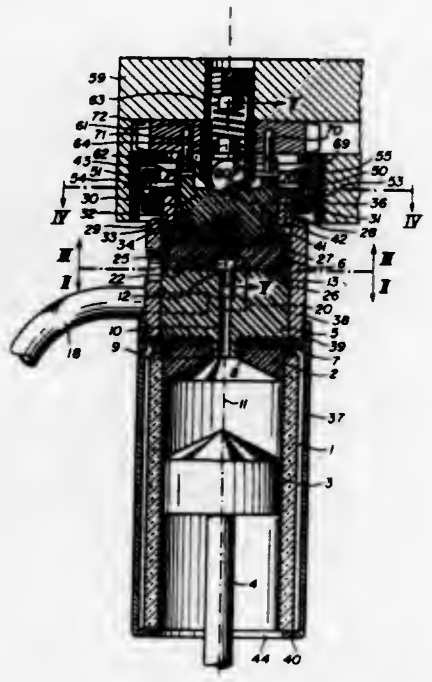


A fluid takeoff device for canned motor driven pump in which a part of the circulation fluid for cooling and lubricating motor rotors and bearings is led through the back wall of the pump impeller chamber so that a flow rate of the circulation fluid is always stabilized without being influenced by the variation in a discharge rate of the pump.

3,572,977
DISTRIBUTOR PUMP

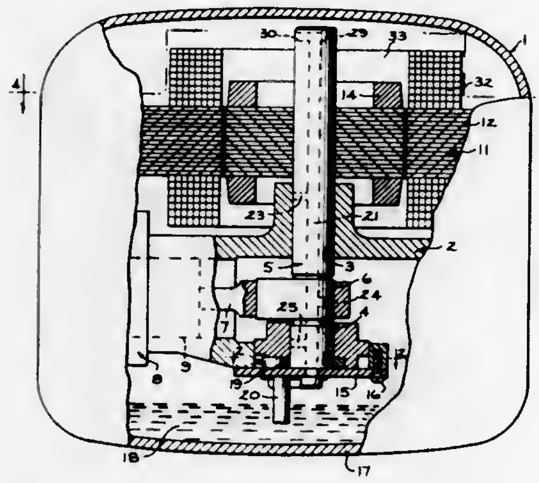
Manuel Sanz, Grand-Lancy, and Rene Weber, Geneva, Switzerland, assignors to Micromedic Systems, Inc., Philadelphia, Pa.
Filed Aug. 11, 1969, Ser. No. 849,078
Claims priority, application Switzerland, Aug. 16, 1968, 12,399/68
Int. Cl. F04b *19/22, 7/00*
U.S. Cl. 417—360 **5 Claims**

To permit easy dismantling and replacement, a distributor pump comprises a piston syringe, a distribution valve having a rotary frontal valve element, and a driving member for said element, all arranged in series along a common axis coinciding with the axis of movement of the piston and constituting the axis of rotation of the valve element.



3,572,978
HERMETIC COMPRESSOR HAVING LUBRICANT-COOLING MEANS

Owen H. Scheldorf, Louisville, Ky., assignor to General Electric Company
Filed July 14, 1969, Ser. No. 841,214
Int. Cl. F04c *29/02*
U.S. Cl. 417—372 **3 Claims**

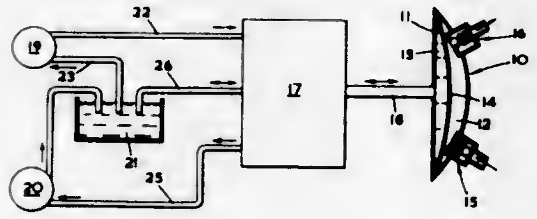


A hermetic compressor comprising a casing containing a motor compressor unit in which the motor is above the compressor and connected thereto by a vertical drive shaft, includes a longitudinally extending lubricant passage in the shaft connected to a transversely extending passage at the upper end of the shaft and a pump for providing a pulsating flow of lubricant through the longitudinal and transverse passages. The transverse passage is oriented relative to the motor so as to discharge a stream of lubricant over the top of the motor and onto the casing during period of maximum flow of lubricant and onto the motor when the lubricant flow is less than maximum.

3,572,979
PUMPS

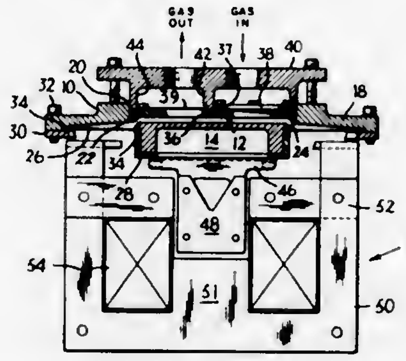
Paul Greville Morton, c/o The English Electric Company Ltd., Stafford, England
Filed Mar. 24, 1969, Ser. No. 809,681
Claims priority, application Great Britain, Mar. 22, 1968, 14005/68
Int. Cl. F04b *9/08, 17/00, 35/00*
U.S. Cl. 417—390 **5 Claims**

In a blood pump a fluid pressure circuit is provided which is operative to feed a variable frequency pulsating flow of water to one side of a flexible diaphragm. The other side of the flexible diaphragm is connected into a patient's bloodstream and thus flexure of the diaphragm results in a pulsatile flow of blood on said other side of the diaphragm. The specification describes a number of devices for alternately applying suction and pressure to the water in said fluid pressure circuit and thereby to the diaphragm as well as describing one practical form of pumping head including such a diaphragm.



3,572,980
RESONANT PUMP USING FLAT DISK SPRINGS

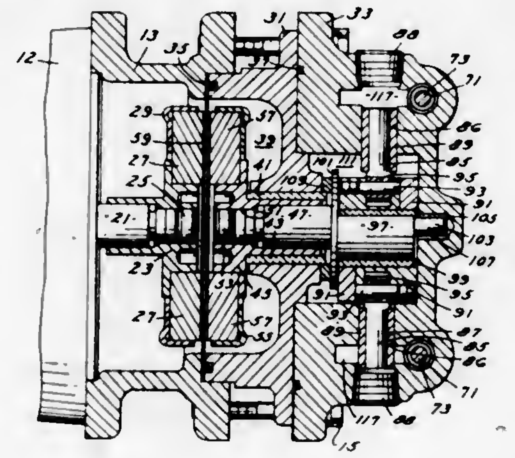
Joseph S. Hollyday, West Hurley, N.Y., assignor to Rotron Incorporated, Woodstock, N.Y.
Filed Feb. 17, 1969, Ser. No. 799,577
Int. Cl. F04b *17/04*
U.S. Cl. 417—413 **12 Claims**



A preferred embodiment of the invention described herein provides a device for raising the pressure of a volume of fluid comprising, a solenoid-operated piston and cylinder unit having a valve structure associated therewith for controlling the intake and exhaust of the fluid and a suitable electrical energy source for energizing the solenoid. The piston is supported within the cylinder by a flat disk spring that not only provides the required restoring forces, but seals the space between the piston and cylinder and effectively enlarges the working area of the piston.

3,572,981
HERMETICALLY SEALED PUMP

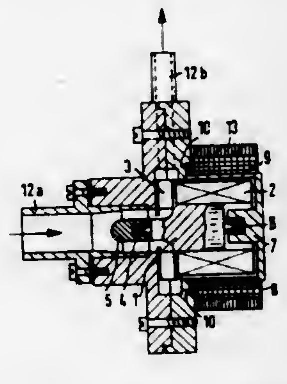
Vernon W. Pearson, and Kenneth L. Hagemeyer, Rockford, Ill., assignors to Greenlee Bros & Company, Rockford, Ill.
Filed July 1, 1969, Ser. No. 838,115
Int. Cl. F04b *17/00;* **H02k** *5/10*
U.S. Cl. 417—415 **1 Claim**



A hermetically sealed pump having a pair of rotatable magnetic discs, separated by a nonmagnetic member; one magnetic disc being permanently affixed to a drive shaft of a motor, and the other magnetic disc being affixed to a fluid pumping means.

3,572,982
PUMP WITH GAP-TUBE MOTOR

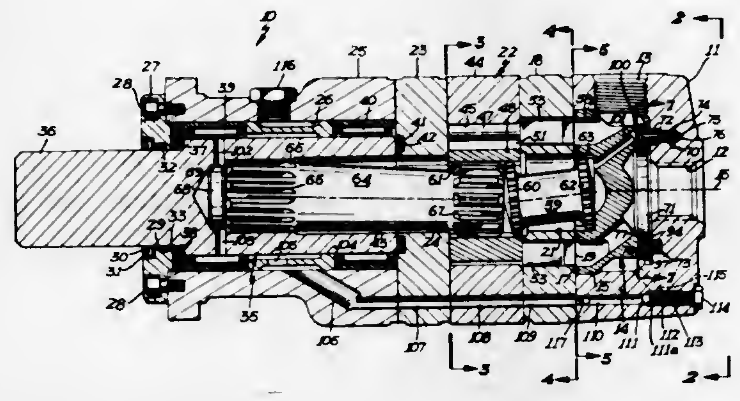
Friedrich Kozdon, Erlangen-Buckenhof, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Feb. 24, 1969, Ser. No. 801,326
Claims priority, application Germany, Mar. 2, 1968, P 16 38 272.2
Int. Cl. F04d *13/02;* **H02k** *5/10;* **H02p** *5/20*
U.S. Cl. 417—423 **5 Claims**



A brushless DC motor having permanent magnets is coaxially joined with a pump rotor within a tubular housing portion of nonmagnetic material. The rotor and the bearings thereof are exposed to the liquid being pumped. The motor has field windings mounted externally on the tubular portion for action upon the permanent magnets. Sensors responsive to the angular position of the permanent magnets control the commutation of the field windings and are mounted on the pump housing externally of the tubular portion.

3,572,983
FLUID-OPERATED MOTOR

Hugh L. McDermott, Minneapolis, Minn., assignor to Germane Corporation, Minneapolis, Minn.
Filed Nov. 7, 1969, Ser. No. 874,757
Int. Cl. F01c *1/02, 19/08*
U.S. Cl. 418—61 **8 Claims**

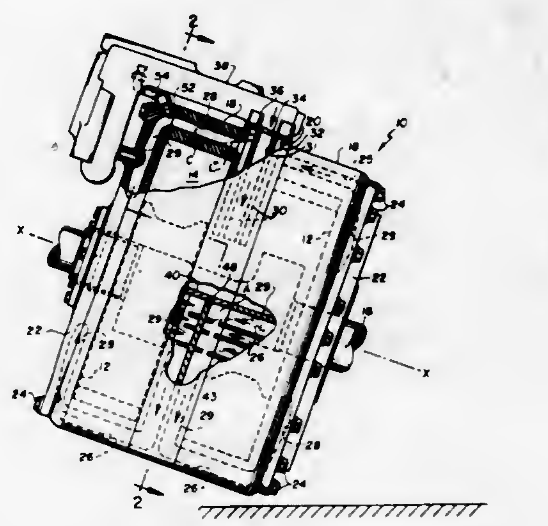


A fluid-operated motor of the radial valve type, the motor having a hydraulically balanced and actuated valve-seating mechanism equally responsive to reversed motor-operating fluid flow and a positive circulation lubrication system providing controlled lubrication at all wear points during operation of the motor.

3,572,984
LIQUID-COOLING SYSTEM FOR ROTARY-PISTON MECHANISMS

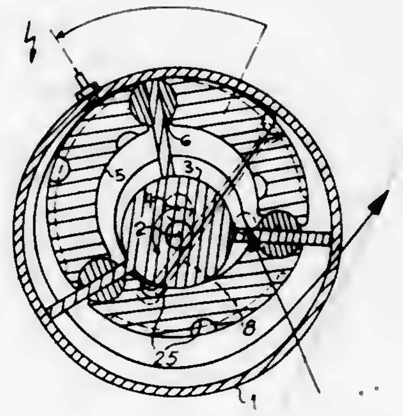
Charles Jones, Hillsdale, N.J., assignor to Curtiss-Wright Corporation
Filed Sept. 3, 1969, Ser. No. 854,967
Int. Cl. F01c *21/06;* **F01p** *3/00*
U.S. Cl. 418—83 **19 Claims**

In a liquid-cooling system for rotary-piston type mechanisms comprising a plurality of series-connected passes in areas of which the cooling liquid is capable of defining with the walls of the cooling system passageways a fluidtight chamber where entrapment of air and/or vapor can occur, the provision of passageway means disposed to communicate each of the fluidtight chambers with other portions of the liquid-cooling flow path in which cooling liquid is free flowing and of lesser pressure to thereby vent the fluidtight chamber areas and prevent air and/or vapor entrapment.



3,572,985
ROTARY PISTON MACHINE

Franz-Joachim Runge, Friesenstrasse 38, 29 Oldenburg, Germany
Filed Mar. 18, 1969, Ser. No. 808,144
Claims priority, application Germany, Mar. 19, 1968, P 16 01 832.9
Int. Cl. F01c *19/00, 11/00*
U.S. Cl. 418—138 **5 Claims**



A rotary piston machine which serves as the drive for fuel carburetor motors, or as a functional element for a motor, in a steam engine, as a compressor and pump. The machine is constructed in a hollow cylindrically-shaped housing and includes an axially hinged winged-shaped piston pivoted on a first axis and having at least two extending arms for sliding contact against the internal walls of the housing, a plurality of cylindrically-shaped rotary piston segments equal in number to the rotor arms and having perforated ends, and coupling joints slidably disposed on the extending wing-shaped piston arms. The sprockets are pivotably coupled within the perforated ends of the rim segments to the wing-shaped piston arms to close the segments around the hinged wing-shaped piston to form a second axis displaced parallel with respect to the first axis.

CHEMICAL

3,572,986
PROCESS FOR THE DYEING AND PRINTING OF POLYAMIDE FIBERS USING CYCLOHEXYL AMINO ANTHRAQUINONES

Gunter Gehrke, Cologne-Flittard, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 18, 1968, Ser. No. 745,716
Claims priority, application Germany, July 27, 1967, F 53,073
Int. Cl. C09d *1/50;* **D06p** *1/20*
U.S. Cl. 8—39 **2 Claims**

The process for dyeing and printing polyamides characterized by using 1-amino-2-alkoxy or substituted alkoxy-4-cyclohexyl amino anthraquinone whereby the dyeings are characterized by very good fastness properties.

3,572,987
PROCESS FOR BLEACHING UNBLEACHED CELLULOSE

Hubert Grunow, Bagneux, France, assignor to Entreprise Miniere et Chimique (formerly Office National Industriel de l'Azote), Toulouse, France
No Drawing. Filed May 23, 1968, Ser. No. 731,640
Claims priority, application France, May 24, 1967, 107,544
Int. Cl. D06l *3/06*
U.S. Cl. 8—101 **9 Claims**

Unbleached cellulose is bleached to a good degree of whiteness with low degradation and with removal of any size or cotton husk present, by a continuous process involving successive contact with (1) amylase, (2) a compound such as trichloroisocyanuric acid containing a nitrogen-chlorine linkage, and (3) an oxidative bleaching agent.

3,572,988
FABRICS OF CROSSLINKED CELLULOSE ACRYLATES AND METHACRYLATES CROSSLINKED WITH NITRATE CATALYSTS

Gene Sumrell, New Orleans, and Matthew F. Margavio and Clark M. Welch, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Dec. 30, 1969, Ser. No. 889,322
Int. Cl. C08b *11/12, 13/00;* **D06m** *13/10*
U.S. Cl. 8—120 **8 Claims**

Alpha,beta unsaturated carboxylic acid esters of cellulose in fiber form are treated with zinc, aluminum or cadmium nitrate and heated to form cellulose crosslinkages.

3,572,989
PROCESS FOR PRODUCTION OF CALCIUM HYPOCHLORITE

Seiji Tatara, Tokyo, and Toshio Mizukami, Makoto Nishonomiya and Shotaro Kiga, Niigata-ken, Japan, assignors to Nippon Soda Company Limited, Tokyo, Japan
No Drawing. Filed Apr. 7, 1969, Ser. No. 814,208
Int. Cl. C01b *3/04, 3/06*
U.S. Cl. 23—86 **5 Claims**

A solution saturated with calcium hypochlorite and sodium chloride is added into an aqueous solution of sodium hydroxide and the mixed aqueous solution is chlorinated by chlorine gas. After chlorination of the solution, sodium chloride crystallized in the solution is separated, and then, calcium hydroxide is added into the reaction solution, the reaction solution is chlorinated and crystalline calcium hypochlorite is separated from the mother liquor and the mother liquor is used repeatedly for a diluent of initial reaction.

3,572,990
AMMONIUM POLYPHOSPHATE PRODUCED AT ATMOSPHERIC PRESSURE

Thad D. Farr, Sheffield, and Henry K. Walters, Jr., Florence, Ala., assignors to Tennessee Valley Authority
Continuation-in-part of application Ser. No. 765,744, Oct. 2, 1968, which is a division of application Ser. No. 663,171, Aug. 24, 1967, now Patent No. 3,484,192. This application Feb. 27, 1970, Ser. No. 15,249
Int. Cl. C01b *25/28, 25/38*
U.S. Cl. 23—107 **1 Claim**

A process for the preparation of ammonium polyphosphate by the ammoniation of polyphosphoric acids containing more than 80 percent P_2O_5 with concurrent hydrolysis of the objectionable long-chain phosphate species. An intermediate aqueous slurry, pH 7.4 to 8.9, is prepared at 50° to 110° C. and processed further to produce granular solids, with good physical properties, that contain in approximately equal proportions ammonium ortho-, pyro-, and tripolyphosphates.

3,572,991
DECOMPOSITION OF CALCIUM NITRATE

Joseph W. Markey, College Park, Ga., assignor to Cities Service Company, New York, N.Y.
Continuation-in-part of application Ser. No. 705,993, Feb. 16, 1968. This application Apr. 1, 1968, Ser. No. 717,886
Int. Cl. C01b *2/42*
U.S. Cl. 23—158 **7 Claims**

By decomposing calcium nitrate in the presence of a nitrogen oxide-containing atmosphere, a product gas stream containing a high proportion of nitrogen and a relatively low proportion of undesired inerts may be obtained.

Calcium nitrate is decomposed in the presence of a bed of fluidized solids. The bed may comprise by-product lime that is heated and recycled to the decomposition zone. A portion of the product gas may be recycled to the decomposition zone at a bed fluidizing velocity. The product gases, comprising nitrogen oxides and oxygen, are particularly suitable for use in the formation of concentrated nitric acid.

3,572,992
PREPARATION OF MOULDED AND SINTERED ALUMINUM NITRIDE

Katsutoshi Komeya, Kawasaki-shi, and Hiroshi Inoue, Kawaguchi-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
No Drawing. Filed July 1, 1968, Ser. No. 741,321
Claims priority, application Japan, July 5, 1967, 42/42,837; Sept. 11, 1967, 42/58,243; Feb. 29, 1968, 43/12,524
Int. Cl. C01b *21/06*
U.S. Cl. 23—192 **7 Claims**

A method of manufacturing a moulded and sintered mass of aluminum nitride comprising moulding an admixture of aluminum nitride powder, aluminum oxide powder and metallic aluminum powder, nitriding the moulded mass in nitrogen or ammonia gas at a temperature below the melting point of metallic aluminum, and sintering the mass in nitrogen or inert gas at temperatures ranging from 1,600 to 2,200° C.

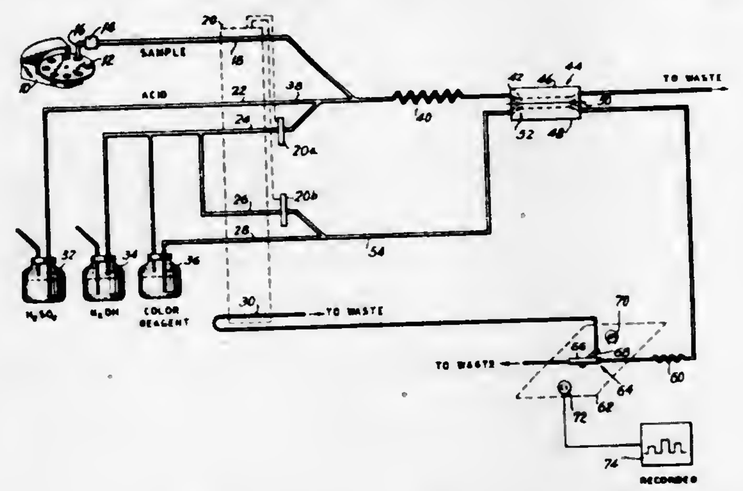
3,572,993
ULTRAFINE, NONPYROPHORIC, CHI-IRON CARBIDE HAVING HIGH COERCIVITY

Donald Burl Rogers, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed July 23, 1968, Ser. No. 746,801
Int. Cl. C01b *31/30*
U.S. Cl. 23—208 **9 Claims**

Ultrafine, nonpyrophoric, ferromagnetic chi-iron carbide having high intrinsic coercivity is prepared by heating iron carbonyl in carbon monoxide or a mixture of carbon monoxide and hydrogen at a temperature of 280 to 340° C. This chi-iron carbide is useful as a component of inks, toners, and magnetic recording members for magnetic recording and the like.

3,572,994
ANALYSIS SYSTEM FOR A LIQUID STREAM FOR A GASEOUS CONSTITUENT

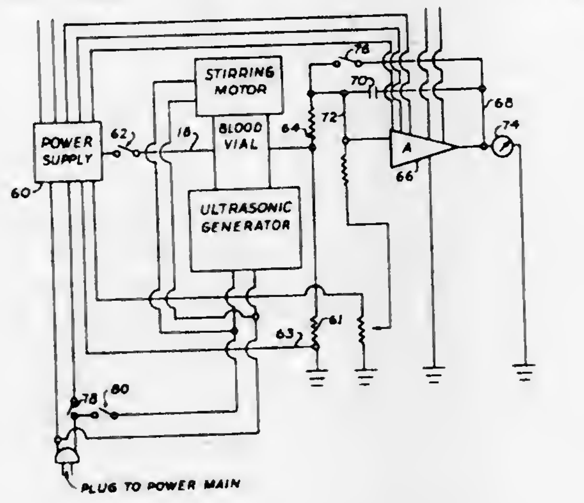
Harry Hochstrasser, Hastings-on-Hudson, N.Y., assignor to Technicon Corporation, Ardsley, N.Y.
Filed Feb. 27, 1968, Ser. No. 708,699
Int. Cl. G01n *21/12*
U.S. Cl. 23—230 **9 Claims**



A system for the analysis of a stream of liquid samples for carbon dioxide content includes a sampler, proportioning pump, a gas-permeable and liquid-impermeable membrane for passing carbon dioxide from the sample stream to a reagent stream, a colorimeter for examining the reagent stream and a recorder.

3,572,995
BLOOD-OXYGEN MEASUREMENT AND METER

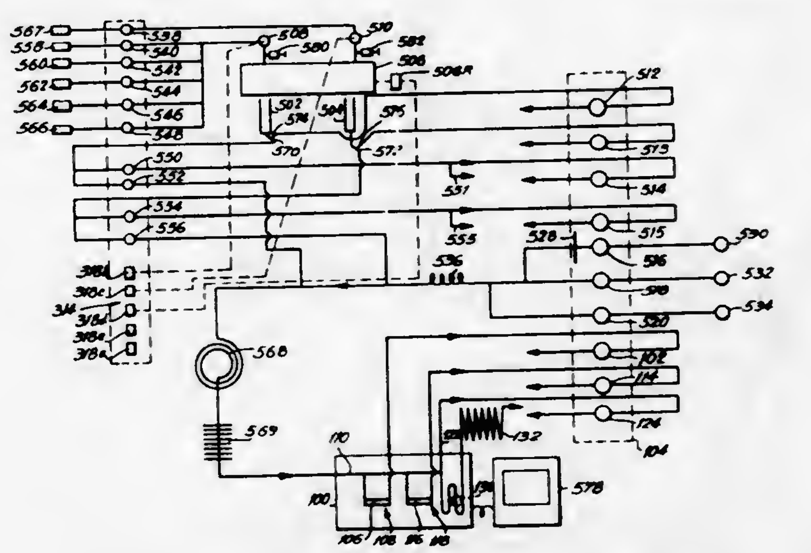
Billy Otis Martin and Robert Cherry Martin, Huntsville, Ala., assignors to Royal Medical Corporation, Huntsville, Ala.
Filed June 5, 1968, Ser. No. 734,811
Int. Cl. G01n *27/06, 33/16*
U.S. Cl. 23—230 **12 Claims**



Apparatus and method for electrically and quickly measuring and indicating the amout of oxygen in blood. Through this process the ionized oxygen is converted to oxygen atoms in a blood-sample solution. The total value of the gradually reducing flow of these ions is determined in a circuit by current division, amplification, and summation in a capacitor. The final result is quickly seen on an indicator, calibrated to read in volume units of oxygen in a predetermined amount of tested blood. Economically disposable, quickly replaceable electrodes are positioned in the ionized solution. To prevent adherence of efficiency-destroying blood particles on them they are vibrated by an ultrasonic generator.

3,572,996
ANALYTICAL CHROMATOGRAPHY COLUMN MONITORING SYSTEM

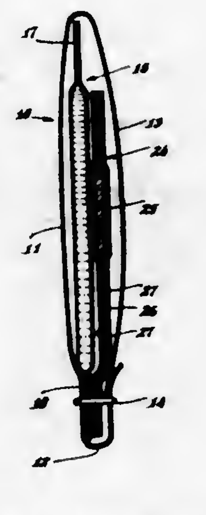
Allen S. Reichler, Pearl River, N.Y., and Nelson G. Kling, Ringwood, N.J., assignors to Technicon Corporation, Ardsley, N.Y.
Filed Nov. 29, 1967, Ser. No. 686,459
Int. Cl. G01n *21/28*
U.S. Cl. 23—253 **8 Claims**



A chromatography apparatus for the sequential automatic loading and analysis of a plurality of samples includes a high pressure, non-return, relief valve in the high pressure portion of the system, and a bubble detector in the colorimeter, for detecting system malfunctions and providing a signal in response thereto.

3,572,997
SOIL TESTING KIT

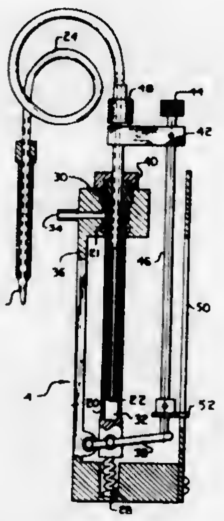
Robert E. Burk, Milford, Conn., assignor to Burk Industries, Inc., Milford, Conn.
Filed May 24, 1968, Ser. No. 731,770
Int. Cl. G01n *33/24, 31/22;* **B65d** *79/00*
U.S. Cl. 23—253 **6 Claims**



A soil testing kit in which an envelope containing water together with an envelope containing a test paper are packaged in the bottom fold of a matchbook type package. The water-containing envelope is stiffened through heat sealing so that it may be supported vertically to act as a mixing container.

3,572,998
LIQUID SAMPLING AND PIPETTING APPARATUS

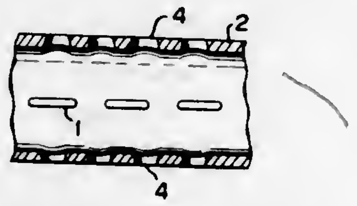
Erik W. Anthon, 534 Kenyon Ave., Kensington, Calif. 94708
Filed May 12, 1969, Ser. No. 823,697
Int. Cl. B01l *3/02*
U.S. Cl. 23—259 **5 Claims**



A pipetting and sampling apparatus for receiving and dispensing micro samples including a fine tubular piston extendable from a pump chamber, the liquid flowing through the tubular piston. A template and follower program the movement of the piston.

3,572,999
APPARATUS FOR CRACKING HYDROCARBONS

Takehiko Sato, Yokkaichi-shi, Japan, assignor to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan
Filed Apr. 10, 1968, Ser. No. 720,301
Claims priority, application Japan, Apr. 24, 1967, 42/25,935
Int. Cl. F28f *1/02;* **B01j** *1/00*
U.S. Cl. 23—277 **4 Claims**

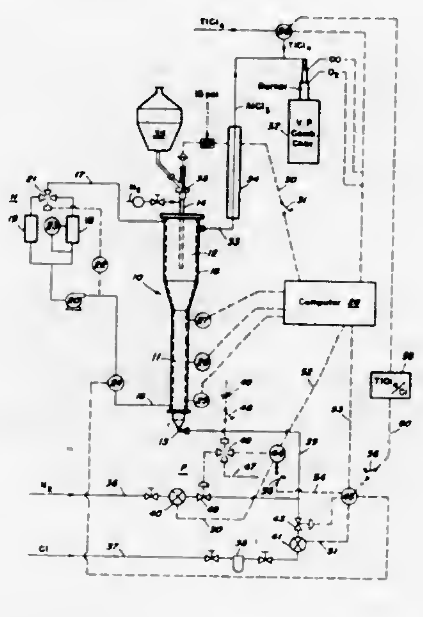


An external heating type thermal cracking apparatus for thermally cracking hydrocarbons comprising thermal cracking tubes having flattened or compressed round cross-sectional configuration disposed in such a manner that the maior axes of said cross-sectional configurations are confronting the heat source.

3,573,000
APPARATUS FOR GENERATING GASEOUS METAL HALIDES

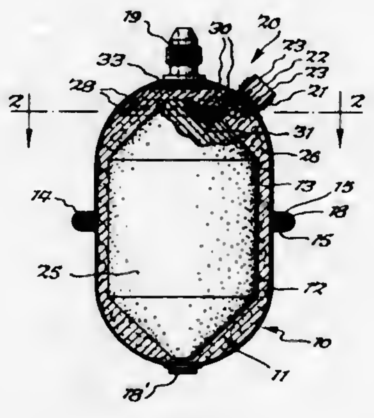
Robert D. Toomey, Little Silver, and George Vassil, Old Bridge, N.J., assignors to National Lead Company, New York, N.Y.
Original application Dec. 23, 1966, Ser. No. 604,389, now Patent No. 3,446,579, dated May 27, 1969. Divided and this application Nov. 25, 1968, Ser. No. 797,298
Int. Cl. F27b *9/40;* **B01j** *9/06*
U.S. Cl. 23—277 **4 Claims**

A generator for producing a gaseous metal halide wherein a pulverulent metal is reacted with a gaseous halide in a fluidized-bed of inert material the feed rate of the pulverulent instrumental metal to the generator being regulated through the instrumentality of temperature measuring probes, located at strategic places in the generator bed, and a computer which maintains constant surveillance of the temperature profile in the bed, so that the reaction zone is maintained within the middle and top third of the bed, the halide feed being part of a pipeline complex including an inert gas which may be used solely or with the halide gas during start-up and shutdown to maintain the bed fluidized.

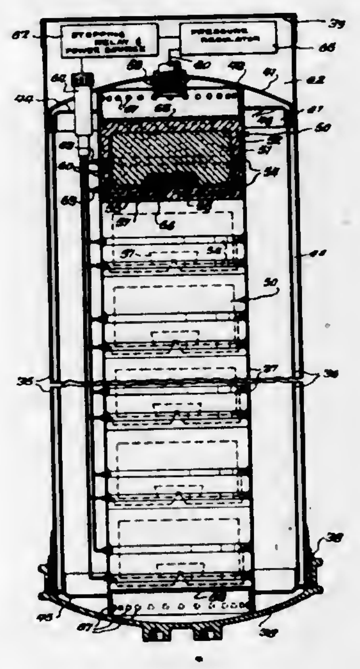


3,573,001
OXYGEN GENERATOR

Robert M. Bovard, Costa Mesa, Calif., assignor to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio
Filed Apr. 3, 1967, Ser. No. 628,131
Int. Cl. B01j *7/00;* **C01b** *13/00*
U.S. Cl. 23—281 **8 Claims**

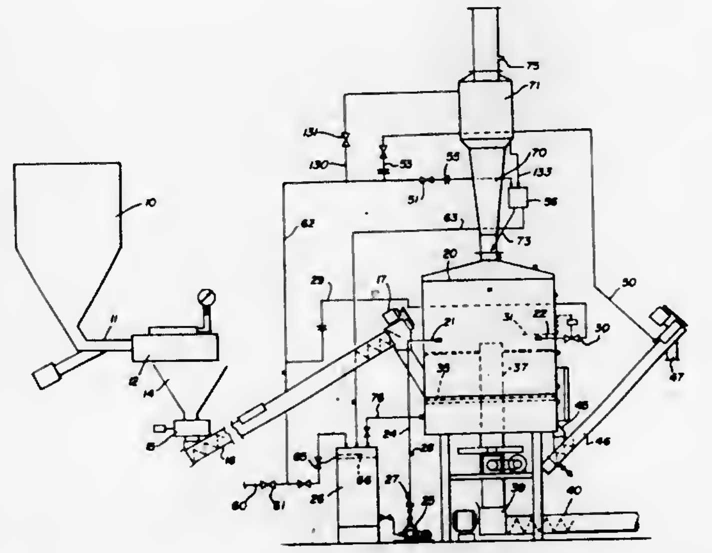


A solid state, oxygen evolving body is encased within a stable, shape-sustaining envelope serving as a filter, insulator and coolant for the body when the latter burns, the body and envelope forming a recharging candle unit for insertion and withdrawal from a canister. An electrical ignitor including contact rings mounted about the envelope and an ignition area imbedded within the candle in contact with the rings is carried by the recharging unit and an ignitor actuator having contacts is carried by the canister, the contacts and contact rings contacting one another in all angular positions of the rechargeable unit relative to the canister. In a modification, the rechargeable units are stacked in a sleeve having contacts spaced therealong and engaging the contacts of the individual units. A pressure regulator controls a stepping relay which sequentially ignites the units. A reservoir is provided around the sleeve. A cooling path for the evolved oxygen is provided between the reservoir and an outer casing.



3,573,002
HYDRATOR FOR LIME AND THE LIKE

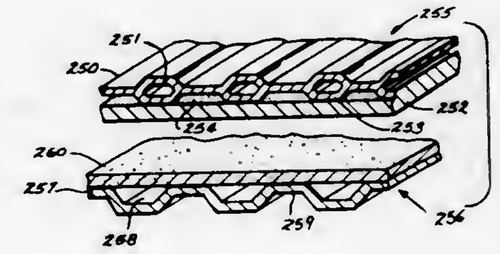
Robert V. Zimmerman, Adam A. Reeves, Ralph Rossomme, and John B. Jones, Jr., Denver, Colo., assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Feb. 12, 1968, Ser. No. 704,683
Int. Cl. C04b *1/08*
U.S. Cl. 23—287 **11 Claims**



A continuous reactor, for example, for hydrating quicklime or other hygroscopic materials, has at least two superimposed stages with feed and liquid introduced into the top stage where a fluidized bed may be created by the reaction of the material with water producing carrier steam. A portion of the feed material may be completely reacted in the upper stage and the product discharged therefrom; larger particles are transferred to the lower stage for a longer treatment with water. The reactor includes a standpipe from the upper stage for product, either powdered or liquid, and the method of lime hydration involves adding about two parts of water for each part required for complete hydration so as to produce sufficient steam to fluidize a portion of the bed in the upper stage for effective discharge of finished dry hydrated lime. Each stage is continuously mixed, and each stage has a continuous feed and discharge.

3,573,003
COMPOUND METAL STRUCTURE

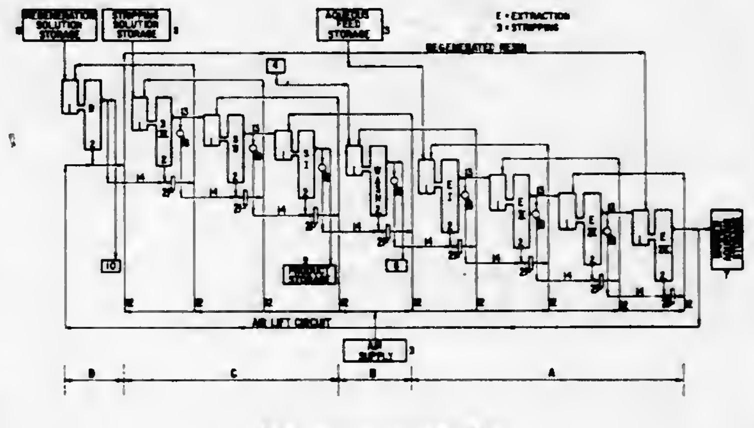
Emery I. Valyi, Riverdale, N.Y., assignor to Olin Corporation
Continuation of application Ser. No. 606,751, Jan. 3, 1967, which is a continuation-in-part of application Ser. No. 464,894, May 14, 1965, which is a division of application Ser. No. 398,128, Sept. 21, 1964, now Patent No. 3,289,750, dated Dec. 6, 1966, which is a division of application Ser. No. 202,612, June 14, 1962, now Patent No. 3,201,858, dated Aug. 24, 1965, which is a continuation-in-part of application Ser. No. 732,663, May 2, 1958, now Patent No. 3,049,795, dated Aug. 21, 1962, which in turn is a continuation-in-part of application Ser. No. 586,259, May 21, 1956. This application Nov. 7, 1969, Ser. No. 871,580
Int. Cl. B01j *9/04;* **B22f** *3/10, 7/04*
U.S. Cl. 23—288 **5 Claims**



The disclosure teaches a compound metal structure and a method for catalytically reacting two fluids. The improved structure comprises an impervious metal sheet, a porous body containing a material catalytic to chemical reactions, with the porous body being in surface contact with the impervious metal sheet. A first portion of the contacting surfaces of the impervious metal sheet and the porous body are bonded to each other. The compound metal structure further comprises conduit means defined by a portion of the impervious metal sheet.

3,573,004
COUNTERCURRENT LIQUID-SOLIDS CONTACT PROCESS

Irving M. Abrams, Redwood City, Calif., and Richard C. Knupp, Boulder, and Clifford J. Lewis, Wheatridge, Colo., assignors to Diamond Shamrock Corporation, Cleveland, Ohio
Original application Apr. 29, 1964, Ser. No. 363,390. Divided and this application June 20, 1967, Ser. No. 663,465
Int. Cl. B01d *11/02, 15/04*
U.S. Cl. 23—312 **4 Claims**



SOLID STATE ION EXCHANGE CIRCUIT

A method is provided for the continuous countercurrent contact of a solid, such as an ion-exchange resin, with a liquid wherein the liquid is contacted stepwise with an increasingly fresh resin thereby insuring maximum ion-exchange efficiency.

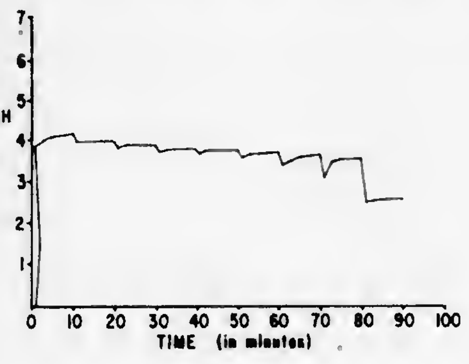
3,573,005
PROCESS FOR CLEANING PHOSPHORIC ACID

Avraham Matitiahu Baniel and Ruth Blumberg, Haifa, Israel, assignors to Israel Mining Industries-Institute for Research and Development, Haifa, Israel
No Drawing. Continuation-in-part of application Ser. No. 610,758, Jan. 23, 1967, which is a continuation-in-part of application Ser. No. 438,093, Mar. 8, 1965. This application Nov. 13, 1968, Ser. No. 790,187
Int. Cl. B01d *11/04;* **C01b** *25/22*
U.S. Cl. 23—312 7 Claims

Process which comprises extracting technical-grade phosphoric acid by subjecting said technical-grade phosphoric acid, in the presence of a minor proportion of added sulfuric acid, to extraction with a dialkyl ether, such as diisopropyl ether, separating a phosphoric acid-containing ether extract, and recovering purified phosphoric acid from said ether extract.

3,573,006
POLYMERIC ALUMINUM MAGNESIUM HYDROXY BUFFER COMPLEXES

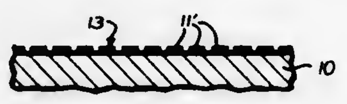
I-Kao Shih and Eric Blaser, Toronto, Ontario, Canada, assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.
Filed June 19, 1968, Ser. No. 738,312
Int. Cl. A01n *11/00;* **C01f** *7/74;* **C07f** *1/08*
U.S. Cl. 23—315 8 Claims



Complexes containing as cations aluminum and magnesium ionically bound with anions other than hydroxyl which are capable of neutralizing large quantities of acid rapidly to a pH of about 4 and capable of buffering at said pH over long periods of time. These complexes are useful in the treatment of gastric hyperacidity.

3,573,007
MEASURING SCALE DIVISION

Martin Gröbitz, Traunreut, Germany, assignor to Wenczler & Heidenhain, Traunreut, near Traunstein, Germany
Filed Aug. 9, 1968, Ser. No. 751,411
Claims priority, application Germany, Aug. 10, 1967, W 44,537
Int. Cl. B21d *21/00;* **C23f** *1/02;* **G01d** *15/00*
U.S. Cl. 29—191 8 Claims



A measuring scale division comprising a metallic carrier and a plurality of alternating light-reflecting and light-absorbing markings are provided on the metallic carrier. The markings of the measuring scale division comprise different metals.

3,573,008
COMPOSITE METAL ARTICLE OF COPPER MATERIAL WITH A COAT OF NICKEL AND TIN

Robert M. Akin, Jr., North Tarrytown, N.Y., assignor to Hudson Wire Company, Ossining, N.Y.
No Drawing. Filed May 2, 1968, Ser. No. 727,142
Int. Cl. B32b *15/00*
U.S. Cl. 29—199 1 Claim

Nickel-tin alloys containing from about three to about twenty percent by weight of nickel, preferably between six and about ten percent by weight, are described. These alloys are deposited on a metal substrate in the form of wire or the like, preferably a copper or copper alloy substrate by electrodeposition using a fluoroborate bath and carefully regulated pH, current density and temperature conditions. The resulting alloy coated composite product provides an electrical conductor having good solderability, freedom from galvanic corrosion and temperature capabilities which far exceed tin or tin-lead coatings on copper conductors.

3,573,009
RUST INHIBITED HYDROCARBON FUELS

Roland A. Bouffard, Union, N.J., assignor to Esso Research and Engineering Company
No Drawing. Continuation-in-part of application Ser. No. 547,731, May 5, 1966. This application June 3, 1968, Ser. No. 733,829
Int. Cl. C10l *1/22*
U.S. Cl. 44—63 7 Claims

The rusting of ferrous surfaces brought about by the presence of traces of moisture in gasoline is prevented by adding to the gasoline a small proportion, within the range of about 1 to 100 pounds per thousand barrels of gasoline, of a gasoline-soluble heteroaromatic amine oxide, the latter being characterized as a cyclic nitrogen compound having at least one tertiary nitrogen atom in the ring, the ring having two conjugated double bonds when it is a 5-membered ring and three double bonds when it is a 6-membered ring.

3,573,010
ACID SALTS OF POLYISOBUTENYL ALKYLENE POLYAMINES AS FUEL DETERGENTS

Enver Mehmedbasich, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed Aug. 29, 1968, Ser. No. 756,249
Int. Cl. C10l *1/22*
U.S. Cl. 44—63 9 Claims

Mineral acid salts of hydrocarbyl substituted polyamines, which are substantially free of aromatic unsaturation and of from about 460 to 10,000 molecular weight, find use as detergents in fuels, particularly in combination with a small amount of oil.

3,573,011
GASOLINE COMPOSITION

Gardner E. Gaston, Tarentum, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Sept. 30, 1968, Ser. No. 763,974
Int. Cl. C10l *1/18*
U.S. Cl. 44—66 12 Claims

A gasoline motor fuel having improved anti-icing, detergency, anti-rust and ignition control characteristics is obtained by incorporating in the fuel a small amount of a combination of a polyoxypropylene ester and a monocarboxylic acid salt of an N-aliphatic substituted polymethylene diamine. The polyoxypropylene ester has the general formula

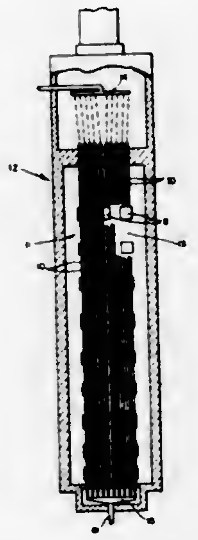
$$RCOOC_3H_6O(C_3H_6O)_nC_3H_6OH$$

where R is an aliphatic hydrocarbon radical containing 7 to 29 carbon atoms and *n* is an integer of 20 to 100. The

monocarboxylic acid salt is the salt of a monocarboxylic acid which contains at least 8 carbon atoms in the molecule and an N-aliphatic substituted polymethylene diamine which has the general formula $RNH(CH_2)_xNH_2$ where R is an aliphatic hydrocarbon radical containing 8 to 30 carbon atoms and x is an integer of 2 to 10.

3,573,012
METHOD FOR STRAIGHT-THROUGH CRACKING OF HYDROCARBONS

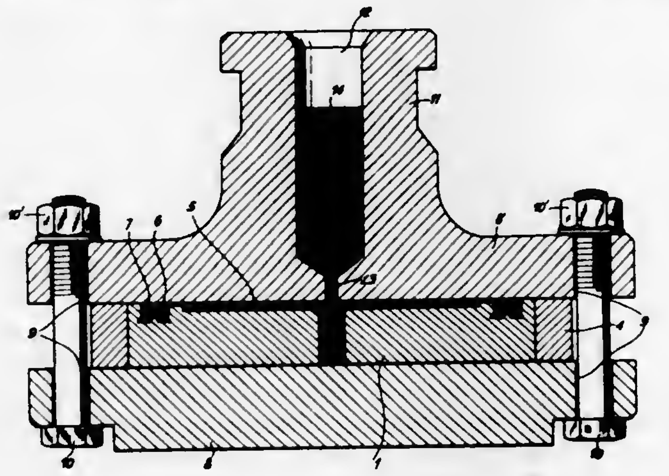
Maurice R. Kitzen, Elkins Park, and Fraser M. Wall, Abington, Pa., assignors to Selas Corporation of America, Dresher, Pa.
Filed Feb. 20, 1969, Ser. No. 801,020
Int. Cl. C01b *2/14*
U.S. Cl. 48—214 6 Claims



Hydrocarbon feed stocks are cracked by passing them in a straight linear path through elongated externally heated tubes of open cross-section, with a residence time at about 650° C. or higher of less than 0.5 second, preferably less than about .1–.4 second, a pressure drop of about 3–5 p.s.i. per tube, and a tube skin temperature of about 1000°–1200° C.

3,573,013
METHOD OF FORMING A ZINC ALLOY BONDED DIAMOND ABRASIVE TOOL

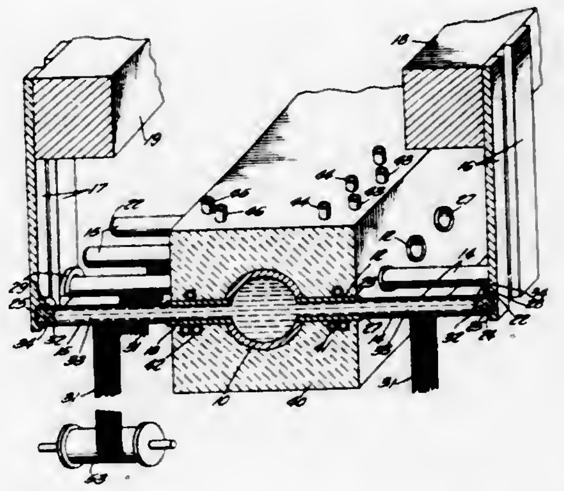
František Čurn and Antonín Dymeš, Prague Czechoslovakia, assignors to Naradi, narodni podnik, Prague Czechoslovakia
Filed Oct. 5, 1967, Ser. No. 673,077
Claims priority, application Czechoslovakia, Dec. 10, 1966, 7,877/66
Int. Cl. C04d *31/16*
U.S. Cl. 51—309 6 Claims



A grinding wheel in which diamond particles are uniformly distributed in an antimony-bearing zinc alloy and bonded by the alloy to each other and to a carrier disc is prepared by confining a packed particulate mixture including diamonds and antimony particles in a cavity bounded by a mold and the carrier inserted in the mold, introducing molten zinc alloy first by gravity and then under fluctuating fluid pressure, and solidifying the molten metal.

3,573,014
APPARATUS AND PROCESS FOR EXTRUDING GLASS FIBERS

Edward T. Strickland and Homer C. Amos, Palm Springs, Calif., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Continuation of application Ser. No. 556,800, May 13, 1966. This application Jan. 8, 1970, Ser. No. 3,558
Int. Cl. C03b *37/00;* **B23c** *23/00*
U.S. Cl. 65—1 20 Claims

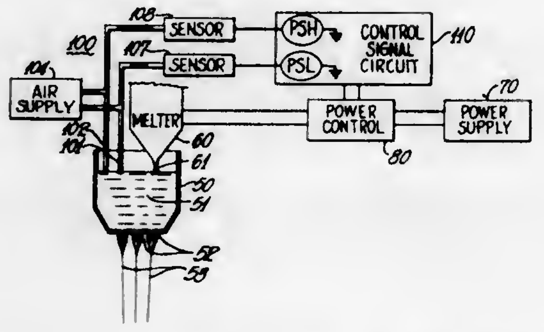


Disclosed herein are apparatus and methods for extruding fibers from material such as glass. The basis for enabling the realization of high production of glass fibers in a practical and efficient manner are set forth, including pressures involved, sizes and lengths of orifices, problems of separation, and other parameters. The bushing configurations disclosed, such as tubular, hemispherical and other shapes, enable the bushing to withstand the pressures and temperatures involved without requiring excessively thick bushings, and enable separation and temperature uniformity without bushing deformation and elongation of orifices. Additionally, specific forms of bushings and feeder apparatus are disclosed, including a tubular form of bushing to which solid glass may be applied. Along with the disclosed apparatus, methods and fiber glass production are disclosed wherein orifices sufficiently closely spaced are used so that glass egressing therefrom would tend to coalesce when only a nominal pressure head is used, but the pressure is increased to overcome the effect of surface tension to cause separation of the glass into discrete streams, and then the pressure may be reduced but maintained sufficiently high to prevent coalescing while still maintaining separation of the streams at a high flow rate.

3,573,015
METHOD AND APPARATUS FOR CONTROLLING LIQUID LEVELS

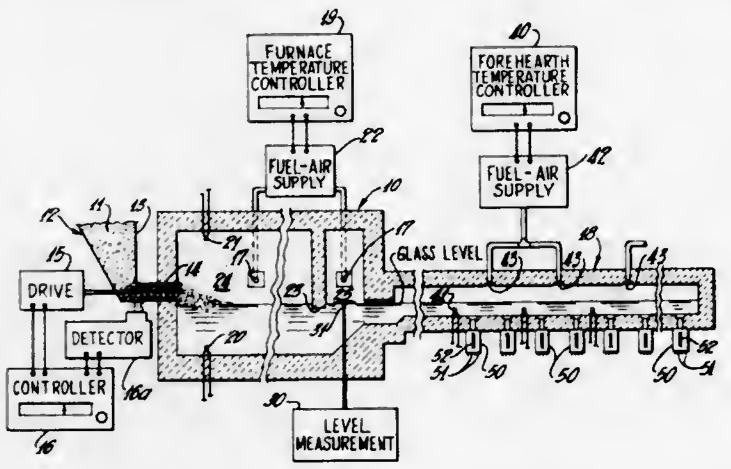
Sheldon A. Canfield and Cletis L. Roberson, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation
Filed May 9, 1968, Ser. No. 727,805
Int. Cl. C03b
U.S. Cl. 65—2 10 Claims

Method and apparatus for controlling the level of a body of material in a container when replenishing material removed from the body, by sensing levels outside of a predetermined range of levels of the material, increasing the rate of feed of the replenishing material by an amount proportional to the time the level is below the range, and decreasing the rate of feed of the replenishing material by an amount proportional to the time the level is above the range. To prevent oscillation of the system and attain stability the rate of feed is further increased by



a predetermined constant amount when the level is below the range, this further increase in feed rate being removed when the level returns to the range. The rate of feed is further decreased by a predetermined constant amount when the level is above the range, the further decrease in feed rate being removed when the level returns to the range.

3,573,016
METHOD AND APPARATUS FOR FORMING FIBERS
Vernon C. Rees, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed July 24, 1968, Ser. No. 747,141
Int. Cl. C03b *37/00*
U.S. Cl. 65—2 **11 Claims**



Method and apparatus for forming fibers in heat-softenable material which includes means for continuously melting material to form a molten pool of the material and fiber-forming means connected to receive molten material from the pool. Means are used to heat the fiber-forming means. The level of the molten pool is sensed. Control means responsive to the level sensing is utilized to regulate the amount of heat supplied to the fiber-forming means.

3,573,017
METHOD AND APPARATUS FOR MELTING AND SUPPLYING HEAT-SOFTENABLE MATERIALS IN A PROCESS
Paul D. Griem, Jr., Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed Nov. 4, 1968, Ser. No. 773,070
Int. Cl. C03b *37/00* .
U.S. Cl. 65—2 **20 Claims**

A preferred embodiment of the invention illustrates novel apparatus for carrying out a method for producing glass fibers including feeding glass batch to a furnace for melting into a pool, flowing molten glass from the pool into a feeder means and attenuating streams from the feeder into fibers. Fuel flow to furnace burners is regulated in response to deviations of actual furnace temperatures from a preselected setpoint temperature. Fuel flow requirement changes are anticipated by monitoring the rate of batch feed to the furnace and modifying the fuel flow setpoint or the furnace setpoint temperature in response to batch feed rate changes. To provide more control the temperature of the molten glass exiting from the pool is sensed to further modify the fuel flow setpoint or the furnace setpoint temperature in accordance with glass flow rates through the system as indicated by temperature changes in exiting glass.

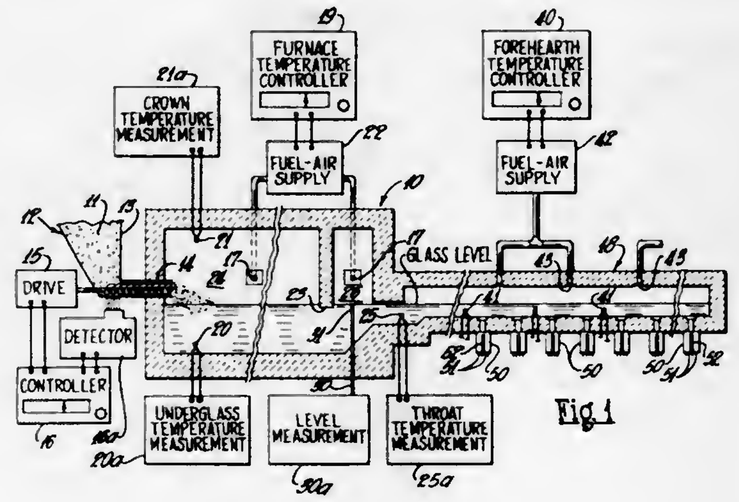
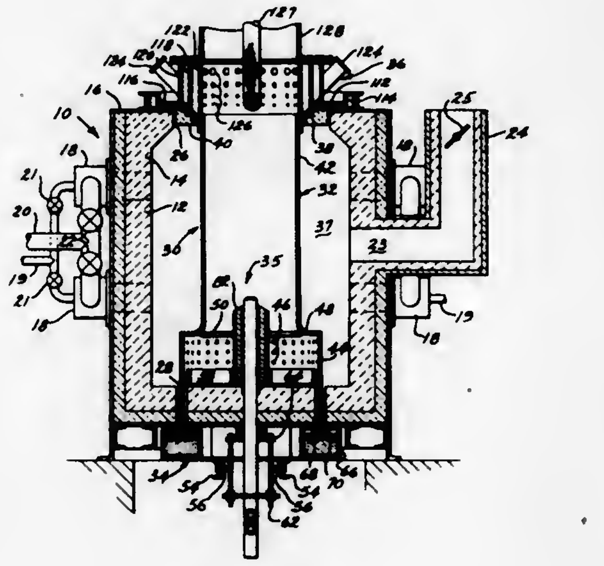

CROWN TEMPERATURE MEASUREMENT
FURNACE TEMPERATURE CONTROLLER
FOREHEARTH TEMPERATURE CONTROLLER
FUEL-AIR SUPPLY
FUEL-AIR SUPPLY
GLASS LEVEL
DRIVE
DETECTOR
CONTROLLER
UNDERGLASS TEMPERATURE MEASUREMENT
LEVEL MEASUREMENT
THROAT TEMPERATURE MEASUREMENT
21a
19
40
22
42
10
20a
30a
25a

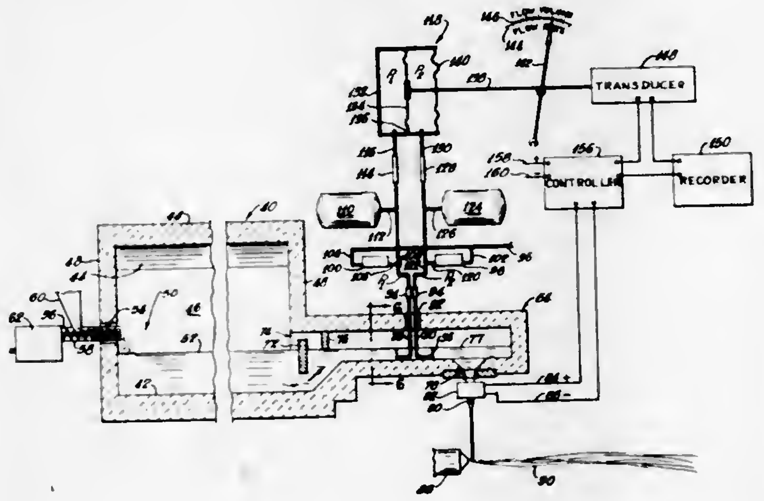
Fig.1

3,573,018
APPARATUS AND METHOD FOR HEAT TREATING PARTICULATE MATTER
John D. Nesbitt and Joseph J. Joyce, Toledo, and Norman T. Ferguson, Maumee, Ohio, assignors to Midland-Ross Corporation, Toledo, Ohio
Filed June 27, 1968, Ser. No. 740,588
Int. Cl. C03b *19/10*
U.S. Cl. 65—21 **24 Claims**



A furnace for the thermal processing of discrete particles including heat fusible particles of minute size which reduce in density upon being subjected to adequate heat. The particles to be treated are dispersively launched into a hot gas wind stream passing through a heating chamber. The particles are heated by radiation and convection while their density is reduced and while the wind stream conveys them through the heating chamber. A quench manifold may be provided for laterally injecting a cooling medium into the stream of hot gases and particles exiting the heating chamber.

3,573,019
LIQUID FLOW MEASURING PROCESS AND APPARATUS
Vernon C. Rees, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed July 30, 1965, Ser. No. 476,124
Int. Cl. C03c; C03b
U.S. Cl. 65—29 **8 Claims**



Process and apparatus for measuring rate of flow of liquids through conduits, comprising immersed probes facing respectively against the direction of flow and in the direction of flow, with constant volumertic gas flow through each, as small discrete bubbles arising from a point beneath the surface of the liquid to the surface, whereby a differential pressure is produced that serves as a signal which can be extrapolated to volume of flow, and transduced for recording and control functions.

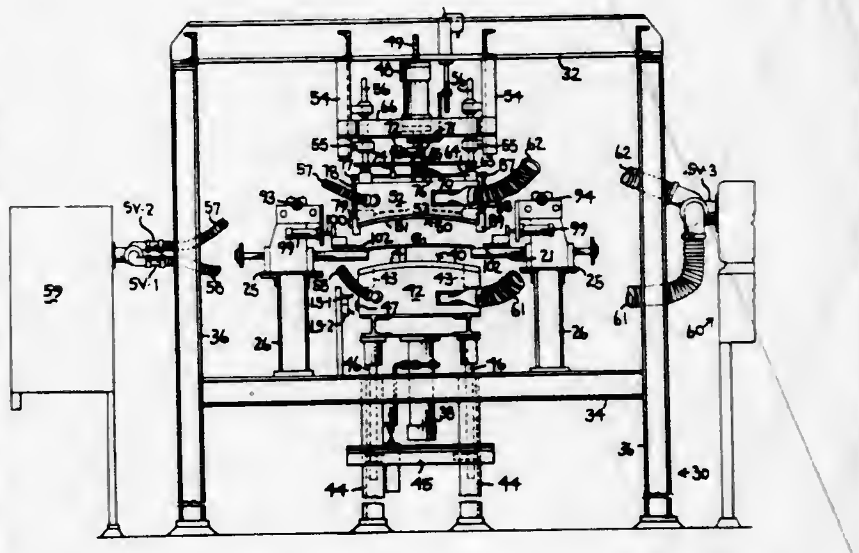
3,573,020
GLASS-CERAMIC ARTICLE AND METHOD
Bruce R. Karstetter, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 365,203, May 5, 1964. This application Sept. 30, 1968, Ser. No. 763,966
Int. Cl. C03c *3/22*
U.S. Cl. 65—30 **6 Claims**

This invention relates to the strengthening of glass-ceramic articles in which the crystal content thereof comprises the predominant part of the articles and containing nepheline as the principal crystal phase. The strengthening is effected through the conversion of at least part of the nepheline crystals in a surface layer of the article to low expansion lithium alumino-silicate-type crystals such as beta-eucryptite and beta-spodumene solid solution type crystals, this conversion causing the surface layer to have a lower coefficient of thermal expansion than the interior portion of the article and thereby creating an integral surface compression layer in the article. The transformation of nepheline crystals to the beta-eucryptite type crystals is accomplished through an ion exchange reaction taking place within a surface layer of the article wherein lithium ions from an external source are exchanged for sodium ions in the nepheline, this exchange itself being undertaken at a high temperature or this exchange being undertaken at a low temperature and being followed by a high temperature heat treatment.

3,573,021
METHOD OF MAKING A CERAMIC-METALLIC COMPOSITE
Carlyle F. Smith, Alfred Station, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed June 2, 1967, Ser. No. 643,131
Int. Cl. C03c *29/00*
U.S. Cl. 65—43 **8 Claims**

A high temperature melting cementitious material such as glass dust is introduced either in aqueous solution, paste or dry form, between a ceramic core and a metallic envelope. Any suspending fluid is volatilized, and the assembly then heat treated in air at temperatures of about 1400° F. to melt the glass. The molten glass assumes the shape of the space between the core and envelope so that upon cooling from the heat treating temperature, the glass solidifies into a rigid bonding layer and the metal envelope contracts exerting a uniform compressive force on the rigid bonding layer and the ceramic core. This places the core in compression and the envelope in tension which increases the overall strength of the ceramic-metallic composite.

3,573,022
METHOD AND APPARATUS FOR SHAPING GLASS SHEETS
Robert G. Frank, Tarentum, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Mar. 11, 1968, Ser. No. 711,946
Int. Cl. C03b *23/02*
U.S. Cl. 65—104 **17 Claims**

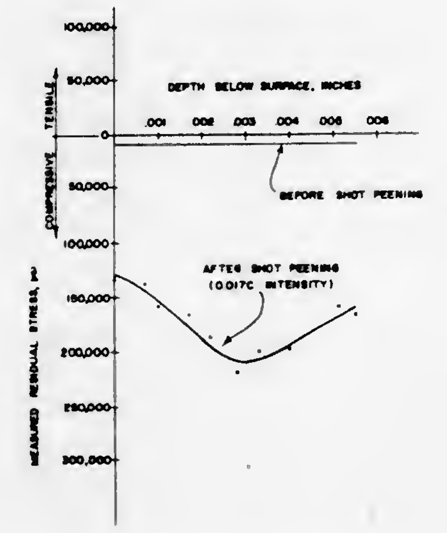


Glass sheets are shaped between press shaping molds having foraminous shaping surfaces. Heated gas and cooled gas are applied through the foramina of the shaping surfaces to separate the sheet from a foraminous surface in contact therewith and to cool the glass sheet respectivity. Reciprocating members engage the edges of the sheet to reciprocate the sheet in a generally horizontal direction until the glass sheet is no longer in a deformable state.

3,573,023
METHODS FOR IMPROVING HARDNESS AND STRENGTH OF CERAMIC MATERIALS

David A. Thomas, Bethlehem, Pa., and David N. French, Ridgewood, N.J., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed Sept. 24, 1968, Ser. No. 762,111
Int. Cl. C03b *27/00*
U.S. Cl. 65—114 **6 Claims**

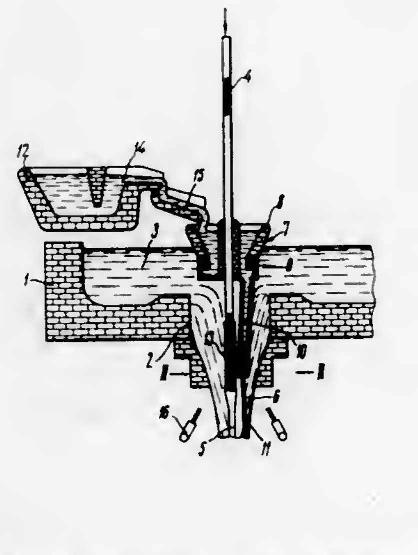


Methods for improving the hardness and strength of frangible or relatively brittle materials, involving surface deformation by mechanical means to establish compressive stresses in the material surface.

3,573,024
DEVICE FOR CONTINUOUS STRETCHING OF GLASS CAPILLARIES WITH AN ENAMEL BAND

Oleg Alexandrovich Golozubov, Novye Kuzminki, Kvartal 118, korpus 38, kv. 70, Moscow, U.S.S.R., and Vladimir Ioganovich Kalganov, Ulitsa Mira 16, kv. 12, Klin Moskovskoi Oblasti, U.S.S.R.

Filed July 28, 1967, Ser. No. 656,904
Int. Cl. C03b *5/32*
U.S. Cl. 65—145 **2 Claims**

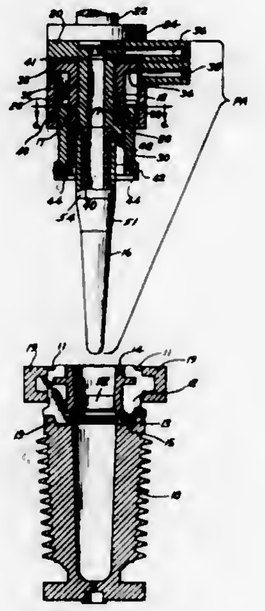


A device for the continuous stretching of glass capillaries with an enamel band, wherein a bath having a forming hole accommodates a vessel for enamel submerged in the glass melt and consisting of two parts—an upper ceramic part and a lower part of metal with a high thermal conductivity, there being a device for introducing the enamel into the capillary being stretched, and another vessel for melting the enamel arranged outside the bath with the glass melt and communicating with the vessel in the bath containing the glass melt.

3,573,025
PNEUMATICALLY OPERATED PRESS PLUNGER

Joseph R. Hamilton, Anderson, Ind., assignor to Lynch Corporation, Anderson, Ind.

Filed July 29, 1968, Ser. No. 748,259
Int. Cl. C03b *11/10, 11/12*
U.S. Cl. 65—172 **8 Claims**

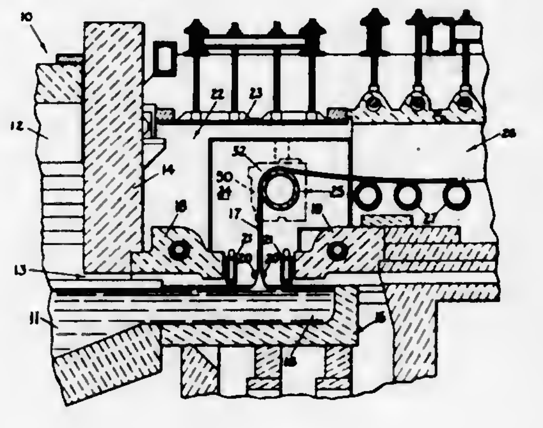


A pneumatically operated press plunger for glassware forming machines having an air operated clamping ring for cone-socket cooperation, along with a parison mold, in clamping the two halves of a split neck ring together during a parison pressing operation. The press plunger also has an air operated plunger holder to insure the plunger being held in operative position yet permit ready change of plungers to accommodate different types of ware.

3,573,026
APPARATUS FOR DEFLECTING SOFTENED GLASS SHEET MATERIAL FROM ONE DIRECTION TO ANOTHER DIRECTION OF DRAW

Robert E. Maltby, Jr., Perrysburg, and William E. McCown and Eugene H. Helmrich, Toledo, Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Feb. 26, 1968, Ser. No. 708,021
Int. Cl. C03b *15/04*
U.S. Cl. 65—182 **10 Claims**

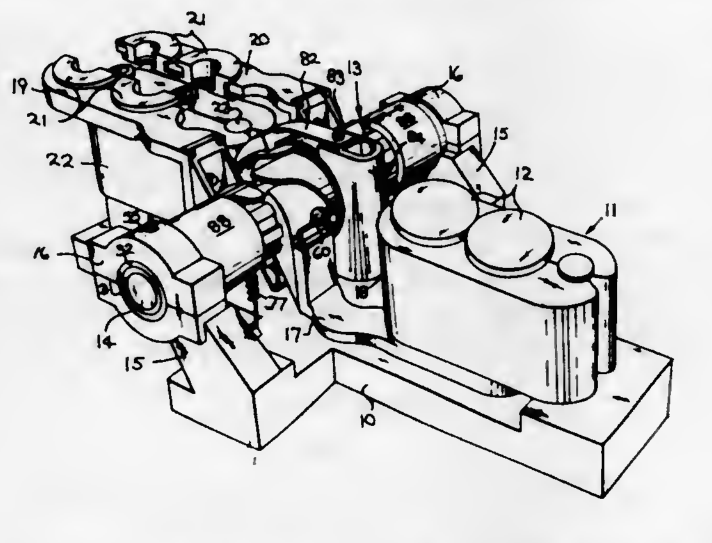


A device for supporting and conveying a continuous ribbon of pliable sheet material. The ribbon passes over a stationary curved member having a shallow recess formed in its surface, and an aeriform fluid is admitted to the recess under pressure to create a plenum beneath the ribbon whereby the ribbon is supported on a fluid film out of contact with the supporting member as it passes thereover.

3,573,027
APPARATUS FOR FORMING BLOWN GLASS ARTICLES

Robert E. Nuzum, Sr., Sylvania, Ohio, assignor to Owens-Illinois, Inc.

Filed May 8, 1968, Ser. No. 727,623
Int. Cl. C03b *9/16, 9/26*
U.S. Cl. 65—235 **10 Claims**



In the forming of glass containers by the blow and blow process, a charge of molten glass is formed into a parison, with the parison positioned with its neck down. The parison is transferred from the parison forming position by an invert arm mechanism which supports the parison by its neck. The inverted parison is then expanded into final container shape within a blow mold. A pair of invert arms, mounted for rotation about the same invert axis, are provided so that while a parison is being formed, a previously formed parison is being blown at the blow station. The formed parison is inverted and transferred to the blow station by one neck mold carrying arm while the other neck mold carrying invert arm is opened and reverted to the parison forming side of the apparatus. In this manner a full overlap cycle of operation is carried out such that parisons are being formed and simultaneously being blown into container shapes.

3,573,028
METHOD FOR SUPPRESSING THE NITRIFICATION OF AMMONIUM NITROGEN IN SOIL

Kisaburo Ueno, Koza-gun, Akira Hirose, Yokohama, and Tetsuichi Shinozawa, Chigasaki, Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 595,607, Nov. 21, 1966. This appplication May 2, 1968, Ser. No. 726,240
The portion of the term of the patent subsequent to Dec. 9, 1986, has been disclaimed
Int. Cl. A01n *9/14*
U.S. Cl. 71—27 **10 Claims**

A method for suppressing the nitrification of ammonium nitrogen in soil comprising treating the soil in a plant growing area with a alkanoylsulfathiazole or sodium salt of sulfathiazole and a composition therefor.

3,573,029
SEPARATION OF AMMONIUM PHOSPHATE FROM NITROPHOSPHATE PRODUCT MIXTURES

William T. Curless, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

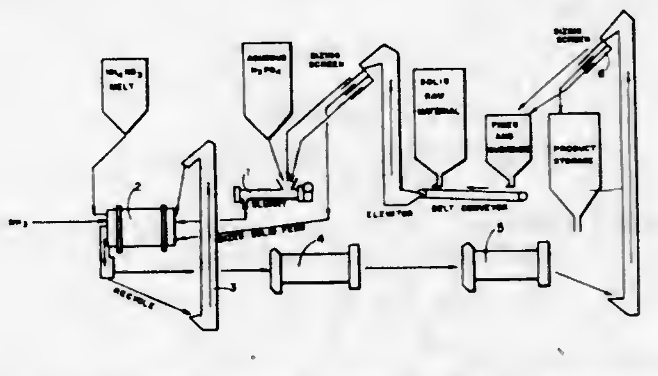
No Drawing. Filed Apr. 25, 1968, Ser. No. 725,587
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **4 Claims**

By controlling a number of variables within specific limits, solid mixed ammonium phosphate fertilizer substantially free of solid ammonium nitrate and having a $NH_3:H_3PO_4$ mole ratio varying from 1.1 to 2.0 is crystallized from ammoniated nitrophosphate product. Optionally, a second solid rich in ammonium nitrate may be isolated from the liquid phase of the ammonium phosphate removal stage. The liquid from this second stage may be recycled or utilized for other purposes.

3,573,030
PROCESS FOR MIXED FERTILIZER GRANULATION

Wilbur A. McPherson, Baxter Springs, Kans., and Robert W. Hamilton, Joplin, Mo., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed May 7, 1968, Ser. No. 727,238
Int. Cl. C05b *19/00*
U.S. Cl. 71—64 **2 Claims**



In a practically dust-free process for manufacturing substantially spherical fertilizer granules the feed streams to the granulator consist of solids of controlled particle size, molten ammonium nitrate, ammonia, a slurry produced by wet-grinding oversize solids and fines in aqueous phosphoric acid, and granular product recycled directly from the granulator exit.

3,573,031
METHOD OF CONTROLLING WEEDS

Harry Tilles, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 106,444, May 1, 1961. This application Apr. 27, 1964, Ser. No. 362,948
Int. Cl. A01n *9/12;* **C07d**
U.S. Cl. 71—100 **9 Claims**

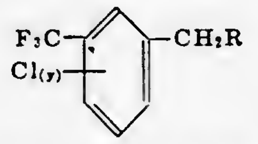
This invention relates to the use of certain compositions as herbicides. More particularly, it has been found that certain alkyl 1-hexamethyleneimine-carbothiolates possess valuable herbicidal properties and are particularly useful as pre-emergence herbicides.

3,573,032
HERBICIDAL COMPOSITION AND METHOD

Josef Fellig, Glen Rock, and Benjamin Pecherer, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Mar. 30, 1967, Ser. No. 626,983, now Patent No. 3,489,784, dated Jan. 13, 1970. Divided and this application July 16, 1969, Ser. No. 842,357
Int. Cl. A01n *9/24;* **C07c** *121/66*
U.S. Cl. 71—115 **4 Claims**

Herbicidal compounds of the formula



wherein R is either —CN, —$CONH_2$ or —COOH and *y* is either 0 or 1 and the chlorine is either ortho or para to either the —CF_3 or —CH_2R group

useful as selective pre-emergent herbicides.

3,573,033

PROCESSES OF DIRECT REDUCTION OF MINERALS

Jean Bouchet, Clery-Saint-Andre, Loiret, France, assignor to Societe Metallurgique d'Imphy, Paris, France

No Drawing. Continuation of application Ser. No. 511,991, Dec. 6, 1965. This application Feb. 27, 1969, Ser. No. 804,378

Claims priority, application France, Dec. 16, 1964, 998,852

Int. Cl. C21b *13/00*

U.S. Cl. 75—33 **5 Claims**

Direct reduction of ores which are difficult to reduce is started at the equilibrium temperature by adding to the charge of the ore, reducing agents and slag forming materials heated to the equilibrium temperature a supplemental charge containing the metal of the mineral in pulverized state.

3,573,034

STRESS-CORROSION RESISTANT STAINLESS STEEL

Elbert E. Denhard, Jr., Towson, Md., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Sept. 18, 1967, Ser. No. 673,242

Int. Cl. C22c *39/20*

U.S. Cl. 75—128 **9 Claims**

Austenitic chromium-nickel stainless steel of high carbon content, and various products fashioned thereof, which steel and products are strong, ductile and wear-resistant and which moreover are resistant to the attack of chlorides in applications where great stress is encountered. More particularly, the steel comprises about 18% to about 25% chromium, about 9% to about 20% nickel, about .25% to about .85% carbon, with carbon being inversely proportioned to nickel, and with remainder substantially iron.

3,573,035

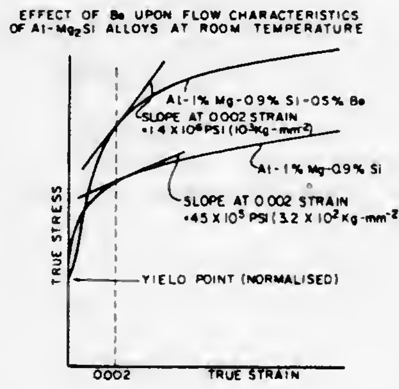
ALUMINUM-BASED, HEAT TREATABLE ALLOY

Leonard B. Griffiths, North Reading, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Continuation-in-part of application Ser. No. 667,910, Sept. 15, 1967. This application Jan. 24, 1969, Ser. No. 793,917

Int. Cl. C22c *21/02;* **C22f** *1/04*

U.S. Cl. 75—147 **25 Claims**



A high strength, heat treatable alloy consisting essentially of from about 0.6 to 3.6% Mg; about 0.5 to 1.5% Si and about 0.2 to 0.5% Be is provided which is age hardenable and dispersion hardenable.

3,573,036

METHOD FOR PRODUCING STOICHIOMETRIC URANIUM DIOXIDE COMPOSITIONS

Norman P. Fairbanks and James A. McGurty, Cincinnati, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Nov. 15, 1966, Ser. No. 594,636

Int. Cl. C22b *61/04;* **C22c** *1/04*

U.S. Cl. 75—206 **2 Claims**

This invention relates to a method of fabricating a nuclear fuel element which comprises forming a body of uranium dioxide in a matrix selected from refractory metal or refractory metal alloy, sintering said body in a non-oxidizing atmosphere to a desired density at a temperature above 1700° C., thereby producing hypostoichiometric urania, and contacting the resulting cermet with wet hydrogen at a temperature in the range 1000° C.–1500° C. until substantial stoichiometry has been attained.

3,573,037

METHOD OF MAKING MOLYBDENUM COMPOSITE MATERIALS

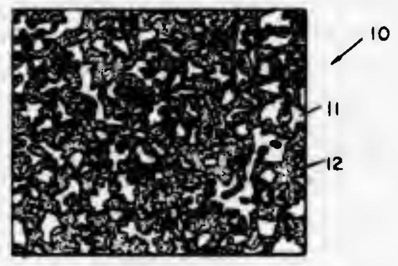
Richard H. Krock, Peabody, and Edward J. Zdanuk, Lexington, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Original application Jan. 22, 1968, Ser. No. 699,658, now Patent No. 3,407,048, dated Oct. 22, 1968. Divided and this application June 7, 1968, Ser. No. 749,900

The portion of the term of the patent subsequent to Feb. 7, 1984, has been disclaimed

Int. Cl. B22f *7/08, 3/26*

U.S. Cl. 75—208 **8 Claims**



A composite material in which the primary by volume constituent is molybdenum having a low gas content for use as a current carrying material. The composite material consists essentially of a substantially continuous skeleton of integrally bonded molybdenum particles, the voids of which are filled by a substantially continuous matrix of a metal alloy which is substantially mutually insoluble and substantially non-reactive with molybdenum. The alloy matrix includes at least one highly conductive metal and another metal which is less conductive wherein the less conductive metal tends to concentrate at the interface between the molybdenum and the alloy matrix.

3,573,038

POROUS FORMED CATALYST BODY AND PROCESS FOR ITS PRODUCTION

Margarete Jung, Kelkheim, and Hans von Doehren, Frankfurt am Main, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 10, 1966, Ser. No. 585,548

Claims priority, application Germany, Oct. 9, 1965, V 29,493; Mar. 25, 1966, V 30,711

Int. Cl. B22f *1/00*

U.S. Cl. 75—211 **23 Claims**

Catalyst powders, such as platinum, palladium or Raney metals, are rendered insensitive to air or oxygen by treatment with an oxygenated chlorine, bromine or iodine compound, such as potassium or sodium iodate, chlorate or bromate. The powder obtained is essentially hydrogen-free, non-pyrophoric and reactivatable. The powder may be molded by heat and pressure to a formed porous body.

3,573,039

METHOD OF RECOVERING PERSISTENT PHOTOCONDUCTORS

Ulo Vahtra and Meredith D. Shattuck, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Filed July 18, 1966, Ser. No. 565,687

Int. Cl. G03g *13/22*

U.S. Cl. 96—1 **10 Claims**

A method of recovering persistent photoconductors is disclosed. After a first image is produced on the photoconductive surface, the surface is uniformly charged to a pre-selected voltage to produce a developable image. The first conductive image is no longer developable.

3,573,040

HEAT DESENSITIZING OF CONVERTIBLE PLATE

Sangho E. Back, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,322

Int. Cl. G03g

U.S. Cl. 96—1 **4 Claims**

A convertible plate adapted for conversion by electrostatic procedures into a lithographic printing plate, comprising a sheet base formed from a paper web, and a dielectric film extending over the sheet base adapted to receive an image-defining electrostatic charge. The film is degradable by the application of heat. In preparing a printing plate from the convertible plate, the image-defining electrostatic charge is developed, and in nonimage areas the film is densitized by degrading the film with heat. This renders such nonimage areas of the film hydrophilic, or wettable with an aqueous fountain solution, in a lithographic printing process.

3,573,041

PROCESS FOR PREPARING A PLANOGRAPHIC PRINTING PLATE

Jozef Leonard Van Engeland, St. Katelijne-Waver, Noel Jozef De Volder, Edegem, and Albert Lucien Poot, Kontich, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,729

Claims priority, application Great Britain, Mar. 6, 1967, 10,475/67

Int. Cl. G03g

U.S. Cl. 96—1 **7 Claims**

A planographic printing plate is prepared by xerographically developing a latent electrostatic image on a xerographic layer using an inorganic photoconductor adapted to provide zinc ions, the image being developed with a developing composition forming a hydrophobic deposit on the xerographic layer in the image areas. The resultant xerographically developed layer is treated with an aqueous solution containing a hydrophilic zinc chelate or a compound capable of forming such a chelate with zinc ions.

3,573,042

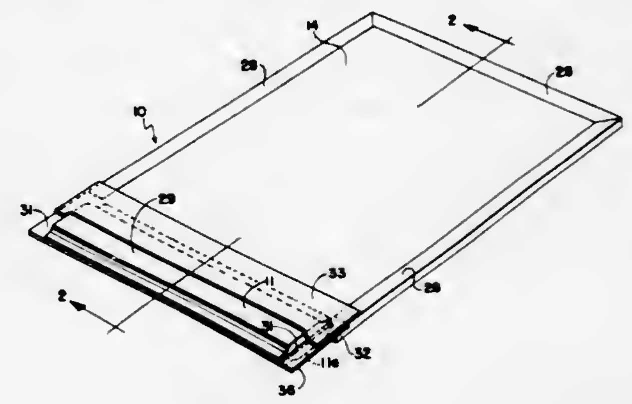
PHOTOGRAPHIC COLOR DIFFUSION TRANSFER PROCESSES AND FILM UNIT FOR USE THEREIN

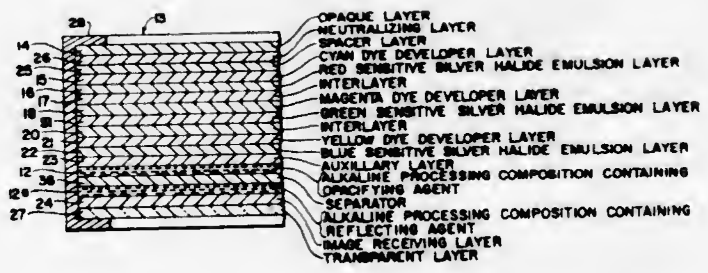
Terry W. Milligan, Belmont, and Richard W. Young, Wellesley Hills, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed July 30, 1969, Ser. No. 846,177

Int. Cl. G03c *7/00, 5/54, 1/40*

U.S. Cl. 96—3 **30 Claims**

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12a
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OPAQUE LAYER
NEUTRALIZING LAYER
SPACER LAYER
CYAN DYE DEVELOPER LAYER
RED SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILLARY LAYER
ALKALINE PROCESSING COMPOSITION CONTAINING OPACIFYING AGENT
SEPARATOR
ALKALINE PROCESSING COMPOSITION CONTAINING REFLECTING AGENT
IMAGE RECEIVING LAYER
TRANSPARENT LAYER

Simultaneous application of two processing compositions, one containing an opacifying agent and the other a reflecting material, to an exposed permanently structured film unit to obtain a color diffusion transfer therein.

3,573,043

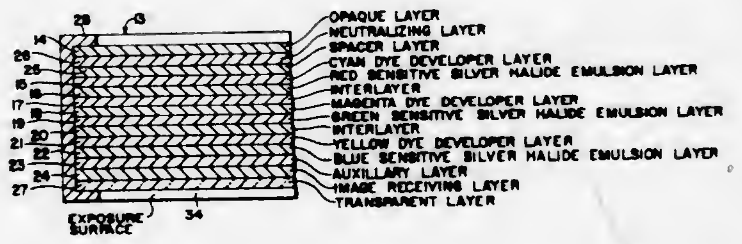
PHOTOGRAPHIC DIFFUSION TRANSFER COLOR PROCESS AND COMPOSITE FILM UNIT FOR USE THEREIN

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of application Ser. No. 622,283, Mar. 10, 1967, now Patent No. 3,415,644, dated Dec. 10, 1968. This application Dec. 9, 1968, Ser. No. 782,056

Int. Cl. G03c *7/00*

U.S. Cl. 96—3 **34 Claims**



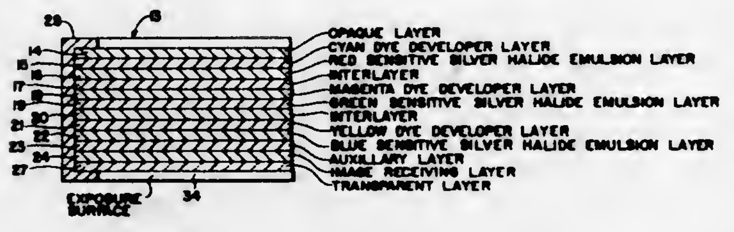
The invention relates to a composite photographic film unit structure which comprises a plurality of essential layers including, in sequence, a first dimensionally stable, liquid impermeable layer; a polymeric layer containing sufficient acid to effect reduction of an akaline processing composition having a first pH at which a dye image-forming material is substantially soluble and diffusible as a function of the exposure of its associated silver halide layer to a second pH at which said dye image-forming material is substantially nondiffusible; one or more photosensitive silver halide layers each having associated therewith a dye image-forming material which is soluble and diffusible, in alkali, at the first pH, as a function of the silver halide layer's exposure; a polymeric layer dyeable by the dye image-forming materials; and a second dimensionally stable, liquid impermeable transparent layer.

The film unit structure additionally includes means securing the respective layers in substantially fixed relationship and a rupturable container retaining an alkaline processing composition possessing the first pH and, preferably, opacifying agent in a quantity sufficient to mask the dye image-forming material associated with the silver halide layers mounted transverse a leading edge of the structure to effect discharge of the container's contents between the dyeable polymeric layer and next adjacent silver halide layer during photographic diffusion transfer color processing in accordance with the invention.

3,573,044

PHOTOGRAPHIC DIFFUSION TRANSFER COLOR PROCESS AND COMPOSITE FILM UNIT FOR USE THEREIN

Edwin H. Land, Cambridge, Mass., assignor to
Polaroid Corporation, Cambridge, Mass.
Filed Dec. 9, 1968, Ser. No. 782,075
Int. Cl. C03c *7/00*
U.S. Cl. 96—3 **34 Claims**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OPAQUE LAYER
CYAN DYE DEVELOPER LAYER
RED SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
MAGENTA DYE DEVELOPER LAYER
GREEN SENSITIVE SILVER HALIDE EMULSION LAYER
INTERLAYER
YELLOW DYE DEVELOPER LAYER
BLUE SENSITIVE SILVER HALIDE EMULSION LAYER
AUXILLARY LAYER
IMAGE RECEIVING LAYER
TRANSPARENT LAYER
EXPOSURE SURFACE
34

The invention relates to a composite photographic film unit structure which comprises a plurality of essential layers including, in sequence, a first dimensionally stable, liquid impermeable layer; one or more silver halide emulsion layers each having associated therewith a dye image-forming material which is soluble and diffusible during processing, as a function of the exposure of its associated silver halide emulsion layer, at a first solvent concentration; a polymeric layer dyeable by the dye image-providing materials; and a second dimensionally stable, liquid impermeable transparent layer.

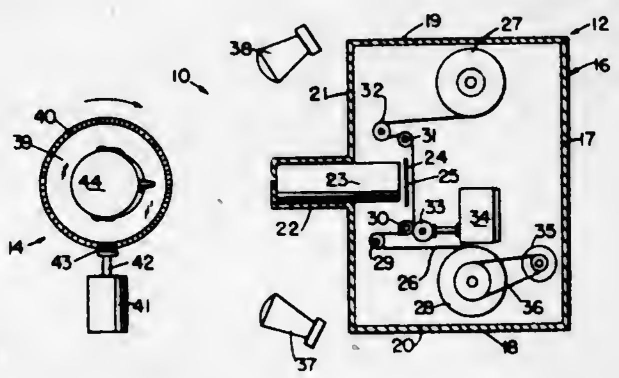
The film unit structure additionally includes means securing the respective layers in substantially fixed relationship and the dimensionally stable support layers, taken together, possess a processing composition solvent vapor permeability sufficient to effect, subsequent to substantial dye transfer image formation by diffusion transfer processing and preceding substantial environmental dye transfer image degradation, osmotic transpiration of processing composition solvent in a quantity effective to decrease the first solvent concentration at which the dye image-forming material is soluble and diffusible to a second solvent concentration at which the dye image-forming material is substantially nondiffusible.

The structure also includes a rupturable container retaining processing composition in a quantity sufficient to provide the first solvent concentration and, preferably, opacifying agent in a quantity sufficient to mask dye image-forming material associated with the silver halide emulsions mounted transverse a leading edge of the structure to effect discharge of the container's contents between the dyeable polymeric layer and next adjacent silver halide emulsion layer during photographic diffusion transfer color processing in accordance with the invention.

3,573,045

SCANNING TECHNIQUE, IMAGE AND ARTICLE PRODUCED THEREFROM

Jerome H. Lemelson, 85 Rector St.,
Metuchen, N.J. 08840
Application Jan. 31, 1962, Ser. No. 170,199, which is a division of application Ser. No. 559,232, Jan. 16, 1956. Divided and this application Feb. 1, 1966, Ser. No. 524,321
Int. Cl. G03c *5/04*
U.S. Cl. 96—27 **13 Claims**

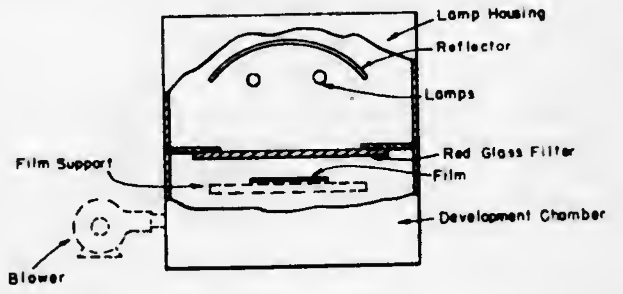


A method for forming a continuous photograph of a three-dimensional object which includes moving either the object or a camera continuously so that the camera views the entire surface of the object in a single continuous movement and passing a narrow band of light from the object onto a moving film strip which continuously moves past the light receiving mechanism of the camera to continuously expose the film strip. This continuous photograph of the entire surface of the object can then be printed on a thermoplastic or other formable material and the thermoplastic then molded about the original object photographed, or a model of the object having the same contours, to form a molded article; or the continuous photograph can be re-projected onto a model of the object having the same contours as the original object, and whose surface is light sensitive to thereby develop the photograph onto the second object.

3,573,046

HEAT TREATMENT PROCESS TO CONTROL CONTRAST IN NONSILVER LIGHT SENSITIVE SYSTEMS

Richard A. Fotland, Lyndhurst, and Frederick N. Robertson and James M. Lewis, Cleveland, Ohio, assignors to Horizons Incorporated, a division of Horizons Research Incorporated
Filed May 1, 1968, Ser. No. 725,885
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 **11 Claims**

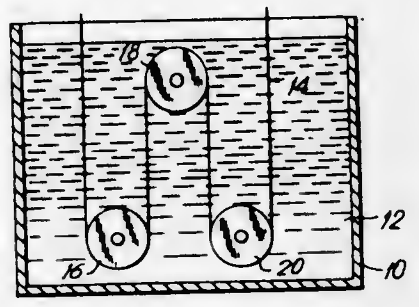


The control of contrast and/or gamma of a nonsilver photosensitive film by controlling the temperature of the film during optical development of the same.

3,573,047

TECHNIQUE FOR AVOIDING DAMAGE TO FILM AND THE LIKE BY FOREIGN OBJECTS

Saul Jeffee, Scarsdale, N.Y., assignor to
Movielab, Inc., New York, N.Y.
Filed June 27, 1967, Ser. No. 649,298
Int. Cl. G03c *5/26, 3/02, 1/76*
U.S. Cl. 96—50 **12 Claims**

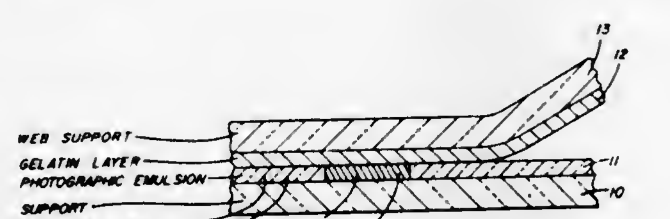


Foreign objects which might be trapped between a film and its guide roller are voided by providing suitable holes in the film or a leader which any such objects can drop through. This avoids damage to the film.

3,573,048

PHOTOGRAPHIC WEB PROCESSING

Billy K. Boller, Edward A. Smith, and Allan L. Sorem, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 31, 1968, Ser. No. 701,971
Int. Cl. G03c *5/38*
U.S. Cl. 96—61 **16 Claims**



A web processing method obtains a silver image by developing an exposed silver halide emulsion layer by laminating the exposed layer to a processing sheet having imbibed therein a processing solution containing a stabilizing agent which forms a substantially water insoluble silver salt compound. The resulting integral element permits convenient handling and viewing of the image.

3,573,049

PHOTOGRAPHIC MATERIALS AND PROCESSES FOR DEVELOPING PHOTOGRAPHIC COMPOSITIONS HAVING A ZWITTERIONIC AND ANIONIC ELEMENTS

Norman W. Kalenda, Rochester, N.Y., assignor to
Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Oct. 2, 1967, Ser. No. 671,955
Int. Cl. G03c *5/30*
U.S. Cl. 96—66.3 **20 Claims**

Photographic compositions and elements comprising a zwitterionic compound and an anionic compound. In one aspect, this invention relates to a process comprising developing a photographic image in the presence of a zwitterionic compound and an anionic compound. In another aspect, this invention relates to a photographic developer composition comprising a photographic developing agent, a zwitterionic compound, and an anionic compound.

3,573,050

COLOR PHOTOGRAPHIC LAYERS COMPRISING NON-DIFFUSIBLE 5 - HYDROXYCOUMARANS AS STABILIZING COMPOUNDS

Kent C. Brannock, Kingsport, Tenn., and Gregory J. Lestina, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Feb. 27, 1969, Ser. No. 803,080
Int. Cl. G03c *1/84, 1/40*
U.S. Cl. 96—84 **16 Claims**

Nondiffusible 5-hydroxycoumaran stabilizer compounds which have either a substituted amino group or an alkoxy group substituted on the carbon atoms in the 2 position are advantageously incorporated in hydrophilic colloid layers of photographic elements in which color photographic dye images are to be stored for viewing. The stabilizer compounds protect dye images against the fading effects of prolonged exposure to light.

3,573,051

TWO-COMPONENT DIAZOTYPE COMPOSITION

William C. Gray, Rochester, N.Y., assignor to Eastman
Kodak Company, Rochester, N.Y.
No Drawing. Filed July 31, 1967, Ser. No. 657,077
Int. Cl. G03c *1/58, 1/54*
U.S. Cl. 96—91 **12 Claims**

A two-component diazotype medium which provides, upon exposure and development, a neutral image with low contrast is obtained by employing as the light-sensitive layer a polymeric matrix such as cellulose acetate having dispersed therein a light-sensitive diazo dye-forming system comprising (1) as the diazo component, a 2,5-dialkoxy-4-morpholinobenzene diazonium salt, and optionally a 4-(dialkylamino)benzene diazonium salt; (2) as a blue coupler, at least one of a 2-hydroxy-N-(2-alkylphenyl)-3-naphthamide, and a 2-hydroxy-N-(2,4-dialkoxy-5-halophenyl)-3-naphthamide; and (3) as a yellow coupler, an N-substituted or N,N-di-substituted 1-hydroxy-2-naphthamide or a 2-acylamido-5-alkylphenol. The dye-forming system is preferably stabilized against premature coupling by the presence of acid stabilizers such as 5-sulfosalicyclic acid.

3,573,052

DIAZOTYPE MATERIALS OF IMPROVED STABILITY

William C. Gray and Frederick A. Stahly, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Oct. 30, 1967, Ser. No. 679,176
Int. Cl. G03c *1/54, 1/58, 1/60*
U.S. Cl. 96—91 **6 Claims**

The fading of azo dyes is inhibited by the presence of certain polymeric materials, both alone and in combination with certain hindered phenols which are substituted in the 2-position and in the 4-position. These stabilizing polymers are particularly useful as binder materials in diazotype reproduction media, especially the "two component" media containing a diazonium salt, a blue coupler and a yellow coupler in proportions sufficient to yield an azo dye image of neutral hue after exposure and development.

3,573,053

PHOTOGRAPHIC PROCESS FOR PRODUCING A PLURALITY OF IMAGES ON PREDETERMINED AREAS OF A CHEMICALLY DESENSITIZED SILVER HALIDE LAYER BY SEQUENTIAL THERMAL RESENSITIZATION, EXPOSURE, AND CHEMICAL RE-DESENSITIZATION OF EACH AREA

Edgar A. MacWilliam, Hilton, and Charles A. Goffe, Brockport, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed May 2, 1968, Ser. No. 726,231

Int. Cl. G03c *1/36, 5/04*

U.S. Cl. 96—101 **15 Claims**

A photographic process in which a generally desensitized photographic silver halide element is locally resensitized in one area by application of heat, exposed to produce a latent image in the resensitized area, desensitized in the resensitized and exposed area, locally resensitized in another area, and this sequence of steps repeated to produce latent images in other areas and finally photographically developing and fixing the exposed photographic element, is used to advantage to produce a plurality of photographic images in predetermined areas of the photographic element in such a way that latent images in the element are not affected by light exposure used to produce subsequent latent images.

3,573,054

PHOTOGRAPHIC PROCESS FOR PRODUCING A PLURALITY OF IMAGES ON PREDETERMINED AREAS OF A NON-SPECTRALLY SENSITIZED SILVER HALIDE LAYER BY SEQUENTIAL SPECTRAL SENSITIZING, EXPOSING, AND CHEMICAL DESENSITIZATION OF EACH AREA

John F. Tinker, Brockport, and Jean E. Jones, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed May 2, 1968, Ser. No. 726,230

Int. Cl. G03c *1/36, 5/04*

U.S. Cl. 96—101 **14 Claims**

A photographic process in which a photographic element comprising a support coated with a non-spectrally sensitized silver halide layer is locally spectrally sensitized in one area to an exposing light, exposed to produce a latent image in the spectrally sensitized area, desensitized in the spectrally sensitized and exposed area, locally spectrally sensitized in a second area to an exposing light, and this sequence of steps repeated to produce latent images in other areas and finally photographically developing and fixing the exposed photographic element, is used to advantage to produce a plurality of photographic images in predetermined areas of the photographic element in such a way that latent images in the element are not affected by light exposure used to produce subsequent latent images.

3,573,055

PHOTODEVELOPABLE DIRECT PRINT COMPOSITIONS COMPRISING IODOCADMATES IN ADMIXTURE WITH SILVER HALIDES

Norman Allentoff and Charles A. Goffe, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,935

Int. Cl. G03c *1/28*

U.S. Cl. 96—108 **8 Claims**

Photodevelopable direct-print silver halide compositions comprising iodocadmates, for example—potassium iodocamate, exhibit improved photographic properties, such as improved speed. In one embodiment direct-print compositions comprise an iodocadmate in combination with a cuprous halide.

3,573,056

TETRAAZAINDENE-STABILIZED SILVER HALIDE PHOTOGRAPHIC EMULSIONS

Terence W. Baldock and Alan N. Ferguson, Harlow, Essex, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

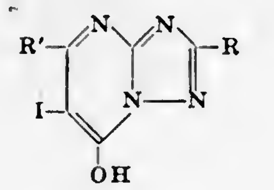
No Drawing. Filed Dec. 5, 1967, Ser. No. 688,018

Claims priority, application Great Britain, Dec. 8, 1966, 55,114/66

Int. Cl. G03c *1/34*

U.S. Cl. 96—109 **7 Claims**

Tetraazaindene compounds having the general formula



in which R represents a hydrogen atom, an alkyl or an alkylthio group, and R′ represents an alkyl group; and salts thereof; as well as the process for their preparation. This invention also relates to the use of such tetraazaindene compounds as stabilizers in silver halide photographic emulsions.

3,573,057

HIGH RESOLVING POWER PHOTOGRAPHIC EMULSIONS AND MATERIALS

Guy W. W. Stevens, Berkhamsted, England, assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed May 3, 1967, Ser. No. 635,705

Int. Cl. G03c *1/72, 1/02*

U.S. Cl. 96—112 **18 Claims**

Photographic hydrophilic colloid binder silver halide Lippmann emulsions that contain a removable and substantially photographically inert dye which absorbs light of the spectral composition selected for exposing the emulsion when coated on a support as the light-sensitive layer are used to advantage to produce image reproductions of exceptionally high resolution and sharpness.

3,573,058

MICROCRYSTALLINE CELLULOSE COMPOSITIONS CO-DRIED WITH HYDROCOLLOIDS

Peter J. Tiemstra, La Grange, Ill., assignor to Swift & Company, Chicago, Ill.

No Drawing. Filed Jan. 30, 1967, Ser. No. 612,329

Int. Cl. A23l *1/00*

U.S. Cl. 99—1 **8 Claims**

Attrited microcrystalline cellulose is admixed and codried with a protective hydrocolloid such as gelatin, sodium alginate and the like. The hydrocolloid should be employed in an amount sufficient to produce a sediment less than about 20% (basis dry weight of microcrystalline cellulose employed) upon re-hydration of the co-dried product.

3,573,059

METHOD OF PREVENTING THE DETERIORATION OF FRYING OILS IN FRYING APPARATUSES AND A HOOD FOR USE ON SUCH APPARATUSES

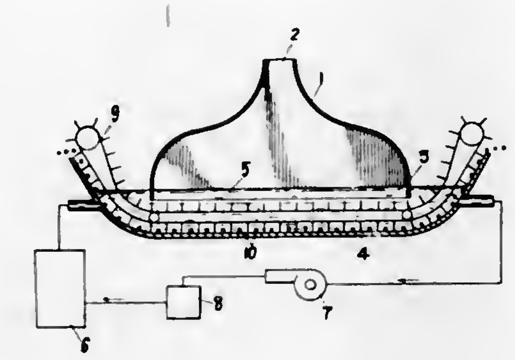
Etsuji Yuki, 1454 banchi, Aki-gun, Hiroshima-ken, Yano-machi, Japan

Continuation-in-part of application Ser. No. 700,920, Jan. 26, 1968. This application July 10, 1969, Ser. No. 860,130

Int. Cl. A47j *37/12*

U.S. Cl. 99—1 **3 Claims**

A method of preventing the deterioration of frying oils in a frying apparatus in which a roof-shaped or peaked hood is positioned over nearly all the surface of the oil in the frying pan in such a way that its bottom circumferential rim is submerged in the oil, thereby preventing the infiltration of air into the hood, and the vapor generated within the hood is discharged at a flow rate of from greater than 100 kg./m.^{2} hr. to 10,000 kg./m.^{2} hr. through a vapor outlet having a dimension chosen for securing the desired effect. The hood used for carrying out the method is equipped with a baffle for collecting condensed material so formed that water and oily material which is condensed on the inside wall surface of the hood where it is inclined upwardly from its bottom circumferential rim will flow down along the inclined inside wall surface of the hood and will be accumulated at the bottom circumferential rim, wherefrom it can be discharged from the apparatus.



3,573,060

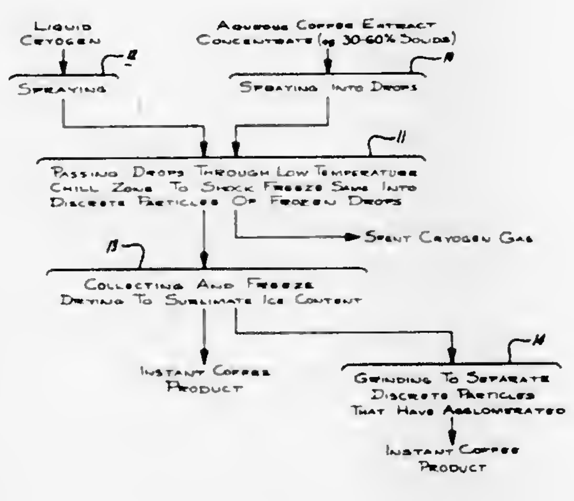
COFFEE EXTRACT PRODUCTS AND METHODS AND APPARATUS FOR THEIR MANUFACTURE

James W. Casten, Piedmont, and Stanley H. Shimabuku, Richmond, Calif., assignors to Hills Bros. Coffee, Inc., San Francisco, Calif.

Filed Sept. 21, 1967, Ser. No. 669,618

Int. Cl. A23f *1/08*

U.S. Cl. 99—71 **7 Claims**



Liquid Cryogen
12
Spraying
Aqueous Coffee Extract Concentrate (eg 30-60% Solids)
10
Spraying Into Drops
11
Passing Drops Through Low Temperature Chill Zone To Shock Freeze Same Into Discrete Particles Of Frozen Drops
Spent Cryogen Gas
13
Collecting And Freeze Drying To Sublimate Ice Content
Instant Coffee Product
14
Grinding To Separate Discrete Particles That Have Agglomerated
Instant Coffee Product

The coffee extract concentrate to be freeze dried is sprayed to form drops. A method and apparatus are disclosed in which a cryogen gas is sprayed into a region to create a low temperature zone for freezing the drops. The latter are caused to impinge and pass through the zone so that they are instantly shock frozen into discrete solid frozen particles. The particles are collected and freeze dried in suitable apparatus to sublimate their ice content and form a dried particle product. The dried coffee particle product is characterized by a low bulk denstiy of about 0.20 to 0.25 gram per cubic centimeter and by having a granular form, of sponge-like appearance, and being highly porous and easily aromatized. A process is disclosed for using combined freeze concentrated and evaporation concentrated coffee extracts.

3,573,061

SEEDCOAT FLOUR AND METHOD OF MAKING AND USING THE SAME

Elmer F. Glabe, Chicago, and Kazimir K. Lilien, Elmhurst, Ill., assignors to National Bakers Services, Inc., Hollywood, Fla.

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,806

Int. Cl. A21d *13/04, 13/06;* **A23l** *1/20*

U.S. Cl. 99—90 **16 Claims**

An improved seedcoat flour showing reduced water absorption and improved flavor is prepared by intimately mixing seedcoats with an acid preferably 1 N to 5 N HCl, washing the seedcoats, neutralizing the excess acid, drying the seedcoats and heating them to about 325–425° F. The product is then ground into a flour. This flour may be utilized, preferably in combination with wheat flour, to manufacture a low-calorie, yeast-leavened bread. In order to obtain an acceptable bread, egg yolk or hydroxylated lecithin, and preferably a combination of the two is added to the formulation.

3,573,062

MEAT PRODUCTS

William D. Paynter and Everett V. Podebradsky, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 441,864, Mar. 22, 1965. This application May 24, 1967, Ser. No. 640,837

Int. Cl. A23l *1/31*

U.S. Cl. 99—107 **8 Claims**

Primal cuts of meat are fabricated from coarse pieces of lean, uncooked, muscle meat weighing at least ¼ pound each. From about 10%–25% by weight of the entire mass to be uniformly blended comprises a fatty meat batter containing from about 40%–60% by weight fat. In addition to the lean meat and batter, a smaller percentage of a polyphosphate salt is incorporated. These ingredients are mixed for at least about eight minutes into a uniform blend. The polyphosphate content improves the bonding together of the chunks of lean, uncooked muscle meat while the fatty batter imparts tenderness and juiciness to the product. The uniformly blended meat mass is formed into a desired shape which may be retained in the frozen condition or which may be freeze dried. Such primal cuts as steaks, chops, roasts and loins may be made in accordance with the invention.

3,573,063

PROCESSES FOR IMPROVING THE FLAVOR, TENDERNESS, JUICINESS AND APPEARANCE OF MEATS USING NATURAL ANIMAL PRODUCTS

Beverly E. Williams, P.O. Box 299, San Mateo, Calif. 94401

No Drawing. Continuation-in-part of application Ser. No. 639,313, May 18, 1967. This application Dec. 31, 1969, Ser. No. 889,721

Int. Cl. A22c *18/00*

U.S. Cl. 99—107 **3 Claims**

Naturally occurring animal products are stitch pumped into animal carcasses on or adjacent to the killing floor while the freshly slaughtered carcasses are still warm and flaccid and before the completion of rigor mortis and at pressures from 15 to 110 lbs. per square inch at animal body temperatures in amounts of up to 5% by weight of the animal carcass. These naturally occurring animal products may be whole blood from the aorta or arterial system of the animal itself; whole blood from a similar animal; rehydrated blood from a similar animal; milk; reconstituted milk from dried milk and water. A more tender, juicier meat of improved appearance and flavor results when cooked.

3,573,064
RECONSTITUTABLE DRY COCONUT POWDER

Peter P. Noznick, Evanston, and Robert H. Bundus, Riverside, Ill., assignors to Beatrice Foods Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 603,093, Dec. 20, 1966. This application Aug. 29, 1968, Ser. No. 756,316

Int. Cl. A23l *1/00*

U.S. Cl. 99—125 **18 Claims**

Coconut meat is removed from the shell, ground to a particle size of not over 200 microns, preferably in the presence of water, and fibrous material separated from the milk. To the milk is added an emulsifier and a protein and the milk is then dried, e.g. by spray drying. To reduce tackiness dextrin can be added prior to drying. The coconut milk can be concentrated prior to drying.

3,573,065
FREEZABLE CAKE FROSTING

Walter Arnesen, 2708 Chinquapin Oak Lane, Arlington, Tex. 76010

No Drawing. Filed Jan. 31, 1969, Ser. No. 795,732

Int. Cl. A23g *3/00*

U.S. Cl. 99—139 **2 Claims**

A freezable cake frosting that can be frozen, thawed and refrozen without noticeable change in smoothness and texture and without affecting its use as a cake frosting containing in combination with whipped whipping cream as a source of fat for freezability, mixed butter and solid vegetable shortening, sugar, any of the customary flavoring ingredients, glycerine to impart freezability to the frosting so that the frosting can be thawed and refrozen repeatedly without apparent change and to aid in dissolving some of the sugar.

3,573,066
SEASONING COMPOSITION COMPRISING α-AMINO ACID, PALATABLE 5′-NUCLEOTIDE AND L-GLUTAMIC ACID AND FOOD BEING MANUFACTURED TO CONTAIN THE ABOVE THREE

Tamotsu Yokotsuka, Chiba-ken, and Nobuo Saito and Akira Okuhara, Noda-shi, and Teruo Tanaka, Matsudo-shi, Japan, assignors to Kikkoman Shoyu Co., Ltd., Noda-shi, Japan

Continuation of application Ser. No. 511,390, Dec. 3, 1965. This application June 16, 1969, Ser. No. 838,008

Claims priority, application Japan, Dec. 15, 1964, 41/70,186; July 27, 1965, 40/45,079; Oct. 8, 1965, 40/61,329

Int. Cl. A23l *1/22*

U.S. Cl. 99—140 **7 Claims**

A seasoning composition containing L-glutamic acid or monosodium L-glutamate, a 5′-nucleotide and an α-amino acid.

3,573,067
PROCESS FOR RADIATION STERLIZING A PACKAGED PRECOOKED MEAT AND GRAVY PRODUCT

Gary W. Shults, Milford, Mass., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Oct. 8, 1968, Ser. No. 766,000

Int. Cl. A23b *1/00, 1/06;* **B65b** *55/02*

U.S. Cl. 99—157 **8 Claims**

An improved process for sterilizing a precooked-meat and gravy product with high energy ionizing radiation wherein the meat and gravy are each frozen separately and kept frozen and apart during the sterilization step and subsequently allowed to thaw and mix with the container.

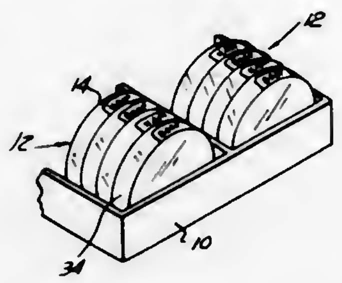
3,573,068
FOOD SANDWICH PACKAGE AND METHOD OF MAKING SAME

Joseph A. Polselli, 3578 E. Milwaukee, Detroit, Mich. 48211

Filed Sept. 22, 1969, Ser. No. 859,859

Int. Cl. B65b

U.S. Cl. 99—171 **5 Claims**



A wrapped sandwich forms a package and contains an L-shaped label between the sandwich and the wrapper so that one part of such label is visible on the face of the package but another part of the label is visible at an edge of the package. The label may be imprinted as for example by imprinting the edge exposed parts with a description of the contents of the sandwich and thus indicate the contents with visibility of such imprinting being assured even at an edge of the package when the packages are stacked with only their edges showing.

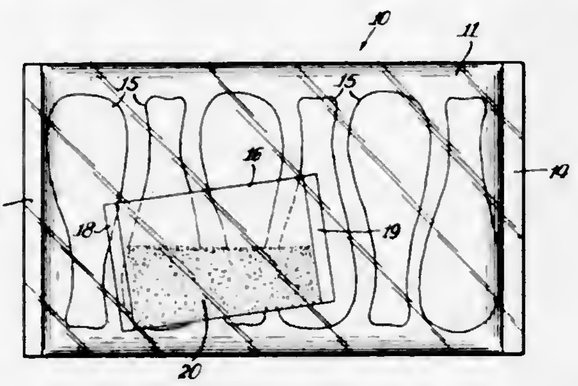
3,573,069
COMBINATION FROZEN FOOD AND BREADING COMPOSITION PACKAGE

Robert G. Keller, Waltham, and Denis Robinson, Medfield, Mass., assignors to CPC International Inc.

Filed Nov. 24, 1967, Ser. No. 685,358

Int. Cl. B65b *29/10*

U.S. Cl. 99—174 **13 Claims**



A frozen food package comprising a pliable outer envelope, formed of a flexible film of plastic material, one or more pieces of frozen food, such as poultry, sea food, meat, and the like, disposed in the envelope, and a pouch that is also disposed in the envelope and that contains a breading composition for the food pieces. The pouch is formed to be more easily rupturable than the envelope, so that it can be burst by manipulation, to release the breading, while it is still in the envelope. The breading is then applied to the food pieces by shaking the envelope.

3,573,070
PROCESSES FOR PREPARING DEHYDRATED POTATOES

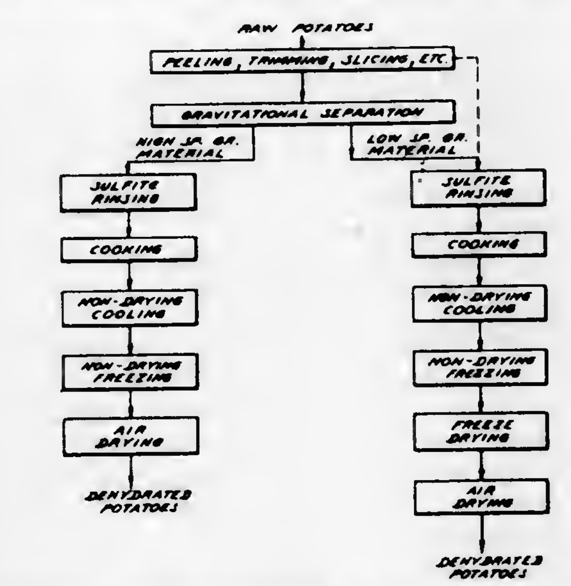
John C. Smith, David A. Butler, Jerry J. Opella, and Glen D. Porter, Houston, Tex., assignors to Uncle Ben's, Inc., Houston, Tex.

Filed Nov. 9, 1967, Ser. No. 681,814

Int. Cl. A23b *7/03;* **A23l** *1/12*

U.S. Cl. 99—207 **5 Claims**

The present invention relates to methods for dehydrating white potatoes whereby an entire potato may be processed without formation of hard, vitreous material thus promoting quick rehydration. Generally, the method includes initial preparation of the potato such as peeling, trimming and slicing with appropriate chemical rinsing followed by cooking to gelatinize the slices; cooling, freezing; freeze drying; and air drying. In alternative embodiments, prior to cooking the cut pieces may be subjected to density fractionation with isolation of the heavier pieces for further processing by cooking, cooling, freezing and air drying.



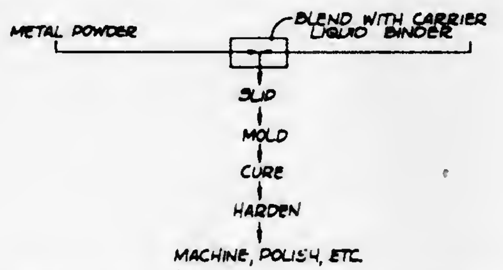
3,573,071
CEMENTED METAL POWDER AND FIBERS AND METHOD OF MAKING A COMPOSITE ARTICLE THEREFROM

Robert A. Horton, Chesterland, and Timothy L. Coghill, Mentor, Ohio, assignors to Precision Metalsmiths, Inc.

Filed Oct. 18, 1968, Ser. No. 768,868

Int. Cl. B28b *7/34*

U.S. Cl. 106—38.3 **19 Claims**



The disclosure pertains to a new composition of materials in the form a porous cemented composite and a method of making the same. Metal powder such as copper is mixed with a cement binder such as Portland cement. When prepared as a slip, poured and cured, the cemented metal powder has sufficient green strength to hold its shape making it suitable for casting purposes. By treating the green composite with a hardening agent, such as ammonium hydroxide, it is hardened and strengthened so as to withstand grinding, polishing, machining or other operations normally associated only with working on solid metals. A metal fiber may be mixed with or substituted for the metal powder with good results.

3,573,072
GLASS-CERAMIC ARTICLE AND METHOD

David A. Duke, 7 Theresa Drive, Corning, N.Y. 14830, and Bruce R. Karstetter, R.D. 1, Chatfield Place, Painted Post, N.Y. 14870

No Drawing. Continuation-in-part of application Ser. No. 642,318, May 31, 1967, which is a continuation-in-part of application Ser. No. 365,198, May 5, 1964. This application Mar. 18, 1968, Ser. No. 714,012

Int. Cl. C03c *3/22*

U.S. Cl. 106—39 **6 Claims**

This invention relates to the strengthening of glass-ceramic articles wherein the crystal content thereof constitutes the predominant portion and containing nepheline as the principal crystal phase, said nepheline corresponding to the formula $Na_{8-x}K_xAl_8Si_8O_{32}$ wherein x varies from about 0.25 to 4.73. The strengthening is realized through an ion exchange reaction occurring within a surface layer of the glass-ceramic article wherein potassium, rubidium, and/or cesium ions from an external source are exchanged for sodium ions in the nepheline to convert the nepheline in part at least to kalsilite and/or crystals resembling synthetic kaliophylite and cause compressive stresses to be developed in the surface layer.

3,573,073
GLASS-CERAMIC ARTICLE AND METHOD

David A. Duke, 7 Theresa Drive, Corning, N.Y. 14830; Bruce R. Karstetter, R.D. 1, Chatfield Place, Painted Post, N.Y. 14870; Stanley S. Lewek, 187 N. Place, Corning, N.Y. 14830; and Robert W. Pfitzenmaier, 32 Elm St., Canisteo, N.Y. 14823

No Drawing. Continuation-in-part of abandoned application Ser. No. 365,201, May 5, 1964. This application Mar. 18, 1968, Ser. No. 714,015

Int. Cl. C03c *3/22*

U.S. Cl. 106—39 **8 Claims**

This invention relates to the strengthening of glass-ceramic articles wherein the crystal content thereof constitutes the predominant portion and containing nepheline as the principal crystal phase. The strengthening is effected through an ion exchange reaction occurring within a surface layer of the glass-ceramic article wherein potassium ions from an external source are exchanged for sodium ions in the nepheline to convert the nepheline at least in part to kalsilite and cause compressive stresses to be developed in the surface layer.

3,573,074
HALIDE NUCLEATED GLASS-CERAMIC ARTICLES GIVING MIE LIGHT SCATTERING

David A. Duke and Thomas R. Kennedy, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Mar. 8, 1968, Ser. No. 711,534

Int. Cl. C04b *33/00*

U.S. Cl. 106—39 **2 Claims**

This invention relates to the production of glass-ceramic articles in the $Li_2O—Na_2O—Al_2O_3—SiO_2$ composition field which are nucleated with NaF to form beta-quartz solid solution and/or beta-spodumene solid solution as the principal crystal phase therein. These glass-ceramic articles may be translucent and, having crystals of a proper size and with an index of refraction much different from that of the residual glass, exhibit good volume scattering characteristics for visible light, thereby making them especially suitable for such applications as rear view projection screens.

3,573,075
GLASS-CERAMIC ARTICLE AND METHOD

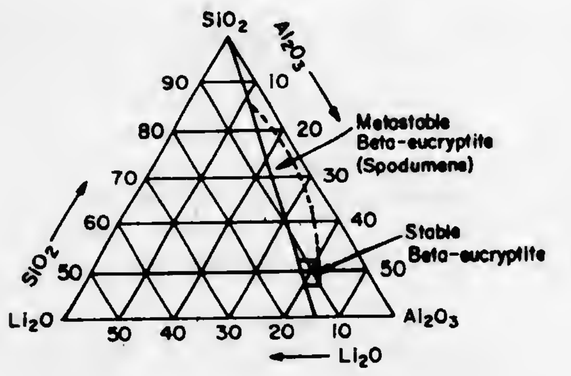
Bruce R. Karstetter, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Continuation-in-part of application Ser. No. 365,035, May 5, 1964. This application May 31, 1968, Ser. No. 733,300

Int. Cl. C03c *3/22*

U.S. Cl. 106—39 **6 Claims**

This invention relates to the strengthening of glass-ceramic articles wherein the crystal content thereof comprises the predominant portion and containing thermally stable beta-eucryptite as the principal crystal phase. The strengthening is accomplished through an ion exchange reaction taking place within a surface layer of the glass-ceramic article wherein sodium ions from an external source are exchanged for lithium ions in the beta-eucryptite, but wherein the structural nature of the crystals is essentially unchanged, to cause the development of an integral surface compression layer on the article.



3,573,076
GLASS-CERAMIC ARTICLE AND METHOD

Hermann L. Rittler, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 365,178, May 5, 1964. This application Mar. 3, 1969, Ser. No. 803,974
Int. Cl. C03c *3/22*
U.S. Cl. 106—39 **5 Claims**

This invention relates to the strengthening of glass ceramic articles wherein the crystal content thereof comprises the predominant portion and containing beta-quartz stuffed with lithium and magnesium ions as the principal crystal phase. The strengthening effect is achieved through an ion exchange process taking place within a surface layer of the glass-ceramic article wherein potassium ions from an external source are exchanged for lithium ions in the beta-quartz, but wherein the structural nature of the crystals remain essentially unchanged, to cause compressive stresses to be developed in this surface layer.

3,573,077
GLASS-CERAMIC ARTICLE AND METHOD

George H. Beall, Corning, and Bruce R. Karstetter, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 365,161, May 5, 1964. This application Feb. 4, 1969, Ser. No. 796,562
Int. Cl. C03c *3/22*
U.S. Cl. 106—39 **3 Claims**

This invention relates to the strengthening of glass-ceramic articles wherein the crystal content thereof comprises the predominant portion and containing beta-quartz stuffed with magnesium ions as the principal crystal phase. The strengthening effect is accomplished through an ion exchange process taking place within a surface layer of the articles whereby lithium ions from an external source are exchanged for magnesium ions in the beta-quartz crystals to cause compressive stresses to be set up in the surface layer.

3,573,078
GLASS COMPOSITIONS WITH A HIGH MODULUS OF ELASTICITY

James F. Bacon, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
No Drawing. Filed Nov. 16, 1967, Ser. No. 683,465
Int. Cl. C03c *13/00, 3/04*
U.S. Cl. 106—52 **11 Claims**

Glass compositions comprising silica, alumina, and magnesia plus substantial quantities of an uncommon oxide such as lanthana, ceria, and yttria provide a formulation containing no toxic elements and capable of fiberization to produce filaments having a high modulus of elasticity.

3,573,079
METHOD OF MAKING HIGH-PURITY DEAD-BURNED MAGNESIA REFRACTORY GRAINS

Hiroji Shibasaki, Tokyo, and Kyoichi Sasaki, Akira Kubota, Yasuyoshi Oda, and Kenzi Takeo, Iwaki-shi, Japan, assignors to Shin Nihon Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
No Drawing. Filed Mar. 12, 1968, Ser. No. 712,394
Int. Cl. C04b *35/04*
U.S. Cl. 106—58 **1 Claim**

A method of making a high-purity and high-density dead-burned magnesia having a high hot compressive strength by reducing the content of free water in a filter cake of a high-purity magnesium hydroxide which is very difficultly sintered according to the conventional methods known heretofore, to a certain predetermined range, kneading and calcining the filter cake thus treated, compacting preliminarily said calcined magnesia, crushing and sizing the pre-compacted product, shaping into pellets and dead-burning the same to give the desired dead-burned magnesia.

3,573,080
CERAMIC PIGMENTS

Bernard Trevor Bell and William D. J. Evans, London, England, assignors to Johnson, Matthey & Co. Limited, London, England
Filed June 7, 1968, Ser. No. 735,337
Claims priority, application Great Britain, June 9, 1967, 26,773/67
Int. Cl. C09c *1/00*
U.S. Cl. 106—299 **14 Claims**

A zircon-based ceramic pigment prepared by calcining a mixture of zirconium oxide and silicon oxide in the presence of a chromophore and one or more mineraliser components in which the mineraliser components comprise a source of barium ions and a source of sulphate ions in addition to sources of alkali metal ions, fluoride ions and either chloride or bromide ions.

3,573,081
METHOD FOR PRODUCING PIGMENTS OF IMPROVED DISPERSIBILITY

Albert Dietz, New Martinsville, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Continuation-in-part of application Ser. No. 515,730, Dec. 22, 1965. This application Aug. 15, 1969, Ser. No. 850,670
Int. Cl. C08h *17/04;* **C09c** *1/36, 3/021*
U.S. Cl. 106—300 **15 Claims**

Pigmentary metal oxides, e.g., titanium dioxide, are treated with an organic amine and an organic compound containing at least one activated methylene group.

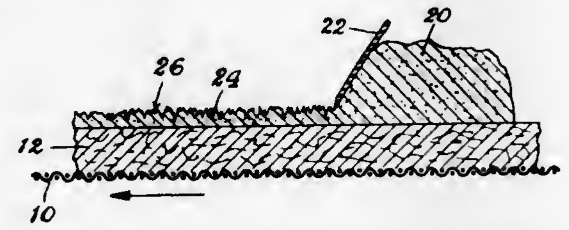
3,573,082
BIOLOGICAL SPECIMENS AND PROCESS OF PRESERVING SAME

Calvin R. Fremling, Winona, Minn., assignor to Nasco Industries, Inc., Atkinson, Wis.
No Drawing. Filed Apr. 16, 1968, Ser. No. 721,616
Int. Cl. A01n *1/00*
U.S. Cl. 117—3.0 **16 Claims**

The process of preserving animal and plant specimens involving the use of glycol and a biological specimen impregnated with a fixative and an alkylene glycol aqueous composition.

3,573,083
SURFACE-LAYERED FELTED FIBER SUBSTRATE AND METHOD OF PRODUCING SAME

Bernard J. Gaffney, Stillwater, Minn., assignor to Conwed Corporation, St. Paul, Minn.
Continuation-in-part of application Ser. No. 464,083, June 15, 1965. This application Mar. 28, 1969, Ser. No. 839,740
Int. Cl. B44c *1/20;* **E04b** *1/99*
U.S. Cl. 117—8 **15 Claims**



A thick overlay of paste of troweling consistency is applied to a felted substrate which substrate is either a wet board mat in process of formation or a dried felted fiberboard. Various treatments may be made to the applied layer.

3,573,084
CATHODOLUMINESCENT SCREEN FOR PRESENTING A DIFFERENTIAL COLOR DISPLAY AND METHOD OF FORMING THE SAME

Anthony V. Gallaro, Auburn, N.Y., assignor to Sylvania Electric Products Inc.
Filed Feb. 23, 1968, Ser. No. 707,511
Int. Cl. H01j *31/20*
U.S. Cl. 117—33.5 **8 Claims**

A cathodoluminescent screen formed of a homogeneous mixture of two electron responsive phosphors having different spectral emissions. The second phosphor, present in a greater amount, has each particle surface modified to provide a peripheral energy absorbing barrier for electron beams under a predetermined threshold energy. An electron beam of a first energy excites the first phosphor, but a beam of higher energy is required to penetrate and excite the treated phosphor. While the first phosphor is also simultaneously excited, the second phosphor spectral emission predominates the additive mixture of color emission to provide a differential color display as the energy of the electron beam is varied.

3,573,085
ABRASIVE-CONTAINING CAPSULAR COATING COMPOSITION FOR PRESSURE-SENSITIVE RECORD PAPER

Glen A. Hemstock, Princeton, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.
No Drawing. Filed July 3, 1968, Ser. No. 742,181
Int. Cl. B41m *5/22*
U.S. Cl. 117—36.2 **8 Claims**

Inert, non-absorptive, rigid microscopic particles are scattered among microscopic pressure-rupturable oil-containing capsules in a coating on pressure-sensitive record sheet material.

3,573,086
FIBROUS CARBON OR GRAPHITE PRODUCTS AND METHOD OF MAKING SAME

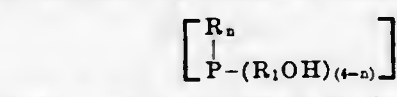
Foraker Lambdin, Jr., Alcoa, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Dec. 10, 1968, Ser. No. 782,714
Int. Cl. B44c *1/08, 1/00*
U.S. Cl. 117—46 **11 Claims**

A high-strength, high-temperature, ablation-resistant composite or structure is formed of fibrous carbon or graphite bonded in a carbonized binder. The fibrous structure is formed of small, straight, carbonaceous fibers of virtually uniform length which are admixed with a carbonizable binder and sprayed onto a suitable surface. The sprayed admixture is then heated sufficiently to carbonize or graphitize the binder for forming a high-strength, carbonaceous structure of desired configuration. The fibers in the carbonaceous structure are randomly oriented and uniformly dispersed to provide the fibrous structure with the aforementioned properties.

3,573,087
FABRIC SOFTENER

James Douglas Barnhurst, Millington, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,815
Int. Cl. D06m *13/28*
U.S. Cl. 117—47 **7 Claims**

The rinse cycle fabric softener additive and a process for softening textile fabrics therewith, wherein the fabric softener additive comprises a compound of the formula:

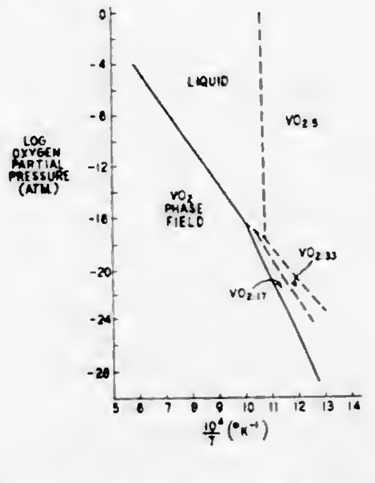


$$\left[\begin{matrix}R_n \\ | \\ P-(R_1OH)_{(4-n)}\end{matrix}\right]^+ X^-$$

wherein R is a C_8–C_{20} alkyl; R_1 is a lower alkyl; *n* is an integer of 1, 2 or 3, and X is a halogen.

3,573,088
PREPARATION OF VANADIUM DIOXIDE

John B. MacChesney, Stirling, and John F. Potter, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed July 27, 1967, Ser. No. 656,419
Int. Cl. C23f *7/02*
U.S. Cl. 117—62 **1 Claim**



Vanadium pentoxide can be annealed to stable vanadium dioxide at temperatures from 400 to 1200° C. under an atmosphere having an oxygen partial pressure from 10^{-4} to 10^{-28} atmospheres. This technique is applicable on vanadium pentoxide films produced by evaporating vanadyl trichloride into carbon dioxide in the presence of a substrate, or on films produced by the physical application of already formed vanadium pentoxide onto ceramic substrates.

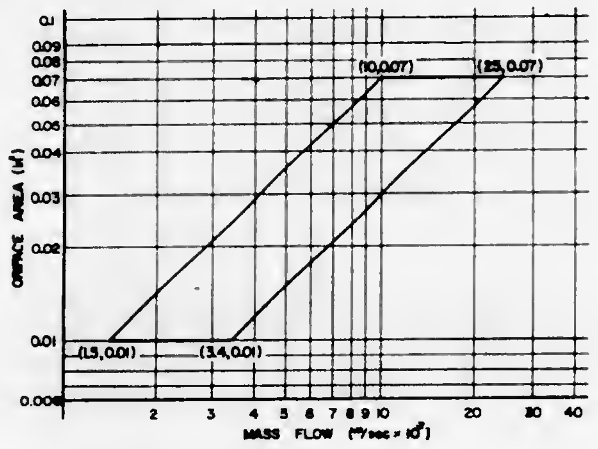
3,573,089
METHOD OF MANUFACTURING SCREEN CLOTHS FOR PAPERMAKING

Takuo Tate, Tokyo, Japan, assignor to Kabushiki Kaisha Sayama Seisakusho, Tokyo, Japan
No Drawing. Filed Oct. 12, 1967, Ser. No. 674,743
Claims priority, application Japan, Nov. 15, 1966, 41/74,636
Int. Cl. D21f *1/10*
U.S. Cl. 117—72 **16 Claims**

A novel method of manufacturing a papermaking screen cloth having a hydrophilic coating is described. The method consists of applying to the surface of the warps and wefts of the screen cloth a solution of at least one water soluble organic compound containing at least two hydrophilic groups, at least one of the hydrophilic groups containing an active hydrogen atom, and a condensing agent capable of reacting with the active hydrogen of the hydrophilic groups, whereby the condensing agent reacts with the hydrophilic groups and part of the hydrophilic groups remains unreacted and forms a hydrophilic film on the surface of the screen cloth.

3,573,090
METHOD OF APPLYING A PLASMA SPRAY COATING

John D. Peterson, North Grafton, Mass., assignor to Avco Corporation, Cincinnati, Ohio
Filed Dec. 9, 1968, Ser. No. 782,095
Int. Cl. B44d *1/097*
U.S. Cl. 117—93.1 7 Claims



There is described herein a method of obtaining a high-quality, high-density plasma spray deposited coating through the use of high velocity plasma effluent, preferably formed from a mixture of diatomic and a monatomic gas. The mass flow rate of effluent and the cross sectional area of the effluent exit orifice is adjusted to overcome the difficulty of heating the material being sprayed to a plastic state in the short time that the material is in residence in the effluent.

3,573,091
METHOD OF PREPARING WATER-DISPERSIBLE SOFTENER COMPOSITIONS AND PRODUCTS THEREBY

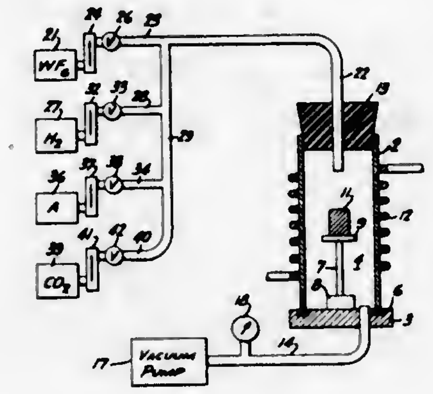
Milton M. Waldman, Northbrook, and Andrea E. Mariahazy, Westchester, Ill., assignors to Armour and Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 367,193, May 13, 1964. This application Nov. 13, 1967, Ser. No. 682,596
The portion of the term of the patent subsequent to Dec. 5, 1984, has been disclaimed
Int. Cl. B05c *11/00;* **D06m** *13/46*
U.S. Cl. 117—100 5 Claims

Powdered quaternary softeners prepared by spraying a solvent solution of the quaternary on a water soluble carrier while agitating the carrier so as to coat the carrier particles without appreciable chemical reaction between the carrier and the quaternary.

3,573,092
METHOD FOR INTRODUCING CARBON INTO CHEMICAL VAPOR DEPOSITED REFRACTORY METAL, AND RESULTING PRODUCT

Robert A. Holzl, La Canada, and Richard D. Hahn, Canoga Park, Calif., assignors to Fansteel Inc., North Chicago, Ill.
Filed Apr. 1, 1968, Ser. No. 718,019
Int. Cl. C23c *11/00*
U.S. Cl. 117—107.2 12 Claims

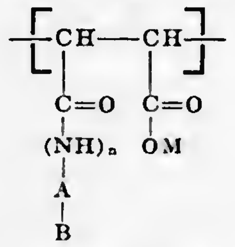
Conventional chemical vapor deposition technique is employed to introduce a trace amount of carbon into a refractory metal, such as tungsten, followed by heat treatment of the metal, to stabilize the grain structure, strengthen the metal, and prevent growth of the grains when the metal is subjected to a high temperature environment.



3,573,093
METHOD FOR THE ANTISTATIC TREATMENT OF PLASTIC FILMS

Koji Oshibuchi, Masayoshi Mayama, Masao Ishihara, and Osakazu Sugino, Tokyo, Japan assignors to Konishiroku Photo Industry Co., Ltd.
No Drawing. Filed Mar. 8, 1968, Ser. No. 711,498
Claims priority, application Japan, Mar. 15, 1967, 42/15,870
Int. Cl. B32b *27/08*
U.S. Cl. 117—138.8 5 Claims

A plastic film is treated with a copolymer. The copolymer contains in the principal chain the recurring unit



$$\left[\begin{array}{cc}\text{—CH—} & \text{CH—}\\ | & |\\ \text{C=O} & \text{C=O}\\ | & |\\ (\text{NH})_n & \text{OM}\\ | & \\ \text{A} & \\ | & \\ \text{B} & \end{array}\right]$$

wherein A is a substituted phenylene, an unsubstituted phenylene, a naphthalene radical or a radical having the formula—CHR, R being hydrogen, a substituted alkyl, an unsubstituted alkyl or an aryl group, B is —SO_3M, —SO_2M, —COOM, —PO_3M_2 or —PO_2M_2, M is a cation and n is 1 or 2. To produce the above copolymer, a copolymer comprising as its copolymerization component an α,β-ethylenically unsaturated monomer and a maleic acid derivative is reacted with a compound which is capable of forming with the maleic acid derivative an acid amide linkage having at its terminal end a pendant acidic group.

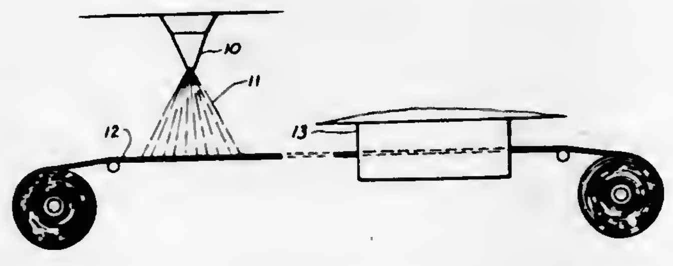
3,573,094
FIBROUS SUBSTRATE COATED WITH A SELF-EMULSIFIABLE POLYMER

Harry D. Anspon, Sewickley, Pa., and Jack Hurst, Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.
No Drawing. Continuation of application Ser. No. 248,297, Dec. 31, 1962, which is a continuation-in-part of application Ser. No. 131,108, Aug. 14, 1961. This application Apr. 9, 1969, Ser. No. 814,856
The portion of the term of the patent subsequent to Dec. 30, 1986, has been disclaimed
Int. Cl. B32b *27/04, 27/12*
U.S. Cl. 117—140 13 Claims

A fibrous substrate containing a coating of a water-insoluble ethylene polymer, said ethylene polymer containing from 0.01 to 0.5 mol of an alkyl acrylate comonomer per mol of contained ethylene, at least a portion of the pendant acrylate groups having been converted to the acrylamide, carboxyl and/or carboxylate salt form.

3,573,095
EPOXIDIZED PERFLUOROALKYLAMIDE WATER- AND OIL-REPELLENCY AGENTS

Hans H. Stockmann, Plainfield, and Dilip K. Ray-Chaudhuri and Carmine P. Iovine, Somerset, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 622,625, Mar. 13, 1967. This application Oct. 20, 1969, Ser. No. 867,549
Int. Cl. D06m *15/52;* **C07d** *1/04;* **C08g** *23/12*
U.S. Cl. 117—161 2 Claims



Compositions of matter comprising the products resulting from the reaction of an epihalohydrin with the reaction product of a fluoro carboxylic acid and a polyamine. The resulting epoxidized amide-amine fluoro compounds impart both water and oil repellency to a wide variety of substrates.

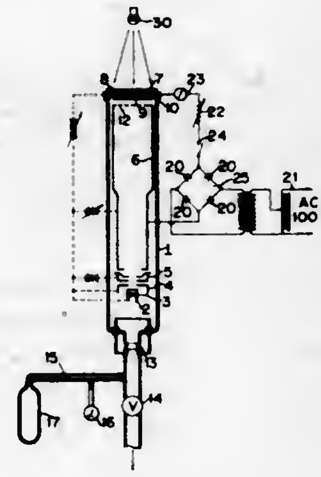
3,573,096
SILANE METHOD FOR MAKING SILICON NITRIDE

Nigel C. Tombs, Stow, Mass., assignor to Sperry Rand Corporation, Great Neck, N.Y.
No Drawing. Filed June 23, 1965, Ser. No. 466,454
Int. Cl. C27c *11/00*
U.S. Cl. 117—201 3 Claims

A method for the production of a layer of silicon nitride on a substrate material by placing the substrate in a reactor chamber at a temperature in the range from about 600° C. to about 1000° C. and passing silane and ammonia over the substrate.

3,573,097
METHOD OF MANUFACTURING A PHOTOSENSITIVE DEVICE

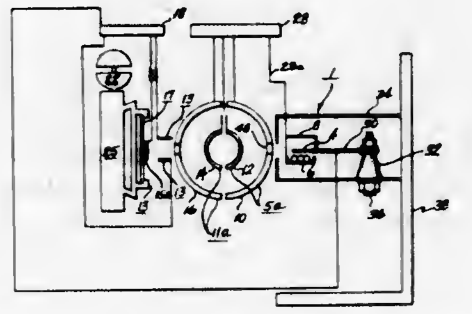
Shigeo Tsuji, Fujisawa-shi, Japan, assignor to Tokyo-Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed May 20, 1968, Ser. No. 730,554
Claims priority, application Japan, May 23, 1967, 42/32,288
Int. Cl. H01j *31/28*
U.S. Cl. 117—211 5 Claims



A method of manufacturing a photosensitive device which comprises the step of bombarding under vacuum electron beams of 10 to 1,000 ev. onto the surface of a lead monoxide layer which has been subjected to after-treatment by carrying out an electrical discharge through an oxygen-containing atmosphere thereby to remove excess oxygen atoms deposited on the surface of the lead monoxide layer.

3,573,098
ION BEAM DEPOSITION UNIT

James W. Bieber, Douglas E. Fishkin, and Allan R. Wolter, Seattle, and Darrell M. Scattergood II, Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash.
Continuation-in-part of application Ser. No. 438,604, Mar. 10, 1965. This application May 9, 1968, Ser. No. 740,789
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. C23c *13/00, 13/12*
U.S. Cl. 117—212 4 Claims



An ion beam deposition apparatus wherein a supply of ions is generated and purified in an ion source; extracted and accelerated from the ion source by a first pair of concentric hemispherical electrodes; focused into an ion beam by a second pair of concentric hemispherical electrodes and selectively deflected by a pair of planar electrostatic deflection plates to form a circuit pattern upon a substrate. The ions are generated in the ion source by heating a deposition material to a temperature sufficient to initiate vaporization and by establishing a localized arc discharge between an electrode and the deposition material to increase vaporization and to ionize the vaporized atoms to create a uniformly charged species of ions.

3,573,099
PROCESS FOR MAKING GARNET FILMS

Eugene B. Moore and Daniel A. Nepela, Saratoga, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed Dec. 22, 1969, Ser. No. 887,352
Int. Cl. C04b *35/16, 35/50*
U.S. Cl. 117—234 6 Claims

Crack free garnet films are deposited on a glass substrate. The glass substrate must have a low lead content and a thermal expansion coefficient within the range 85×10^{-7} to 105×10^{-7} and an annealing temperature of above 750° C. $Gd_3Fe_5O_{12}$ is deposited in a plurality of layers, the first one of which is less than 0.25 micron thick. The first layer is heated to complete crystallization prior to depositing any additional layer. There is a final heating to complete crystallization after the last deposition.

3,573,100
RECONSTITUTION OF ELECTRODES

Henri Bernard Beer, Vogelenzangstraat 33, Kalmthout, Belgium
Filed Feb. 26, 1969, Ser. No. 802,676
Claims priority, application Great Britain, Feb. 28, 1968, 9,706/68
Int. Cl. C22b *11/00;* **C23g** *1/28*
U.S. Cl. 134—3 5 Claims

In a method of cleaning anodes comprising a conductive base coated with noble metals or chemical compounds thereof, the anodes are treated with a melt containing a basic material at a specific temperature and in the presence of an oxidant or oxygen.

3,573,101

METHOD FOR PRODUCING A CADMIUM ELECTRODE FOR NICKEL CADMIUM CELLS

Richard L. Beauchamp, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Jan. 7, 1970, Ser. No. 1,134

Int. Cl. H01m *35/30*

U.S. Cl. 136—76 **7 Claims**

The electrolytic deposition of cadmium hydroxide in a porous electrode structure is carried out within the critical temperature range of from about 85° C. to the boiling point of the electrolyte, resulting in the formation of high energy density negative electrodes for alkaline nickel cadmium cells in at least half the time previously required. In addition, the electrodes exhibit a high percent utilization of active material subsequently formed from the deposit and resist flaking or shedding of the active material during formation and cell use.

3,573,102

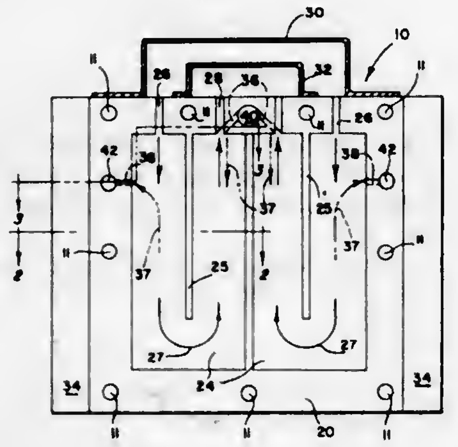
FUEL CELL GAS MANIFOLD SYSTEM

John W. Lane, John H. Hirschenhofer, and Raymond L. Gelting, Manchester, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 7, 1966, Ser. No. 592,420

Int. Cl. H01m *27/02*

U.S. Cl. 136—86 **13 Claims**



A manifold system for distributing the flow of reactant gases through a fuel cell to prevent a drying out of the cell. The fuel cell includes a fuel electrode, an oxidant electrode, and an aqueous electrolyte retentive matrix located between the electrodes. The manifold system includes a gas chamber for distributing the flow of at least one of the reactant gases over the surface of its electrode in a circuitous path between the inlet and outlet of the chamber. The inlet and outlet ends of the chamber are located closely adjacent to each other with respect to the path followed by the gas flowing through the chamber so that the driest and wettest regions of the cell near the inlet and outlet ends, respectively, of the chamber are close together to prevent a drying-out of the cell.

3,573,103

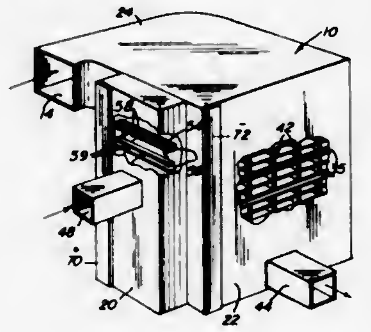
GILL OR SEA WATER FUEL CELL

Clinton E. Brown, Silver Spring, Md., assignor to Hydronautics, Incorporated, Laurel, Md.

Filed Oct. 23, 1965, Ser. No. 503,021

Int. Cl. H01m *27/00*

U.S. Cl. 136—86 **5 Claims**



A fuel cell utilizing sea water as the cell's supply of oxidant reactant and as the electrolyte for the cell.

3,573,104

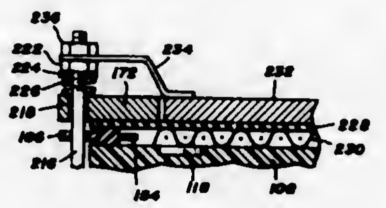
FUEL CELL UNIT WITH NOVEL FLUID CONFINING AND DIRECTING FEATURES

Charles W. Snyder, Jr., Beverly, and Arnold D. Thumim, Brighton, Mass., assignors to General Electric Company

Filed May 9, 1968, Ser. No. 727,790

Int. Cl. H01m *27/00*

U.S. Cl. 136—86 **3 Claims**



A fuel battery is disclosed provided with apertured reactant and electrolyte gaskets. The electrolyte frames are provided with notched baffle fingers to uniformly distribute fluid while the reactant frames are provided with stacked screens having offset apertures. The frames making up the fuel cell unit are held assembled by rigid frames compressively urging the peripheral portions of the gaskets and frames into engagement while not compressing the central portion.

3,573,105

RECHARGEABLE NON-AQUEOUS ALKALI METAL-HALOGEN ELECTROCHEMICAL CELLS

Joseph L. Weininger and Thomas O. Rouse, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Oct. 27, 1966, Ser. No. 595,293

Int. Cl. H01m *27/00*

U.S. Cl. 136—86 **7 Claims**

A rechargeable non-aqueous alkali metal-halogen electrochemical cell is described which includes an alkali metal anode, a halogen cathode, and a non-aqueous electrolyte. The cell has an ion permeable barrier between the electrodes separating the electrolyte into anolyte and catholyte reservoirs.

ERRATUM

For Class 136—122 see:
Patent No. 3,573,122

3,573,106

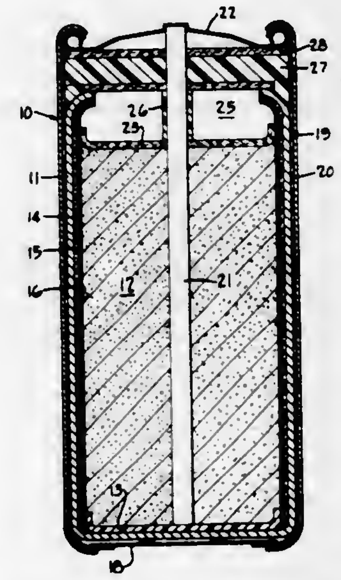
ELECTRIC BATTERY HAVING A LAMINATED SEMIPERMEABLE BARRIER/ABSORBENT SEPARATOR

Martin H. Johnson, Verona, and Duane M. Larsen and Carrol G. Saxe, Madison, Wis., assignors to ESB Incorporated

Filed Nov. 1, 1968, Ser. No. 772,776

Int. Cl. H01m *3/02*

U.S. Cl. 136—131 **11 Claims**



An electric battery having a laminated semipermeable barrier/absorbent separator to provide improved cycle life and/or improved high temperature and long duration storage capability. The battery employs a cathode material which is appreciably soluble in the electrolyte, and the separator is positioned in such a manner that the semipermeable barrier (e.g. cellophane) is in contact with the cathode material and the absorbent material is in contact with the anode. The absorbent material is specially prepared from a vinyl acetate-ethylene copolymer binder material blended with a gelling agent (e.g. starch and flour). The barrier material prevents cathode active material from migrating to the anode, and the absorbent material absorbs the battery electrolyte and immobilizes it in contact with the anode surface.

3,573,107

METHOD OF MANUFACTURE OF SOLID ELECTROLYTES FOR FUEL CELLS

René A. Pâris, Lyon, and Guy Pâris, Le Harve, Seine-Maritime, France, assignors to Societe Anonyme dite: Compagnie Francaise de Raffinage, Paris, France

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,763

Claims priority, application France, Dec. 20, 1967, 133,189

Int. Cl. H01m *11/00*

U.S. Cl. 136—153 **16 Claims**

A method of preparing of solid electrolytes for fuel cells based on zirconia stabilized in the cubic phase, which consists of first preparing an intimate mixture or a mixed complex of organic zirconyl salts and salts of stabilizing metals, decomposing said salts by pyrolysis between 300° and 950° C. and preferably between 300° and 450° C., and bringing the pyrolysis products up to a temperature between 900° and 1100° C. to crystallize said solid solution at a sufficient size of grain, and then projecting said solid solution in a flame at a suitable granular size, on to a support constituted by a porous ceramic material or by a porous metal to deposit a thin layer of electrolyte on said support.

The zirconyl salts and the salts of the other stabilizing metals are salts of carboxylic acids (formates, acetates, etc.) or of polyhydroxy-carboxilic acid (tartrates, citrates, mandelates, etc.).

3,573,108

PURIFICATION OF GERMANIUM

Robert N. Hall, Schenectady, N.Y., assignor to General Electric Company

Filed Oct. 30, 1968, Ser. No. 772,044

Int. Cl. C22b *41/00*

U.S. Cl. 148—1.6 **12 Claims**

Germanium having a purity of the order of 10^{12} uncompensated electrically active impurity atoms per cubic centimeter thereof is processed to produce hyperpure germanium having a purity, represented by the order of 10^{10} uncompensated impurity atoms per cubic centimeter thereof, by melting commercially available, high-purity germanium of the aforementioned impurity level in a reaction chamber wherein the molten germanium has a substantial portion of the surface thereof in contact with the ambient atmosphere and growing a crystalline ingot therefrom by fractional crystallization while pure dry nitrogen is passed through the reaction chamber.

3,573,109

PRODUCTION OF METAL RESISTANT TO NEUTRON IRRADIATION

Ira S. Levy, Kennewick, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Apr. 24, 1969, Ser. No. 819,527

Int. Cl. C22f *1/10;* **C21b** *7/14*

U.S. Cl. 148—11.5 **9 Claims**

A process is disclosed for producing a metal which is highly resistant to damage by neutron irradiation. Austenitic stainless steels or nickel-base alloys, which also contain suitable carbide-formers such as niobium (columbium), titanium, tantalum, or zirconium, are subjected to a series of thermal and mechanical treatments, namely:

(1) solution heat treatment at a temperature sufficiently high to place in solid solution substantially all the dissolvable carbides,
(2) quenching at a controlled rate,
(3) plastic deformation at or near room temperature, and
(4) plastic deformation at high temperature.

3,573,110

PROCESS FOR OBTAINING HIGH CONDUCTIVITY COPPER ALLOYS

Elmars Ence, Hamden, Conn., assignor to Olin Corporation

No Drawing. Continuation-in-part of application Ser. No. 581,713, Sept. 26, 1966. This application May 16, 1968, Ser. No. 729,503

Int. Cl. C22f *1/08*

U.S. Cl. 148—12.7 **9 Claims**

An improved process for obtaining high conductivity copper base alloys in which the alloy is heated at 700 to 1000° C. for at least 30 minutes, hot rolled, cooled to below 300° C. at a rate of greater than 550° C./hour, cold rolled below 200° C. and then aged at 250 to 575° C. for at least one hour.

3,573,111

HIGH LUBRICITY CORROSION RESISTANT THREADED FASTENER AND METHOD

Raymond L. Thurston, Dearborn, Mich., assignor to Microdot Inc., Greenwich, Conn.

No Drawing. Filed Sept. 6, 1968, Ser. No. 774,555

Int. Cl. C23f *7/10*

U.S. Cl. 148—6.15 **8 Claims**

A method of preparing a high lubricity corrosion resistant threaded fastener or other coated substrate product comprising the steps of: (a) cleaning the substrate, for example in a soap bath, (b) water rinsing, (c) applying an aqueous acidic metallic phosphate coating solution to the substrate, (d) applying a corrosion resistant oil to the substrate, and (e) applying a mixture of solid lubricant particle dispersion and water soluble corrosion resistant oil to the substrate; and, the coated product formed by the above method.

3,573,112
MAGNETIC SHEETS WITH (100) [*hkl*] TEXTURE

Robert G. Aspden, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 372,693, June 4, 1964. This application Nov. 6, 1967, Ser. No. 681,016

Int. Cl. H01f *1/16*

U.S. Cl. 148—31.55 **8 Claims**

Iron or iron-base alloy sheet having a composition in which the gamma phase or face centered lattice structure predominates at elevated temperature while the alpha phase or body centered cubic lattice structure predominates at lower temperature levels, the sheet being composed of a high proportion of alpha phase grains exhibiting a (100) [*hkl*] texture.

3,573,113
METHOD OF PREPARING A P-N JUNCTION

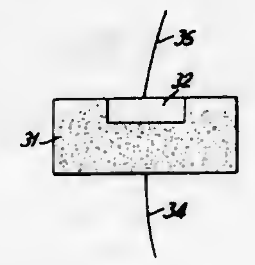
Yasuo Nannichi, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

Filed Nov. 7, 1967, Ser. No. 681,152

Claims priority, application Japan, Nov. 19, 1966, 41/76,069

Int. Cl. H01l *7/36*

U.S. Cl. 148—191 **5 Claims**



A method is provided for preparing p-n junctions in semiconductor wafers wherein an impurity in the wafer is caused by thermal treatment to diffuse outward so that the impurity concentration at or near the surface of the wafer is decreased relative to the higher bulk impurity concentration. A p-n junction is formed in the semiconductor wafer in such a manner that the bottom part of said p-n junction may reach a region of said semiconductor wafer where the outdiffusion in regard to the impurity concentration is no more effected.

3,573,114
ELECTROLUMINESCENT JUNCTIONS BY CO-DOPING WITH MORE THAN ONE ELEMENT

John C. Marinace, Yorktown Heights, N.Y., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Jan. 9, 1969, Ser. No. 790,158

Int. Cl. H01l *7/44*

U.S. Cl. 148—189 **5 Claims**

This invention relates to a method of fabricating a light emitting semiconductor junction device. The method encompasses diffusing zinc and cadmium together into n-type gallium-arsenide wafers that are sealed in a silica tube or ampule with approximately 5 mg. Cd_3As_2 or $CdAs_2$ plus approximately 5 mg. of $ZnAs_2$. For diodes fabricated by this method of co-diffusion, the silica tube is heated to 750° C. for 4 hours then to 850° C. for .75 hour. For lasers fabricated by this co-diffusion, the tube is heated to 750° C. for 16 hours and then to 850° C. for 1.25 hours.

3,573,115
SEALED TUBE DIFFUSION PROCESS

Benjamin Topas, Santa Monica, Calif., assignor to International Rectifier Corporation, Los Angeles, Calif.

Filed Apr. 22, 1968, Ser. No. 723,208

Int. Cl. H01l *7/36*

U.S. Cl. 148—189 **2 Claims**

A stack of semiconductor wafers is placed in a diffusion boat which is loaded into a quartz tube. The tube is filled with a predetermined volume of gas containing doping agents alone, or doping agents and oxygen, and the tube is sealed. The tube is then heated at a relatively low temperature in a diffusion chamber to cause initial decomposition of the doping materials on the wafers, and thereafter at a higher temperature to cause diffusion of the doping materials into the wafer as well as oxidation of the wafer surface.

3,573,116
PROCESS FOR MASKED PLANAR DIFFUSIONS

Barry G. Cohen, Haifa, Israel, and Robert Lilienthal, Washington Township, Bergen, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 3, 1968, Ser. No. 695,469

Int. Cl. H01l *7/34*

U.S. Cl. 148—187 **6 Claims**

A process for masked planar diffusion of gallium into the unmasked portion of a bulk semiconductor is described in which the diffusion occurs in a completely water-free inert ambient such as nitrogen gas. A quartz box diffusion capsule is used with a conventional diffusion furnace in which the nitrogen circulates throughout the process.

3,573,117
METHOD OF IMPROVING STRESS CORROSION RESISTANCE OF ALUMINUM ALLOYS

Franklin H. Cocks, Waltham, Mass., assignor to Tyco Laboratories Inc., Waltham, Mass.

Filed Nov. 21, 1968, Ser. No. 777,745

Int. Cl. C21d *1/50;* **C22f** *1/04*

U.S. Cl. 148—159 **7 Claims**

Method of heat treating aluminum base alloys of the zinc-magnesium copper series to attain improved resistance to stress corrosion. The method comprises quenching the alloy following solution treatment in a liquid held at a temperature of between about 230° F. and about 260° F. followed by a two step aging treatment the first of which is conducted at a temperature between about 230° F. and about 260° F. for a period of between about 20 hours and 30 hours and the second aging step is conducted between about 310° F. and 340° F.

3,573,118
METHODS AND APPARATUS FOR HANDLING WIRE ROD

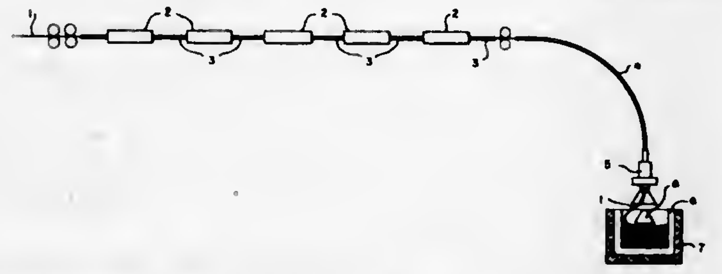
Friedrich Kocks, Dusseldorf, Germany, assignor to Friedrich Kocks, Dusseldorf, Germany

Filed Mar. 28, 1969, Ser. No. 811,492

Claims priority, application Germany, Mar. 13, 1969, P 17 58 070.0

Int. Cl. C21d *9/52*

U.S. Cl. 148—156 **10 Claims**



A method and apparatus are provided for controlled cooling of wire rod from a hot rolling mill to provide grain structure suitable for subsequent drawing by the

steps of cooling said rod to a temperature between 930° F. and 1110° F. on a cooling line and holding said cooled rod on a preheated reel at about 930° F. until the temperature of the rod has stabilized.

3,573,119
MACHINE AND METHOD FOR ETCHING CURVED PLATES

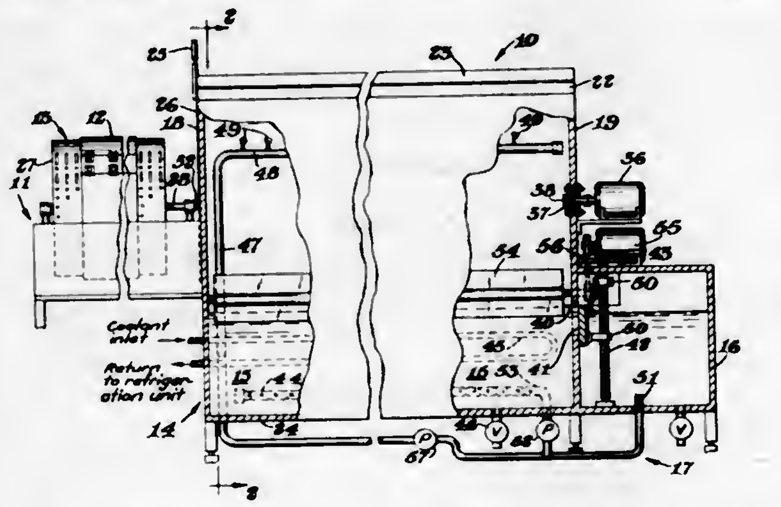
Marvin H. Fishaber, Saginaw, Mich., and Johannes F. Laimbock, Rotterdam, Netherlands, assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 3, 1969, Ser. No. 807,165

(Filed under Rule 47(a) and 35 U.S.C. 116)

Int. Cl. B41n *3/02;* **C23f** *1/02*

U.S. Cl. 156—14 **12 Claims**



A process and apparatus for powderless etching by paddle means of curved printing plates which includes an additional array of spray nozzles at each side of the plate holder.

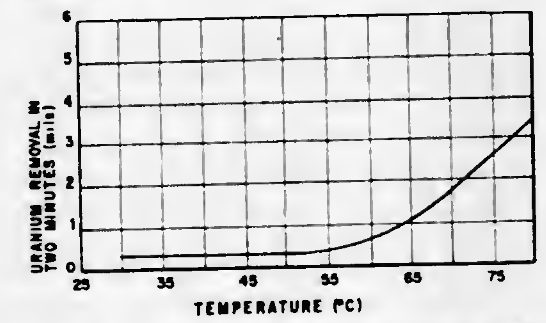
3,573,120
URANIUM ETCHANT AND METHOD

Forrest B. Waldrop, Powell, and Max J. Bezik, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 6, 1968, Ser. No. 757,977

Int. Cl. C23d *3/00;* **C23g** *1/10*

U.S. Cl. 156—18 **2 Claims**



Metallic uranium and alloys thereof are provided with uniformly etched surfaces for facilitating the reception of adherent protective coatings. The etchant consists of an aqueous solution of either ferric chloride or ferric chloride and nickel chloride.

3,573,121
METHOD OF PRODUCING SUEDE-LIKE ARTIFICIAL LEATHERS

Kazuo Fukada, 851 2-chome, Aza-Nagaoyama, Hyogo, Japan; and Hiroshi Okamoto, 12–30 Shimo-Chujo-cho, Ibaragi-shi; and Yoshihiko Numata, 4–1 Tsukimi-cho, Takatsuki-shi, both of Osaka, Japan

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,713

Claims priority, application Japan, Apr. 6, 1967, 42/22,045

Int. Cl. B32b *5/18*

U.S. Cl. 156—77 **6 Claims**

A process for producing suede-like artificial leathers which comprises coating a solution of a polymer onto a fibrous base material, superimposing a flock on a carrier sheet on the polymeric coating layer, subjecting the resulting composite sheet to treatment with a coagulation liquid and, after coagulation of the coating layer into a microporous structure, removing the carrier sheet from the flocked sheet material.

3,573,122
PREPARATION OF CONDUCTIVE MATERIALS

Franciszek Olstowski, Freeport, Tex., and James Lawrence Amos and Herbert H. Bauss, Midland, Mich., and Oliver Osborn and John D. Watson, Sr., Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of application Ser. No. 620,557, Mar. 3, 1967, which is a continuation of application Ser. No. 441,894, Mar. 22, 1965, both now abandoned. This application Aug. 23, 1968, Ser. No. 755,006

Int. Cl. H01m *13/04*

U.S. Cl. 136—122 **6 Claims**

This invention provides a method for rendering conductive materials which are normally substantially nonconductive by admixing with the non-conductive material sufficient vermicular expanded graphite having a bulk density of less than about 2 lbs. per cubic foot to provide an amount of from 0.05 to 40 percent by weight of graphite based on the total weight of the mixture. One of the illustrated utilities of this invention is to provide a highly conductive battery cathode composition.

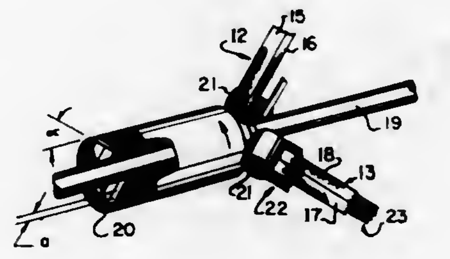
3,573,123
COMPOSITE HIGH TEMPERATURE RESISTANT MATERIAL AND METHOD OF FABRICATION

Robert A. Siegel, Los Gatos, and John L. Jennings, Cupertino, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed May 11, 1966, Ser. No. 549,334

Int. Cl. B32b *7/02;* **B65h** *81/04;* **F16l** *9/16*

U.S. Cl. 156—171 **5 Claims**



A composite heat resistant element is formed by winding composite tapes about a mandrel, each tape having discrete portions of carbon and silica. To resist delamination of the body at the interface between the carbon and silica, the interface is interlocked within a zone within the body rather than along a continuous line.

3,573,124
PROCESS FOR THE MANUFACTURE OF MULTI-LAYER, COLD-MOLDABLE AND THERMOFORMABLE COMPLEX OR SANDWICH

Bernard Rudloff, Marckolsheim, France

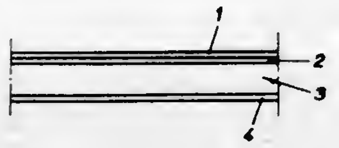
Filed Apr. 20, 1967, Ser. No. 632,363

Claims priority, application France, Oct. 17, 1966, 8,721

Int. Cl. B31f *1/00*

U.S. Cl. 156—224 **6 Claims**

A method of manufacture of cold-moldable thermoformable sound-proofing complexes by associating with complexes formed by surfacing of bituminous products with layer of unwoven felts charged with different resins, a sheet of coldshapable impregnated cardboard including sheet metal, lead or aluminum thereby imparting to the complex a cold-shaping property, while retaining rigidity after cold-shaping permitting the subsequent passage through a furnace.



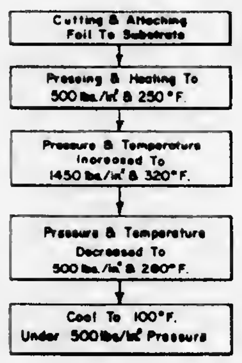
3,573,125
EXTRUSION-COATING OF ETHYLENE-VINYL ACETATE COATINGS

Bentley W. Elliott, Milwaukee, Wis., assignor to Milprint, Inc., Milwaukee, Wis.
Continuation-in-part of application Ser. No. 639,381, May 18, 1967. This application Apr. 29, 1968, Ser. No. 734,828
Int. Cl. B29b *3/00*
U.S. Cl. 156—244 **9 Claims**

An extrusion-coating process for the application of coatings of wax and ethylene-vinyl acetate copolymers, or the copolymers by themselves, onto substrate films, instead of the usual hot melt or solvent coating techniques for the application of such coatings. An especially effective primer for use with the coatings is also shown.

3,573,126
METHODS OF MANUFACTURING ELECTRICAL CIRCUITS

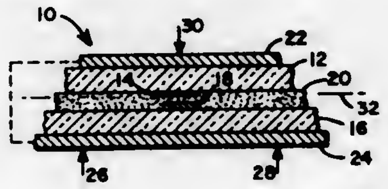
Jack I. Kougel, Leesburg, Ind., assignor to GTI Corporation
Filed June 7, 1968, Ser. No. 735,427
Int. Cl. B32b *31/26*
U.S. Cl. 156—251 **3 Claims**


Cutting & Attaching Foil To Substrate
Pressing & Heating To 500 lbs./in² & 250°F.
Pressure & Temperature Increased To 1450 lbs./in² & 320°F.
Pressure & Temperature Decreased To 500 lbs./in² & 280°F.
Cool To 100°F. Under 500 lbs/in² Pressure

A method of manufacturing current conducting circuitry on a non-conductive base is provided which includes the steps of applying heated cutting edges of a selected configuration to a metal foil superimposed over an insulating backing strip to shear a circuit and press the sheared edge against the strip adhering the edge to the strip, transferring the assembly to a press, subjecting the assembly to a first temperature and pressure to remove gases from between the foil and strip, to a second higher temperature and pressure to adhere the foil to the backing strip, and finally to a third temperature and pressure substantially equal to the first followed by cooling under said third pressure.

3,573,127
STRESS SENSITIVITY REDUCTION OF MAGNETOSTRICTIVE FILM ELEMENTS

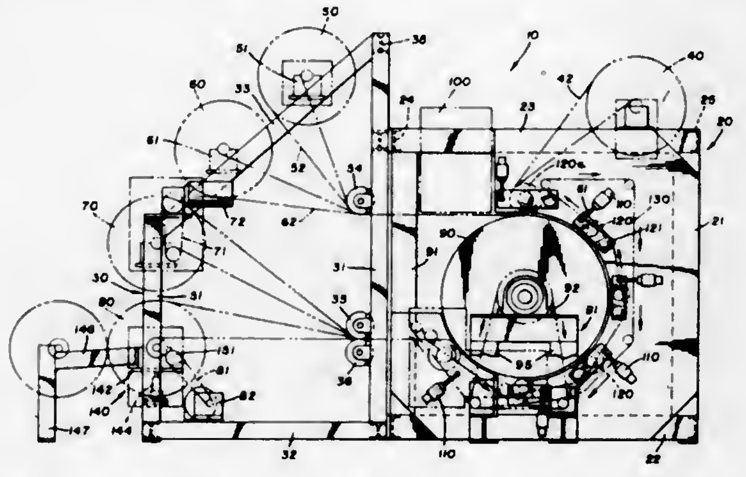
Marvin R. Root, St. Paul, and Charles H. Tolman, Bloomington, Minn., assignors to Sperry Rand Corporation, New York, N.Y.
Filed July 28, 1967, Ser. No. 656,912
Int. Cl. H01f *1/37*
U.S. Cl. 156—278 **4 Claims**



The stress sensitivity reduction of thin ferromagnetic film memory elements having magnetostriction by locating the memory elements in the neutral stress surface of a sandwiched planar structure.

3,573,128
METHOD AND APPARATUS FOR PRODUCING PRESSURE SENSITIVE TAPE

Charles P. Kettler, Akron, and John M. Questel, Stow, Ohio, assignors to Morgan Adhesives Company, Stow, Ohio
Filed Apr. 18, 1968, Ser. No. 722,437
Int. Cl. B32b *31/20;* **C09j** *5/06*
U.S. Cl. 156—283 **10 Claims**



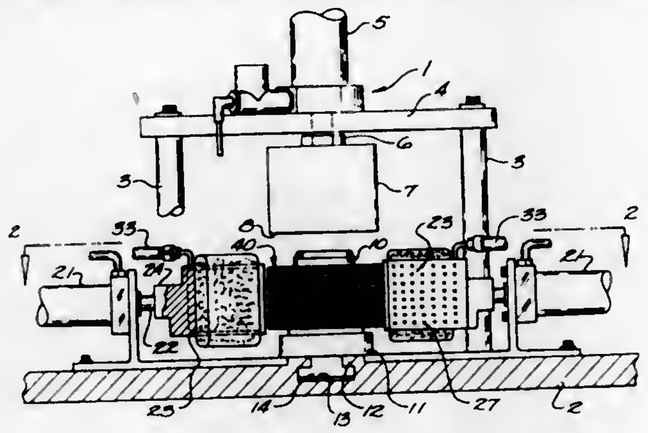
A method and apparatus for making permanently tacky pressure sensitive tape including a heated, independently driven, main drum surrounded by adjustable planetary rolls which can be moved into and out of adjacency with the periphery of the heated drum. A first layer of release paper is adapted to be passed around the heated drum and beneath said planetary rolls and onto a take-up roll. A layer of open web paper is adapted to be passed beneath a power source and then about the periphery of the heated drum on top of the first layer of release paper. A second layer of release paper is adapted to be passed around the periphery of the heated drum on top of the open web paper after the depositing of the powder thereon, the heated drum and the planetary rolls being driven independently of each other and the planetary rolls serving to planish the laminate and prevent nip buildup.

3,573,129
STATOR CORE ASSEMBLING APPARATUS

Albert E. Zeis, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis County, Mo.
Filed Feb. 13, 1969, Ser. No. 798,983
Int. Cl. B32b *31/20;* **B65c** *11/04*
U.S. Cl. 156—299 **9 Claims**

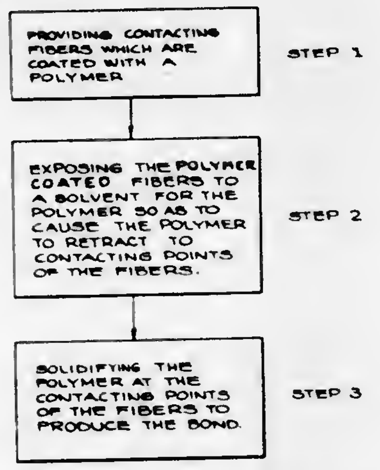
Liquid adhesive is applied to the outer surface of a stack of laminations on a mandrel, by means of pads soaked in adhesive. The adhesive is wicked radially from the pads between the facing surfaces of the laminations.

Thereafter, the stack is clamped under predetermined axial pressure and the adhesive is cured. The pads are supplied with adhesive from reservoirs in arcuately winged pad mounts.



3,573,130
METHOD OF BONDING POLYMER-COATED FIBERS BY SOLVENT ACTION

Clarence S. Vinton and George B. Moravek, Ann Arbor, Mich., assignors to Chemotronics, Incorporated, Ann Arbor, Mich.
Filed Oct. 10, 1968, Ser. No. 766,457
Int. Cl. C09j *5/00*
U.S. Cl. 156—305 **17 Claims**

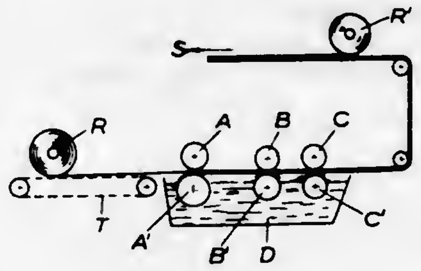

PROVIDING CONTACTING FIBERS WHICH ARE COATED WITH A POLYMER
STEP 1
EXPOSING THE POLYMER COATED FIBERS TO A SOLVENT FOR THE POLYMER SO AS TO CAUSE THE POLYMER TO RETRACT TO CONTACTING POINTS OF THE FIBERS.
STEP 2
SOLIDIFYING THE POLYMER AT THE CONTACTING POINTS OF THE FIBERS TO PRODUCE THE BOND.
STEP 3

A method for the bonding of fibers by providing a bonding agent at the point of contact of the fibers is described. An essential feature of the method is exposing contacting fibers, which may be monofilamentary or multifilamentary, and which have been coated with a film of a polymer which is solidified sufficiently to resist fluid flow of the polymer on the fibers, to a solvent for the polymer film, preferably in vapor form for ease of control of the process, which then retracts to the points of contact between the fibers because of the action of the solvent. Particularly preferred in the method is the use of elastomeric polymers for bonding and the products obtained thereby. The fibers can be in the form of knitted, woven and non-woven or needle punched batt or mat fabrics. The bonded products are useful in the same general areas where unbonded products are used. Particularly useful are the described bonded knitted nylon stockings.

3,573,131
PROCESS OF MANUFACTURING SOUND-PROOFING COMPOSITE PRODUCTS

Bernard Rudloff, Marckolsheim (Bas-Rhin), France
Filed Mar. 22, 1967, Ser. No. 625,263
Claims priority, application France, May 23, 1966, 8,618
Int. Cl. C09j *5/00*
U.S. Cl. 156—306 **6 Claims**

A process of the continuous manufacture of moldable, thermo-weldable, self-adhesive sound-proofing composite products, comprising the utilization of a layer of felt or unwoven material agglomerated with fibers charged with two different powdered resins having different melting points, namely 60° C. and between 130° C. and 140° C. The material is subjected to a baking treatment at 60° C. for about 4 minutes to impart sufficient strength. A film or coating of 0.5 to 1 mm. of a bituminous or plastic material in the liquid or pasty state is applied to the material. The composite product, thus produced after drying at 60° C. is delivered in a roll or cut to size. The composite product may be composed of a plurality of layers of felt or unwoven material with the mentioned film, which layers are subjected to a baking treatment at 130°–140° C. for 20 to 30 minutes with a view to produce a sound-proof assembly having a molded, undeformable lining.



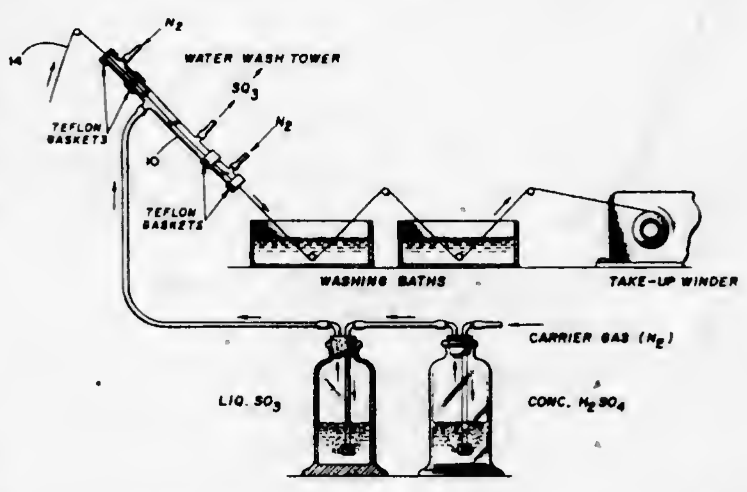
3,573,132
PROCESS FOR THE PREPARATION OF POLYIMIDES

Maurice Ducloux and Max Gruffaz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Oct. 30, 1967, Ser. No. 679,163
Int. Cl. C09j *5/00, 7/00*
U.S. Cl. 156—306 **10 Claims**

In preparing polyimides, approximately equimolecular quantities of a tetracarboxylic acid dianhydride and a diprimary diamine are mixed with water and deposited on a support. The water is subsequently removed and then the residual mixture or support is heated to 100° to 400° C.

3,573,133
SURFACE MODIFICATIONS OF ORGANIC SYNTHETIC POLYAMIDES USING SULFUR TRIOXIDE

Henry E. Harris, Savannah, Ga., assignor to Monsanto Company, St. Louis, Mo.
Continuation-in-part of applications Ser. No. 587,421 and Ser. No. 587,506, both filed Oct. 18, 1966. This application July 7, 1969, Ser. No. 839,591
Int. Cl. C09j *5/00*
U.S. Cl. 156—307 **9 Claims**



Delustered and improved soil resistant polyamide fibers and self-bonded webs composed of polyamide fibers may be prepared by a process which includes exposing the polyamide fibers to a sulfur trioxide environment and then subsequently removing the sulfur trioxide therefrom.

3,573,134
FABRICS TREATED WITH CHROMIUM COMPOUNDS

David Leslie Worsfield and John Mills, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

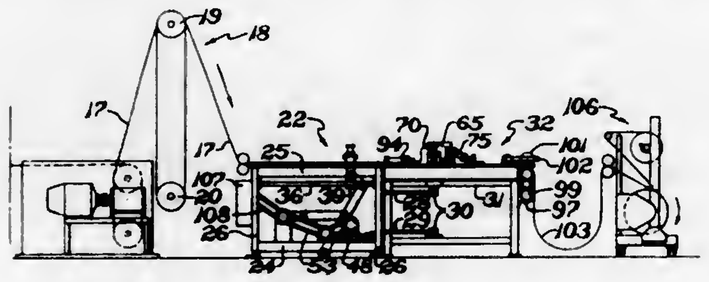
No Drawing. Filed Aug. 18, 1966, Ser. No. 573,180
Claims priority, application Great Britain, Aug. 27, 1965, 36,885/65
Int. Cl. C09j *3/14*
U.S. Cl. 156—333 10 Claims

Composite fabric for use as conveyor belting and the like is made by resin-impregnating and bonding a textile fabric which contains organic synthetic fibres, such as nylon. The synthetic fibres either before or after incorporation in the textile fabric are treated with an aqueous solution containing ionic chromium to improve fire resistance and adhesion between the synthetic fibres and the resin.

3,573,135
APPARATUS FOR BIAS CUTTING AND SPLICING WIRE OVERHEAD STRIP MATERIAL

Ralph F. Cooper and Charles J. Wagner, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed July 13, 1966, Ser. No. 564,778
Int. Cl. B26d *5/12*
U.S. Cl. 156—353 8 Claims



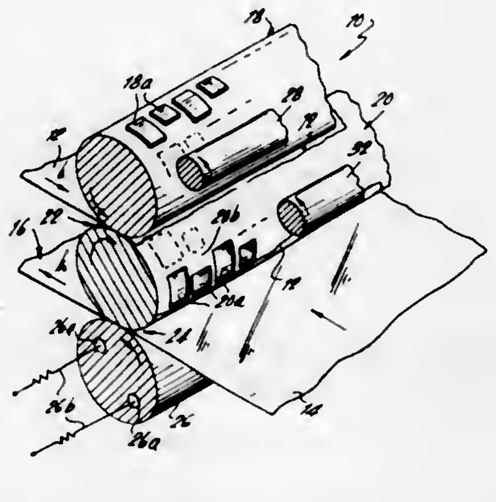
A machine for fabricating a continuous web having angularly disposed wire strands relative to its longitudinal center line from narrow strips cut from a continuous wire coated narrow width tape having wire strands that are parallel relative to the longitudinal center line of the tape, wherein a wire tape feeding device moves tape in a longitudinal direction for a predetermined distance. The tape is clamped and then cut, after which the tape is unclamped and moved onto a splicing table which is subject to being magnetized and which cooperates with a splicing means to facilitate the splicing action.

3,573,136
WEB PRINTING AND EMBOSSING APPARATUS

Harry Gardner, Upper Saddle River, N.J., assignor to Multitone Plastics Engraving Company, Inc., Rochelle Park, N.J.

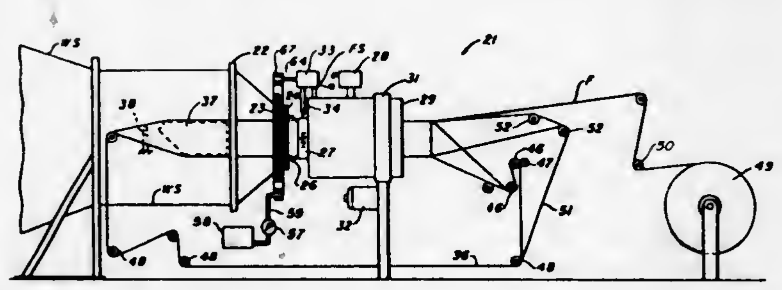
Filed Jan. 30, 1968, Ser. No. 701,651
Int. Cl. B41m *7/00*
U.S. Cl. 156—384 7 Claims

Apparatus for applying two-color printing to a plastic web in conjunction with embossment of the plastic web, wherein use is made of an intermeshing pair of male and female embossing rollers. One color is transferred to the embossed web areas by the raised areas of the male embossing roller and the second color is applied to the non-embossed areas of the web while it is on the female embossing roller, with the result that without special registration of the color-applying rollers the plastic web receives selected colors in predetermined areas. Subsequent lamination of the plastic web is also achieved while the web is on the female embossing roller to thereby minimize flattening of the embossed areas by the heat and pressure of lamination.



3,573,137
APPARATUS FOR MAKING NONWOVEN FABRICS

Hollis H. Bascom and John J. Greci, Livermore, Calif., assignors to Orcon Corporation, Livermore, Calif.
Original application Oct. 31, 1966, Ser. No. 590,910. Divided and this application Apr. 16, 1969, Ser. No. 835,842
Int. Cl. B31c *1/00, 1/08;* **B65h** *81/00*
U.S. Cl. 156—428 12 Claims

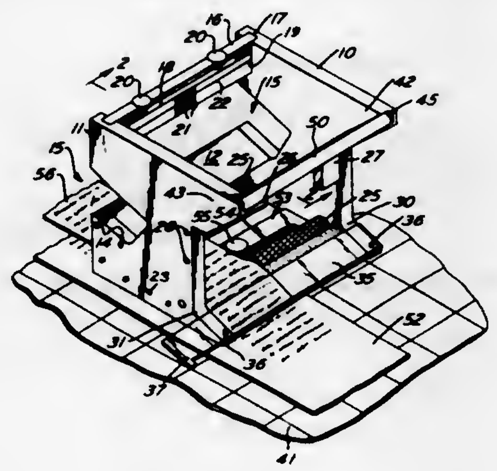


Apparatus for the continuous production of nonwoven fabric which incorporates a supported, continuous belt type feeder and drive mechanism for advancing a plurality of warp strands along a horizontal path in a longitudinal direction, with a dancer roll mechanism incorporated therein for tension control thereof, and a fill strand applying device disposed for rotation about the warp strands as the warp strands are moved along the feeder mechanism.

3,573,138
APPARATUS FOR CORRECTING PHOTOCOMPOSITION OR COLD COPY

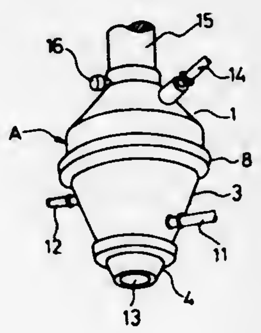
Philip E. Tobias, 2537 Mount Carmel Ave., Glenside, Pa. 19038
Filed July 23, 1968, Ser. No. 746,782
Int. Cl. B32b *31/10;* **B41b** *1/00*
U.S. Cl. 156—519 6 Claims

Apparatus for correcting photocomposition or cold copy is described which includes a portable outer frame, transversely mounted inner rollers, a non-sticking ramp, a copy edge guide, a beam splitter, and reflecting reference lines, such apparatus is capable of being positioned over errors in a line of type to be corrected with the base line of the type and a reference line in optical alignment. A self adhering strip with corrections thereon can then be aligned over the locations at which errors occur and with the base line of the correction in proper alignment, the strip can then be cut and the severed portions with corrections applied in covering relation to the location at which the errors occur.



3,573,139
METHOD AND APPARATUS FOR WELDING PLASTIC MEMBERS

Eiji Mori, 10–35, 2-chome Ohokayama, Meguro-ku; Masao Ide, 15–18, 1-chome Ishikawa-machi, Ohta-ku; and Seiji Kaneko, 187, 1-chome Kamiochiai, Shinjuku-ku, all of Tokyo, Japan
Original application Oct. 13, 1967, Ser. No. 675,109, now Patent No. 3,518,136, dated June 30, 1970. Divided and this application Aug. 4, 1969, Ser. No. 862,118
Int. Cl. B23k *1/06;* **B29c** *27/08;* **B32b** *31/20*
U.S. Cl. 156—580 5 Claims

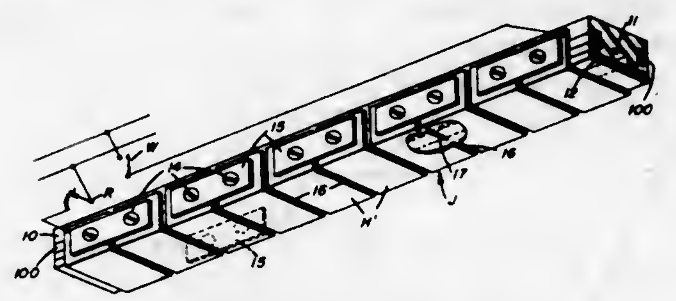


Apparatus for welding plastic members with ultrasonic waves comprises a generator for ultrasonic waves of a frequency not lower than 100 kc. s. in a void free volume of liquid medium, and a device for focusing the waves toward a focal zone where the surfaces of the plastic members to be welded are disposed, there being a liquid interface between the surface of at least one of the plastic members and the liquid medium.

3,573,140
HEATING JAW FOR IMPULSE SEALER

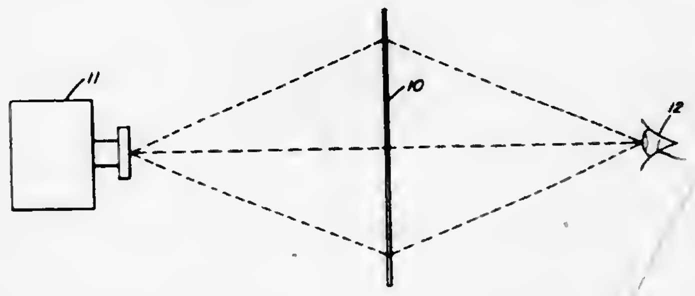
Ronald E. Griffith, Rochester, and Hollis T. Galley, Penfield, N.Y. (both of Kodak Park, Rochester, N.Y. 14650)
Filed Oct. 7, 1968, Ser. No. 765,310
Int. Cl. B30b *15/34*
U.S. Cl. 156—583 9 Claims

The heating jaw for a heat sealer of the impulse type comprises an elongated block of insulating material on the bottom face of which there is mounted an electrical heating element comprising a plurality of resistor strips of metal of high specific resistance electrically connected in series but physically spaced apart to allow for expansion and contraction of the strips when an impulse of current is passed therethrough. The block of insulating material has a vacuum chamber extending along the length thereof and communicating with the spaces between the resistor strips so that a length of heat-sensitive splicing tape can be held on the jaw by vacuum when said vacuum chamber is evacuated.



3,573,141
POLYMERIC REAR PROJECTION SCREENS

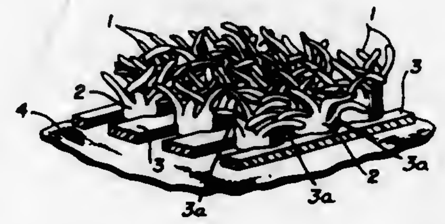
Chen-I Lu and Edward D. Morrison, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed July 1, 1969, Ser. No. 838,304
Int. Cl. C03b *21/60;* **C08f** *45/14*
U.S. Cl. 161—2 15 Claims



Rear projection screens that consist essentially of polypropylene can be improved significantly by incorporating into the screen one or more "crystal deforming" additives, such as finely divided starch, sucrose octoacetate and cellulose acetate butyrate, which additives (a) are essentially non-nucleating in their effect on the crystal structure of the screen material, (b) are able to deform the spherulites in the crystal structure to thereby increase light diffusion, and (c) have refractive indices within ±0.05 of that of the polypropylene in the screens.

3,573,142
MOLDED THERMOPLASTIC ARTIFICIAL SOD HAVING A FABRIC BACKING

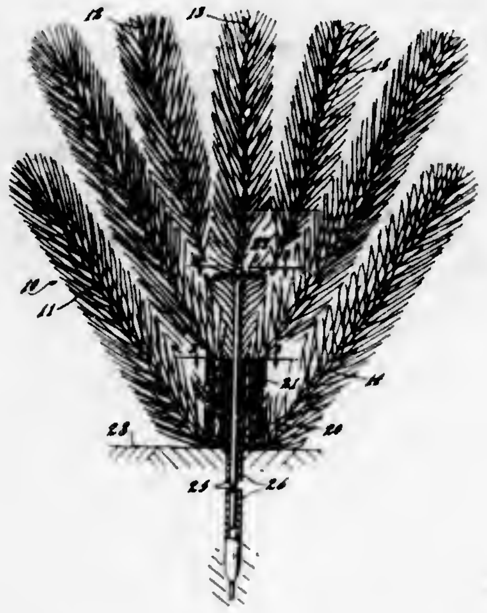
Ronald W. Chidgey, Pensacola, and Jack Doleman, Gulf Breeze, Fla., assignors to Monsanto Company, St. Louis, Mo.
Filed Sept. 17, 1968, Ser. No. 760,222
Int. Cl. A41g *1/00*
U.S. Cl. 161—21 10 Claims



Molded, thermoplastic, three-dimensional synthetic sod is provided which comprises a matrix having openings, projections extending from the matrix to simulate blades of grass and a bonded backing on the under side of the matrix. The backing is composed of a synthetic fibrous, porous fabric which serves to prevent weed growth and erosion and yet is porous which allows seepage of water through the sod. The fabric also allows bonding of the material to substrates, such as asphalt. In an additional feature, a foam material, such as polyurethane foam may be bonded to the bottom of the fabric when it is desirable that the product be of the non-slip type such as doormats, etc.

3,573,143
ARTIFICIAL BUSH CONSTRUCTION

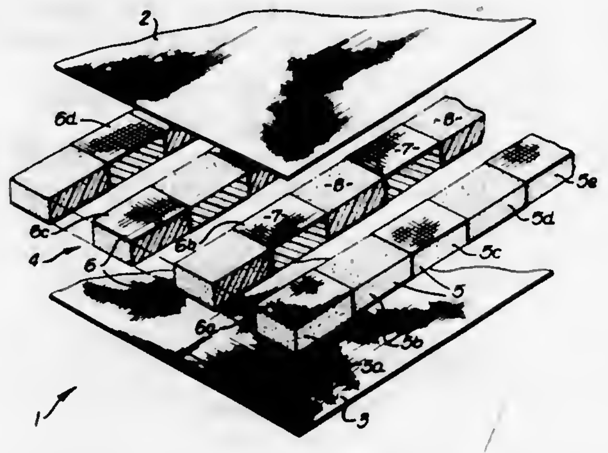
Ammon Baus, Philadelphia, Pa., assignor to Carey-McFall Company, Philadelphia, Pa.
Filed Jan. 7, 1969, Ser. No. 789,550
Int. Cl. A41g *1/00*
U.S. Cl. 161—27 **9 Claims**



A plurality of separate artificial branches arranged in a bundle, a binding circumposed about the bundle, and certain of the branches bent outwardly and upwardly exteriorly of the binding to conceal the latter.

3,573,144
SANDWICH PANEL TYPE STRUCTURAL ELEMENTS AND METHOD OF MAKING SAME

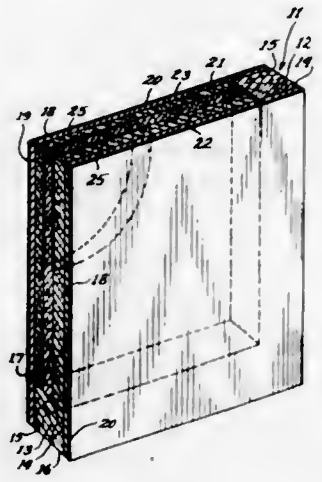
Ralph A. Andersen, 821 Arcadia Ave., Arcadia, Calif. 91006
Filed Aug. 11, 1969, Ser. No. 848,921
Int. Cl. B32b *5/18*
U.S. Cl. 161—38 **16 Claims**



A structural element of the sandwich panel type. The core is novelly formed by interweaving resin-impregnated glass cloth webs and rigid spacer blocks. The core has multiple glass cloth webs, each with multiple block supported corrugations, which corrugations are adjacently offset. This core provides advantageous strength properties to the element, specifically high strength-to-weight ratios, and, as well, large areas for bonding element face sheets to the core.

3,573,145
PORTABLE SOUND ATTENUATING PARTITION WALL PANEL

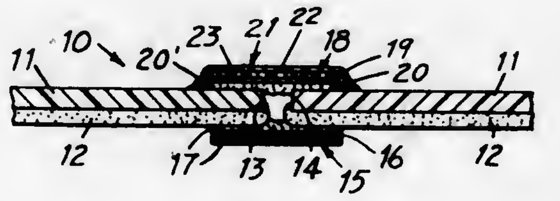
Edward R. Witkosky, Chicago, and Henry F. Golder, Riverdale, Ill., assignors to Woodwork Corporation of America
Filed July 3, 1969, Ser. No. 838,938
Int. Cl. E04b *1/86*
U.S. Cl. 161—41 **9 Claims**



A portable room divider panel of high sound attenuating characteristics, the panel having a wood frame, a sheet of low pressure laminate hardboard bonded to each face of the frame to form a chamber, a decorative skin of high pressure laminate bonded to each sheet of hardboard, and a core in the chamber consisting of three laminar mineral fiber boards of which a one inch thick section weighs about 0.9 pound per square foot, the boards being secured to one another by widely spaced spots of adhesive which occupy a minor fraction of the surface area of the core. The core fills the chamber and affords structural support for the hardboard sheets without being compressed by the sheets. A four by eight foot panel which is one and three-quarters inch thick and weighs 125 pounds has an overall sound transmission class of about 43 when tested in accordance with ASTM specification E90–66T.

3,573,146
TAPE SPLICE CONSTRUCTION

Joseph C. Guinan, Troy, and Richard F. Grossman, Voorheesville, N.Y., assignors to Norton Company, Troy, N.Y.
Filed Aug. 18, 1969, Ser. No. 850,934
Int. Cl. B32b *7/04, 7/10*
U.S. Cl. 161—36 **8 Claims**



An improved butt splice is provided in pressure-sensitive adhesive tapes and in release liners used in combination with such tapes. A protective tape is provided in combination with a splice cover tape in which the adhesive mass has less adhesion to the backing member of the splice cover tape and to the backing member of the tape or release liner to be butt spliced than does the adhesive mass of the succeeding wrap of tape in a roll thereof to the backing member of the protective tape. Thus during rapid unwinding of the protective tape will be picked off leaving the splice cover tape in position and the splice undisturbed.

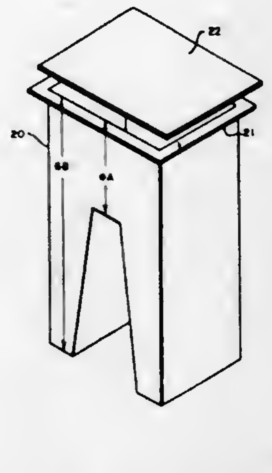
3,573,147
SYNTHETIC TURF PRODUCTS HAVING VARIABLE BLADE WIDTHS

Donald L. Elbert, Gulf Breeze, Fla., assignor to Monsanto Company, St. Louis, Mo.
Filed Jan. 24, 1968, Ser. No. 700,096
Int. Cl. A41g *1/00*
U.S. Cl. 161—21 **16 Claims**

Random discontinuous slits cut in monofilament ribbons before weaving, knitting, tufting, or otherwise binding provide in a finished synthetic turf product, random variable blade widths with physical characteristics and appearance similar to that of natural grass.

3,573,148
PRESS FEED CHARGE COMPRISING WOOD CHIPS AND BINDER ENCASED IN AN ENVELOPE HAVING SUFFICIENT STRUCTURAL INTEGRITY TO RETAIN A DESIRED SHAPE WHEN FILLED

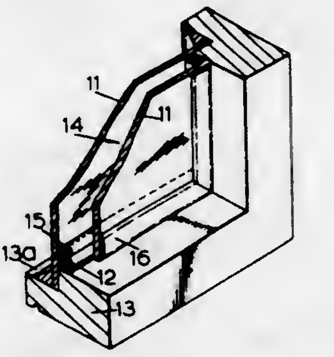
Robert P. Habgood, Jr., Joseph N. Ianuzzi, and Robert W. Mericle, Bradford, Pa., assignors to AVM Corporation
Original application Feb. 16, 1967, Ser. No. 616,609. Divided and this application Apr. 3, 1969, Ser. No. 813,091
Int. Cl. B32b *1/00;* **B29j** *5/02*
U.S. Cl. 161—43 **5 Claims**



A press feeding article and method for wood chips and resin in which an enveloped, premeasured and predistributed charge is prepared for a press. The method comprises forming an envelope of preformed shape to contain a load of substantially non-flowable charge of preselected shape and distribution, loading the envelope with non-flowable charge, closing the envelope, placing the envelope in a mold and pressing to final shape.

3,573,149
DOUBLE GLAZED WINDOWS

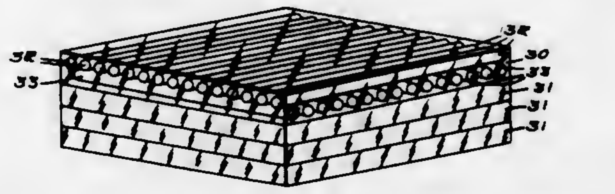
William J. Tibble, London, James P. Bock, Chigwell, Roy F. Lankester, Potters Bar, and George E. Patterson, Ilford, England; said Tibble, Bock, and Lankester assignors to Insitu Double Glazing Limited, London, England
Filed July 17, 1967, Ser. No. 698,363
Claims priority, application Great Britain, July 22, 1966, 33,028/66
Int. Cl. C03c *27/10;* **B32b** *17/00*
U.S. Cl. 161—45 **2 Claims**



A method of making a multi-panel unit having a cavity construction, comprising cutting at least two panels to a required size, degreasing, and priming the perimeter regions of each panel, cutting a thermoelectric spacer and sealing strip to the peripheral length of the panels with sufficient extra length to form electrical terminals for connection to a power supply source, unsheathing the ends of a resistance wire passing through said strip and applying an electric potential thereto to heat the strip until it becomes pliable, applying the strip to the perimeter of one panel, re-applying an electric potential to the resistance wire to soften the strip aligning a second panel and pressing the panels together, again applying an electric potential to cure the strip, and trimming off the ends of said strip.

3,573,150
TRANSPARENT ARMOR

Lawrence J. Broutman, Skokie, and Robert J. Szuch, Blue Island, Ill., assignors to the United States of America as represented by the Secretary of the Army
Filed July 24, 1968, Ser. No. 747,220
Int. Cl. B32b *17/04;* **F41h** *1/02, 5/08*
U.S. Cl. 161—55 **7 Claims**

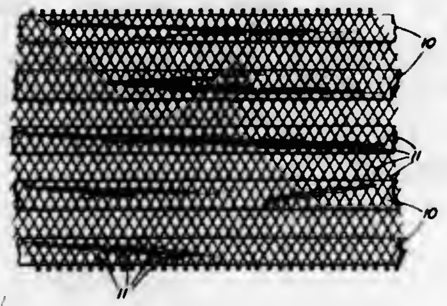


Laminated armor material having high resistance to penetration by small arms missiles comprising an outer lamina having glass rods or ceramic rods embedded in a polymeric matrix and one or more inner polymeric laminae, the several laminae being cemented together, and method of making the same.

3,573,151
FILAMENT REINFORCED PLASTIC FILM

Henry D. Dawbarn, Waynesboro, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Original application Apr. 17, 1964, Ser. No. 360,673, now Patent No. 3,445,319, dated May 20, 1969. Divided and this application Apr. 2, 1969, Ser. No. 841,640
Int. Cl. B32b *5/12, 23/10*
U.S. Cl. 161—58 **5 Claims**

An integral thermoplastic film product including a plurality of parallel spaced substantially molecularly unoriented thermoplastic film strips reinforced with diagonally arranged substantially straight molecularly oriented thermoplastic filaments bonded to at least one side thereof.



3,573,152

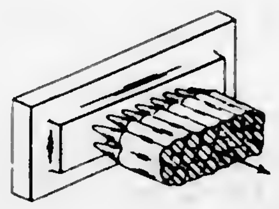
THERMOPLASTIC ELONGATED CELLULAR PRODUCTS

Fred E. Wiley, Longmeadow, Mass., and Frederick D. De Bell, Hazardville, and John M. De Bell, Enfield, Conn., assignors to Foster Grant Co., Inc., Leominster, Mass.

Continuation-in-part of application Ser. No. 619,591, Jan. 27, 1967, which is a continuation of application Ser. No. 278,294, May 6, 1963, which in turn is a division of application Ser. No. 828,862, July 22, 1959, now Patent No. 3,121,130. This application July 29, 1969, Ser. No. 848,144

Int. Cl. B29b *7/20;* **B32b** *5/12*

U.S. Cl. 161—60 **6 Claims**



Integral foam objects composed of a plurality of fused strands having a density of 4 pounds per cubic foot or less are prepared by extruding a foamable thermoplastic material through a multi-orifice die plate whereby the individual foamable elements in strand form are simultaneously expanded and fused or coalesced upon emerging from the die orifices. Products of any desired configuration may be produced by placing a suitable former adjacent to the die. These foamable thermoplastic products may be polystyrene, polyethylene, or any of the known thermoplastics into which a non-solvent blowing or expanding agent is incorporated prior to extrusion.

3,573,153

LAMINATED FOAM PRODUCTS AND THEIR PREPARATION

Joseph Henry Ryan, Jr., Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 24, 1969, Ser. No. 836,155

Int. Cl. B32b *27/00, 27/32*

U.S. Cl. 161—159 **10 Claims**

Thick foam structures having a low density and high durability coupled with good cushioning performance, produced by laminating a plurality of low density, high tear strength foam sheets under a minimum of pressure and at temperatures below the melting point of the foam.

3,573,154

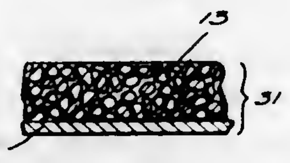
CORK UNDERLAYER MATERIAL

Henrv G. Tank, Glendale, Wis., assignor to Connor Forest Industries, Laona, Wis.

Filed Apr. 3, 1967, Ser. No. 627,817

Int. Cl. B32b *11/12, 19/02, 19/04*

U.S. Cl. 161—162 **9 Claims**



Disclosed herein is an underlayer material for flooring installations or floor coverings, which material is in roll form and comprises a layer of natural cork bonded to an asphalt impregnated sheet. Also disclosed herein is a method of producing the underlayer material.

3,573,155

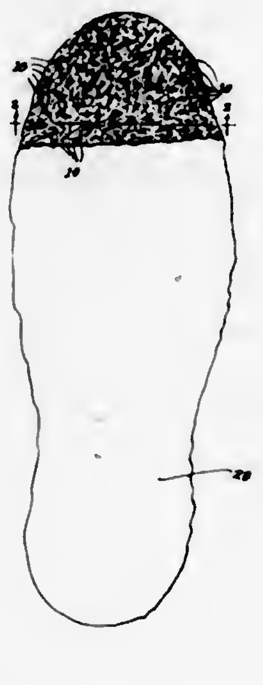
NONSLIP ARTICLE OF MANUFACTURE

Wilbur A. E. Mitchell, Greeley, Colo., assignor to Mitchell Tackle, Inc., Greeley, Colo.

Filed May 17, 1968, Ser. No. 730,181

Int. Cl. A43b *13/22;* **B32b** *5/16;* **C09k** *3/14*

U.S. Cl. 161—162 **8 Claims**



A nonslip rubber-like article of manufacture, comprising an undercured and substantially soft-rubber-like dough mass, and aluminum pieces, shavings and particles impregnated throughout the mass, in comparison to a full curing of the mass thereof.

3,573,156

GLASS FRONT BUILDING PANEL COMPRISING OUTER GLASS LAYERS AND INNER FELT LAYER

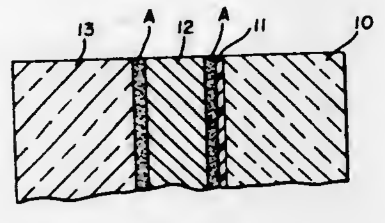
William W. Reilly, 4506 Euclid, Youngstown, Ohio 44506

Filed Dec. 3, 1968, Ser. No. 780,793

Int. Cl. B32b *17/06*

U.S. Cl. 161—197 **4 Claims**

A building panel particularly suited for exterior wall surfaces and comprising a laminated structure having a glass front, a layer of colored enamel on the inner surface thereof, a layer of builders felt and a back panel of glass or other suitable material. The several portions of the panel being permanently bonded to one another by a suitable adhesive so as to form a weatherproof shock resistant non-shattering decorative wall panel.



3,573,157

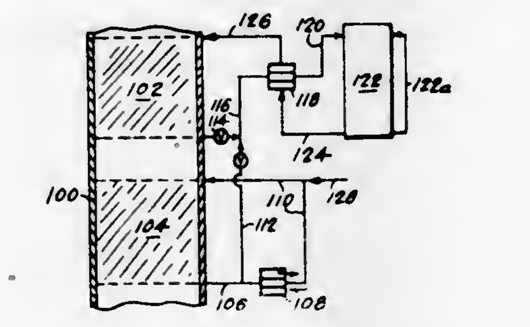
INCREASING THE POLYSULFIDE CONTENT OF AN ALKALINE PULP IMPREGNATION LIQUOR

William Hugh Cook, Beaconsfield, Quebec, Canada, assignor to Domtar Limited, Montreal, Quebec, Canada

Filed May 8, 1967, Ser. No. 636,874

Int. Cl. D21c *3/26, 11/14*

U.S. Cl. 162—19 **2 Claims**



A method for increasing the polysulfide content of an alkaline impregnation liquor. An impregnation zone is divided into a lower temperature zone and a higher temperature zone. The lower temperature zone is maintained at a temperature below that at which degradation of polysulfide occurs. After an initial contact of chips and impregnation liquor, the liquor is withdrawn from the higher temperature zone and from contact with the chips, oxidized to form a liquor containing polysulfides, and then returned to the lower temperature zone of the impregnation zone for further impregnation of the chips.

3,573,158

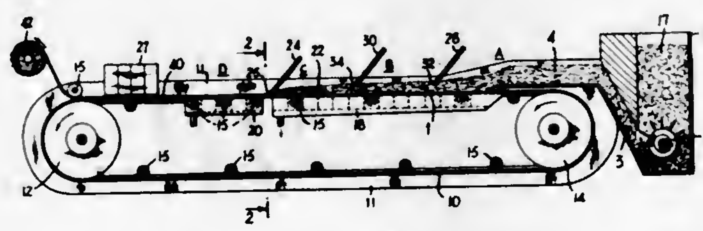
MICROPOROUS FIBROUS SHEETS USEFUL FOR FILTERS AND APPARATUS AND METHOD OF FORMING THE SAME

David B. Pall, Roslyn Estates, and Cyril A. Keedwell, Jericho, N.Y., assignors to Pall Corporation, Glen Cove, N.Y.

Continuation-in-part of applications Ser. No. 98,595, Mar. 27, 1961, now Patent No. 3,238,056, Ser. No. 215,151, Aug. 6, 1962, now Patent No. 3,246,767, and Ser. No. 530,735, Feb. 28, 1966, now Patent No. 3,353,682. This application Nov. 20, 1967, Ser. No. 684,175

Int. Cl. D21f *11/14, 1/06*

U.S. Cl. 162—131 **23 Claims**



A process is provided for forming microporous sheet material useful as filters, which is substantially uniform in thickness, porosity and density, from a slurry of particulate material.

A porous sheet material also is provided, with one or a plurality of layers, each composed of a microporous multistratum layer which may optionally be adherent to a porous substrate and having a high voids volume, a pore size of less than 25μ, and substantially uniform in thickness, porosity and density.

An apparatus is provided useful for preparing such material, such as a Fourdrinier machine, including one or more barriers such as doctor blades positioned to control deposition of slurried particulate material upon a support so that the deposition of deflocculated and uniformly flocculated material is uniform, and large nonuniform flocs cannot be deposited on the support.

3,573,159

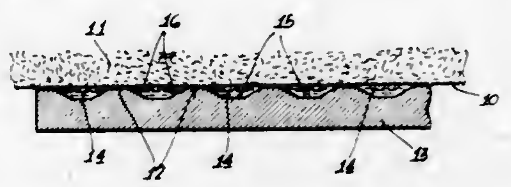
DEFLOCCULATION OF PULP STOCK SUSPENSION WITH PRESSURE PULSES

Ola Sepall, Quebec, Quebec, Canada, assignor to Anglo Paper Products, Limited, Quebec, Quebec, Canada

Filed Aug. 30, 1968, Ser. No. 756,447

Int. Cl. D21f *11/00;* **D21j** *1/00*

U.S. Cl. 162—208 **8 Claims**



The invention relates to a method and means for deflocculating a stock suspension on a paper machine forming wire by applying a succession of pressure pulses in reversely alternate directions to the suspension. These pulses are produced by inducing drainage of liquid from the suspension in a series of spaced areas extending transversely of the wire and causing at least a portion of the drained liquid to flow back into contact with the wire in the adjoining space between the drainage areas.

3,573,160

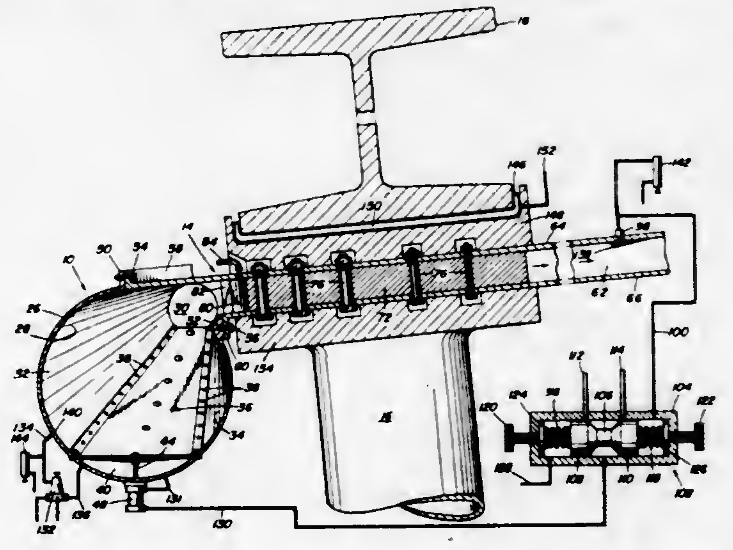
TAPERED MANIFOLD STOCK DISTRIBUTION SYSTEM FOR A PAPERMAKING MACHINE WITH MOVABLE WALL THEREIN

Kasimir Lopas, 118 Skyview Drive,
Stamford, Conn. 06902

Filed Jan. 29, 1969, Ser. No. 794,863

Int. Cl. D21f *1/06*

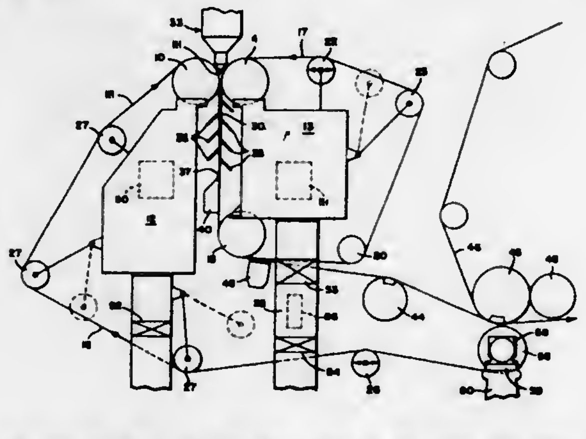
U.S. Cl. 162—259 **9 Claims**



The disclosed stock distribution system provides automatic and continuous adjustment to variations in stock flow velocity in a papermaking apparatus. A tapered manifold communicates across a flow channel to distribute paper stock uniformly onto the Fourdrinier wire. The tapered manifold contains a semirigid diaphragm which forms a wall of the interior manifold chamber. Sensors are provided across the width of the flow channel to monitor stock flow and detect flow velocity irregularities. Each sensor controls the shape of the tapered manifold diaphragm at a position corresponding to that of the sensor. The effective tape of the manifold is thus changed at the corresponding position permitting the velocity of stock issuing from that position in the manifold to be adjusted to a reference level. The invention further provides means for discharging fluid from the leading edges of deflectors and spacers in the flow channel to prevent fiber hang-up. Also, means are provided for applying exterior pressure to the flow channel to prevent distortion or rupture due to high internal pressures.

3,573,161
VERTICAL PAPER MACHINE

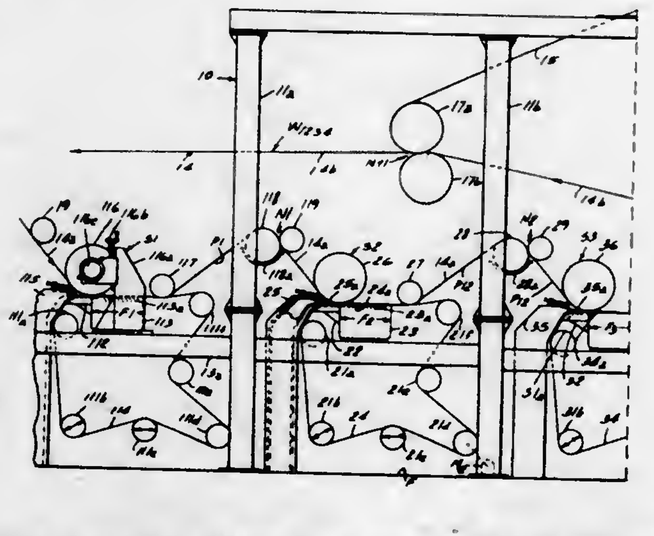
Willard C. Notbohm, Watertown, N.Y., assignor to The Black Clawson Company, Hamilton, Ohio
Filed Oct. 17, 1968, Ser. No. 768,284
Int. Cl. D21f *2/00*
U.S. Cl. 162—301 **7 Claims**



In a two-wire vertical paper machine, the opposed downwardly traveling reaches of the two wires which converge to define the forming zone are led partially around a single couch roll located below the forming zone, the upper run of the resulting superimposed wires is then caused to diverge from the lower wire, and the sheet is carried on the resulting generally horizontally traveling wire run to a pickup station. This construction of vertical paper machine is especially adapted for use with a conventional pickup roll and felt arranged to pick up the sheet from the upper surface of the wire run.

3,573,162
MULTI-PLY PAPER FORMATION

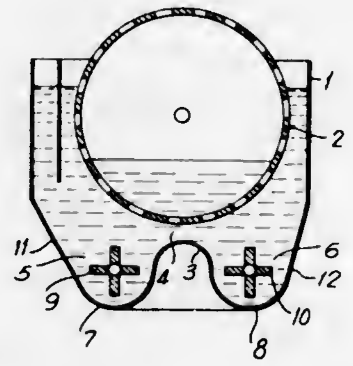
Jerome P. Brezinski, Neenah, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed Dec. 6, 1967, Ser. No. 688,586
Int. Cl. D21f *1/00*
U.S. Cl. 162—303 **6 Claims**



This invention relates to a paper making machine for forming a plural or multi-ply web using more compact and efficient ply-forming sequences than are ordinarily employed in conventional cylinder machines. This is done in each such sequence by the use of a single web ply-forming zone defined between a main felt carrying a preformed ply and a converging forming wire wrapped over a water-permeable guide or suction box designed for efficient and rapid water removal via the wire, with quality incipient web formation in the ply so formed, followed immediately by merging of such ply into the desired multi-ply moist web of good quality. In this arrangement, the felt carries the resultant multi-ply web from sequence, to sequence thereby allowing for intermediate dewatering at press nips receiving the felt carrying the resultant web in each instance.

3,573,163
CYLINDER MOULD FOR MANUFACTURING FIBRE-CEMENT PRODUCTS

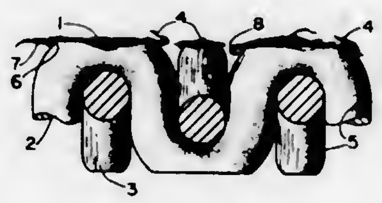
Mark Solomonovich Neifeld, Pavel Samuilovich Moroz, and Lev Samsonovich Boyazny, Moscow, U.S.S.R., assignors to Spetsialnoe Konstruktorskoe Bjuro Po Oborudovaniju Dlya Proizvodstva Asbestotsementnykh Izdely I Rulonnokrovelnykh Materialov, Tikhvinsky pereulok, Moscow, U.S.S.R.
Filed Dec. 7, 1967, Ser. No. 688,786
Int. Cl. D21j *7/00*
U.S. Cl. 162—323 **3 Claims**



Apparatus for manufacturing fibre-cement products, wherein a tank rotatably supports a revolving screen in the upper portion thereof. The bottom of the tank includes two spaced convex portions interconnected by a concave portion, relative to the tank interior, which define a smooth undulated contour surface, mixing paddles being mounted in the convex portions of the tank. The screen is vertically spaced above the concave portion by an amount substantially equal to 0.1 to 0.2 times the outer diameter of the screen.

3,573,164
FABRICS WITH IMPROVED WEB TRANSFER CHARACTERISTICS

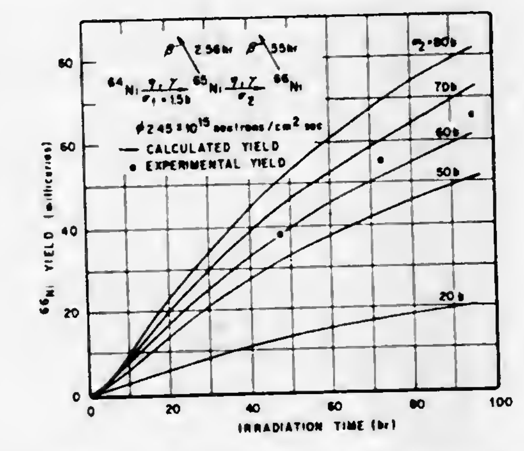
Norman D. Friedberg and Charles L. Wosaba II, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Aug. 22, 1967, Ser. No. 662,367
Int. Cl. D21f *1/10*
U.S. Cl. 162—348 **8 Claims**



A process for improving the parting or transfer characteristics of monofilament polymeric fabrics in supporting and transferring moist webs from one step to another in papermaking and non-woven web manufacturing operations. Improved transfer characteristics in the monofilament polymeric fabrics are achieved by abrading away the knuckle surfaces thereof with a fine abrasive medium to increase the knuckle imprint area of the fabric. The improved parting characteristics engendered in the monofilament polymeric fabric by the abrasive treatment improve web transfer, web drying, web product characteristics and general machine operation.

3,573,165
PRODUCTION OF HIGH PURITY NICKEL-66

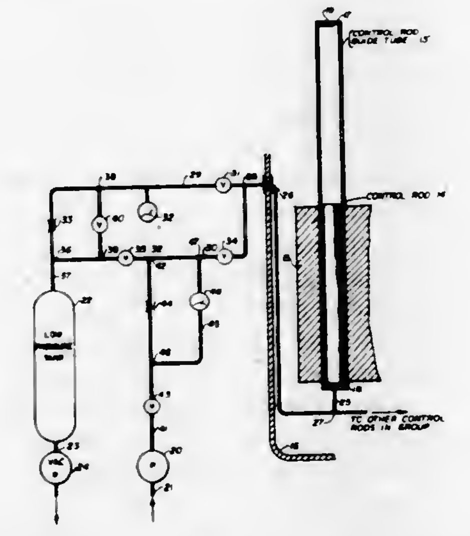
John J. Pinajian, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 10, 1969, Ser. No. 805,560
Int. Cl. G21g *1/02*
U.S. Cl. 176—16 **5 Claims**



A method has been provided for the production of high purity nickel-66 by a double neutron capture reaction with enriched Ni–64 in a neutron flux in the excess of about 2×10^{15} n/cm.^{2}·sec. The high energy (1.038 mev.) gamma radiation from the daughter Cu–66 makes the Ni–66 a very useful isotope in numerous tracer diffusion studies and related investigations, as in metallurgical research.

3,573,166
HYDRAULIC CONTROL ROD DRIVE SYSTEM

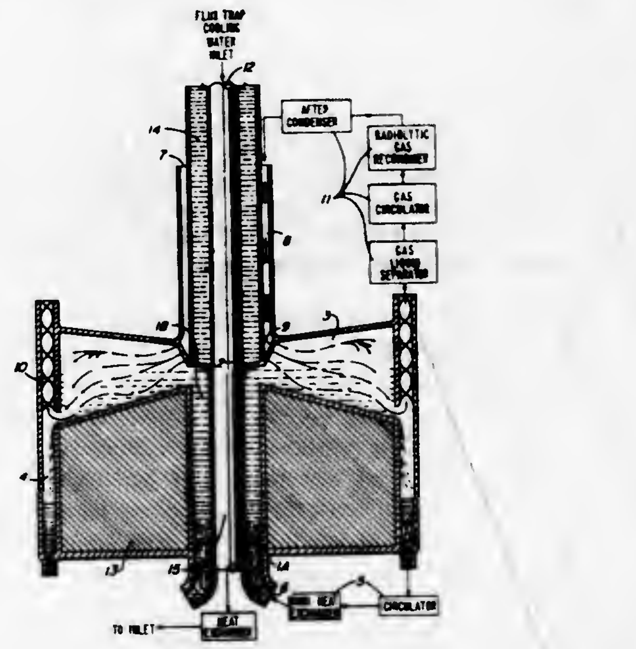
John H. Germer, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 24, 1968, Ser. No. 747,161
Int. Cl. G21c *1/16*
U.S. Cl. 176—36 **7 Claims**



A system for controlling a nuclear reactor utilizing pressurized coolant for raising control rods out of the reactor core. The system positions individual control rods or groups thereof in either an all-in or an all-out position, and incorporates means for assuring fail-safe operation and for position indication of the rods. The simplicity of the system makes it feasible to provide a sufficient number of weak control rods to permit all-in or all-out operation without excessive increments of reactivity. The individual control rods in large thermal reactors, for example may be operated in groups widely dispersed throughout the core, sufficiently spaced that the rods have little or no interaction; while a fast reactor is much more closely-coupled. While this system is particularly applicable to sodium-cooled fast reactors, it can be adapted to other types of reactors.

3,573,167
KINETIC INTENSE NEUTRON GENERATOR REACTOR

L D Percival King, Santa Fe, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed June 6, 1968, Ser. No. 734,961
Int. Cl. G21c *3/46, 1/24*
U.S. Cl. 176—47 **1 Claim**

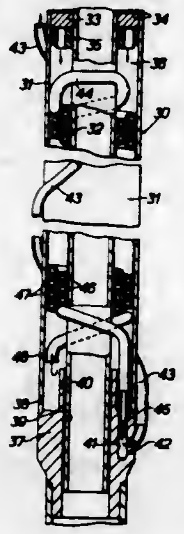


A nuclear reactor capable of producing on a continuous basis an intense neutron flux, said reactor comprising a small core region, a large containment vessel, pumping means to continuously and rapidly move a liquid nuclear fuel through the core and inject it into the said vessel in such a manner that the geometry of the fuel in the core under static conditions is supercritical.

3,573,168
NUCLEAR FUEL VENTING ELEMENTS FOR THE DISCHARGE OF FISSION GASES

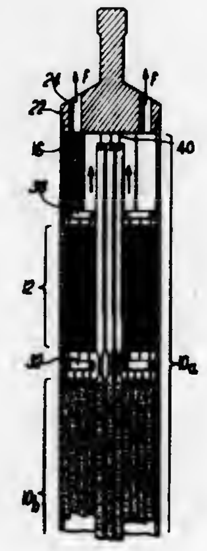
Ronald Hugh Campbell, Bowden, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed May 2, 1968, Ser. No. 726,155
Claims priority, application Great Britain, May 16, 1967, 22,767/67; June 15, 1967, 27,628/67
Int. Cl. G21c *3/02*
U.S. Cl. 176—68 **10 Claims**

To allow decay of some of the gaseous fission products produced from nuclear fuel under irradiation before discharge of said products from the interior of a nuclear reactor fuel element of the vented type to the exterior surroundings of the fuel element, there is included within the fuel element a passage-defining component such as a capillary tube, an external surface of which defines an additional passage in series with the passage defined by the component, the two passages together providing a vent path for gaseous fission products. Alternatively or in addition, tubing in communication with the interior of the fuel element extends at least in part over the external surface of the fuel element and provides a vent path or additional vent path. Such tubing may be in the form of a capillary tube coiled over said surface



which serves also for fuel element spacing and to improve heat transfer to coolant flowing over the fuel element.

3,573,169
FUEL ASSEMBLY FOR NUCLEAR REACTORS
André Gumuchian, Paris, France, assignor to Commissariat a l'Energe Atomique, Paris, France
Filed Nov. 27, 1967, Ser. No. 685,863
Claims priority, application France, Dec. 5, 1966, 86,220
Int. Cl. G21c *3/30*
U.S. Cl. 176—78 **6 Claims**



A nuclear fuel assembly comprising at least one bundle of pins which are loaded with fissile material, provided with expansion chambers and disposed within a tubular box.

The pins are arranged in two sections so that the expansion chambers of said pins are located at opposite ends whilst those portions of said pins which are loaded with fissile material are all located at the same level.

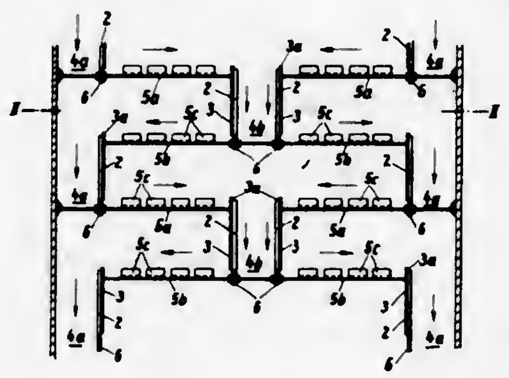
3,573,170
ENZYME PRODUCTS
Sidney G. Clark and Harold E. Feierstein, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 19, 1968, Ser. No. 760,981
Int. Cl. C07g *7/02*
U.S. Cl. 195—63 **12 Claims**

This invention relates to particulate enzyme products and to processes for preparing the same; these products contain enzymes produced by *Bacillus subtilis,* have a bulk density of from about 0.25 gram/cc. to about 2.0 grams/cc. and have a critical particle size.

3,573,171
LABORATORY REAGENT FOR ASSAY OF LACTIC ACID
Stanley Edward Green, Los Angeles, Calif., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,120
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 **9 Claims**

The speed and accuracy of known enzymatic assays for lactic acid containing fluids is improved by using a novel reagent assay comprising: the enzymes lactate dehydrogenase and glutamate-pyruvate transaminase, the coenzyme nicotinamide-adenine dinucleotide, a buffer, enzyme stabilizers, and a novel pyruvate ion trapping agent.

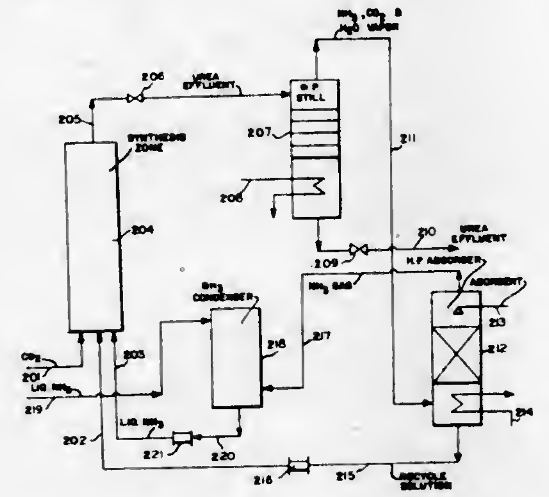
3,573,172
PLATE COLUMN FOR HEAT AND/OR MASS EXCHANGE
Hans-Peter Streuber, Hagedornstr. 46, Hilden Rhineland, Germany
Continuation of application Ser. No. 261,268, Feb. 27, 1963. This application June 30, 1967, Ser. No. 650,550
Claims priority, application Germany, Feb. 28, 1962, M 51,978
Int. Cl. B01d *3/20;* **B01f** *3/04*
U.S. Cl. 202—158 **6 Claims**



A fractionating column having a vertical shell in which pairs of vertical strips are fixedly attached to the internal surface of the shell and extend inwardly thereof. A plurality of vertical plates in the shell and clamping devices securing each plate at the ends thereof to a respective pair of strips to enable vertical adjustment of the plate relative to the strips. Support members extending horizontally on the plates and secured thereto. A plurality of spaced superposed tray in the shell and each having an edge secured to a respective support member on a plate whereby the tray is supported at the edge. The vertical plates extend upwardly of the trays to define weirs therefor. The vertical plates associated with two successive trays are mutually offset to cause liquid flowing over one weir to encounter the next lower tray. A bolt on each strip at the lower end thereof engaging a corresponding tray and a nut adjustably engaged with the bolt for vertically adjusting the tray at such location relative to the shell independently of the adjustment of the plate relative to the strips. The trays are constituted by alternating first and second sets, each of the trays of the first set are constituted by a pair of semicircular coplanar half-trays defining a tray of circular form with the circular side of each half-tray extending to the shell. The trays of the second set are of circular form with relieved portions on opposite sides thereof. The trays of the second set extend to the shell. The plates are arranged in first and second sets. The plates of one set are connected to the straight side of each half-tray and extend upwardly thereof to define the weir for liquid flowing from the half-tray downwardly to the next lower tray. The plates of the other set are connected to respective relieved portions and extend upwardly thereof to define the weir for liquid flowing from the trays of the second set downwardly to the next lower trays. The

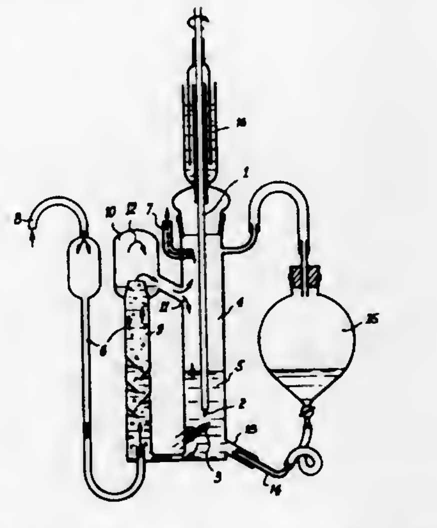
relieved portions are parallel to the plates of the one set and spaced from the shell a distance substantially equal to the horizontal distance between the plates of the one set which are connected to the straight sides of coplanar half-trays.

3,573,173
PROCESS FOR RECOVERING EXCESS AMMONIA IN UREA SYNTHESIS BY DIRECT CONTACT CONDENSATION WITH LIQUID AMMONIA
Eiji Otsuka, Kazumichi Kanai, and Tadao Sakai, Fujisawa, Shigeru Inoue, Kamakura, Nobuyoshi Hashimoto, Yokohama, Masatoshi Yakabe, Mobara, and Tetsuo Kimura, Kamakura, Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan
Filed July 24, 1968, Ser. No. 747,336
Int. Cl. C07c *127/10*
U.S. Cl. 203—21 **7 Claims**



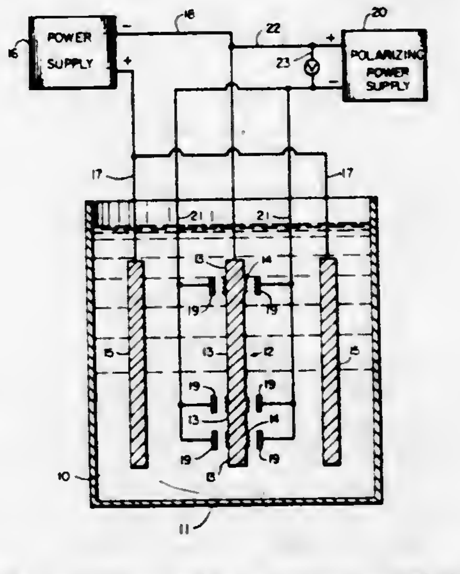
A process for recovering excess ammonia in urea synthesis which comprises separating excess ammonia from a urea synthesis effluent in the form of an ammonia gas, making the ammonia gas free of carbon dioxide if necessary and bringing the ammonia gas free of carbon dioxide with raw material liquid ammonia thereby the ammonia gas is condensed to form liquid ammonia at high temperature.

3,573,174
PROCESS FOR THE DETECTION OR DETERMINATION OF FLUORINE
Paul Caro, Tempe, Ariz., assignor to Etat Francais, represente par le Ministredes Armees, Delegation Ministerielle pour l'Armenent (Direction des Poudres), Paris, France
Filed Oct. 22, 1965, Ser. No. 502,639
Claims priority, application France, Oct. 23, 1964, 992,386
Int. Cl. B01k *1/00*
U.S. Cl. 204—1 **5 Claims**



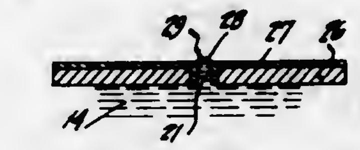
Fluorine is detected or determined by introducing a sample being analyzed for the presence of fluorine into an acid solution having immersed therein a zirconium electrode and a platinum electrode and measuring the electric current which is produced.

3,573,175
METHOD OF STOPPING-OFF PLATING IN ELECTROPLATING BATHS
Ram Dev Bedi, Oak Park, Mich., assignor to M & T Chemicals Inc., New York, N.Y.
Continuation of application Ser. No. 291,987, July 1, 1963. This application May 1, 1968, Ser. No. 725,956
Int. Cl. C23b *5/48;* **B01k** *3/02*
U.S. Cl. 204—15 **2 Claims**



A process for electroplating a plate metal from a bath onto a cathode having predetermined areas to be plated and selected areas to be stopped off which comprises placing an auxiliary electrode adjacent to said selected areas, maintaining said selected areas anodic to said auxiliary electrode and subjecting said cathode to plating current density whereby said metal is deposited on the said predetermined areas and said selected areas remain stopped off, and an apparatus for electroplating which comprises an electroplating bath, at least one anode therein, a cathode having predetermined areas to be plated and selected areas to be stopped off, an auxiliary electrode adjacent to each of the said selected areas of said cathode, a main power supply establishing a potential across the anode and the cathode, and means for maintaining said selected areas anodic to said auxiliary electrode. In one embodiment, the means for maintaining said selected areas anodic to said auxiliary electrode includes a polarizing power supply establishing a potential between selected areas of the cathode and the auxiliary electrode, the positive terminal of the polarizing power supply being joined to the negative terminal of the main power supply. The auxiliary electrode may contain a thin coating of platinum sufficient to substantially inhibit electroplating of said auxiliary electrode.

3,573,176
SELECTIVE ANODIZATION APPARATUS AND PROCESS
Wilhelm H. Laznovsky, Princeton, N.J., assignor to RCA Corporation
Filed July 19, 1968, Ser. No. 746,061
Int. Cl. C23b *5/48;* **B23p** *1/02*
U.S. Cl. 204—15 **4 Claims**



Thin film tantalum resistors are treated by selective anodization, by bringing an electrolyte into contact with the resistor to be treated and applying a voltage between the electrolyte and the resistor. The electrolyte is disposed on a raised portion of a base plate in the form of a thin liquid layer which is prevented from extending laterally beyond the raised portion by surface tension forces.

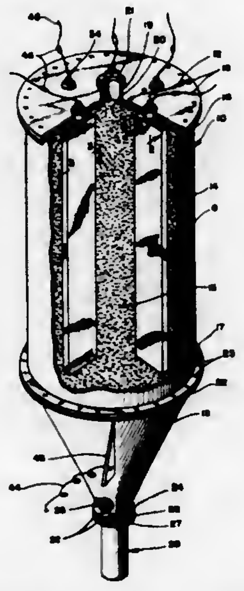
3,573,177
ELECTROCHEMICAL METHODS FOR PRODUCTION OF FILMS AND COATINGS OF SEMICONDUCTORS

William McNeill, Philadelphia, Pa., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Continuation-in-part of application Ser. No. 399,941, Sept. 28, 1964. This application Jan. 11, 1968, Ser. No. 697,021
Int. Cl. C23b *11/00*
U.S. Cl. 204—32 **4 Claims**

Articles bearing an anodically electrolytically formed coating on its surface, the coating comprising, in the main, a compound made from either zinc or cadmium or cadmium-zinc alloys and sulfur and/or selenium, the compounds being electrochemically formed as compounds, and methods therefor.

3,573,178
METHOD AND ELECTROLYTIC CELL TO PRODUCE ALKYL LEAD COMPOUNDS FROM GRIGNARD SOLUTION AND LEAD

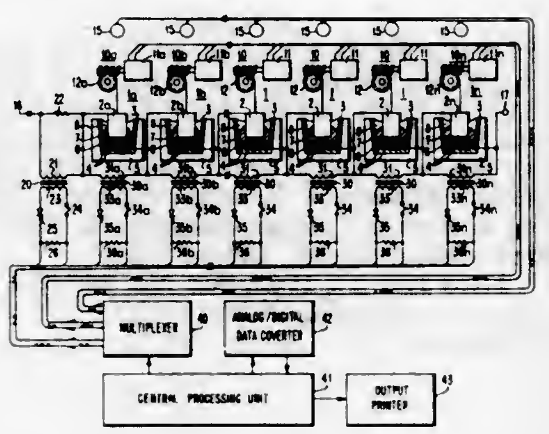
Guy E. Blackmar, Freeport, Tex., assignor to Nalco Chemical Company, Chicago, Ill.
Filed Oct. 24, 1968, Ser. No. 770,370
Int. Cl. B01k *3/00;* **C22d** *1/02*
U.S. Cl. 204—59 **20 Claims**



Electrolytic cell for producing organo metallic compounds by electrolyzing a liquid electrolyte in the presence of a particulate consumable metal, wherein the cell includes a vessel of electrically conductive material, a plurality of cathode assemblies mounted within the vessel in a bed of electrically conductive particulate consumable material, and each cathode assembly having a cathode of electrically conductive material insulatively mounted with respect to the vessel and a sheath of liquid-porous insulating material enclosing the cathode, and each cathode being individually fused.

3,573,179
METHOD AND APPARATUS FOR THE CONTROL OF ELECTROLYTIC REFINING CELLS

George P. Dirth, Walnut Creek, Calif., and Terrence K. McMahon, New York, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 14, 1965, Ser. No. 519,109
Int. Cl. C22d *3/02, 3/12*
U.S. Cl. 204—67 **7 Claims**



Method and system for controlling the addition of alumina to electrolytic aluminum refining cells to avoid the occurrence of "anode effects" therein. Control of individual refining cells is based upon the slope or trend of the bath resistance profile instead of actual measured resistance values. The bath resistance values are accumulated over a period of time and the average rate of change or trend of the resistance curve determined. When the slope or trend reaches a predetermined value, the requirement for addition of alumina to the bath is indicated.

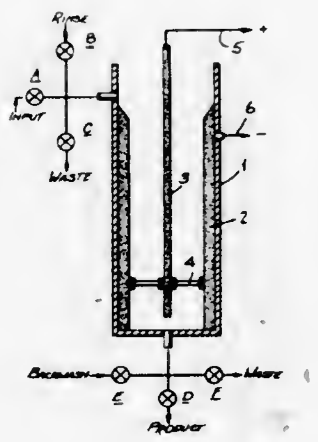
3,573,180
METHOD OF INITIATING POLYMERIZATION ELECTROLYTICALLY

Harvey A. Hodes, James F. Sobieski, and Michael C. Zerner, Eatontown, N.J., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Nov. 3, 1967, Ser. No. 681,062
Int. Cl. B01k *3/00;* **C07b** *29/06*
U.S. Cl. 204—72 **12 Claims**

Polymerization is initiated electrolytically by passing a current through an electrochemical system comprised of a metallic anode, a cathode, the anode and cathode being immersed in an electrolytic solution containing an electrolyte and polymerizable monomers, the electrolytic solution being inert toward said anode on mere contact therewith, but solubilizing the anode when an electric current is passed. The metal ions formed on solubilization of the anode upon electrolysis are oxidized with a compound which forms free radicals, initiating polymerization.

3,573,181
ELECTROLYTIC REDUCTION OF IRON

Linden W. Cochran, Basking Ridge, N.J., assignor to Multi-Minerals Limited, Toronto, Ontario, Canada
Filed Feb. 7, 1968, Ser. No. 703,648
Int. Cl. B01k *1/00*
U.S. Cl. 204—103 **6 Claims**



The present invention is directed to the reduction of multivalent cations in acidic solutions, such as phosphate solutions, to a lower oxidation state by electrolysis of the solution and capture of the cation in said lower oxidation state by an ion exchange resin.

3,573,182
PROCESS FOR SEPARATING ZINC AND COPPER

Philip E. Churchward and Samuel Ralph Borrowman, Salt Lake City, Utah, assignors to the United States of America as represented by the Secretary of the Interior
Filed Jan. 11, 1968, Ser. No. 697,213
Int. Cl. C22d *1/22;* **C22b** *15/12*
U.S. Cl. 204—119 **6 Claims**

Zinc is preferentially extracted from solutions containing copper and zinc ions using a calcium salt of an organic hydrogen phosphate. A complete process including the selective extraction and the recovery of zinc and copper from the organic and aqueous phases respectively is described.

3,573,183
IRRADIATION POLYMERIZATION OF ETHYLENE USING A TERTIARY BUTYL ALCOHOL MEDIUM

Tsutomu Kagiya, Kyoto-shi, and Hiroshi Mitsui, Sueo Machi, Fujo Suganuma, and Miyuki Hagiwara, Takasaki-shi, Japan, assignors to Japan Atomic Energy Research Institute
No Drawing. Filed Nov. 24, 1967, Ser. No. 685,256
Claims priority, application Japan, Nov. 25, 1966, 41/76,857
Int. Cl. C08d *1/04, 3/02*
U.S. Cl. 204—159.22 **9 Claims**

This invention is directed to the radiation induced polymerization of ethylene in which tertiary butyl alcohol is used as the reaction medium. Various solvents have been considered as a reaction medium for the radiation induced polymerization of ethylene to be carried out under high reaction pressure, and it has been found that tertiary butyl alcohol is the medium which produces high molecular weight products in high yield and gives the greatest rate of polymerization reaction.

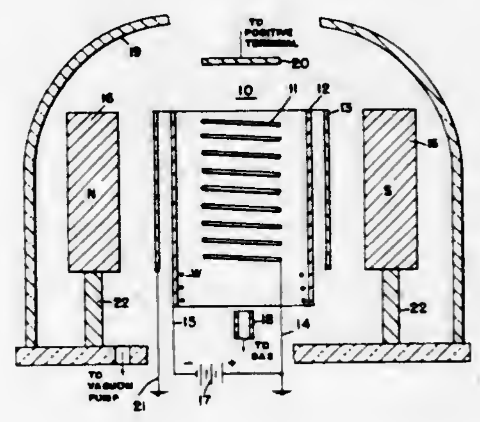
3,573,184
PROCESS FOR PREPARING CARBOHYDRATES

Matilda M. Brooks, Berkeley, Calif., assignor to Kent H. Steffgen, Oakland, Calif.
No Drawing. Filed Nov. 15, 1968, Ser. No. 776,256
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—160.1 **6 Claims**

The specification relates to a process for the synthetic preparation of basic plant carbohydrates. In this process, a mixture of magnesium and carbon dioxide dissolved in water is placed in a source of ultraviolet wave lengths to form a highly energized polyatomic CH_2O free radical. The CH_2O free radical is then placed in darkness to provide the desired carbohydrate.

3,573,185
ANODIC SPUTTERING

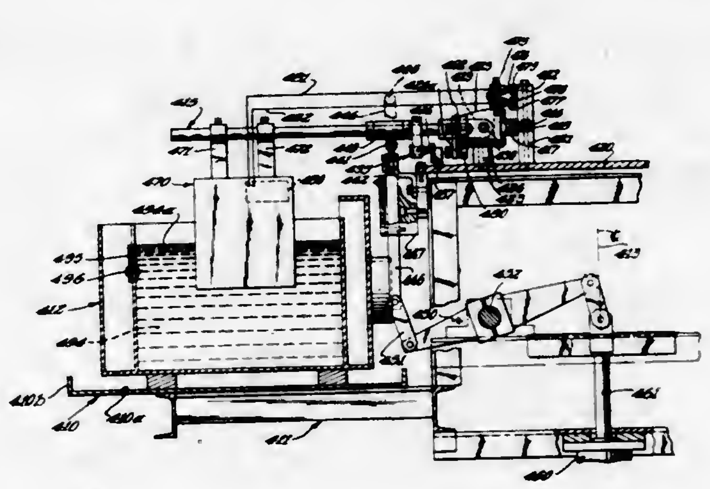
Thomas A. Jennings, West Collingswood, N.J., and William McNeill, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Dec. 16, 1968, Ser. No. 783,885
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 **20 Claims**



Processes for anodizing or sputtering metal anodes, or for sputtering and anodizing valve metal anodes such as tantalum substantially simultaneously, by electrically connecting the anode in a vacuum vessel and controllably impacting the anode with negative ions. Anodization will occur when lower voltages are employed to propel the negative ions toward the anode whereas higher voltages will result in sputtering of the anode. Intermediate voltages will produce the phenomenon of sputtering and anodization of suitable surfaces.

3,573,186
CONVEYER TYPE ELECTROPLATING APPARATUS

James N. Ryerson, Oceanport, David S. Ackerman, Linden, and Arnold E. Kream, Clark, N.J., assignors to Sel-Rex Corporation, Nutley, N.J.
Continuation-in-part of applications Ser. No. 310,274, Sept. 20, 1963, and Ser. No. 433,029, Feb. 16, 1965. This application Feb. 2, 1968, Ser. No. 702,706
Int. Cl. C23b *5/68;* **B65g** *49/00*
U.S. Cl. 204—203 **15 Claims**

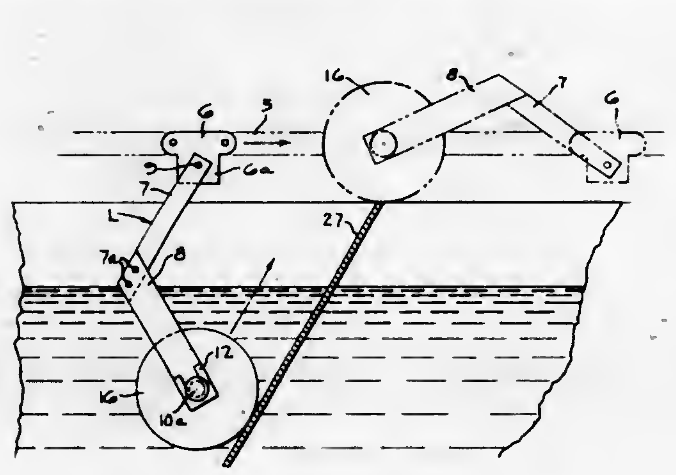


In the illustrated embodiments precious metal plating is carried out by a loop series of tanks on a table, small electronic components being automatically individually partially immersed so as to plate predetermined portions of the components. Multiple parts may be treated by quick disconnect fixtures with precise locating surfaces. The entire machine may be sold as a complete package requiring a minimum of site preparation. The same machine may be adapted to barrel plating operation.

3,573,187
APPARATUS FOR PROCESSING ARTICLES

Frederick W. Stakelbeck, Philadelphia, Pa., assignor to Philadelphia Rust-Proof Company, Philadelphia, Pa.
Filed May 6, 1969, Ser. No. 822,146
Int. Cl. B01k *3/00;* **C23b** *5/68*
U.S. Cl. 204—203 **9 Claims**

This invention relates to apparatus adapted to transport continuously a plurality of articles suspended on removable work-supports through a series of longitudinally aligned chambers or tanks for suitably processing the articles successively in the aligned chambers. The work-supports are conveyed by a pair spaced horizontally positioned endless parallel travelling chains or belts extending in a straight line and located at the top of the tanks. The rear end wall of each tank is provided with a sloping or inclined runway or guideway extending downwardly within each tank and terminating at the upper edge thereof. A plurality of spaced pairs of freely rotatable guide wheels are carried on swingable levers which are hinged on spaced links of the conveyor chains. The guide wheels are adapted to make rolling contact with the sloping guideways of each chamber or tank and to travel upwardly on said guideways until they reach the top of the chamber or tank and then automatically drop by gravity into the next adjacent chamber.



3,573,188

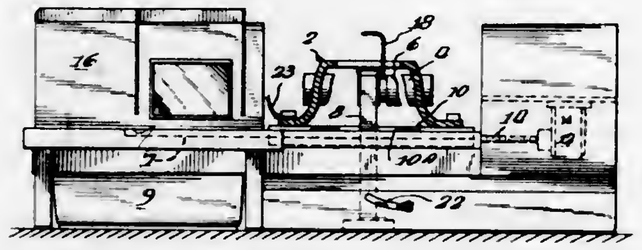
ELECTROCHEMICAL MACHINE APPARATUS

Lynn A. Williams, Winnetka, Leonard R. Malkowski, La Grange, and Sigmund H. Bielak, Downers Grove, Ill., assignors to Anocut Engineering Company

Filed Jan. 31, 1968, Ser. No. 701,885

Int. Cl. B23p *1/02*

U.S. Cl. 204—224 **12 Claims**



An electrolytic demetallizing apparatus for shaping a workpiece which is held by a table on a work-supporting surface. An elongated member extends upwardly through an aperture in the table in a direction generally perpendicularly to the work-supporting surface, and carries an electrolytic shaping cathode which is used to erode a workpiece. Generally, the table is rotatable about an axis perpendicular to the work-supporting surface to permit the workpiece to be rotated with respect to the cathode for ease in presenting the location to be shaped on the workpiece to the shaping cathode. The table or the elongated member is capable of moving in a direction generally parallel to the work-supporting surface to bring the shaping cathode into close proximity with the workpiece, while pressurized liquid electrolyte is passed through the shaping cathode and between the workpiece and the cathode, and a D.C. voltage is maintained across said workpiece and said shaping cathode in a sense to make the workpiece anodic.

3,573,189

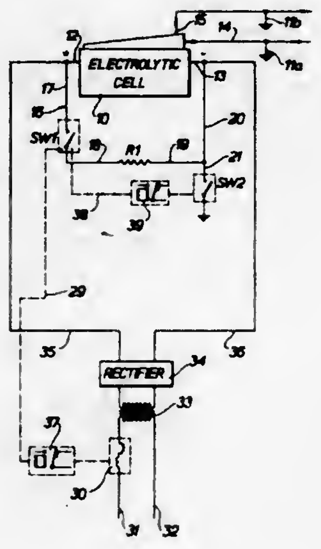
ELECTRICAL BUS BAR GROUNDING

Göthe O. Westerlund, Vancouver, British Columbia, Canada, assignor to Chemech Engineering Ltd., Vancouver, British Columbia, Canada

Filed Oct. 17, 1967, Ser. No. 675,935

Int. Cl. B01k *3/0;* C01b *11/26*

U.S. Cl. 204—228 **3 Claims**



A system is provided for dissipating the residual charge in an electrolytic cell. The system includes an external circuit having a normally open switch and resistor in series, connected across the positive and negative poles of the electrolytic cell. The system also includes a grounding circuit, operative after the external circuit has been completed by closing the normally open switch.

An improved method of operating an electrolytic cell is provided which involves grounding the positive and negative terminals after the power input to the cell has been shut off.

3,573,190

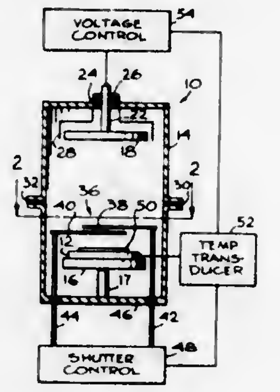
APPARATUS FOR DEPOSITING SEMICONDUCTOR MATERIAL AND FORMING SEMICONDUCTOR JUNCTIONS

Murray Bloom, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Original application July 7, 1966, Ser. No. 563,467, now Patent No. 3,480,535, dated Nov. 25, 1969. Divided and this application Oct. 31, 1968, Ser. No. 772,231

Int. Cl. C23c *15/00*

U.S. Cl. 204—298 **4 Claims**



There is disclosed an apparatus for sputter depositing a layer of semiconductor material from a cathode onto a semiconductor substrate through a molten metal alloy layer on the substrate. Means are provided to sense the temperature of the substrate in order to control means for shielding the alloy layer until the substrate reaches a temperature such that the surface of the substrate itself is slightly below the melting point of the material to be deposited whereas the surface of the molten layer is maintained by the sputtering apparatus at a temperature which is above the melting point of the material to be sputter deposited. The apparatus thus assures that the sputtered material will dissolve into the alloy at its high temperature surface and crystallize out onto the surface of the substrate.

3,573,191

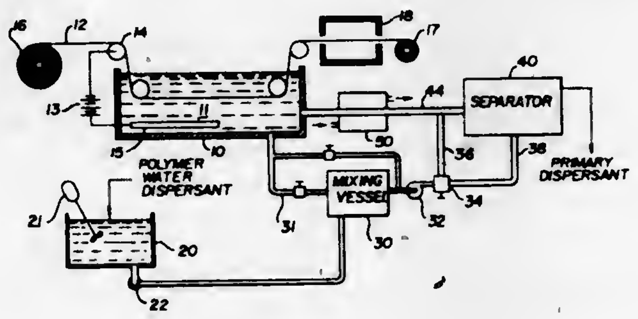
APPARATUS FOR RECONSTITUTING ELECTROCOATING BATHS

Joseph M. De Vittorio, Homewood, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Original application Aug. 24, 1967, Ser. No. 662,997, now Patent No. 3,499,828, dated Mar. 10, 1970. Divided and this application Nov. 17, 1969, Ser. No. 871,302

Int. Cl. B01k *5/02;* C23b *13/00*

U.S. Cl. 204—300 **8 Claims**



System for adding replenishment coating material to an electrocoating bath. Electrocoating tank containing dispersion of organic polymeric material in aqueous bath is operated to deposit polymeric coating on conducting surfaces using electrical potential. Coating material is dispersed by primary dispersant to form stable aqueous make-up liquid. Make-up mixed with electrocoating bath containing secondary dispersant. Primary dispersant is minimized in the reconstituted bath while secondary dispersant remains in relatively fixed concentration in the electrocoating bath.

3,573,192

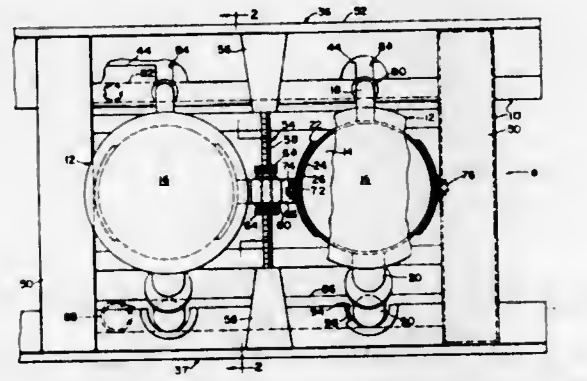
PLASMA GENERATING APPARATUS

Richard L. Bersin, Kensington, and Harvey James Beaudry, Fremont, Calif., assignors to International Plasma Corporation

Filed Aug. 19, 1968, Ser. No. 753,682

Int. Cl. B01k *1/00;* C01b *13/12*

U.S. Cl. 204—312 **10 Claims**



A plasma, or ionized gas, generating apparatus for reaction of the plasma with non-gaseous substances in a container, the apparatus having a support structure defined by spaced apart support plates which are interconnected by a plurality of posts. A pair of elongate electrode plates for each container is mounted on the support structure so that at least one of the plates can be moved toward and into engagement with the container for grasping the container and mounting it on the apparatus. The electrode plates have a concave configuration to grasp the container and include a layer of an electrically insulating material on the concave side to prevent short circuits between the electrode plates and the container and to facilitate the slideable insertion and removal of the container from between the plates. A supply manifold is carried by the support structure and includes a plurality of supply conduits for connection with the containers and the transmission of gas into the containers. An exhaust manifold is similarly carried by the support structure and connected with the container for removal of the gas and the plasma from the container.

3,573,193

METHOD FOR CONTROLLING PROPERTIES OF MAGNETIC FILM

John V. Powers, Shenorock, and Lubomyr T. Romankiw, Millwood, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 4, 1968, Ser. No. 780,960

Int. Cl. C23f *17/00;* C23b *5/34*

U.S. Cl. 204—38 **5 Claims**

A method for controlling magnetic properties of magnetic films by controlling the roughness of the substrate surface onto which the magnetic film is deposited. On one hand the coercivity may be varied although the magnetic film thickness is being kept constant, on the other hand constant values of coercivity can be obtained even though the thickness of the magnetic film may vary. The substrate consists of a conductive ground plate coated with a thin layer of insulating material and thereafter copper plated. Prior to the deposition of the magnetic film, the copper surface is treated by electro pulse plating including reverse pulsing to obtain a well defined and controlled surface roughness.

3,573,194

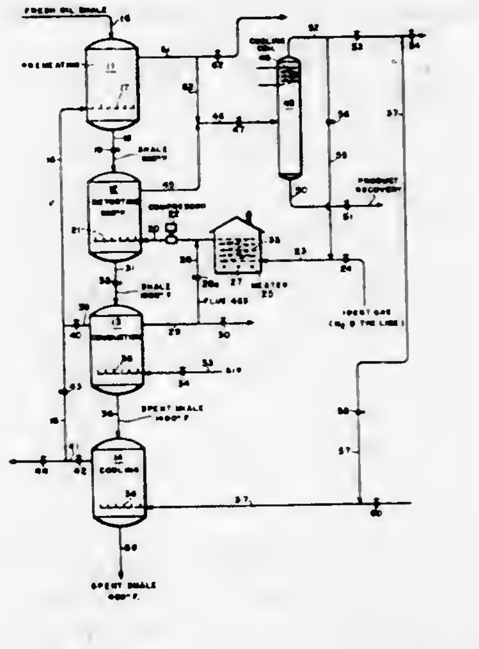
RETORTING OF OIL SHALE

Jack R. Hopper, East Baton Rouge Parish, La., and Edward L. Wilson, Jr., Baytown, and Nick P. Peet, Houston, Tex.; said Peet assignor to Esso Research and Engineering Company

Filed Mar. 26, 1969, Ser. No. 810,577

Int. Cl. C10b *53/06*

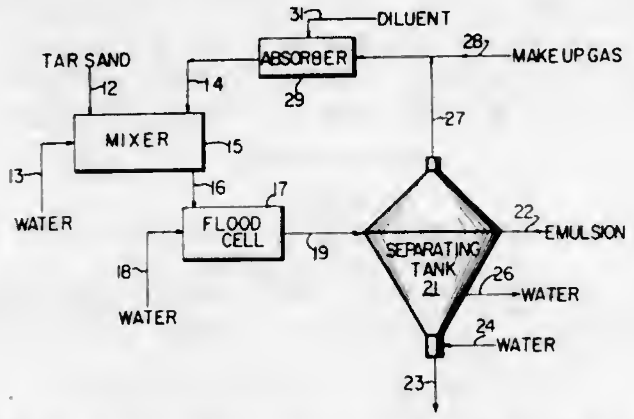
U.S. Cl. 208—11 **11 Claims**



Shale oil of improved quality is recovered from oil shale retorted in a plural stage retorting system at an elevated temperature in the presence of an inert gas under an elevated pressure.

3,573,195
ADDITION OF LIGHT HYDROCARBON GAS TO TAR SAND

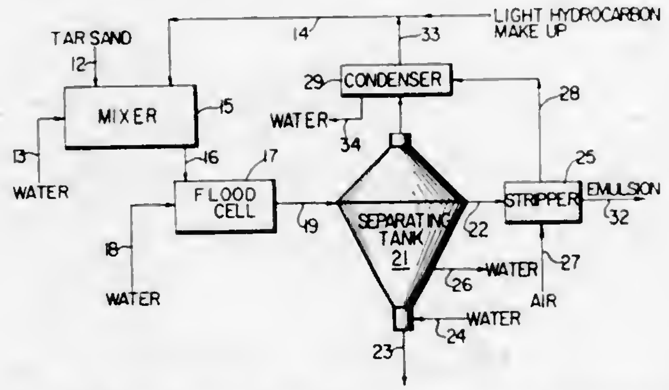
Clement W. Bowman, Edmonton, Alberta, and Douglas S. Montgomery, Ottawa, Ontario, Canada, assignors to Cities Service Athabasca, Inc., Imperial Oil Limited, Atlantic Richfield Corporation, and Royalite Oil Company, Limited, a fractional part interest to each
Filed Aug. 28, 1968, Ser. No. 755,974
Int. Cl. C07q *1/04*
U.S. Cl. 208—11 **7 Claims**



Bitumen is recovered from bituminous sand by forming a fluid slurry of bituminous sand, water and liquid hydrocarbon diluent having normally gaseous hydrocarbon material dissolved therein at a temperature less than about 110° F., preferably between 80 and 110° F. The slurry is then introduced into a body of water maintained in a separation zone at a temperature greater than 150° F. usually between 150 and 200° F. so that the gaseous hydrocarbon comes out of the solution and aids in floatation of the bitumen to the top of the water while sand settles to the bottom for removal therefrom. Normally gaseous hydrocarbons including ethane, methane and propane may be used and are preferably used in amounts between about 0.5 and about 2.0 standard cubic feet of gas per standard cubic foot of bitumen. The liquid hydrocarbon diluent preferably boils between 200 and 500° F. and is used in amounts between about 1 and about 10 wt. percent based upon bitumen.

3,573,196
USE OF LIGHT HYDROCARBONS IN TAR SAND PROCESSING

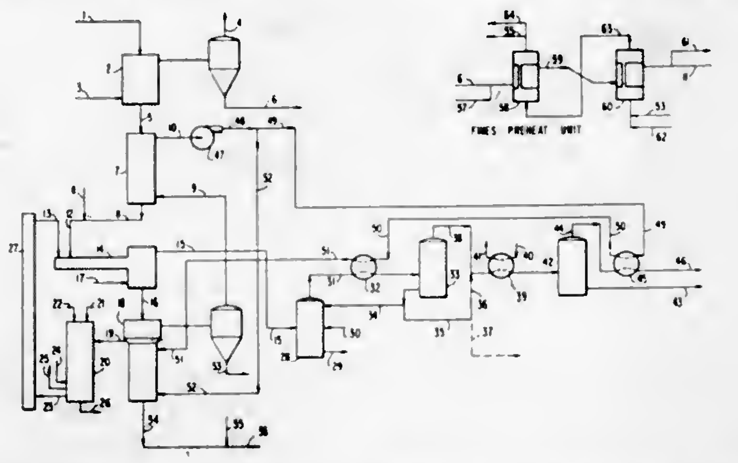
Lubomyr M. O. Cymbalisty, Edmonton, Alberta, Canada, assignor to Cities Service Athabasca, Inc., Imperial Oil Limited, Atlantic Richfield Corporation, and Royalite Oil Company, Limited, a fractional part interest to each
Filed Aug. 28, 1968, Ser. No. 755,976
Int. Cl. C07q *1/04*
U.S. Cl. 208—11 **7 Claims**



Bitumen is recovered from bituminous sand containing the same by forming a slurry of bituminous sand, water and normally liquid hydrocarbon material at a temperature below the boiling point of the hydrocarbon material. The slurry is then introduced into a body of water maintained at a temperature above the boiling point of the hydrocarbon material so that the hydrocarbon material evolves as a gas and aids in floating bitumen to the top of the water for recovery therefrom. The slurry is preferably formed at a temperature at least 10° F. below the boiling point of the hydrocarbon material, preferably between 80 and 140° F. while the body of water is preferably maintained at least about 10° F. above the boiling point of the hydrocarbon material, preferably between 140 and 210° F. C_6 hydrocarbons, such as normal or isohexane boiling between about 120 and about 160° F. are preferred. Pressure is preferably maintained relatively constant, i.e. with variations less than five p.s.i. throughout the process and atmospheric pressure is preferred for convenience.

3,573,197
PROCESS FOR RETORTING OIL SHALE

Clyde E. Gessner, Tulsa, Okla., assignor to The Oil Shale Corporation, New York, N.Y.
Filed Dec. 6, 1968, Ser. No. 781,795
Int. Cl. C10b *53/06*
U.S. Cl. 208—11 **9 Claims**



A novel and thermally efficient process for retorting oil shale is provided which utilizes the heat in the spent shale and in the shale oil vapors to heat the raw shale without condensing shale oil vapors on the raw shale and witout contaminating the shale oil vapors with other gaseous material such as flue gas. The novel process of this invention comprises distilling shale oil vapors in a retorting zone from raw shale heated to a retorting temperature, separating hot spent shale from the retorting zone, passing a circulating stream of a normally gaseous hydrocarbon such as natural gas, propane, butane, or mixtures thereof in direct contact with hot spent shale separated from the retorting zone and in indirect heat exchange with the shale oil vapors, thereby heating the normally gaseous hydrocarbon to a high temperature, passing the circulating stream of said normally gaseous hydrocarbon thus heated to a high temperature into direct contact with raw shale, thereby preheating it, heating a particulate solid heat ransfer medium, particularly the hot spent shale, to a temperature in excess of the retorting temperature, passing preheated raw shale and the thus heated particulate solid heat transfer medium into direct contact in the retorting zone thereby heating the preheated raw shale to a retorting temperature.

3,573,198
SMOKE POINT IMPROVEMENT OF JET FUEL KEROSENE FRACTIONS

Robin J. Parker, Western Springs, and Ernest L. Pollitzer, Skokie, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Feb. 10, 1969, Ser. No. 798,179
Int. Cl. C10g *23/02*
U.S. Cl. 208—89 **5 Claims**

A process for improving the jet fuel characteristics of sulfurous kerosene boiling range fractions. The improvement is especially noticeable in the IPT Smoke Point, the concentration of aromatic hydrocarbons and the concentration of sulfur. A two-stage process wherein desulfurization of a sulfurous charge stock is effected in the first reaction zone at relatively mild severities which result in a normally liquid product effluent containing from about 15 to about 35 p.p.m. of sulfur by weight. Aromatic saturation/is the principal reaction effected in the second reaction zone having disposed therein a catalytic composite of alumina, a halogen component, a Group VIII noble metal component and a Group VII–B metallic component.

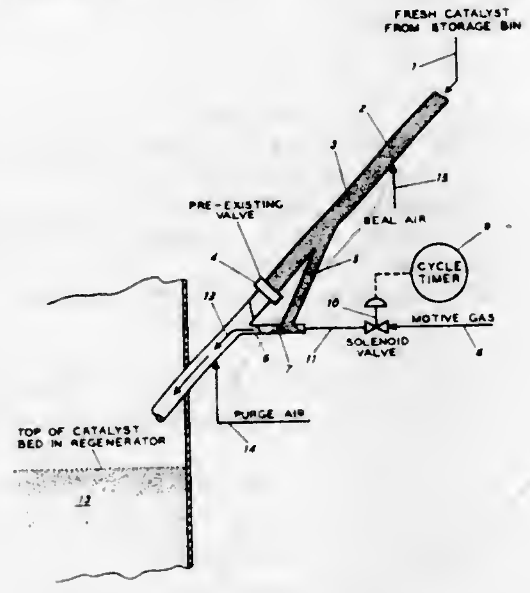
3,573,199
ACIDITY CONTROL FOR A REFORMING PROCESS

Charles S. McCoy, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed June 16, 1969, Ser. No. 833,781
Int. Cl. C10g *35/08*
U.S. Cl. 208—139 **6 Claims**

The halide content of a platinum containing catalyst is adjusted during a reforming process without discontinuance of contact of the feed with the catalyst by (1) adjusting the temperature to within the range of 675 to 725° F.; (2) adjusting the water content in the reaction within the range of from 0.05 to 0.1 p.s.i.a.; and (3) then injecting halogen or compounds of halogen into the reaction zone to increase the halide content of the catalyst.

3,573,200
CATALYST MAKEUP

Raymond P. Vogel, Old Bridge, N.J., assignor to Chevron Research Company, San Francisco, Calif.
Filed Dec. 4, 1968, Ser. No. 781,121
Int. Cl. C10g *13/16*
U.S. Cl. 208—173 **1 Claim**

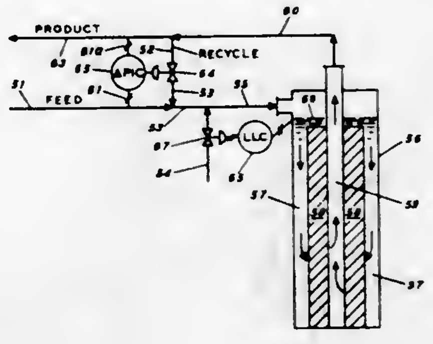


Catalyst is added to a bed of catalyst in controlled amounts by an easily controlled system using, for example, motive air to move controlled amounts of catalyst through a conduit and then onto a bed of catalyst at regulated intervals. Catalyst flow is stopped when a cycle timer stops the flow of air to the conduit because the catalyst stagnates when the mass of catalyst particles introduced to the conduit (by a standpipe from fresh catalyst storage) assumes its angle of repose.

3,573,201
IRON REMOVAL USING A HIGH ASPECT RATIO BED OF CONTACT PARTICLES

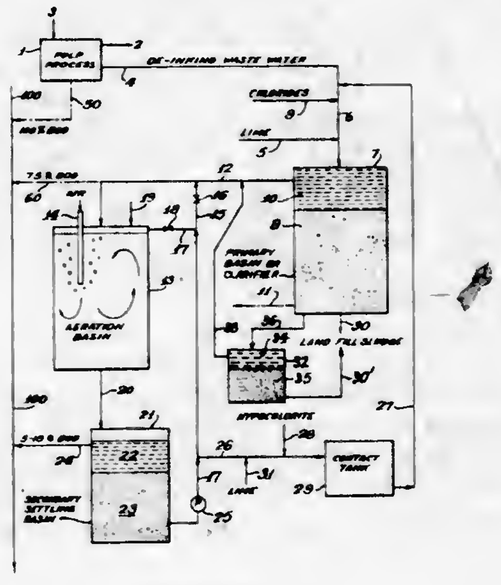
Richard J. Annesser, Berkeley, John W. Scott, Jr., Ross, John F. Senger, Berkeley, and Alan G. Bridge, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.
Filed Oct. 10, 1968, Ser. No. 766,604
Int. Cl. C10g *23/02, 23/16*
U.S. Cl. 208—251 **9 Claims**

Iron is removed from a hydrocarbon feed containing iron as soluble organometallic compounds by passing the hydrocarbon feed together with hydrogen at elevated temperature and pressure through a bed of contact particles, the bed being shaped so as to have a ratio of cross-sectional flow area to bed volume of at least 0.20. Preferably, the bed is an annulus of contact particles through which the hydrocarbon feed flows radially inward, or a bed of contact particles disposed in a horizontal cylindrical vessel. Preferably a major portion of the liquid effluent from the bed is recycled to the bed; and, particularly for radial flow operation, preferably the hydrogen is dissolved in the hydrocarbon feed.



3,573,202
PROCESS FOR REDUCTION OF WATER POLLUTION DUE TO DOMESTIC AND INDUSTRIAL WASTES

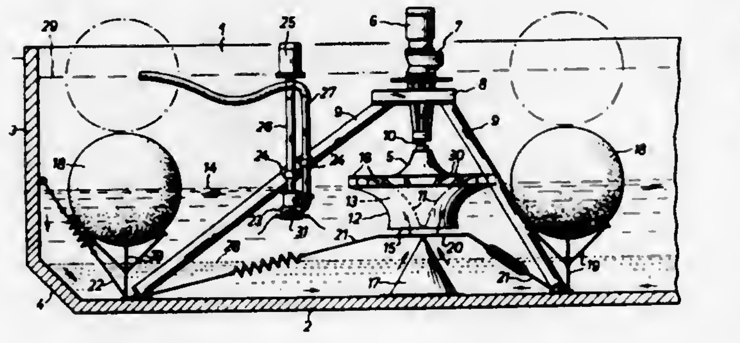
John Thomas Sobota and David Frederick Pagel, Green Bay, Wis., assignors to Fort Howard Paper Company
Filed Mar. 5, 1970, Ser. No. 16,811
Int. Cl. C02c *1/08*
U.S. Cl. 210—5 **16 Claims**



A process for reduction of water pollution due to domestic and industrial wastes, for example, waste from de-inked pulp making processes, comprising the treatment of such wastes in two main stages to produce a modified primary-secondary sludge which has a consistency of 20–25% solids, and is stable and odor free, as such useful for land fill. The sole liquid effluent is from the secondary stage which is 85%–95% free of pollutants, calculated as pounds of BOD of the initial de-inking wastes, thus resulting in a 7 to 20-fold decrease in pollutants.

3,573,203
METHOD AND APPARATUS FOR SEWAGE TREATMENT

Joseph Richard Kaelin, Villa Seeburg, Buochs, Nidwalden, Switzerland
Filed Sept. 17, 1968, Ser. No. 760,282
Int. Cl. C02c *1/10*
U.S. Cl. 210—14 **5 Claims**



A sewage treatment system comprises a tank containing sewage to be aerated and circulated by an aeration rotor partially immerged in the liquid contained in the tank. The aerator is suspended from a floating system which is floating on the liquid in the tank, so that the aerator can move up and down with the varying liquid level in the tank. At certain periods, as for example during the night when no sewage is supplied, the aerator is stopped so that sludge is allowed to settle to the bottom of the tank and clarified liquid can be withdrawn from the upper portion of the tank, while at daybreak when sewage begins to accumulate, the aerator is operated to diffuse atmospheric oxygen in the liquid in the tank and activate the sludge contained therein.

3,573,204
METHOD OF FABRICATING HIGH STRENGTH, SELF-LUBRICATING MATERIALS

Jan W. Van Wyk, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.
No Drawing. Continuation-in-part of application Ser. No. 675,328, Oct. 16, 1967, now Patent No. 3,479,289, dated Nov. 18, 1969, which is a continuation-in-part of application Ser. No. 499,367, Oct. 21, 1965. This application Nov. 14, 1969, Ser. No. 877,029
Int. Cl. C10m *5/02*
U.S. Cl. 252—12 **5 Claims**

Compaction of a powdered mixture of Group V–B, VI–B or rare earth chalcogenides and a refractory metal under sufficient heat and pressure to sinter the powder mixture and to react at least some of the refractory metal with carbon to form a metal matrix solid lubricant composite containing a refractory metal carbide. Graphite dies may be used to provide carbon for carbide formation.

3,573,205
DIISOCYANATE MODIFIED POLYISOBUTENYL-SUCCINIMIDES AS LUBRICATING OIL DETERGENTS

Warren Lowe and Yngve G. Hendrickson, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed Dec. 17, 1968, Ser. No. 784,463
Int. Cl. C10m *1/32*
U.S. Cl. 252—51.5 **4 Claims**

The reaction product of mono- and bis-succinimides of alkylene polyamines and diisocyanates are used as detergents in lubricating oils.

3,573,206
LUBRICANT COMPOSITIONS

Milton Braid, Westmont, and Derek A. Law, Pitman, N.J., assignors to Mobil Oil Corporation
No Drawing. Original application Mar. 28, 1966, Ser. No. 537,639, now Patent No. 3,509,214, dated Apr. 28, 1970. Divided and this application Sept. 16, 1969, Ser. No. 858,528
Int. Cl. C10m *1/32*
U.S. Cl. 252—51.5 **11 Claims**

The invention provides lubricating compositions containing oil-soluble products made by heating N-phenylnaphthylamine, N - naphthyl - naphthylamine, mixtures thereof, or mixtures thereof with diphenylamine, in the presence of an oxidizing agent. The products impart improved antioxidant properties to said lubricating compositions.

3,573,207
MICROWAVE MAGNETIC MATERIALS WITH A HEXAGONAL STRUCTURE

Andre Deschamps, Paris, France, assignor to Société Lignes Telegraphiques et Telephoniques, Paris, France
Filed Feb. 20, 1969, Ser. No. 801,109
Claims priority, application France, Mar. 13, 1968, 143,450
Int. Cl. H01b *1/10*
U.S. Cl. 252—62.58 **2 Claims**

An hexagonal ferrite composition for microwave devices is obtained by double substitution of a part of the ferric ions in a conventional alkaline-earth ferrite (MO, $6Fe_2O_3$) by couples of ½ (Ti^{4+}, Ni^{2+}) and Mn^{3+} or by triple substitution adding Al^{3+} to the two groups above. The manufacturing process includes sintering of single-crystal flakes of the ferrite material the dimensions of which are not larger than .5 mm.

3,573,208
METHOD OF MANUFACTURING FERRITES OF HIGH RESISTIVITY

Frank G. Brockman, Dobbs Ferry, and Kenneth E. Matteson, Mahopac, N.Y., assignors to U.S. Philips Corporation, New York, N.Y.
Filed Sept. 19, 1968, Ser. No. 760,872
Int. Cl. C04b *35/30*
U.S. Cl. 252—62.62 **5 Claims**

A method of manufacturing ferrites of high resistivity and μQ product by accurate control of the composition. In this method two ferrites of approximately the same composition, but differing slightly in stoichiometry, are blended to form a composition of optimum stoichiometry for maximum resistivity and μQ product.

3,573,209
INSULATING COMPOSITIONS AND MATERIALS

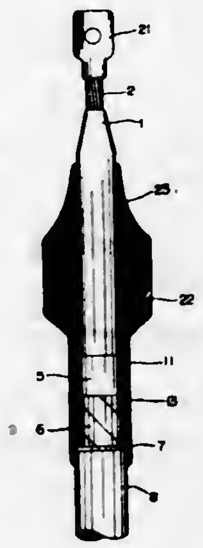
Robert de Dryver and André Marter, Notre-Dame-de-Gravenchon, France, assignors to Esso Standard Societe Anonyme Francaise, Paris, France
No Drawing. Filed July 14, 1964, Ser. No. 400,296
Claims priority, application France, July 22, 1963, 942,259
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. H01b *3/00*
U.S. Cl. 252—63 **5 Claims**

1. An oil composition suitable for the impregnation of tri-fibrous paper materials to form electrical insulators, said composition having a viscosity at 50° C. of about 2500 to about 2800 centistokes, a maximum viscosity at 100° C. of 150 centistokes, a tangent of loss angle at 100° F. of less than 0.0100, an increase of tangent of loss angle less than 100% and a decline in resistivity at 100° C. of less than 50% after bubbling air through the oil composition for 3 hours at 125° C., said composition tri-consisting essentially of a major amount of a mineral oil selected from the group consisting of naphthenic, semi-paraffinic and paraffinic oils, and within the

range of 0.1 to 50 wt. percent of a thermoplastic petroleum resin having a softening point in the range of 50° to 180° C., said resin being obtained by polymerizing a steam cracked petroleum distillate, or fraction thereof, boiling in the range of 30° to 280° C., in the presence of a Friedel-Crafts catalyst.

3,573,210
ELECTRIC INSULATING COMPOSITION CONTAINING AN ORGANIC SEMICONDUCTING MATERIAL

Hisatomo Furusawa and Tadaaki Kuhara, Yokohama, and Hironori Matsuba, Kawasaki, Japan, assignors to The Furukawa Electric Company Limited, Tokyo, Japan
Filed Dec. 5, 1967, Ser. No. 688,129
Claims priority, application Japan, Dec. 8, 1966, 41/80,069
Int. Cl. C08k *1/26;* **H01b** *3/18*
U.S. Cl. 252—64 **14 Claims**



An electrical insulating shaped body, free from partial discharge at internal voids which are inevitably formed therein. The shaped body has a volume resistivity larger than 10^{10} ohm-cm., and a surface resistivity smaller than 10^{12} ohms, both at the outer surface of the body and the internal surface of the voids. The surface resistivity is achieved by adding special semiconducting organic compounds, which bleed on the surface of the body by aging.

3,573,211
DETERGENT COMPOSITIONS CONTAINING CHLORINE BLEACH AND OPTICAL BRIGHTENERS

Reinhard Zweidler, Basel, Rudolf Keller, Riehen, near Basel, and Max Keller, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y.
Original application Sept. 23, 1965, Ser. No. 489,655. Divided and this application Nov. 16, 1967, Ser. No. 714,371
Int. Cl. C11d *7/54;* **D06l** *3/00*
U.S. Cl. 252—95 **7 Claims**

Detergent compositions having improved storage stability contain a detergent, a chlorine yielding bleaching agent and a bleach-stable optical brightener selected from a particular group of chlorine substituted mono-naphtho-triazoles.

3,573,212
CLEANSING COMPOSITION AND METHOD

Rafael Foguet Ambros, Flix, Spain, assignor to Electro-Quimica de Flix, S.A., Barcelona, Spain
No Drawing. Filed Jan. 9, 1968, Ser. No. 696,511
Int. Cl. C11d *1/18, 1/38, 1/50, 3/26*
U.S. Cl. 252—153 **9 Claims**

A cleansing composition for removing oils, greases, dust, dirt as well as water from non-porous objects to prepare them for phosphatizing, electroplating, enameling, glazing, lacquering or painting which comprises a chlorinated ethylene such as trichloroethylene or perchloroethylene, from 0.1 to about 1.5 percent by weight of a non-ionic surface active agent, such as an addition product of ethylene oxide with an alkyl phenol, fatty alcohol or fatty acid, and preferably 2 to 100 parts per million of an amine fixer, e.g., an aliphatic or aromatic amine. The method of cleansing involves immersing the objects in this composition while it is boiling and then transferring them to a boiling, pure chlorinated hydrocarbon.

3,573,213
AZEOTROPE OF 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE AND NITROMETHANE

James G. Burt, Oxford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Jan. 18, 1968, Ser. No. 698,799
Int. Cl. C09d *9/00;* **C11d** *7/50;* **C23g** *5/02*
U.S. Cl. 252—172 **2 Claims**

An azeotrope of about 97.1 weight percent 1,1,2-trichloro-1,2,2-trifluoroethane and about 2.9 weight percent nitromethane, useful in vapor degreasing and cleaning applications. The presence of nitromethane inhibits reaction of the 1,1,2-trichloro-1,2,2-trifluoroethane with zinc to produce unsaturated halocarbons and inhibits aluminum corrosion as well as stress-corrosion cracking of titanium alloys. Mixtures wherein the nitromethane is present in greater than azeotropic amounts are flammable; while mixtures wherein the nitromethane is much less than azeotropic amounts are not as effective with respect to most of the inhibiting properties of the azeotrope.

3,573,214
PROCESS FOR PREPARING STABLE DIMETHYL SULFOXIDE-HYDROGEN FLUORIDE MIXTURE

Janos Kollonitsch, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Original application Sept. 12, 1966, Ser. No. 578,518, now Patent No. 3,471,512, dated Oct. 7, 1969. Divided and this application Nov. 26, 1968, Ser. No. 791,834
Int. Cl. C07c *147/00*
U.S. Cl. 252—182 **3 Claims**

Process for preparing a stable solution of dimethyl sulfoxide in liquid hydyrogen fluoride.

3,573,215
TETRABROMOPHTHALIC ANHYDRIDE COMPOSITIONS

Richard C. Nametz, St. Louis, and Robert J. Nulph, Alma, Mich., assignors to Michigan Chemical Corporation, St. Louis, Mich.
No Drawing. Continuation of abandoned application Ser. No. 551,883, May 23, 1966, which is a division of application Ser. No. 282,208, May 22, 1963. This application June 6, 1968, Ser. No. 739,935
Int. Cl. C09k *3/00;* **C08f** *5/00*
U.S. Cl. 252—192 **12 Claims**

Compositions of impure, oleum produced tetrabromophthalic anhydride with small amounts of inorganic and organic bases and salts are described. Impure, oleum produced tetrabromophthalic anhydride contains catalytic acidity occluded in the crystals which interferes with the reaction of tetrabromophthalic anhydride with polyols to produce polyester compositions because of side reactions which cyclize the polyols. Small amounts of inorganic and organic bases and salts are used to deactivate the catalytic acidity. The compositions are particularly useful for preparing polyester resins.

3,573,216

HETEROCYANOACRYLATE U.V. ABSORBERS

Albert F. Strobel, Delmar, and Sigmund C. Catino, Castleton, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 269,743, Apr. 1, 1963. This application Jan. 24, 1967. Ser. No. 611,471

The portion of the term of the patent subsequent to Nov. 2, 1982, has been disclaimed

Int. Cl. G02b *5/22*

U.S. Cl. 252—300 18 Claims

U.V.-degradable organic material containing an amount sufficient to prevent such degradation of certain heterocyanoacrylate U.V. absorbers.

3,573,217

METHOD OF PREPARING A STABLE MIXED SOL OF HEXAVALENT URANIUM AND TETRAVALENT THORIUM BY PEPTIZATION

Theo van der Plas, Vondellaan 41, Arnhem, Netherlands; Johannes B. W. Kanij, Da Costastraat 16, Zevenaar, Netherlands; Arend J. Noothout, Woudstralaan 1, Oosterbeek, Netherlands; and Marie E. A. Hermans, Diependalstraat 4, Arnhem, Netherlands

No Drawing. Continuation-in-part of application Ser. No. 635,379, May 2, 1967. This application June 30, 1969, Ser. No. 837,884

Int. Cl. C09k *3/00*

U.S. Cl. 252—301.1 5 Claims

Method of preparing a stable mixed sol of hexavalent uranium and tetravalent thorium, and the gels, oxides and carbide that can be prepared from this mixed sol.

A method of preparing a stable mixed sol containing hexavalent uranium oxide and tetravalent thorium oxide, without resorting to the expensive process of reduction with hydrogen or other reducing agents in the liquid phase by peptizing a hydroxide precipitate.

3,573,218

LIQUID SCINTILLATION COUNTING COMPOSITION AND PROCESS

Royal H. Benson, Texas City, Tex., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 607,218 and Ser. No. 607,219, both filed Jan. 4, 1967. This application Apr. 11, 1968, Ser. No. 720,451

Int. Cl. F21k *2/00;* **C09k** *1/00;* **C07c** *43/20*

U.S. Cl. 252—301.2 16 Claims

Liquid scintillation counting compositions comprising an aromatic hydrocarbon solvent, a scintillation solute and an ethoxylated alkyl phenol having from 7 to 16 carbon atoms in the alkyl substituent and a ratio of carbon atoms in the alkyl substituent to the average number of ethoxy groups of from 0.83 to 1.67.

3,573,219

METHOD OF TREATING A LIQUID SCINTILLATOR COMPOSITION

Royal H. Benson, Texas City, Tex., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 7, 1969, Ser. No. 822,742

Int. Cl. G01t *1/20;* **C09k** *1/02*

U.S. Cl. 252—301.2 30 Claims

A method for treating a liquid scintillator composition or the liquid vehicle used therein, said vehicle comprised of a hydrocarbon solvent, and an ethoxylated alkyl phenol, said composition comprised of said liquid vehicle and a scintillation solute comprising contacting said vehicle or composition with a basic treating agent for a time sufficient to reduce chemiluminescence to a level acceptable for the counting of basic samples.

3,573,220

LIQUID SCINTILLATOR COMPOSITIONS FOR COUNTING THERMAL NEUTRONS

Royal H. Benson, Texas City, Tex., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 720,451, Apr. 11, 1968. This application Feb. 4, 1969, Ser. No. 796,603

Int. Cl. C09k *1/00;* **F21k** *2/02;* **G01t** *1/20*

U.S. Cl. 252—301.3 17 Claims

A scintillator composition for liquid scintillation counting and detection of thermal neutrons comprising (1) a scintillator solution comprised of an aromatic hydrocarbon solvent, a scintillation solute and an ethoxylated alkyl phenol, and (2) a loading agent comprised of an aqueous solution of a compound of an element having high thermal-neutron-capture efficiency, said element interacting with such neutrons resulting in the production of an exo-ergic nuclear reaction.

3,573,221

THERMOLUMINESCENT LITHIUM BORATE

Robert Thompson Brunskill, Cumberland, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Nov. 30, 1967, Ser. No. 686,887

Claims priority, application Great Britain, Dec. 14, 1966, 56,019/66; Aug. 4, 1967, 37,330/67

Int. Cl. C09k *1/66;* **G01t** *1/11*

U.S. Cl. 252—301.4 6 Claims

A process for the manufacture of thermoluminescent lithium borate in which lithium tetraborate is doped with manganese and the doped lithium tetraborate is melted and resolidified in an argon atmosphere.

3,573,222

DEFOAMING COMPOSITION, ITS USE AND PROCESS FOR ITS PREPARATION

George Conrad Harrison, Jr., Wayne, and Anthony Joseph Stumpo, Philadelphia, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 655,738, July 25, 1967, which is a continuation-in-part of application Ser. No. 571,984, Aug. 12, 1966. This application July 2, 1969, Ser. No. 857,249

(Filed under Rule 47(a) and 35 U.S.C. 116)

Int. Cl. B01d *19/04*

U.S. Cl. 252—321 11 Claims

Composition useful for defoaming consisting essentially of from about 70 to about 95 parts by weight of a hydrocarbon fluid and from about 5 to about 30 parts by weight of a synthetic alkali metal or alkaline earth metal silico aluminate having an average particle size no greater than about 200 millimicrons, said silico aluminate having been made hydrophobic while in said hydrocarbon or halocarbon fluid by reaction at a temperature not exceeding about 75° C. with about 7% to about 30% by weight of said silico aluminate of a halosilane.

3,573,223

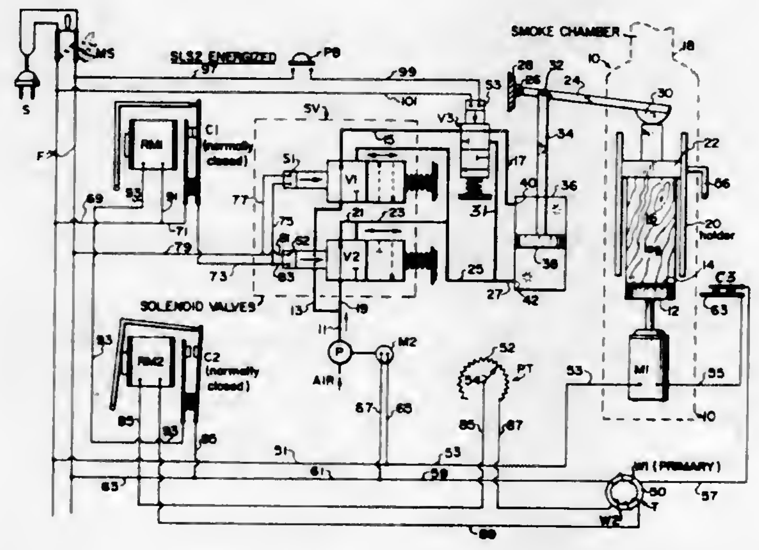
SMOKE GENERATOR WITH AUTOMATIC CONTROL SYSTEM THEREFOR

Chester A. Anderson, McHenry, Ill., assignor to Speco, Inc., Schiller Park, Ill.

Filed Oct. 14, 1968, Ser. No. 767,267

Int. Cl. B01d; B01f; B01j *13/00*

U.S. Cl. 252—359 8 Claims



A control system for a friction-type smoke generator wherein the pressure which is exerted by the wooden smoke-producing block against the usual rotating friction wheel is regulated according to the electrical current which is supplied to the motor for driving the friction wheel.

3,573,224

PRODUCTION OF HYDROGEN-RICH SYNTHESIS GAS

Samuel Strelzoff and John M. Connor, New York, N.Y., and Herbert C. Morgenstern, Westwood, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Nov. 14, 1967, Ser. No. 682,825

Int. Cl. C01b *2/02*

U.S. Cl. 252—376 18 Claims

A gaseous hydrocarbon such as methane or vaporized naphtha is passed through a first fluid bed of hot solid particulate material at a temperature above 700° C., to crack a portion of the hydrocarbon stream into hydrogen and solid free carbon, with concomitant deposition of the free carbon which may coat the solid particles, and the formation of a gaseous mixture of hydrogen and residual gaseous hydrocarbon. Steam is added to the gaseous mixture, and the combined gaseous mixture is passed through a second fluid bed at a temperature above 850° C., to react residual gaseous hydrocarbon with steam and form further hydrogen and carbon monoxide. A product hydrogen-rich synthesis gas stream principally containing hydrogen, carbon monoxide and steam is removed from the second bed. A stream of hot solid particulate material is passed from the second bed to the first bed, to maintain a temperature level above 700° C. in the first bed; and a corresponding stream of solid particulate material containing deposited and entrained solid carbon is removed from the first bed and passed to a third bed in a stream of air, which may react with the carbon to produce temperature rise. In the third bed, the solid particulate material is reheated to a temperature above 1000° C., by combustion of a fluid hydrocarbon fuel and deposited or entrained solid carbon with air in the bed. A third stream of reheated solid particulate material is passed from the third bed to the second bed, to maintain the second bed at a temperature above 850° C. and compensate for the stream of material passed from the second bed to the first bed. The air stream used to pass solid particulate material from the first bed to the third bed reacts with deposited solid carbon to form a gaseous phase containing carbon monoxide and nitrogen. When the process is employed to produce ammonia synthesis gas, this gaseous phase is separated from the solid particles and combined with the main product hydrogen-rich synthesis gas, to form a combined gas stream suitable for conversion to ammonia synthesis gas.

3,573,225

RUST-PROOFING COMPOSITE SOLUTIONS

Masahiko Kondo, 3–14–7 Maechi, Saitama Prefecture, Urawa, Japan, and Tetsuo Shinmura, 27 Futaba-cho, Itabashi-ku, Tokyo, Japan

No Drawing. Filed Feb. 1, 1968, Ser. No. 702,209

Int. Cl. C23f *11/14, 11/10*

U.S. Cl. 252—392 6 Claims

Rust-proofing aqueous or alcoholic composite solutions for application to metal surfaces consisting essentially of an amine salt of a fatty acid, an alkali metal salt of benzoic acid and an alkanolamide.

3,573,226

MOLYBDENUM-CONTAINING CATALYST SOLUTIONS AND METHOD OF MAKING AND USING SAME

Harold A. Sorgenti, Drexel Hill, Pa., assignor to Atlantic Richfield Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 647,941, June 22, 1967. This application Apr. 2, 1969, Ser. No. 812,845

Int. Cl. C07d *1/08*

U.S. Cl. 252—431 3 Claims

Method for the preparation of molybdenum-containing epoxidation catalyst solutions by heating molybdenum powder with a stream containing unreacted tertiary butyl hydroperoxide used in the epoxidation process as the oxidizing agent and polyhydric compounds of from about 200 to 300 molecular weight and having from 4 to 6 hydroxyl groups per molecule, the polyhydric compound being formed as a by-product in the epoxidation process, the catalyst solution produced by such method and olefin epoxidation processes utilizing such catalyst solutions as the catalyst therefore.

3,573,227

ABSORBENT FOR CARBON DIOXIDE

Michel Rio, Champigny, France, assignor to L'Air Liquide, Societe Anonoyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Continuation-in-part of application Ser. No. 677,085, Oct. 23, 1967. This application Jan. 31, 1969, Ser. No. 795,463

Claims priority, application France, Dec. 19, 1968, 179,202

Int. Cl. B01j *11/58*

U.S. Cl. 252—454 2 Claims

An absorbent for carbon dioxide comprising a mineral which has an expanded lamellar structure and which is hydrophilic and inert to carbon dioxide which has been coated by a layer of sodium hydroxide sprayed thereon in molten state in such a manner that it solidifies almost instantaneously without any attack of the mineral by the sodium hydroxide at the fusion temperature.

3,573,228

PREPARATION OF CATALYSTS

Peter Desmond Holmes, Old Greenwich, Conn., and Arnold Fisher, Camberley, and Kenneth Hugh Bourne, Woking, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Continuation of application Ser. No. 553,301, May 27, 1966. This application May 14, 1969, Ser. No. 827,097

Claims priority, application Great Britain, May 31, 1965, 22,976/65

Int. Cl. B01j *11/40*

U.S. Cl. 252—454 **13 Claims**

Ion-exchanged catalysts are prepared by first exchanging hydrogen atoms on an oxide support with alkaline cations, and then exchanging the alkaline cations with cations having potential catalytic activity.

The method is particularly suitable for supports without strong protons (e.g. silica) and the preferred cations having catalytic activity are nickel ions. The cations of e.g. nickel may be subsequently reduced to the elemental metal.

3,573,229

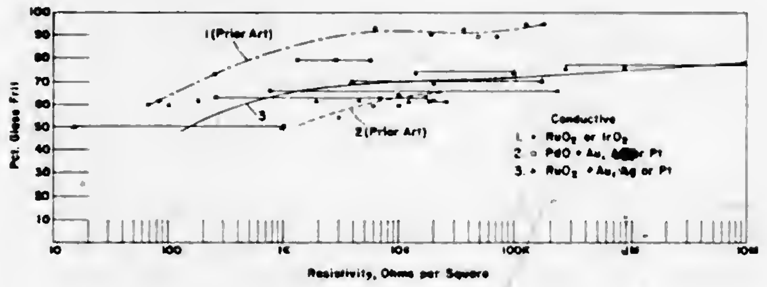
CERMET RESISTOR COMPOSITION AND METHOD OF MAKING SAME

Darwyn L. Herbst, Smithtown, and William L. Dawson, East Setauket, N.Y., assignors to Alloys Unlimited, Inc., Melville, N.Y.

Filed Jan. 30, 1968, Ser. No. 701,611

Int. Cl. H01b *1/02;* **B44d** *1/02*

U.S. Cl. 252—514 **17 Claims**



The field of cermet resistors is reviewed, problems associated therewith are discussed, and the efforts of certain prior workers are summarized. An improved resistance composition is described employing, as the conductive fraction, a mixture of gold, silver or platinum with the oxide of iridium or ruthenium. Resistors are produced having excellent noise, TCR and other properties at resistances of up to 10 megohms per square, and in no instance is frit content higher than about 78%. The method of producing these resistors in a readily reproducible manner is detailed, and their properties are illustrated.

3,573,230

ELECTRICALLY CONDUCTIVE, LOW FRICTION FLUOROCARBON POLYMER COATING METHOD

Alexander J. Van Voorhees, Port Huron, Mich., assignor to Acheson Industries, Inc., Port Huron, Mich.

No Drawing. Filed Oct. 16, 1968, Ser. No. 779,291

Int. Cl. H01b *1/02;* **B44d** *1/02*

U.S. Cl. 252—514 **19 Claims**

A method of forming an electrically conductive, high lubricity, fluorocarbon polymer (e.g., polytetrafluoroethylene) containing, adherent coating on a substrate; and coating composition.

3,573,231

SPARK GAP SEMICONDUCTOR

Bettadapur S. Subramanya, Richmond, Va., and John W. Riddel, Fenton, and Karl Schwartzwaller, Holly, Mich., assignors to General Motors Corporation, Detroit, Mich.

No Drawing. Original application Aug. 16, 1965, Ser. No. 480,182, now Patent No. 3,376,367, dated Apr. 2, 1968. Divided and this application Nov. 13, 1967, Ser. No. 701,497

Int. Cl. H01b *1/06;* **C04b** *35/14*

U.S. Cl. 252—516 **4 Claims**

A spark gap semiconductor body consisting of silicon carbide which is bonded with a metal silicate matrix such as aluminum silicate is disclosed.

3,573,232

PROCESS FOR THE PRODUCTION OF FOAMED MATERIALS

Werner Kloker, Krefeld-Uerdingen, Franz Alfes, Krefeld, Leonhard Goerden, Oedt, Rhineland, and Karl Raichle, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 17, 1967, Ser. No. 653,664

Claims priority, application Germany, July 21, 1966, F 49,750

Int. Cl. C08f *47/10;* **C08v** *1/22*

U.S. Cl. 260—2.5 **12 Claims**

Improved process of producing foamed materials from a copolymerizable mixture of unsaturated polyesters and a monomeric polymerizable vinyl compound employing as foaming agent a carbonic acid ester anhydride wherein said foaming agent liberates carbon dioxide without the application of external heat by virtue of the presence of certain metal compounds.

3,573,233

PROCESS FOR THE PRODUCTION OF FOAMED MATERIALS

Franz Alfes, Krefeld, Werner Kloker, Krefeld-Uerdingen, Leonhard Goerden, Oedt, Rhineland, and Karl Raichle, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 18, 1967, Ser. No. 654,065

Claims priority, application Germany, July 21, 1966, F 49,752

Int. Cl. C08f *47/10;* **C08v** *1/22*

U.S. Cl. 260—2.5 **12 Claims**

Improved process of producing foamed materials from a copolymerizable mixture of unsaturated polyesters and a monomeric polymerizable vinyl compound employing as foaming agent a carbonic acid ester anhydride wherein said foaming agent liberates carbon dioxide without the application of external heat by virtue of the presence of certain amine compounds.

3,573,234

FLEXIBLE AND HYDROPHILIC POLYURETHANE FOAM AND METHOD OF MAKING SAME

Alexis Archipoff, Carouge, Geneva, Switzerland, Jerome Dupuy, Calais, France, and Joerg Sambeth, Carouge, Geneva, Switzerland, assignors to Elekal, Paris, France

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,889

Claims priority, application Switzerland, May 2, 1967, 6,331/67

Int. Cl. A47l *13/16;* **C08g** *22/46, 41/04*

U.S. Cl. 260—2.5 **14 Claims**

The invention consists in adding to the usual compounds involved in making a flexible open-cell polyurethane foam by the so-called "one-shot" method, from 5 to 20%, preferably 10 to 15%, by weight, in relation to the amount of polyol that is used, of at least one alkaline salt of carboxymethyl hydroxyethyl cellulose in fine powder form, thereby to produce a polyurethane foam having improved hydrophilic properties.

A foam produced in this way may be modified by treating it is an additional step with an aqueous solution of a salt of a metal having a valence of at least 2, e.g., aluminum.

3,573,235

POLYMERIZATION OF ACRYLONITRILE IN A CONCENTRATED SOLUTION OF ZINC CHLORIDE COMPRISING THE USE OF ZINC SULFITE AS THE REDUCING AGENT OF A REDOX INITIATOR

Akira Yamamoto, Zenjiro Momiyama, Heiichiro Murakami, Kunio Nakaoji, and Tatsuhiko Shizuki, Ootsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,043

Int. Cl. C08f *1/08, 1/13, 3/76*

U.S. Cl. 260—8 **6 Claims**

A process for polymerizing acrylonitrile in a concentrated aqueous solution of zinc chloride in the presence of a redox polymerization initiator wherein zinc sulfite is used as the reducing agent.

3,573,236

PAPER COATING COMPOSITIONS AND METHOD OF THEIR APPLICATION

David Osber Barlow, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 8, 1968, Ser. No. 703,915

Int. Cl. C08d *7/08;* **C08f** *45/06*

U.S. Cl. 260—17 **9 Claims**

Papers coated with an aqueous dispersion containing, per 100 parts of pigment, 1 to 3 parts of polyvinyl alcohol, 7 to 12 parts of a synthetic polymer, 0.5 to 1.5 parts of glyoxal and 0.05 to 0.5 part of a water-retention aid, provided the ratio of polyvinyl alcohol to synthetic polymer is no greater than 0.35, have improved printability characteristics while the optical and strength properties are not adversely affected.

3,573,237

DECORATIVE FINISH-PRODUCING COMPOSITION AND METHOD OF APPLYING SAME

John C. Zola, 2662 10th Ave., Arcadia, Calif. 91006

No Drawing. Continuation-in-part of application Ser. No. 615,044, Feb. 8, 1967, which is a continuation-in-part of application Ser. No. 201,274, June 11, 1962. This application Jan. 8, 1968, Ser. No. 696,253

Int. Cl. C08b *21/08, 21/12*

U.S. Cl. 260—16 **33 Claims**

A coating composition for selectively imparting a pattern of a desired design to a surface, with the pattern at least in part being determined by the mode of application of the composition to the surface. The composition includes two or more phases that are immiscible. The phases comprise miscible organic solvents that are rendered immiscible by dissolving incompatible organic film formers therein. By agitation, the composition assumes the form of a transient dispersion in which the first fluid component is in the form of tiny globules that may be invisible to the naked eye, but are characterized by the tendency thereof to coalesce at least in part into agglomerates of 25 microns or greater after the composition has been applied to a surface. The clusters are individually visible to the naked eye. The pattern the clusters assume and the decorative effect achieved is determined at least in part by the mode of application of the composition to the surface.

3,573,238

STYRENE AND VEGETABLE OIL MODIFIED PHENOLIC RESIN AND METHOD OF PREPARING THE SAME

Donald Joseph Albrinck and Victor Asfour, Cincinnati, Ohio, assignors to Formica Corporation, Cincinnati, Ohio

No Drawing. Continuation-in-part of application Ser. No. 630,509, Apr. 13, 1967. This application Sept. 15, 1969, Ser. No. 858,185

Int. Cl. C08g *5/20*

U.S. Cl. 260—19 **10 Claims**

A modified phenolic resinous material in which a plurality of reactants are successively reacted with a phenol and with the subsequent reaction products produced in which said phenol is successively reacted with a polymerizable styrene monomer, the reaction product thereof reacted with a vegetable drying oil, the reaction product thereof reacted with either formaldehyde and then certain diphenolic compounds or vice-versa, or both simultaneously and, finally, with one or more of certain aniline compounds under defined conditions and in defined amounts; the process of preparing such a phenolic resinous material and to its use in making a laminate.

3,573,239

FLOOR POLISHING COMPOSITIONS

Richard E. Zdanowski, Fort Washington, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 455,609, May 13, 1965, which is a continuation-in-part of application Ser. No. 98,744, Mar. 28, 1961. This application May 24, 1967, Ser. No. 640,851

Int. Cl. C08f *21/04;* **C08g** *17/16;* **C09f** *7/08*

U.S. Cl. 260—22 **18 Claims**

This invention relates to coating compositions, and especially to floor polishing compositions, which are particularly suitable for applying glossy finishes on wood, rubber, glass, tile and linoleum surfaces, either with or without paint or varnish finishes.

3,573,240

HOT MELT ADHESIVE COMPOSITIONS FOR HARD COVERED BOOKBINDING

Thomas P. Flanagan, Green Brook, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 692,710, Dec. 22, 1967. This application May 1, 1970, Ser. No. 33,906

Int. Cl. B42c *9/00;* **C08f** *29/12*

U.S. Cl. 260—23 **10 Claims**

Hot melt adhesive compositions comprising a blend of a high molecular weight, isotactic polybutylene resin, and a tackifying resin; the resulting compositions being especially applicable for use in a hard covered bookbinding but also utilizable in a variety of packaging, laminating and specialty hot melt applications. Hard covered books having their pages adhesively bound by means of the above specified hot melt compositions.

3,573,241

POLYMERIC COMPOSITIONS CONTAINING COKE GROUND IN A NON-OXIDIZING ATMOSPHERE

William W. Gotshall, Orchard Lake, Mich., assignor to Marathon Oil Company, Findlay, Ohio

No Drawing. Original application Mar. 4, 1965, Ser. No. 437,285, now Patent No. 3,404,019, dated Oct. 1, 1968. Divided and this application July 22, 1968, Ser. No. 774,551

Int. Cl. C08c *11/18;* **C08d** *9/00*

U.S. Cl. 260—23.7 **8 Claims**

Carbon ground in a non-oxidizing atmosphere and thereafter protected from oxidation is incorporated in rubber or other polymeric materials to provide compositions having low set, high modulus and non-staining properties.

3,573,242
POLYMERIZATION PROCESS TO FORM POLYVINYL FLUORIDE IN EMULSION FORM

Lacey E. Scoggins, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Dec. 20, 1968, Ser. No. 785,756
Int. Cl. C08f *3/22*
U.S. Cl. 260—29.6 **3 Claims**

Process for emulsion polymerization of vinyl fluoride in which an oxidant and reductant are employed but the oxidant is introduced after the desired polymerization temperatures and pressures are attained.

3,573,243
PROCESS FOR MODIFYING A RUBBER LATEX

Donald Alfred Bennett, Beaulieu, England, assignor to The International Synthetic Rubber Company Limited, Southampton, England
Continuation-in-part of applications Ser. No. 138,260, Sept. 15, 1961, and Ser. No. 412,345, Nov. 19, 1964. This application Oct. 6, 1966, Ser. No. 584,719
Int. Cl. C08d *5/00, 7/12*
U.S. Cl. 260—29.7 **17 Claims**

The process of reducing the viscosity of a stable rubber latex and increasing the average latex particle size of certain rubber latices, comprising forcing the latex through a constriction at a pressure drop of at least 750 p.s.i. and recovering the latex as a stable emulsion.

3,573,244
METHOD FOR OBTAINING ACID DYE UNIFORMITY IN POLYAMIDES

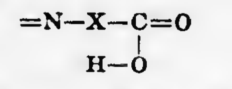
Phil H. Wilken, Dayton, Ohio, and Graham Leadbetter, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Oct. 16, 1968, Ser. No. 768,189
Int. Cl. C08g *51/60, 51/66*
U.S. Cl. 260—45.8 **3 Claims**

Polyamides having incorporated therein a small amount of a certain hindered phenol or a certain quinoline compound possess exceptional acid dye uniformity.

3,573,245
STABILIZED POLYAMIDES

Gerhard Mueller, Limburgerhof, Pfalz, and Helmut Doerfel and Hans Wilhelm, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 29, 1967, Ser. No. 663,942
Int. Cl. C08g *51/56*
U.S. Cl. 260—45.75 **5 Claims**

Stabilization of polyamides by adding of iodine compounds and copper complexes of compounds containing twice to four times the structural unit:



$$=N-X-\underset{\substack{| \\ H-O}}{C}=O$$

in which X denotes a hydrocarbon radical having one or two carbon atoms.

3,573,246
PROCESS OF MODIFYING SYNTHETIC RUBBER LATICES

Donald Alfred Bennett, Beaulieu, England, assignor to The International Synthetic Rubber Company Limited, Southampton, England
Continuation-in-part of application Ser. No. 169,169, Jan. 23, 1962. This application Mar. 6, 1968, Ser. No. 710,981
Int. Cl. C08j *9/08, 5/00*
U.S. Cl. 260—29.7 **6 Claims**

This invention relates to a process of increasing the particle size and modifying the particle size distribution of synthetic rubber latex in the presence of reinforcing agent such that an improved solids/viscosity relationship is obtained and the physical properties of rubber compounds prepared from the latex are improved. The process comprises flowing a mixture of synthetic rubber latex and finely divided reinforcing agent, under pressure through a constriction, the pressure drop across the constriction being not less than about 1000 p.s.i.g. The mixture has a total solids content not less than about 25% by weight and contains from about 15 to 50 parts by weight of reinforcing agent per 100 parts of rubber.

3,573,247
POLYUREA ELASTOMER SOLUTIONS IMPROVED BY ADDITIONS OF SPECIFIC INORGANIC SALTS

Ichiro Minobe, Ibaraki, and Keijiro Oda, Kobe, Japan, assignors to The Toyo Rubber Industry Co., Ltd., Osaka, Japan
No Drawing. Continuation-in-part of application Ser. No. 377,101, June 22, 1964. This application Oct. 11, 1967, Ser. No. 674,648
Claims priority, application Japan, July 13, 1963, 38/38,368
Int. Cl. C08f *45/34, 45/36, 45/54*
U.S. Cl. 260—31.2 **5 Claims**

Novel solvent systems are provided consisting of an inorganic salt and a ketone or ester compound. Also provided are storage-stable polymer solutions prepared by utilizing such solvent system, and methods for preparing such solutions.

3,573,248
LACQUER MIXTURES

Josef Pedain, Cologne-Buccheim, Richard Müller, Bergisch-Neukirchen, Frank Wingler, Leverkusen, and Walter Krauss, Leverkusen-Steinbuchel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 9, 1969, Ser. No. 840,463
Claims priority, application Germany, July 10, 1968, P 17 69 763.1
Int. Cl. C08g *22/00, 37/32*
U.S. Cl. 260—31.7 **6 Claims**

Lacquer mixtures containing at least one hydroxyl free polyacrylate resin having carbonamide groups and a molecular weight above 600 and at least one poly-N-alkoxymethylurethane cross-linking agent.

3,573,249
POLYMERIZATION OF BUTADIENE

John F. Henderson and Jules Darcy, Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada
No Drawing. Filed June 29, 1967, Ser. No. 649,872
Claims priority, application Canada, July 9, 1966, 965,045
Int. Cl. C08f *1/34, 15/04, 45/28*
U.S. Cl. 260—33.6 **5 Claims**

A mixture of butadiene-1,3 and a mono-alkenyl aromatic hydrocarbon such as styrene is polymerized in the absence of diluents or in the presence of butene-2 as the only diluent using a Ziegler type catalyst consisting of e.g. cobalt octoate and aluminum diethyl chloride.

A cis-1,4 polymer of butadiene substantially free of homopolymer of styrene is obtained in the form of a solution in the aromatic hydrocarbon. This solution is polymerized using a free radical initiator to produce an impact resistant thermoplastic composition.

3,573,250
FLUORINE-CONTAINING LINEAR POLYESTERS

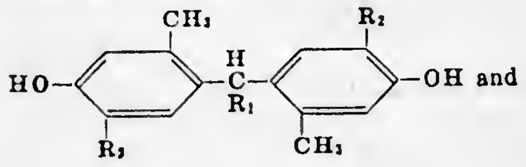
Edward W. Pietrusza, Morristown, and Jack R. Pedersen, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 641,129, May 25, 1967. This application May 6, 1968, Ser. No. 727,016
Int. Cl. C08g *17/00, 39/00*
U.S. Cl. 260—40 **14 Claims**

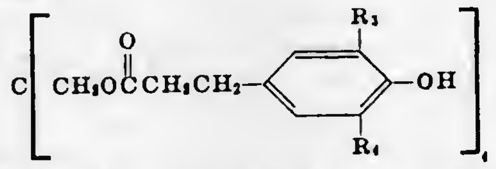
This specification discloses aromatic polyesters prepared from a dicarboxylic acid reactant comprised of at least 20 mol percent of 4,4'-dichlorocarbonyldiphenylsulfone and an aromatic dihydroxy reactant containing a fluorine-substituted bisphenol. The polyesters have high melt and decomposition temperatures which make them particularly useful as high temperature coatings, films, and molded articles.

3,573,251
STABILIZED POLYURETHANE ELASTOMERS

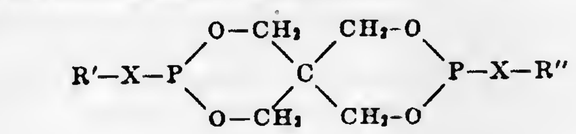
Ignazio Salvatore Megna, Somerville, and Frank Aloysius Vincent Sullivan, Westfield, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,841
Int. Cl. C08g *51/58*
U.S. Cl. 260—45.8 **5 Claims**

Polyurethane elastomers are made resistant to discoloration on exposure to atmospheric fumes as well as ultraviolet radiation by the incorporation of a substituted phenol and an organic phosphite. Typical substituted phenols have the formulas:

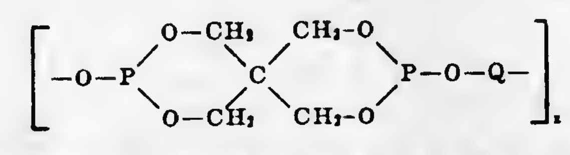




where R_1 is hydrogen or alkyl (C_1–C_8); R_2 is alkyl (C_4–C_8); and R_3 and R_4 are alkyl (C_1–C_8). Typical organic phosphites have the formulas:



and



where R' and R'' are alkyl (C_6–C_{18}); X is oxygen or sulfur; Q is a hydrogenated bisphenol A residue; and *x* is sufficient to provide a molecular weight of at least 1,000.

3,573,252
N-NITROSO-4,4'-BIS(2-PHENYLISOPROPYL)-DIPHENYLAMINE

Guy Bertrand, Choisy-le-Roi, and Jean-Marc Maison, Paris, France, assignors to Rhone-Poulenc SA., Paris, France
No Drawing. Filed Sept. 5, 1968, Ser. No. 757,757
Claims priority, application France, Sept. 20, 1967, 121,670
Int. Cl. S08f *45/60*
U.S. Cl. 260—45.9 **4 Claims**

N-nitroso-4,4'-bis(2-phenylisopropyl)diphenylamine, a new compound, is valuable as a vulcanisation retarder for elastomers. It has an anti-ageing effect on the vulcanised product.

3,573,253
PREPARATION OF CROSS-LINKED POLY (4-HYDROXY - 3 - NITRO) (NONSUBSTITUTED OR ALPHA AND/OR BETA SUBSTITUTED) STRYENE

Don N. Gray, Okemos, Mich.
(5503 Brixton Drive, Sylvania, Ohio 45360)
No Drawing. Filed Nov. 18, 1968, Ser. No. 776,807
Int. Cl. C07c *103/52;* **C08f** *7/10;* **C08h** *1/00*
U.S. Cl. 260—47 **11 Claims**

There is disclosed a process for preparing a solid phase, polymeric substrate comprising a cross-linked poly (4-hydroxy-3-nitro) styrene which is especially suitable for the synthesis of polypeptides. The polystyrene may be nonsubstituted or substituted (alpha and/or beta).

3,573,254
REDUCTIVE CAPPING OF POLY(PHENYLENE OXIDES)

Arnold Factor, Scotia, N.Y., assignor to General Electric Company
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,475
Int. Cl. C08g *23/22*
U.S. Cl. 260—47 **9 Claims**

Poly(phenylene oxides) having improved optical clarity are prepared by treating a solution of the polymer with aluminum, cadmium, magnesium, tin or zinc, prior to or simultaneously with the capping reaction, whereby the hydroxyl groups of the polymer are converted to substituents which are substantially inert to oxygen attack at elevated temperatures. Still further improvement in clarity is obtained when a carboxylic acid soluble in the reaction mixture is used in conjunction with zinc and especially, when this treatment is carried out simultaneously with a hot-capping process, which generates and caps any incipient hydroxyl groups on the polymer chain.

3,573,255
CURABLE POLYMERIC COMPOSITIONS CONTAINING AS A CURING CATALYST N-SEC-ALKYL OR N-CYCLOALKYL ALKOXYAMINE

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 543,008, Apr. 18, 1966, now Patent No. 3,478,096, dated Nov. 11, 1969. This application May 28, 1969, Ser. No. 828,719
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 **12 Claims**

A curable polymeric composition containing a curing catalyst comprising N-substituted alkoxyamine.

3,573,256
EPOXIDE SUBSTITUTED POLYTHIOUREA POLYAMINO COMPOUND AND COMPOSITION THEREOF WITH 1,2-POLYMERIC EPOXIDE

Shiro Kudo, Sakai-shi, and Shinichi Tsurugi, Koichi Nagaoka, and Jun Hayasaki, Tokyo-to, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan
No Drawing. Continuation-in-part of application Ser. No. 616,493, Feb. 16, 1967, which is a continuation-in-part of application Ser. No. 441,866, Sept. 30, 1965. This application July 23, 1969, Ser. No. 844,177
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 **13 Claims**

An epoxide resin is formed by reacting a 1,2 polymeric organic epoxide with the reaction product of ethylene oxide and polythiourea amine, said polythiourea amine having been formed by reacting monomeric polyamine with thiourea. The aforesaid 1,2 epoxide resin possesses solvent resistant and tenacious properties, and is utilizable in adhesives, coating materials, solvents, etc.

3,573,257
PROCESS FOR PRODUCTION OF POLYPHENYLENE OXIDES

Seizo Nakashio, Nishinomiya-shi, and Isamu Nakagawa, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

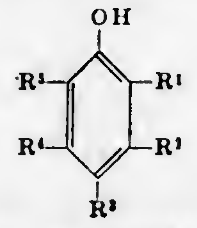
No Drawing. Continuation-in-part of application Ser. No. 711,918, Mar. 11, 1968. This application Dec. 29, 1969, Ser. No. 888,915

Claims priority, application Japan, Mar. 28, 1967, 42/19,740

Int. Cl. C08g *23/18*

U.S. Cl. 260—47 **13 Claims**

Polyphenylene oxide is produced by reacting oxygen with a phenol compound represented by the following formula:



wherein R^1, R^2, R^3, R^4 and R^5 independently represent hydrogen atoms, halogen atoms, hydrocarbon groups, substituted hydrocarbon groups, cyano groups, alkoxy groups, phenoxy groups, nitro groups or mono- or di-alkyl substituted amino groups, and at least one of the R^1, R^2, R^3, R^4 and R^5 is a hydrogen atom and further at least one thereof is other than a hydrogen atom, in the presence of (1) at least one compound selected from the group consisting of manganese compounds, cobalt compounds and copper compounds and (2) an alcoholate and/or phenolate of an alkali metal with or without an organic reaction medium in a state substantially free from water, and contacting the resulting reaction mixture with a poor solvent to the polyphenylene oxide, thereby to recover the desired polyphenylene oxide.

3,573,258
PROCESS FOR PRODUCING PIVALOLACTONE-TRIOXANE COPOLYMERS

Derek L. Ransley, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,642

Int. Cl. C08g *1/12, 3/00*

U.S. Cl. 260—64 **5 Claims**

Pivalolactone-trioxane copolymers and process for their manufacture by reacting the lactone with trioxane in a molar ratio of from 3:2 to 24:1 in the presence of a strong base.

3,573,259
PROCESS FOR THE PREPARATION OF ISOCYANURATE-CONTAINING POLYISOCYANATE SALTS

Perry A. Argabright, Brian L. Phillips, and Joe T. Kelly, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,199

Int. Cl. C08g *22/16;* **C07d** *55/00*

U.S. Cl. 260—77.5 **14 Claims**

Isocyanurate-containing polyisocyanate metal salts are prepared by reacting metal cyanate with organic diisocyanate in the presence of aprotic solvent at a temperature of from about 0 to 250° C.

3,573,260
PROCESS OF PREPARING SOLID MOLDING POWDER FROM POLYTRIMELLITATE AMIDE-IMIDES

Edwin F. Morello, Hammond, Ind., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Aug. 26, 1968, Ser. No. 755,432

Int. Cl. C08g *20/32*

U.S. Cl. 260—78 **6 Claims**

A process for preparing solid molding powder and shaped articles from polytrimellitate amide-imides. The process comprises treating polyamide-imides prepared by reacting equimolar amounts of an aromatic primary diamine and an acyl halide derivative of trimellitic anhydride with a nitrogen or a sulfoxide containing organic polar solvent and water or organic diluent having a boiling point below that of the organic polar solvent, volatilizing the solvent diluent mixture and then heating the polytrimellitamide-imide to a temperature above the boiling point of the diluent but below the boiling point of the organic polar solvent to remove substantially all of the diluent and then heating the polymer at a temperature of about 170 to 280° C. to remove the residual solvent, but conducting the heating at a rate so that degradation is avoided at the surface of the polytrimellitamide-imide powder. Also a process for the fabrication of shaped articles from the molding powder which comprises applying a pressure of 200 to 25,000 p.s.i. to the molding powder which has been heated to a temperature with in the range of about 575 to 700° F. and subsequently ejecting the coalesced polyamide-imide in the form of a shaped particle.

3,573,261
POLYACYLAMIDRAZONE CARBOXYLIC ACID POLYMERS AND THEIR PRODUCTION

Hilde Kersten, Mechenhard, and Gerhard Meyer, Obernburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed July 22, 1969, Ser. No. 843,748

Claims priority, application Germany, July 27, 1968, P 17 95 011.7

Int. Cl. C08g *20/32*

U.S. Cl. 260—78 **10 Claims**

Polyacylamidrazone polymers which contain carboxylic acid groups and which are soluble in strongly polar organic solvents, said polymers being produced by reacting pyromellitic acid anhydride with an bisamidrazone, e.g. oxamidrazone, in approximately equimolar proportions and in a strongly polar organic solvent at about 0–70° C., preferably 15–50° C. The polymers are especially useful as films, coatings and the like.

3,573,262
RUBBER STOCK COMPOSITIONS CONTAINING N,N'-DILACTAMDISULFIDES

Klaus Morche, Mannheim-Neuostheim, and Helfried Ehrend, Speyer (Rhine), Germany, assignors to Rhein-Chemie GmbH, Mannheim, Germany

No Drawing. Filed Sept. 16, 1968, Ser. No. 760,098

Claims priority, application Germany, Nov. 23, 1967, P 17 20 160.4

Int. Cl. C08f *27/06*

U.S. Cl. 260—79.5 **11 Claims**

A vulcanizable rubber stock composition of improved storability is obtained by forming an intimate mixture including as essential constituents at least one diene-rubber and a sulfur donor including an effective amount of at least one N,N'-dilactamdisulfide, which mixture may be stored for prolonged periods of time at relatively high temperature without losing its vulcanization characteristics.

3,573,263
POLYMERIZATION WITH A REDOX AND AZOISOBUTYRONITRILE CATALYST

Edward Arthur Gill, 17 Peasehill Close, Rawdon, England

No Drawing. Filed July 3, 1967, Ser. No. 650,640

Claims priority, application Great Britain, July 6, 1966, 30,431/66

Int. Cl. C08f *1/62, 1/78, 3/44*

U.S. Cl. 260—79.3 **9 Claims**

A method of manufacturing water-soluble, very high molecular weight synthetic polymers, e.g. poly(acrylic acid), by polymerizing the monomer or monomers in aqueous solution using a polymerization initiator comprising a redox system, for example potassium persulphate/sodium sulphite, and an azo compound free-radical source, for example azobisisobutyronitrile.

3,573,264
POLYMERIZATION OF CYCLIC ALKYLENE OXIDES WITH NITRILES AND ETHER USING BINARY CATALYST SYSTEM

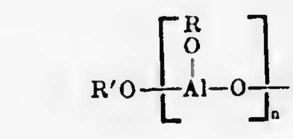
Hideo Tomomatsu, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed May 5, 1969, Ser. No. 821,982

Int. Cl. C08f *3/74, 15/22*

U.S. Cl. 260—85.5 **14 Claims**

High molecular weight polymers having a high degree of crystallinity are obtained from the polymerization of cyclic alkylene oxides with acrylonitrile, methacrylonitrile or a mixture of either acrylonitrile or methacrylonitrile with allyl glycidyl ether employing a binary catalyst system of an organometallic compound of the formula MZX_{y-1} and a polymeric aluminum alcoholate having the formula:



$$R'O{-}\left[\overset{\substack{R\\ O\\ |}}{Al}{-}O\right]_n{-}R'$$

Cyclic alkylene oxides employed are those containing oxygen-carbon rings consisting of one oxygen atom in a ring with two or three carbon atoms. The polymers obtained by the process of my invention are useful in the elastomer field.

3,573,265
PROCESS FOR THE PRODUCTION OF VINYL CHLORIDE/VINYL ALCOHOL COPOLYMERS

Marvin Koral, 39 Round Top Road, Warren, N.J. 07060, and Elliott Farber, 16 Llanfair Lane, Trenton, N.J. 08618

No Drawing. Continuation-in-part of application Ser. No. 735,176, June 7, 1968. This application Dec. 27, 1968, Ser. No. 787,587

Int. Cl. C08f *27/14*

U.S. Cl. 260—87.1 **10 Claims**

Heat-stable vinyl chloride/vinyl alcohol copolymers are prepared by alcoholyzing a vinyl chloride/vinyl acetate copolymer with a lower alkanol in the presence of a strong acid catalyst and a solvent mixture comprising about 75 percent to 90 percent by weight of acetone and 10 percent to 25 percent by weight of cyclohexanone and/or tetrahydrofuran and neutralizing the reaction mixture with calcium hydroxide before isolating the vinyl chloride/vinyl alcohol copolymer.

3,573,266
POLYMERIZATION AND COPOLYMERIZATION OF OLEFINS AND RESULTING PRODUCTS

Jacques Stevens, Braine-l'Alleud, Belgium, assignor to Solvay et Cie, Societe Anonyme, Brussels, Belgium

No Drawing. Filed July 10, 1967, Ser. No. 651,973

Claims priority, application France, July 19, 1966, 69,897

Int. Cl. C08f *1/56, 3/06*

U.S. Cl. 260—88.2 **6 Claims**

Olefins are polymerized and copolymerized by being contacted with a catalyst of the following components: (a) a Group IV, V or VI metal or a hydride or an organometallic compound thereof; (b) an alkoxy halide of titanium, zirconium or vanadium and (c) a halide of a Group III or V element. There can thus be obtained polyolefins which are more linear and crystalline than those of the prior art.

3,573,267
POLYMERIC PRODUCTS AND PROCESSES

Joseph Green, 3 New Dover Drive, North Brunswick, N.J. 08902, and Joseph A. Castellano, 968 Shepard Ave., East Brunswick, N.J. 08816

No Drawing. Continuation-in-part of application Ser. No. 514,401, Dec. 16, 1965. This application July 24, 1968, Ser. No. 747,092

Int. Cl. C08f *3/22, 3/32, 15/06*

U.S. Cl. 260—92.1 **6 Claims**

Cured nitroso rubbers are provided by curing terpolymers of mixtures of three fluorinated monomers including 4-bromo-2,3,5,6-tetrafluoronitrosobenzene or 4-carboxy-2,3,5,6-tetrafluoronitrosobenzene.

3,573,268
METHOD FOR THE PREPARATION OF VINYL CHLORIDE BASED POLYMERS AT LOW TEMPERATURE

Marc E. Carrega, Chatenay-Malabry, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, du Chateau, Neuilly-sur-Seine, France

No Drawing. Filed Mar. 24, 1969, Ser. No. 809,970

Claims priority, application France, Mar. 28, 1968, 145,879; Dec. 30, 1968, 181,937

Int. Cl. C08f *1/04, 1/56*

U.S. Cl. 260—92.8 **21 Claims**

The method for preparing vinyl chloride based polymers in which the monomers containing vinyl chloride are polymerized at low temperature in a catalytic system formulated of an (a) system containing a reducing compound of a metal in the sub-groups I–A to IV–A of the periodic classification; a compound of a transition metal selected from the sub-groups I–B to VII–B and VIII of the periodic classification, and a peroxygenated compound.

3,573,269
METHOD FOR MASS POLYMERIZING VINYL CHLORIDE BASED POLYMERS AT LOW TEMPERATURE

Marc E. Carrega, Chatenay-Malabry, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, du Chateau, Neuilly-sur-Seine, Frane

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,406

Claims priority, application France, Apr. 25, 1968, 149,435

Int. Cl. C08f *1/04, 1/56*

U.S. Cl. 260—92.8 **17 Claims**

A method for the preparation of polymers and copolymers based upon vinyl chloride embodying mass polymerization or copolymerization of vinyl chloride in the presence of a catalytic system formed of an (a) system prepared by reduction of a titanium compound in the presence of water or alcohol by an organo aluminum compound and the combination thereof with a peroxygenated compound such as a peroxide, hydroperoxide, perester or peracid.

3,573,270
POLYMERIZATION OF ALPHA-OLEFINS USING A DELTA $TiCl_3$ CATALYST

Quirino Trementozzi, Springfield, Mass., Douglas O. Geymer, Orinda, Calif., Thomas Boyd, Des Peres, Mo., and Heinz J. Dietrich, Bethany, Conn., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Division of application Ser. No. 566,490, July 20, 1966, which is a continuation-in-part of application Ser. No. 143,300, Oct. 6, 1961, which in turn is a continuation-in-part of application Ser. No. 850,013, Nov. 2, 1959. This application July 26, 1968, Ser. No. 765,721

Int. Cl. C08f *1/42, 3/10, 7/04*

U.S. Cl. 260—93.5 **11 Claims**

Disclosed herein is a process for polymerizing an alpha-olefin in the presence of a catalyst system comprising the delta form of $TiCl_3$ and an organo metallic reducing agent.

3,573,271

PROCESS FOR RECOVERING PROTEIN FROM AQUEOUS YEAST LIQUORS

Milo A. Nielsen, St. Paul, Minn., assignor to Emery C. Swanson, Golden Valley, Minn.

No Drawing. Continuation of abandoned application Ser. No. 800,306, Dec. 10, 1968, which is a division of application Ser. No. 565,714, July 18, 1966. This application Apr. 9, 1970, Ser. No. 31,810

Int. Cl. A23j *1/18;* **C07g** *7/00*

U.S. Cl. 260—112 **6 Claims**

A process for molecular sieve fractionation of protein from brewers yeast or torula yeast liquors using a bed of modified dextran gel granules composed of cross-linked linear macromolecules in a three dimensional network of polysaccharide chains containing pores excluding penetration by said protein molecules.

3,573,272

CYCLAMMONIUM-5-AZO-PYRIMIDINE DYESTUFFS

Gunter Kaupp, Binningen, Basel-Land, and Hans Wegmuller and Jacques Voltz, Riehen, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed May 20, 1968, Ser. No. 730,616

Claims priority, application Switzerland, June 14, 1967, 8,438/67

Int. Cl. C09b *29/36, 29/38, 62/24*

U.S. Cl. 260—146 **12 Claims**

A class of cyclammonium-5-azo-pyrimidine dyestuffs wherein two of the carbon atoms in the 2-, 4- and 6-position of the pyrimidine ring are occupied by an optionally substituted amino group and the remaining one by an etherified hydroxyl or mercapto group or an optionally substituted amino group and wherein the cyclammonium component is a mono- or polynuclear aromatic heterocyclic system which contains a quaternized nitrogen atom as ring member; such dyestuffs being distinguished by good affinity for acrylic fibers, polyester fibers and polyamide fibers modified to contain acid dyesites. The dyestuffs produce dyeings which have excellent fastness to perspiration, washing, light and decatising.

3,573,273

WATER-INSOLUBLE MONOAZO DYES CONTAINING 3-AMINO-2,1-BENZISOTHIAZOLE COUPLED TO AN N,N-DISUBSTITUTED ANILINE

Matthias Seedfelder, Ludwigshafen (Rhine), Erwin Hahn, Viernheim, Hessen, and Hans Guenter Wippel, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Filed May 23, 1968, Ser. No. 731,621

Claims priority, application Germany, June 3, 1967, P 16 44 061.2

Int. Cl. C09b *29/38;* **D06p** *1/06, 1/08*

U.S. Cl. 260—158 **4 Claims**

Monoazo dyes of a 3-amino-2,1-benzisothiazole coupled to an N,N-disubstituted-aniline derivative, said dyes being especially useful for dyeing synthetic textile material of fiber-forming polyesters and polyamides and exhibiting good fastness properties.

3,573,274

AZO DYE FROM COUPLING DIAZOTIZED SODIUM S-4 - AMINOPHENYLTHIOSULFATE AND ACETOACET-p-ANISIDIDE

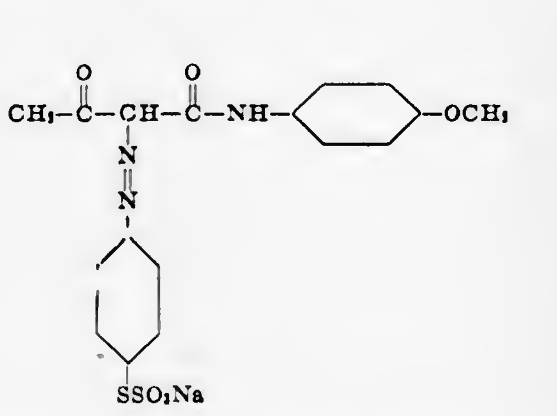
Frederick E. Barwick III, 115 Sedgwick Terrace, Charlotte, N.C. 28214

No Drawing. Filed Aug. 13, 1968, Ser. No. 752,171

Int. Cl. C07c *107/04;* **C09b** *29/32*

U.S. Cl. 260—193 **1 Claim**

An azo dye of the formula



and method for making same by coupling equimolar amounts of diazotized sodium S-4-aminophenylthiosulfate and acetoacet-p-anisidide.

3,573,275

ISOLATION AND PURIFICATION OF COUMERMYCIN ANTIBIOTICS

Hubert Maehr, Belleville, James Parnell Scannell, Bloomfield, and Vernon Zeltz, Passaic, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 712,370, Mar. 12, 1968. This application Feb. 20, 1969, Ser. No. 801,168

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 **10 Claims**

A crude antibiotic complex known as the "coumermycin complex" is extracted from the fermentation broth or cells with a water miscible organic solvent in a basic or slightly acidic medium. Thereafter, the crude complex is isolated by acidification and filtration.

3,573,276

ALKYLSULPHONYL-COBALAMINES

Otto Wagner, Wuppertal-Elberfeld, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,633

Claims priority, application Germany, Oct. 14, 1967, F 53,777

Int. Cl. C07d *55/62*

U.S. Cl. 260—211.7 **9 Claims**

Alkylsulphonyl-cobalamines are produced by reacting hydroxo-cobalamine with alkyl-sulphinic acids at ambient temperature or at slightly elevated temperatures. They may also be prepared by reacting cyano-cobalamines with alkyl-sulphinic acids. The alkylsulphonyl-cobalamines are useful in the same manner as vitamin B_{12} and may be administered in the same general dosage ranges and by the same general routes of administration.

3,573,277

CELLULOSIC ION EXCHANGE MATERIALS AND METHOD OF MAKING

Roy Arthur Grant, Great Shelford, Cambridge, England, assignor to Tasman Vaccine Laboratory Limited, Upper Hutt, North Island, New Zealand

No Drawing. Filed July 8, 1969, Ser. No. 840,044

Claims priority, application New Zealand, July 15, 1968, 153,128

Int. Cl. C08b *15/00, 15/06*

U.S. Cl. 260—231 **15 Claims**

Ion exchange materials are described which are suitable for separating materials such as proteins and for purifying aqueous effluents. These exchange materials are prepared from regenerated cellulose by cross-linking and introduction of exchange groups to give cationic or anionic exchangers.

3,573,278

AZIRIDINYL SUBSTITUTED UNSATURATED LONG CHAIN ACYCLIC HYDROCARBONS

Heinz Uelzmann, Cuyahoga Falls, Ohio, assignor to The General Tire & Rubber Company

No Drawing. Filed Nov. 15, 1967, Ser. No. 683,137

Int. Cl. C07d *23/02, 23/06*

U.S. Cl. 260—239 **5 Claims**

Unsaturated, long chain, acyclic hydrocarbons having one or two aziridinyl substituents are prepared by reaction of an alkylenimine and a long chain alkatriene in the presence of an alkali metal or equivalent catalyst. The resulting aziridinyl products, e.g., the ethylenimine adduct of allo-ocimene, contain at least three reactive groups, i.e., a combination of two aziridinyl groups and one olefinic unsaturation or one aziridinyl group and two olefinic unsaturations.

3,573,279

1-SUBSTITUTED CYCLOALKYL PENICILLINS

Harvey E. Alburn, West Chester, and William Dvonch, Radnor, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Jan. 25, 1967, Ser. No. 611,555

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **17 Claims**

The compounds are certain 1-substituted cycloalkyl penicillins having antibiotic activity, and also intermediates which are useful for preparing mixed anhydride compounds suitable for reacting with 6-aminopenicillanic acid for producing said penicillins.

3,573,280

DERIVATIVES OF ε-CAPROLACTAM

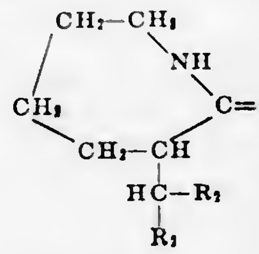
Herbert K. Reimschuessel, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

Original application Jan. 29, 1964, Ser. No. 341,068, now Patent No. 3,384,625, dated May 21, 1968. Divided and this application Apr. 24, 1967, Ser. No. 645,085

Int. Cl. C07d *41/06*

U.S. Cl. 260—239.3 **9 Claims**

This invention relates to derivatives of caprolactam having the formula:



wherein R_1 is a meta-directing electrophilic radical selected from the group consisting of cyano, carboxy and carbamyl, and R_2 is a meta-directing electrophilic radical selected from the group consisting of hydrogen, cyano, carboxy, lower alkoxycarbonyl and carbamyl, and their preparation. These compounds are useful as intermediates in the preparation of polyamides.

3,573,281

2,10 - DIOXA - 5 - AZA-TRICYCLO[6,2,1,0^{1,5}] UNDECANEDION-(6,9) AND 2,11-DIOXA-6-AZA - TRICYCLO[7,2,1,0^{1,6}]DODECANEDION-(7,10) COMPOUNDS AND THEIR PREPARATION

Rudolf Nehring, Marl, Germany, assignor to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,334

Claims priority, application Germany, Oct. 2, 1967, C 43,476

Int. Cl. C07d *85/78, 87/20, 87/54*

U.S. Cl. 260—239.3 **5 Claims**

Substituted Δ^2-oxazolines and 4H-5,6-dihydro-1,3-oxazines are converted into lactones containing amide groups by reacting with maleic acid anhydride, under exclusion of moisture and at a temperature of 0–180° C., from 0.2 to 1.0 mole of the maleic acid anhydride being employed per mol of the oxazoline or oxazine. The lactone products are utilizable as inhibitors of plant growth; also, as synthetic components of drugs.

3,573,282

4H-[1,3]OXAZINO[3,2-d][1,4]BENZODIAZEPINE-4,7(6H)-DIONES

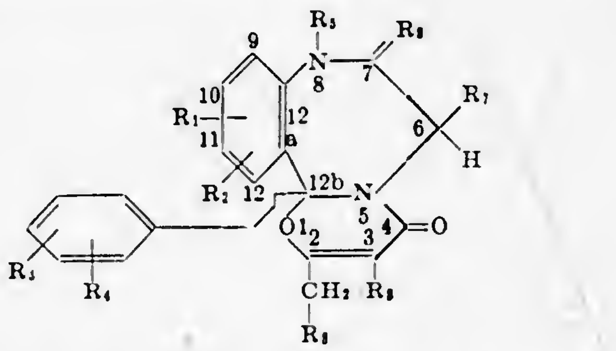
Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 760,963, Sept. 19, 1968. This application Mar. 27, 1969, Ser. No. 811,224

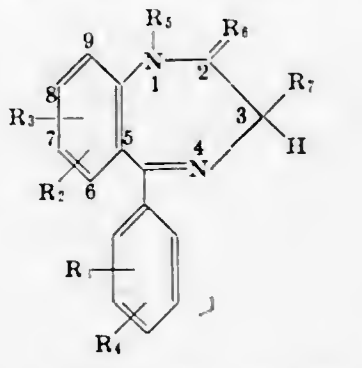
Int. Cl. C07d *53/06, 87/20, 87/54*

U.S. Cl. 260—239.3 **25 Claims**

Oxazinobenzodiazepines of the Formula II:



wherein R_1, R_2, R_3 and R_4 are hydrogen, lower-alkyl, lower-alkoxy, halogen, $-CF_3$, $-NO_2$ or $-CN$, wherein R_5 is hydrogen, lower-alkyl or benzyl, wherein R_6 is oxygen or sulfur, wherein R_7 is hydrogen, lower-alkyl or lower-alkoxy, and wherein R_8 is hydrogen, lower-alkyl or phenyl, are prepared by reacting 5-phenyl-3H-1,4-benzodiazepin-2(1H)-ones of Formula I:



wherein R_1, R_2, R_3, R_4, R_5, R_6 and R_7 are defined as above, with an acyl halide in the presence of a base or with a diketene. The new products are essentially sedatives and tranquilizers useful for treatment of mammals.

3,573,283

PROCESS FOR PREPARING N-VINYL-3-ALKYL-LACTAMS

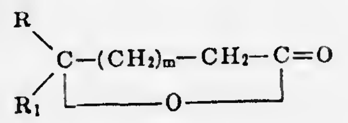
Ashot Merijan, Wayne, and Frederick Grosser, Midland Park, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 508,828, Nov. 19, 1965. This application Apr. 30, 1969, Ser. No. 820,616

Int. Cl. C07d *41/06*

U.S. Cl. 260—239.3 **7 Claims**

A process for preparing N-vinyl-3-alkyl lactams comprising heating a lactone having the formula:



wherein R and R_1 are selected from the group consisting of hydrogen, methyl and ethyl and *m* is an integer of from 1 to 3 in the presence of an α-olefin and a tertiary alkyl organic peroxide so as to alkylate same in the 3 position, heating the alkylated lactone with anhydrous ammonia under pressure and subsequently forming the salt of the resulting lactam and vinylating said lactam.

3,573,284

NOVEL $\Delta^{4,9,11}$-GONATRIENES

Georges Muller, Nogent-sur-Marne, and Andre Pierdet, Nolsy-le-Sec, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,508

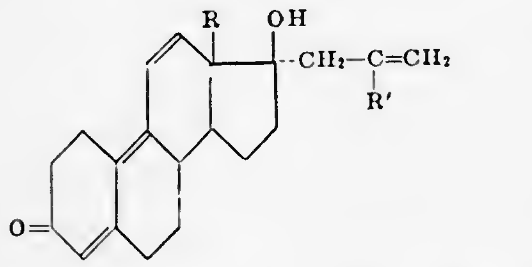
Claims priority, application France, Sept. 8, 1967, 120,419

The portion of the term of the patent subsequent to June 20, 1983, has been disclaimed

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.55 **14 Claims**

$\Delta^{4,9,11}$-gontriene-3-ones of the formula



(I)

wherein R is alkyl of 1 to 4 carbon atoms and R′ is selected from the group consisting of hydrogen and methyl with the proviso that R is other than methyl when R′ is hydrogen which have a strong progestomimetic activity and process for their preparation and intermediates formed therein.

3,573,285

N-(3 - ALKOXYESTRA - 1,3,5(10) - TRIEN-17β-YLAMINO)-TERTIARY AMINES AND INTERMEDIATES THERETO

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Sept. 6, 1968, Ser. No. 758,106

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.55 **9 Claims**

N-(3-alkoxyestra-1,3,5(10)-trien - 17β-ylamino)-tertiary amines preparable by reaction of a 3-alkoxyestra-1,3,5(10)-trien-17-one with an N-amino-tertiary amine followed by reduction of the resulting imine are useful in view of their valuable pharmacological properties, i.e. estrogenic and anti-microbial, e.g. anti-protozoal, anti-algal and anti-fungal.

3,573,286

PYRIDOXAL DERIVATIVES AND PRODUCTION THEREOF

Hisanao Zenno, Nishinomiya, Akira Sugihara, Osaka, and Sinji Tsubouchi, Kyoto, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

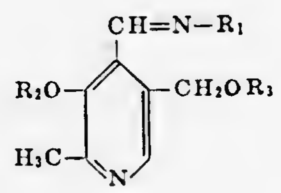
No Drawing. Filed June 14, 1967, Ser. No. 645,902

Claims priority, application Japan, June 29, 1966, 41/42,614; July 2, 1966, 41/43,089; July 8, 1966, 41/44,555; July 11, 1966, 41/45,544; July 26, 1966, 41/49,195; Sept. 30, 1966, 41/64,528; Oct. 3, 1966, 41/65,052

Int. Cl. C07d *31/30*

U.S. Cl. 260—240 **7 Claims**

This disclosure teaches novel pyridoxylideneamine derivatives representable by the following formula:



wherein R_1 is alkyl substituted or unsubstituted with carboxy, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, aryl, carbamoyl or 5- or 6-membered heterocyclyl containing one or two hetero atom(s) selected from the group consisting of N, O and S, or aryl substituted or unsubstituted with carboxy, lower alkyl, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, carbamoyl or halogen; R_2 is acyl; R_3 is hydrogen, acyl or phosphono, their intermediates and process for preparing the same. The pyridoxylideneamine derivatives and their intermediates are useful compounds having Vitamin B_6 activity.

3,573,287

SUBSTITUTED p-HYDROXYPHENYL-HYDRAZONES AND PROCESS FOR THEIR MANUFACTURE

Manfred Schorr, Frankfurt am Main, Elmar Schrinner, Wiesbaden, and Karl Horst Teichmann, Hochheim (Main), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

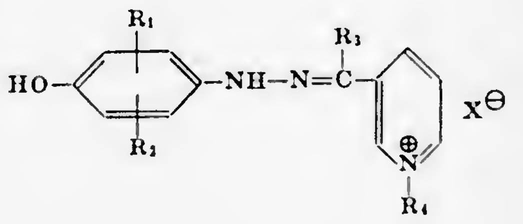
No Drawing. Filed Aug. 7, 1968, Ser. No. 750,748

Claims priority, application Germany, Aug. 16, 1967, P 16 70 904.9

Int. Cl. C07d *31/42*

U.S. Cl. 260—240 **4 Claims**

Substituted p - hydroxyphenyl - hydrazones of the formula



in which R_1 and R_2 represent hydrogen, halogen, lower alkyl or alkoxy, carboxy, carbamoyl, lower carbalkoxy, carbobenzoxy, sulfoxy or sulfamoyl; R_3 represents hydrogen or lower alkyl having 1 to 3 carbon atoms, R_4 represents an alkyl radical having 1 to 12 carbon atoms, which may carry one or several hydroxy, lower alkoxy, carboxy, lower carbalkoxy, carbamoyl, nitrile, sulfo, lower sulfalkoxy and/or sulfamoyl groups, and X represents the anion of a non-toxic acid, which compounds have bacteriostatic properties.

3,573,288

PIPERAZINYLIMINOMETHYLPYRIDINIUM COMPOUNDS

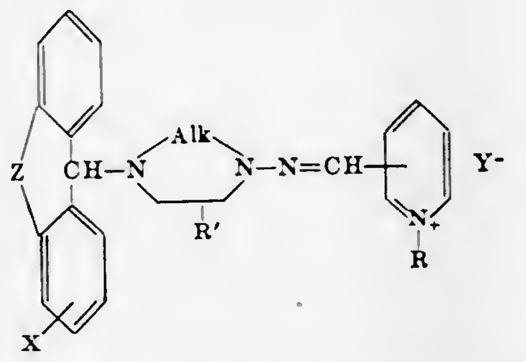
John W. Cusic, Skokie, Ill. 60076, and Peter Yonan, Morton Grove, Ill. 60053

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,955

Int. Cl. C07d *31/42*

U.S. Cl. 260—240 **5 Claims**

Pyridinium compounds of the formula



wherein Alk is ethylene, propylene, or trimethylene; R is lower alkyl; R′ is hydrogen or methyl; X is hydrogen, methyl, or halogen; Y is halogen; and Z is ethylene, vinylene, or trimethylene are described herein. The compounds involved possess anti-arrhythmic activity. They are also anti-bacterial, anti-protozoal, and anti-algal agents. The compounds are prepared by the quaternization of the appropriate pyridyl compound or by the reaction of the appropriate N-aminopiperazine with a formyl-1-alkylpyridinium salt.

3,573,289

CATIONIC METHINE COMPOUNDS

James M. Straley and John G. Fisher, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 27, 1967, Ser. No. 678,514

Int. Cl. C09b *23/00*

U.S. Cl. 260—240 **8 Claims**

Methine compounds prepared by condensing a 5-formylthiazole with a 2-methyleneindoline are useful as dyes for acrylic, modacrylic and acid-modified polyester textile materials.

3,573,290

SUBSTITUTED CINNAMIC ACIDS

Alfred Sallmann, Bottmingen, Basel-Land, and Rudolf Pfister, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Oct. 4, 1967, Ser. No. 672,707

Claims priority, application Switzerland, Oct. 7, 1966, 14,523/66

Int. Cl. C07c *101/46*

U.S. Cl. 260—240 **6 Claims**

Substituted o-anilino-cinnamic acids and addition salts thereof with bases, which compounds exhibit useful antiphlogistic, analgesic and antipyretic activity, and also possess UV absorbing properties, and processes for the production of these compounds; therapeutic as well as sun tan compositions containing these substituted cinnamic acids or a pharmaceutically acceptable addition salt thereof with a base and methods of treatment, particularly methods of inducing antiphlogistic, analgesic and antipyretic effects in mammals. An illustrative embodiment is o-(2,6-dichloroanilino)-cinnamic acid.

3,573,291

CINNAMYLPIPERAZINE PREPARATIONS

Claude E. Fauran, Paris, Gerhard H. Huguet, Malesherbes, Bernard B. P. Pourrias, Meudon-la-Foret, and Michel Turin and Guy G. R. Raynaud, Paris, France, assignors to Delalande S.A. Courbevoie, Hauts-de-Seine, Paris, France

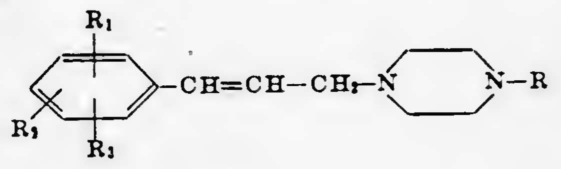
No Drawing. Filed Aug. 16, 1967, Ser. No. 660,902

Claims priority, application France, Aug. 18, 1966, 36,963

Int. Cl. C07d *51/70*

U.S. Cl. 260—240 **4 Claims**

Cinnamylpiperazines useful as pharmaceuticals particularly for treatment of coronary insufficiency, of the formula:



and montoxic salts thereof,

wherein R_1, R_2 and R_3 each is selected from the group consisting hydrogen, halogen, an alkyl group containing 1 to 4 carbon atoms, a hydroxyl group, an alkoxy group, an amino group and a nitro group,

R is selected from the group consisting of

$$—(CH_2)_n—CH(OH)CH_3$$

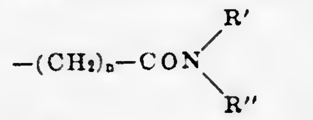
$$—(CH_2)_n—C(R')(R'')OH$$

wherein at least one of R′ and R″ is an aromatic radical

$$—CH_2)_n—COOR'$$

$$—(CH_2)_n—CO—R'$$

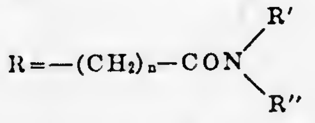
$$—CH_2)_n—CH(OH)CH_2OH$$



$$-(CH_2)_n-CON\begin{matrix}R'\\R''\end{matrix}$$

wherein $n=1$ to 4,

R′ and R″ each is selected from the group consisting of hydrogen, an aliphatic radical containing 1 to 4 carbon atoms and an aromatic radical, and when



$$R=-(CH_2)_n-CON\begin{matrix}R'\\R''\end{matrix}$$

R′ and R″ together with N constitutes a heterocyclic radical.

3,573,292

NOVEL OXYGEN COMPLEXES AND PROCESS FOR THE PRODUCTION THEREOF

Gunther Wilke, Paul Heimbach, and Herbert Schott, Mulheim (Ruhr), Germany, assignors to Studiengesellschaft Kohle mbH., Mulheim (Ruhr), Germany

No Drawing. Filed Dec. 15, 1967, Ser. No. 690,764

Claims priority, application Germany, Dec. 17, 1966, St 26,261

Int. Cl. C07f *15/00, 15/02, 15/04*

U.S. Cl. 260—242 **17 Claims**

Zero-valent complexes of Group VIII metals, oxygen and an electron donor such as, for example, a Group V metal trivalent compound, e.g., triphenyl phosphine; production of such zero-valent complexes by reacting a zero-valent compound of a Group VIII metal and an electron donor with molecular oxygen, preferably at a temperature of about —100 to about 75° C. These complexes can be used as oxygen transfer agents and for the preparation of finely divided, highly active metals of Sub-group VIII of the Periodic Table.

3,573,293

PHOSPHORODITHIOIC ACID ESTERS, THEIR SALTS AND THEIR PREPARATION

Herbert F. Wiese, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Division of application Ser. No. 498,107, Oct. 19, 1965, now Patent No. 3,361,668, dated Jan. 2, 1968. Continuation of application Ser. No. 598,957, Dec. 5, 1966. This application Mar. 4, 1969, Ser. No. 806,022

Int. Cl. C07f *9/16*

U.S. Cl. 260—242 **15 Claims**

A process for preparing improved phosphorodithioic acid esters comprises incorporating up to about 5% by weight of an amine in a phosphorodithioic acid ester. The esters prepared by the process are less corrosive and lighter in color.

3,573,294

7 - (ARYLGLYOXAMIDO)CEPHALOSPORANIC ACIDS AND THEIR SALTS AND α-CARBONYL DERIVATIVES

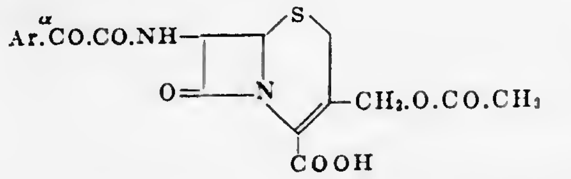
Alan Gibson Long, Greenford, Edward McKenzie Wilson, Hayes, and William Graham, Pinner, England, assignors to Glaxo Laboratories Limited, Greenford, England

No Drawing. Filed Mar. 14, 1968, Ser. No. 712,962

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 **11 Claims**

The invention relates to antibiotics which are compounds of the formula



in which Ar represents an aromatic group having an atomic weight sum of at least 78 and their pharmaceutically acceptable salts and α-carbonyl derivatives.

3,573,295

PROCESS FOR THE PREPARATION OF 7-AMINOCEPHALOSPORANIC ACID

David Aaron Johnson, Fayetteville, Elwin J. Richardson, Kirkville, John McKenna Roubie and Herbert Horatius Silvestri, Syracuse, and Richard Root Smith, Fayetteville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

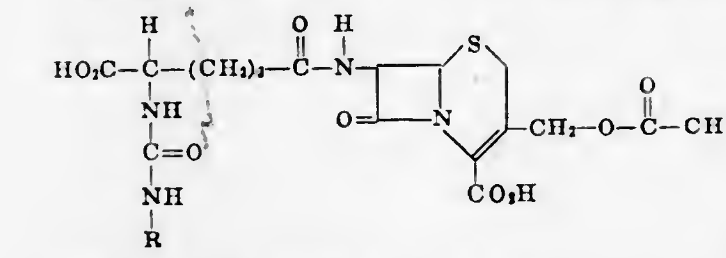
No Drawing. Filed July 1, 1968, Ser. No. 741,301

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 **9 Claims**

7-aminocephalosporanic acid, a valuable intermediate for the preparation of semi-synthetic cephalosporins, is prepared by a process comprising the consecutive steps of:

(A) acylating cephalosporin C broth with an isocyanate to produce a compound called N-(N'-alkyl- or arylcarbamoyl)cephalosporin C and having the formula



(III)

in which R is (lower)alkyl or aryl;

(B) recovering derivative III by solvent extraction;

(C) silylating the carboxyl functions of compound III to form silyl esters;

(D) halogenating the silyl ester of compound III to produce an imino-halide;

(E) forming an imino-ether from the imino-halide by treatment with an alcohol; and

(F) mixing said imino-ether with water or an alcohol to produce 7-aminocephalosporanic acid (7–ACA).

3,573,296

PROCESS FOR THE PREPARATION OF 7-AMINOCEPHALOSPORANIC ACID

David Aaron Johnson, Fayetteville, Elwin J. Richardson, Kirkville, John McKenna Roubie and Herbert Horatius Silvestri, Syracuse, and Richard Root Smith, Fayetteville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

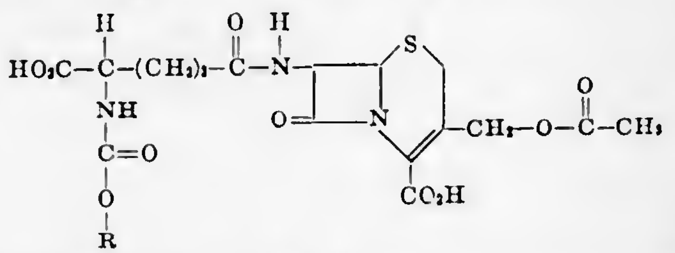
No Drawing. Filed July 1, 1968, Ser. No. 741,351

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 **11 Claims**

7-aminocephalosporanic acid, a valuable intermediate for the preparation of semi-synthetic cephalosporins, is prepared by a process comprising the consecutive steps of:

(A) Acylating cephalosporin C broth with a haloformate to produce a compound called N-(carb-alkyl or aryloxy)cephalosporin C having the formula



(III)

in which R is (lower)alkyl or aryl;

(B) Recovering derivative III by solvent extraction;

(C) Silylating the carboxyl functions of compound III to form silyl esters;

(D) Halogenating the silyl ester of compound III to produce an imino-halide;

(E) Forming an imino-ether from the imino-halide by treatment with an alcohol; and

(F) Mixing said imino-ether with water or an alcohol to produce 7-aminocephalosporanic acid (7–ACA).

3,573,297

METHOD FOR PRODUCING PURE METHDILAZINE SULFOXIDE

Paul Merrill Lish, John H. Weikel, and Stanley J. Dykstra, Evansville, Ind., assignors to Mead Johnson & Company

No Drawing. Original application Nov. 8, 1965, Ser. No. 506,872, now Patent No. 3,435,114, dated Mar. 25, 1969. Divided and this application July 2, 1968, Ser. No. 765,717

Int. Cl. C07d *93/14*

U.S. Cl. 260—243 **4 Claims**

Process for preparing methdilazine sulfoxide in pure crystalline form.

3,573,298

N-HYDROXYETHYLAMINO- AND N-MORPHOLINO-DITHIOCARBOXYLATED CEPHALOSPORINS

Earle M. Van Heyningen, Indianapolis, Ind., and Carter W. Brown, Columbus, Ohio, assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Original application Jan. 18, 1965, Ser. No. 426,391. Divided and this application Nov. 18, 1968, Ser. No. 776,792

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 **3 Claims**

α-Thienylmethyl N - methyl - N - B - hydroxyethyldithiocarbamate, α-thienylmethyl N,N - bis(B-hydroxyethyl)dithiocarbamate, and α-thienylmethyl morpholinodithiocarboxylate cephalosporins useful as antibiotics.

3,573,299

DERIVATIVES OF 2,6-DODECADIENOIC ACID

David Andrews, Nutley, Walter Kimel, Highland Park, and Ronald Propper, Fair Lawn, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Dec. 18, 1967, Ser. No. 691,246, now Patent No. 3,513,176, dated May 19, 1970. Divided and this application Sept. 26, 1969, Ser. No. 861,503

Int. Cl. C07d *1/12*

U.S. Cl. 260—247.7 **2 Claims**

This invention is directed to a process for producing 3-ethyl - 10,11 - epoxy-2,6-dodecadienoic acid derivatives which are useful in killing and preventing proliferation of insects by upsetting their hormone balance from 3,7-di-lower alkyl-1,6-octadien-3-ols and intermediates therein.

3,573,300

ONIUM SALT ADDUCTS OF REACTIVE HALO-TRIAZINES

Floyd J. Green, West Chester, Ohio, and Philip P. Goland, Chicago, Ill., assignors to Will Ross, Inc., Milwaukee, Wis.

No Drawing. Continuation-in-part of application Ser. No. 714,325, Mar. 19, 1968. This application Feb. 14, 1969, Ser. No. 799,514

Int. Cl. C07d *55/48*

U.S. Cl. 260—248 **5 Claims**

Novel onium salt adducts are prepared by reacting a cyclic nitrogen compound containing one or more reactive halogen substituents (e.g., cyanuric chloride) with a cyclic compound containing a carbonyl or thione group conjugated with nitrogen or oxygen, e.g., 2(1-H)-pyridone. The resultant products possess desirable cross-linking and polymerizing properties.

3,573,301

TRIAZINE COMPOUNDS AND PROCESS FOR THE PREPARATION

Roland A. E. Winter, Armonk, N.Y., assignor to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,033

Int. Cl. C07d *55/32*

U.S. Cl. 260—249.6 **8 Claims**

Alkanolamino substituted-s-triazines are prepared by a process comprising reacting cyanuric chloride with an alkanolamine in the presence of an alkali or alkali earth metal oxide, hydroxide, carbonate or a bicarbonate in an organic medium substantially free of water. By this process novel 2,4,6-tris(N-alkyl alkanolamino)-s-triazine compounds are also prepared. These compounds are useful as cross-linking agents for polyesters or alkyds.

3,573,302

4,6-BIS-(ALKYNYLAMINO)-s-TRIAZINES

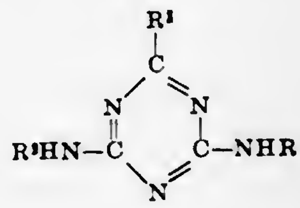
Albrecht Zschocke, Bad Durkheim, Karl-Heinz Koenig, Ludwigshafen, and Adolf Fischer, Mutterstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,562

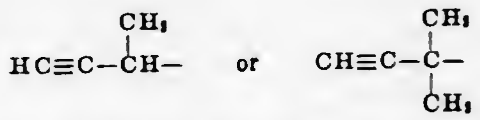
Int. Cl. C07d *55/46, 55/20*

U.S. Cl. 260—249.8 **3 Claims**

New and valuable triazine derivatives and a method of controlling the growth of unwanted plant with these compounds, said triazine derivatives having the formula



in which R^1 denotes an aliphatic or alkoxyalkyl radical having not more than four carbon atoms, R^2 denotes the group



$$HC\equiv C-\underset{}{\overset{CH_3}{\overset{|}{C}}}H- \quad \text{or} \quad CH\equiv C-\underset{\underset{CH_3}{|}}{\overset{CH_3}{\overset{|}{C}}}-$$

and R^3 denotes chlorine or the methoxy or methylmercapto radical or the radical —CN.

3,573,303

GUANIDINE DERIVATIVES AND THEIR PREPARATION

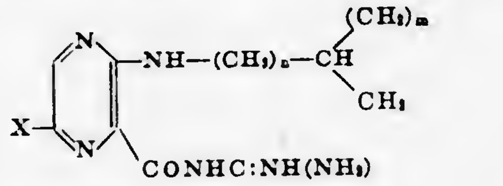
Don Pierre Rene Lucien Giudicelli, Fontenay-sous-Bois, and Henry Najer, Paris, France, assignors to Les Laboratories Dausse, Paris, France

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,670

Int. Cl. C07d *51/76*

U.S. Cl. 260—250 **2 Claims**

The pyrazinoyl-guanidines of the formula:



in which X is halogen or trifluoromethyl, *m* is 1 to 4 and *n* is 0 to 3 and their salts are useful as salidiuretics.

3,573,304

1-DIMETHYLAMINO - 3 - METHYL-2(PYRIDYL OR PYRIDAZINYL)PENTANE AND THE CORRESPONDING NON-TOXIC ACID ADDITION SALTS THEREOF

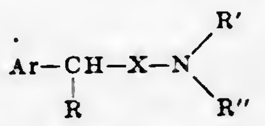
Jeannine A. Eberle, Chatou, Yvelines, Micheline Y. Sergant, Clamart (Hauts-de-Seine), Claude P. Fauran, Paris, and Gerard J. Huguet, Malesherbes, Loiret, France, assignors to Delalande S.A., Hauts-de-Seine, France

No Drawing. Continuation-in-part of application Ser. No. 686,722, Nov. 29, 1967. This application Dec. 3, 1968, Ser. No. 780,914

Int. Cl. C07d *51/04, 31/42*

U.S. Cl. 260—250 **3 Claims**

A compound having utility as a cardiovascular agent, a diuretic agent or a spasmolytic agent and having the formula:



$$Ar-\underset{\underset{R}{|}}{C}H-X-N\begin{matrix}\diagup R' \\ \diagdown R''\end{matrix}$$

in which Ar is a hydrogen atom, an aromatic radical which may be mono or polysubstituted by groups of low molecular weight or a heterocyclic radical, R is a saturated or unsaturated linear or branched-chain radical having one to five carbon atoms and which may contain a functional group, R' and R'' each is a hydrogen atom, an aliphatic radical having one to three carbon atoms or R' and R'' plus the nitrogen form a heterocyclic radical, X is a carbonyl radical or a methylene radical and Ar also including a cyclic saturated radical when X is a methylene radical.

3,573,305

(3-AMINO-PYRAZINOYL)SULFAMIDES AND THEIR PREPARATION

Edward J. Cragoe, Jr., and John B. Bicking, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Dec. 30, 1968, Ser. No. 788,097

Int. Cl. C07d *51/76*

U.S. Cl. 260—250 **10 Claims**

(3-aminopyrazinoyl)sulfamides that exhibit saluretic and diuretic properties are described. The products are prepared by the reaction of a 4H-pyrazino[2,3-d][1,3]oxazin-4-one and a sulfamide in the presence of a tertiary amine followed by hydrolysis or by the reaction of a 3-(3-aminopyrazinoyloxy)acrylamide and a sulfamide. The starting substance of this latter reaction is prepared by the reaction of a 3-aminopyrazinoic acid and an isoxazolium salt.

3,573,306
PROCESS FOR PREPARATION OF N-SUBSTITUTED 3,5-DIAMINO-6-HALOPYRAZINAMIDES

Kenneth L. Shepard, Ambler, and Edward J. Cragoe, Jr., Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Mar. 5, 1969, Ser. No. 804,663
Int. Cl. C07d *51/76*
U.S. Cl. 260—250 **17 Claims**

A new process is described for the preparation of N-substituted-3,5-diamino-6-halopyrazinamides which comprises treating an amino compound with a novel, very reactive acylating compound, 3,5-diamino-6-halopyrazincarboxylic N,N-diphenylcarbamic anhydride. The products of the new process have utility as diluretic agents.

3,573,307
WITHDRAWN

3,573,308
3-LOWER ALKOXY METHYL-3,4-DIHYDRO-4-HYDROXY-4-ARYL QUINAZOLIN-2(1H) ONES AND RELATED COMPOUNDS

Robert Ye-Fong Ning, Verona, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,304
Int. Cl. C07d *51/48*
U.S. Cl. 260—251 **15 Claims**

3-lower alkoxy methyl - 3,4 - dihydro - 4 - hydroxy-4-aryl quinazolin-2(1H)ones and derivatives are prepared by reacting 5,9B-dihydro-9B-phenyloxazirino-[2,3d][1,4]-benzodiazepin-4(3H)ones with alcohols or via the reaction of an aryl-phenyl ketone with methyl isocyanates. The quinazolin - 2 - ones are trichomonacides. The invention relates to such quinazolin - 2 - ones, derivatives thereof and processes for making same.

3,573,309
8-PYRIDYL PURINES

Felix Gotthilf Bergmann, Jerusalem, Mordechai Abraham Kleiner, Petah-Tikva, and Moshe Rashi, Jerusalem, Israel, assignors to Yissum Research Development Company, Jerusalem, Israel
No Drawing. Filed July 30, 1968, Ser. No. 748,620
Claims priority, application Israel, Aug. 4, 1967, 28,456
Int. Cl. C07d *57/62*
U.S. Cl. 260—252 **14 Claims**

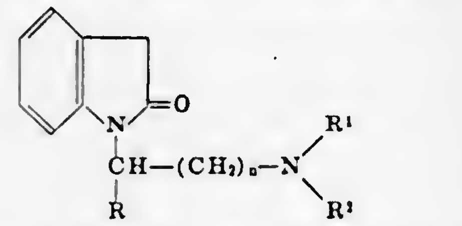
8-pyridyl purines can be synthesized by condensation of 4,5-diaminopyrimidines with amidinopyridines. Protonation of the pyridine nitrogen causes a marked bathochromic shift of λ_{max} in the 2- and 4-pyridyl derivatives, but not in the 3-pyridyl isomers. A similar effect is produced by quaternisation of the 4-, but not of the 3-pyridyl substituent. The 8-(N-methylpyridinium) group also facilitates greatly anion formation in the purine ring.

The new compounds showed a variety of biological activities, such as prolonged hypotension when injected into cats which were anesthetized with nembutal.

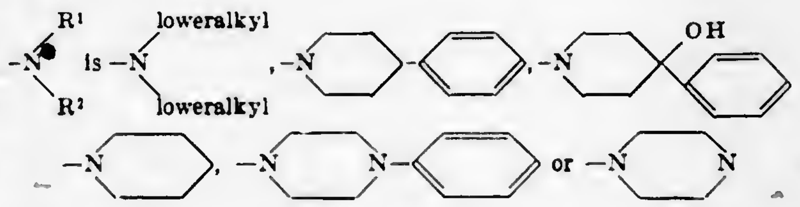
3,573,310
1-SUBSTITUTED DERIVATIVES OF 2-INDOLINONE

John William Van Dyke, Jr., Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.
No Drawing. Filed Sept. 28, 1967, Ser. No. 671,242
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 **7 Claims**

1-substituted derivatives of 2-indolinone of the formula:



in which R is H or a lower alkyl of from 1 to 5 carbon atoms, and



and pharmacologically acceptable salts thereof. These compounds are useful as analgetic agents.

3,573,311
METHOD OF PRODUCING N-AMINOETHYLPIPERAZINE

Leonard L. Valka, Angleton, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Sept. 25, 1968, Ser. No. 762,533
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 **7 Claims**

A method of producing N-aminoethylpiperazine which comprises reacting diethylenetriamine (D.E.T.A.) and ethylene dichloride (E.D.C.) in the critical molar ratios (D.E.T.A./E.D.C.) of 4/1 to 20/1, said reaction resulting in the production of little or none of the heretofore expected high molecular weight linear condensation products.

3,573,312
PIPERAZINE DERIVATIVES OF ADAMANTANE-1,3-DICARBOXYLIC ACID

Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill.
No Drawing. Filed Oct. 9, 1968, Ser. No. 766,305
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 **6 Claims**

Amides of adamantane-1,3-dicarboxylic acid and adamantane-1,3-diacetic acid with N-substituted piperazines are described herein. The compounds are obtained by the reaction of the appropriate acid chloride with a monosubstituted piperazine. The compounds are useful as antiviral agents.

3,573,313
2- AND 4 - [(1-PIPERIDYL)-LOWER-ALKYLAMINO] QUINOLINES AND 2- AND 4-{N,N-BIS-[(1-PIPERIDYL)-LOWER-ALKYL]AMINO}QUINOLINES

Bernard L. Zenitz, Colonie, and Alexander R. Surrey, Albany, N.Y., assignors to Sterling Drug Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 681,087, Nov. 7, 1967, which is a continuation-in-part of application Ser. No. 433,514, Feb. 17, 1965, which in turn is a division of application Ser. No. 129,995, Aug. 8, 1961. This application Sept. 29, 1969, Ser. No. 862,001
Int. Cl. C07d *33/50*
U.S. Cl. 260—288 **12 Claims**

New 2- and 4-[(1-piperidyl)-lower-alkylamino]quinolines and 2- and 4-{N,N-bis-[(1-piperidyl)-lower-alkyl]amino}quinolines, prepared by reacting a mono- or bis-[(1-piperidyl)-lower-alkyl]amine with a 2- or 4-haloquinoline, and having hypotensive activity.

3,573,314
SUBSTITUTED-8-QUINOLINOLS

Marjan Kolobielski, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Aug. 17, 1967, Ser. No. 662,562
Int. Cl. C07d *33/44*
U.S. Cl. 260—289 **6 Claims**

Novel 5-substituted-8-quinolinols.

3,573,315
4-CHLORO-3,5-DIMETHYLPYRIDINE HYDROCHLORIDE

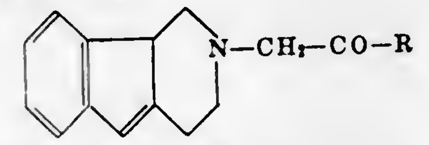
Martin Jacob Handele and Johannes Kuipers, Weesp, and Kobus Wellinga, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Original application Aug. 11, 1967, Ser. No. 659,856, now Patent No. 3,449,497, dated June 10, 1969. Divided and this application Nov. 14, 1968, Ser. No. 794,453
Claims priority, application Netherlands, Aug. 13, 1966, 6611424
Int. Cl. C07d *31/24*
U.S. Cl. 260—290 **1 Claim**

Use of 3 methyl or 3.5-dimethyl 4-halo pyridine or pyridine N-oxides as soil nematocides. An example is 4-chloro-3-methylpyridine N-oxide. This abstract is not intended to be a description of the invention defined by the claims.

3,573,316
2-ALKANOYLMETHYL - 1,3,4,9b - TETRAHYDRO-2H-INDENO[1,2-c]PYRIDINE SALTS AND INTERMEDIATES THEREFOR

Anton Ebnother, Arlesheim, and Jean-Michel Bastian, Birsfelden, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Filed June 18, 1969, Ser. No. 834,523
Claims priority, application Switzerland, June 25, 1968, 9,435/68; Apr. 2, 1969, 5,040/69
Int. Cl. C07d *29/20*
U.S. Cl. 260—294.7 **3 Claims**

The invention concerns novel acid addition salts of compounds of formula:



in which R signifies lower alkyl.

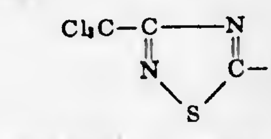
Processes and intermediates employed for the production of the above compounds are also described.

The above compounds possess useful antidepressant activity.

3,573,317
3-TRICHLOROMETHYL-5-SUBSTITUTED-1,2,4-THIADIAZOLES

Eric Smith, Madison, Conn., assignor to Olin Corporation
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,728
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 **3 Claims**

3 - trichloromethyl - 5 - substituted - 1,2,4 - thiadiazoles having the formula



wherein R is 2′-pyridylthio-1′-oxide, aryloxy, haloaryloxy, nitroaryloxy, nitrohaloaryloxy, arylamino, haloarylamino, arylthio, carboxyarylthio, N,N-dialkyldithiocarbamoyl, arylthiazolyl or alkenylamino are prepared by reacting 3 - trichloromethyl - 5 - chloro - 1,2,4 - thiadiazole with the appropriate active hydrogen-containing compound, or a metal salt thereof. These compounds are valuable aquatic herbicides and biocides.

3,573,318
NICOTINIC ESTERS OF ACETOPHENONE DERIVATIVES

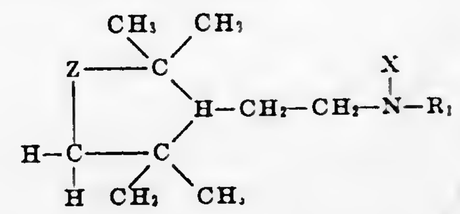
Giorgio Ferrari, Milan, and Cesare Casagrande, Como, Italy, assignors to Siphar S.A., Lugano, Switzerland
No Drawing. Filed Dec. 6, 1967, Ser. No. 688,340
Claims priority, application Belgium, Dec. 17, 1966, 46,296, Patent 690,791
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 **3 Claims**

Nicotinic esters of ω,4-dihydroxy-3-methoxy-acetophenone which are useful for the treatment of morbid conditions arising from an increase in capillary fragility, processes for the preparation of the novel esters and pharmaceutical compositions in which the active ingredient is ω,4-dihydroxy-3-methoxy acetophenone or ω,4-mononicotinoyloxy-3-methoxy acetophenone.

3,573,319
CERTAIN N-ANILINO-ETHYL - 2,2,6,6-TETRAMETHYL - 1,2,3,6-TETRAHYDRO PYRIDINES AND DERIVATIVES THEREOF

Andrea Pedrazzoli and Gianmario Cipelletti, Milan, Italy, assignors to Société d'Etudes de Recherches et d'Applications Scientifiques et Medicales E.R.A.S.M.E., Paris, France
No Drawing. Filed Aug. 21, 1967, Ser. No. 661,810
Claims priority, application Great Britain, Aug. 23, 1966, 37,825/66; Nov. 21, 1966, 52,072/66
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 **4 Claims**

The disclosure is of therapeutically useful derivatives of arylaminoethane and of a process of producing them. The compounds have the formula:



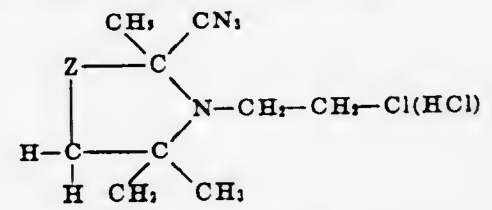
(I)

wherein:

Z represents the group $—CH_2—CH_2—$ or the group $—CH{=}CH—$,

R_1 is a substituted or unsubstituted phenyl, benzyl or phenethyl radical or an α-naphthyl or furfuryl radical,

X is a hydrogen atom, CH_3 or a radical COR, which latter can be $COOC_2H_5$, a saturated or unsaturated aliphatic acid residue with a straight or branched chain containing 1 to 6 carbon atoms, a saturated or unsaturated aryl-aliphatic acid residue with a straight or branched aliphatic chain containing 1 to 4 carbon atoms, a substituted or unsubstituted aromatic acid residue or a phenoxyacetic acid residue which may be substituted in its benzene ring. The method comprises reacting a compound of the formula:



with an amine such as H_2NR or

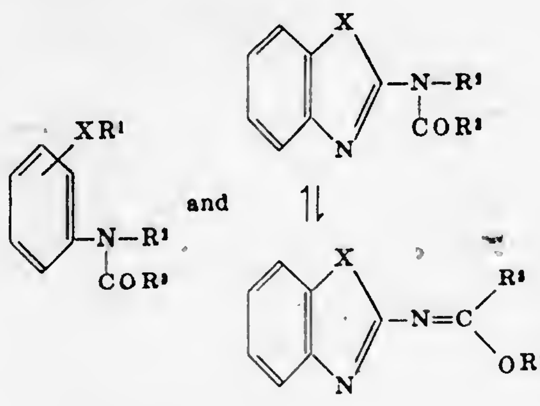
$$\overset{X}{\overset{|}{HN}}—R$$

3,573,320
CERTAIN 2-AMINOBENZOTHIAZOLES

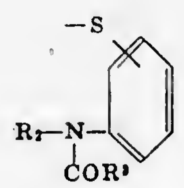
Alexander B. A. Jansen, Burnham Bucks., and John Hollowood, Henley-on-Thames, England, assignors to John Wyeth & Brother Limited, Taplow, Maidenhead, England

No Drawing. Filed July 24, 1968, Ser. No. 747,104
Claims priority, application Great Britain, Aug. 8, 1967, 36,337/67
Int. Cl. C07d *91/46*
U.S. Cl. 260—305 **4 Claims**

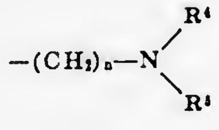
Anilides of the general formula



and acid addition salts thereof, in which X is oxygen or sulphur, R^1 is a methyl radical with the proviso that, when X is a sulphur atom, R^1 is selected from methyl radicals and radicals of the formula



R^2 is a



$$-(CH_2)_n-N\begin{matrix}R^4\\ \\R^5\end{matrix}$$

radical where *n* is a whole number from 2 to 3 and R^4 and R^5 each represent a hydrogen atom or an alkyl radical or together with the nitrogen atom to which they are attached complete a morpholine, piperidine, pyrrolidine or piperazine ring system, and R^3 is an alkyl, aryl, aralkyl or aralkenyl radical, are effective as anti-depressant agents.

3,573,321
BENZIMIDAZOLE-2-CARBAMATES SUBSTITUTED ON THE BENZENE RING

Constantino John Di Cuollo, Drexel Hill, James A. Miller, Malvern, and Joseph R. Valenta, Stafford, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,340
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 **3 Claims**

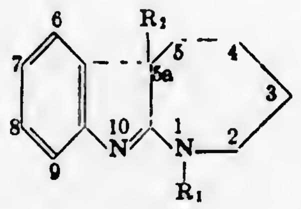
Benzimizolyl carbamic acids substituted on the benzene nucleus by carboxylated alkyl and alkoxy groups are disclosed as having activity against helminthiasis in animals. They may be prepared by microbiological oxidation of benzene ring substituted 2-carboalkoxyaminobenzimidazoles, or synthetically by starting with an appropriate p-nitrophenyl alkanoic acid.

3,573,322
POLYHYDROAZEPINO[2,3-b]INDOLES

Jackson B. Hester, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,480
Int. Cl. C07d *27/36*
U.S. Cl. 260—326.3 **9 Claims**

New polyhydroazepino[2,3-b]indoles of the Formula XIV:



(XIV)

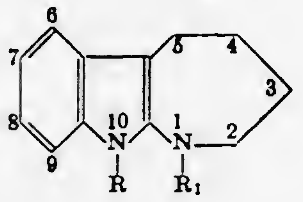
wherein R_1 is selected from the group consisting of hydrogen, ethyl and acetyl and wherein R_2 is selected from the group consisting of hydrogen, hydroxy and acetoxy with the proviso that R_2 is acetoxy only if R_1 is hydrogen or acetyl, are prepared. These compounds and their pharmacologically acceptable acid addition salts have sedative action and can be used in mammals and birds as tranquilizers.

3,573,323
1,2,3,4,5,10-HEXAHYDROAZEPINO[2,3-b]INDOLES

Jackson B. Hester, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,449
Int. Cl. C07d *27/36*
U.S. Cl. 260—326.5 **9 Claims**

New 1,2,3,4,5,10 - hexahydroazepino[2,3-b]indoles of the formula:



(XX)

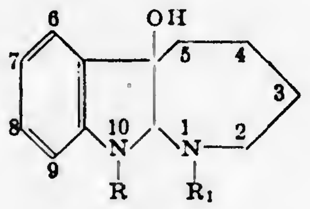
wherein R is selected from the group consisting of hydrogen, methyl, ethyl and acetyl and wherein R_1 is selected from the group consisting of ethyl and acetyl with the proviso that when R is hydrogen, R_1 is acetyl, are prepared. These compounds and the pharmacologically acceptable acid addition salts when in the amino form have sedative action and can be used in mammals and birds as tranquilizers.

3,573,324
2,3,4,5,10,10a-HEXAHYDROAZEPINO [2,3-b]INDOLES

Jackson B. Hester, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,479
Int. Cl. C07d *27/36*
U.S. Cl. 260—326.5 **5 Claims**

New 2,3,4,5,10,10a-hexahydroazepino[2,3-b]indoles of the formula:



(XVIII)

wherein R is selected from the group consisting of methyl, ethyl and acetyl and wherein R_1 is selected from the group consisting of ethyl and acetyl with the proviso that when R is methyl or ethyl, R_1 is acetyl, are prepared. These compounds and the pharmacologically acceptable acid addition salts of the amines have sedative action and can be used in mammals and birds as tranquilizers.

3,573,325
N-(1-ALKYL-2-PYRROLIDYLMETHYL)-3-ALKOXY-(OR HYDROXY)-INDOLES-2-CARBOXAMIDES

Michel Léon Thominet, Paris, France, assignor to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

No Drawing. Filed July 31, 1967, Ser. No. 657,010
Claims priority, application France, July 29, 1966, 72,905; Oct. 18, 1966, 80,482
Int. Cl. C07d *27/56*
U.S. Cl. 260—326.14 **7 Claims**

The compounds of this invention are useful in the treatment of emesis or behavior disturbances in mammals. For example, in a mammal, the compounds may be administered orally in the form of 25 milligram tablets given in progressive doses of 2 to 8 tablets daily.

3,573,326
6-AMINO-2-THIENYL-4-CHROMANONE HYDRAZONES

Pierre Fournari, 10 Rue Reaumur; Jean Tirouflet, 25 Rue de Beauregard; and Claude Boichot, 89 Boulevard Mansard, all of Dijon, France

No Drawing. Original application Oct. 5, 1966, Ser. No. 584,366, now Patent No. 3,468,897, dated Sept. 23, 1969. Divided and this application Sept. 22, 1969, Ser. No. 871,147
Int. Cl. C07d *63/12*
U.S. Cl. 260—332.3 **3 Claims**

6-amino-2-phenyl or heterocyclic-4-chromanone hydrazones and the pharmaceutically acceptable nontoxic salts thereof are useful as sedatives and muscle relaxants in mammals.

3,573,327
3-(LOWER ALKOXY)-7,8,9,10-TETRAHYDRO-6H-DIBENZO-[b,d]PYRAN-6,9-DIONES AND DERIVATIVES THEREOF

Masateru Miyano, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 731,270, May 22, 1968. This application Mar. 23, 1970, Ser. No. 22,036
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 **9 Claims**

3 - (lower alkoxy) - 7,8,9,10 - tetrahydro - 6H -dibenzo[b,d]pyran-6,9-diones are obtained by cyclization of the corresponding 7-(lower alkoxy)-4-methylcoumarin 3-propionate esters. The latter compounds together with derivatives obtained by reaction at the 9 and/or 10 positions are useful pharmacological agents, e.g. anti-inflammatory and anti-protozoal.

3,573,328
5-(2-METHOXYETHYL) FURFURYL CHRYSANTHEMATE

Michio Nakanishi and Toshihiko Mukai, Oita, and Syuji Inamasu, Fukuoka, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

No Drawing. Filed May 28, 1968, Ser. No. 732,522
Claims priority, application Japan, June 7, 1967, 42/36,722
Int. Cl. C07d *5/20*
U.S. Cl. 260—347.4 **1 Claim**

5-(2-methoxyethyl)furfuryl chrysanthemate shows a stronger insecticidal activity than allethrin and as low a mammalian toxicity as naturally occurring pyrethrins, and is useful in combating a variety of insects includes common houseflies (*Musca domestica*).

3,573,329
SULFUR-CONTAINING POLYEPOXIDES

John W. Lynn, Charleston, W. Va., assignor to Union Carbide Corporation

No Drawing. Original application Mar. 11, 1964, Ser. No. 351,197, now Patent No. 3,392,186, dated July 9, 1968. Divided and this application May 1, 1968, Ser. No. 725,895
Int. Cl. C07d *1/00*
U.S. Cl. 260—348 **4 Claims**

Sulfur-containing polyepoxides of the formula

$$[(R)_n-\overset{+}{X}(R_1)]-OS\overset{-}{O}_2OR_1$$

wherein each R_1 is a monovalent substituted or unsubstituted hydrocarbon radical; X is either nitrogen, phosphorous or sulfur; *n* is an integer having the value equal to the valence of X; and R is a monovalent substituted or unsubstituted hydrocarbon radical containing at least one oxirane oxygen atom. The compounds of this invention are used to impart crease resistance to cotton based fabrics, wet strength improvers for paper and in addition the polyepoxides produce thermoset polymers.

3,573,330
FLUORINATED EPOXIDES

Robert E. A. Dear and Everett E. Gilbert, Morris Township, County of Morris, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Jan. 24, 1969, Ser. No. 793,891
Int. Cl. C07d *1/16*
U.S. Cl. 260—348 **3 Claims**

1,2-epoxy - 3,3,3 - trifluoro-2-trifluoromethyl-propane and 1,2-epoxy - 3,3 - difluoro-2-difluoromethyl-propane useful as nematocidal fumigants.

3,573,331
EPOXIDES

James Alexander Brydon, Bloomfield, and Louis Joseph Colaianni, Waldwick, N.J., assignors to Givaudan Corporation, Clifton, N.J.

No Drawing. Continuation-in-part of application Ser. No. 426,669, Jan. 19, 1965. This application May 23, 1969, Ser. No. 827,432
Int. Cl. C07d *1/18*
U.S. Cl. 260—348 **1 Claim**

Novel epoxidized linalyl esters which are useful perfumistic materials and a process for their production.

3,573,332
PREPARATION OF ALIPHATIC ACIDS AND ESTERS

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed July 19, 1968, Ser. No. 745,967
Int. Cl. C11e *3/00;* **C07c** *53/32*
U.S. Cl. 260—408 **5 Claims**

The telomerization of ethylene in the presence of di- and tri-halo acetic acid and esters thereof is catalyzed by a palladium cyanide containing catalyst to produce chlorinated long-chain fatty acids. These fatty acids are useful for soap or detergent preparations or can be dehydrochlorinated to prepare unsaturated long-chain fatty acids. In a typical reaction, ethylene is contacted with chloroacetic acid and palladium cyanide under liquid phase conditions to prepare dichloro fatty acids.

3,573,333
LUBRICANT ADDITIVES FOR OXIDATION INHIBITION AND RUST INHIBITION

Jonathan L. Snead, Philadelphia, Joseph F. Messina, Havertown, and Henry Gisser, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Continuation of application Ser. No. 613,077, Jan. 30, 1967. This application Aug. 19, 1969, Ser. No. 853,600

Int. Cl. C08h *17/36*

U.S. Cl. 260—413 **1 Claim**

New compositions of matter are provided which are useful as additives in lubricants and which are oxidatively autoinhibitive and/or rust-inhibitive, the compositions comprising substituted phenylalkanes or hydroxyarylstearic acids or salts thereof wherein the aryl groups are attached to the alkyl chain at a tertiary carbon atom.

3,573,334
OLEFINIC SILICONE-ORGANIC POLYMER GRAFT COPOLYMERS

Marshall L. Wheeler, Jr., Tonawanda, N.Y., assignor to Union Carbide Corporation

No Drawing. Continuation-in-part of application Ser. No. 356,944, Apr. 2, 1964. This application Dec. 29, 1964, Ser. No. 422,037

Int. Cl. C08g *22/44, 47/02, 47/10*

U.S. Cl. 260—448.2 **2 Claims**

Silicone-organic polymer graft copolymers produced by grafting (1) an olefinic silicone compound to (2) a non-crosslinked organic polymer consisting essentially of at least six recurring divalent monomeric units, at least one of which units contains a hydrogen atom directly bonded to an aliphatic carbon atom, said graft copolymers having been produced by heating a mixture of (1) and (2) in the presence of a free radical generator.

The graft copolymers are useful as lubricants, emulsifiers and stabilizers for urethane foams.

3,573,335
MODIFICATION OF TOLUYLENEDIISOCYANATES

Juntaro Yurimoto and Yoshindo Kojima, Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,297

Claims priority, application Japan, Jan. 20, 1967, 42/3,961

Int. Cl. C07c *19/04;* **C08g** *22/46*

U.S. Cl. 260—453 **5 Claims**

Modified toluylenediisocyanates, which are useful for the production of rigid polyurethane foams according to one-shot method, are produced by heating toluylenediisocyanates in the presence of specific organo-tin compounds as catalysts, and the modified toluylenediisocyanates are entirely stable and precipitate no insolubles and have a viscosity of 20–300 cps. at 25° C. and have such a low freezing point as below 0° C.

DESIGNS

MARCH 30, 1971

220,304
DIVING MASK

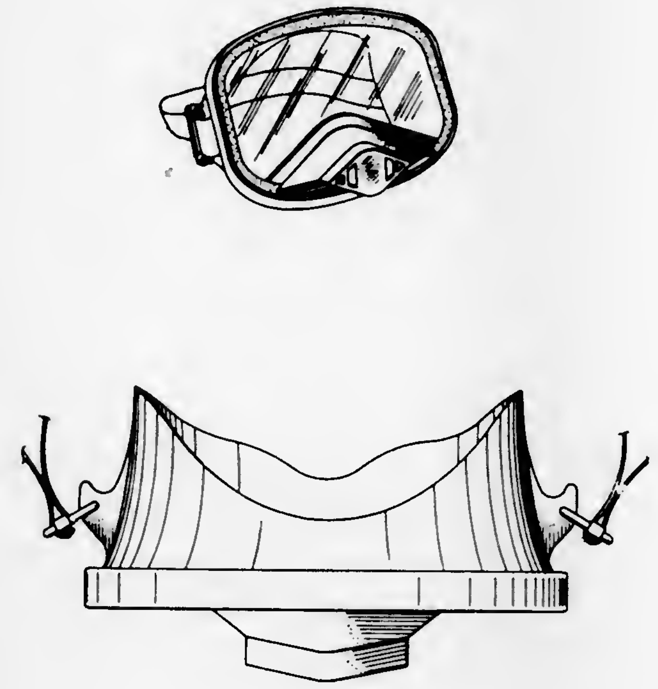
Henry S. Wolfe, Jenkintown, Pa., assignor to Sportsotron, Inc., Lynbrook, N.Y.

Filed Oct. 28, 1969, Ser. No. 19,760

Term of patent 14 years

Int. Cl. D2—*03*

U.S. Cl. D2—234



220,305
DIVING MASK

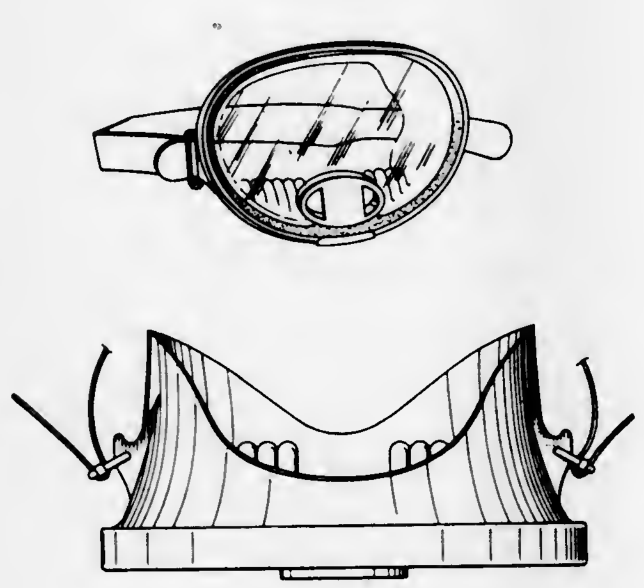
Henry S. Wolfe, Jenkintown, Pa., assignor to Sportsotron, Inc., Lynbrook, N.Y.

Filed Oct. 28, 1969, Ser. No. 19,775

Term of patent 14 years

Int. Cl. D2—*03*

U.S. Cl. D2—234



220,306
GENTLEMAN'S JACKET POCKET ORNAMENT

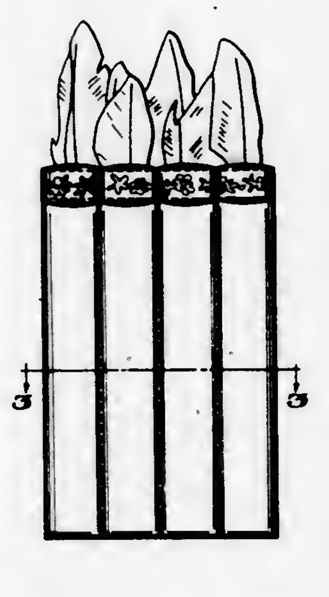
Guido C. Pachelli, 903 Stonewall Ave., Trinidad, Colo. 81082

Filed Oct. 13, 1969, Ser. No. 19,541

Term of patent 14 years

Int. Cl. D2—*08*

U.S. Cl. D2—400



220,307
GARDEN TOOL

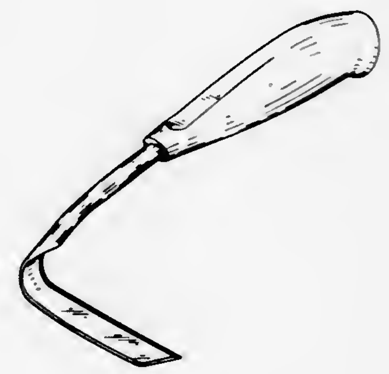
Victor Jay Liechty, R.D.I. Box 246, American Fork, Utah 84003

Filed Dec. 4, 1969, Ser. No. 20,363

Term of patent 14 years

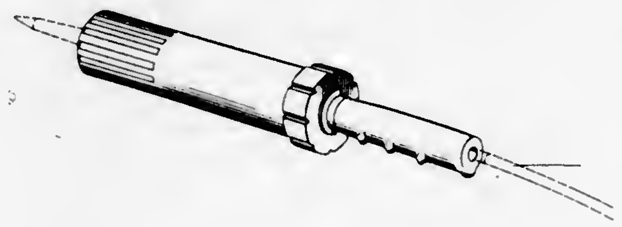
Int. Cl. D8—*01*

U.S. Cl. D8—12



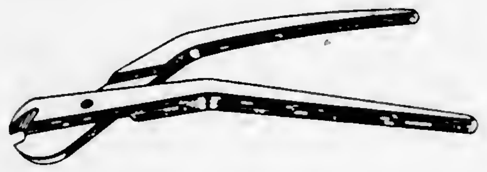
220,308
SEALANT APPLICATOR

Ralph J. Cook, Torrance, Calif., assignor to Products Research & Chemical Corporation, Burbank, Calif.
Filed Jan. 8, 1970, Ser. No. 20,826
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—14.1



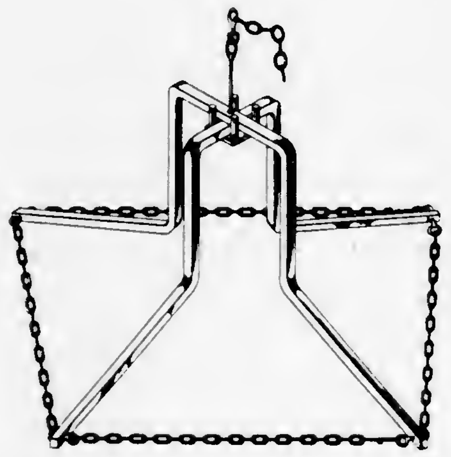
220,309
CUTTER

Theadore Baun, 231 Bellamy Road, Scarborough, Ontario, Canada
Filed June 4, 1969, Ser. No. 17,521
Term of patent 14 years
The portion of the term of the patent subsequent to Nov. 4, 1983, has been disclaimed
Int. Cl. D8—*02*
U.S. Cl. D8—52



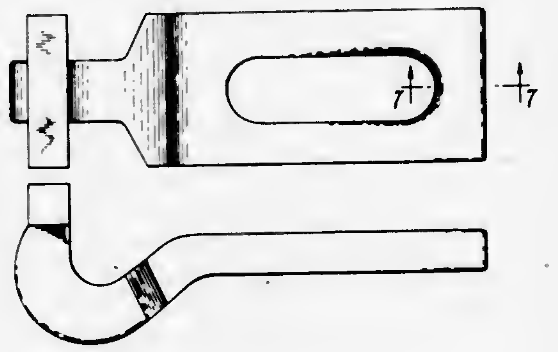
220,310
WIRE REEL

James J. Smith, 502 N. Puget St., Olympia, Wash. 98501
Filed Dec. 3, 1969, Ser. No. 20,345
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—220



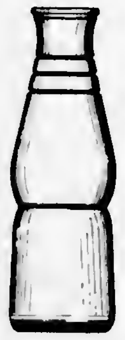
220,311
CHAIN LINK

Edward A. Graetz, Pound, Wis., assignor to Graetz Manufacturing, Inc., Pound, Wis.
Filed Nov. 3, 1969, Ser. No. 19,890
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—261



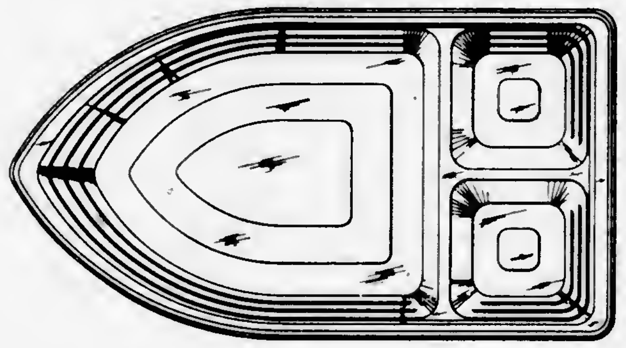
220,312
BOTTLE

Dale K. Weber, East Lansing, Mich., assignor to Orchard Grove Company, Lansing, Mich.
Filed Mar. 9, 1970, Ser. No. 21,785
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—100



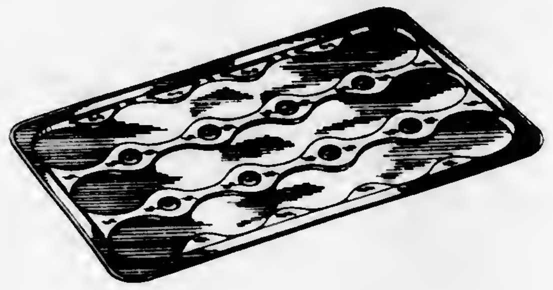
220,313
PACKAGING CONTAINER

Stafford D. Collie, Kansas City, Mo., assignor to Phillips Petroleum Company
Filed Jan. 12, 1970, Ser. No. 20,893
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—185



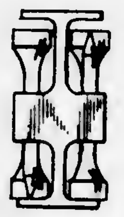
220,314
FOOD PACKAGING TRAY OR SIMILAR ARTICLE

Alex G. Dunton, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed Feb. 16, 1970, Ser. No. 21,440
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—187



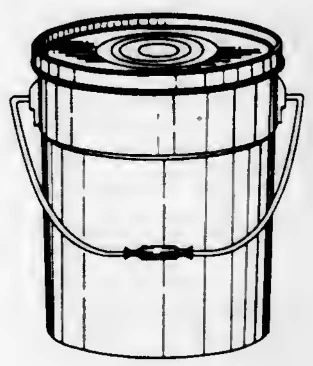
220,315
COMBINED PACKAGE AND HOLDER FOR GOLF TEES

Edward L. Cicero, 52—62 66th St., Maspeth, N.Y. 11378
Filed Nov. 6, 1969, Ser. No. 19,974
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—193



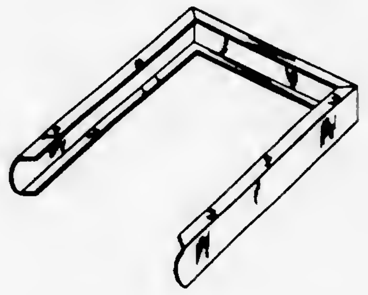
220,316
SHIPPING CONTAINER

Ralph V. Bardell, Homewood, and Roy G. Churan, Oak Lawn, Ill., assignors to Bennett Industries, Inc., Peotone, Ill.
Filed Jan. 9, 1969, Ser. No. 15,289
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—216



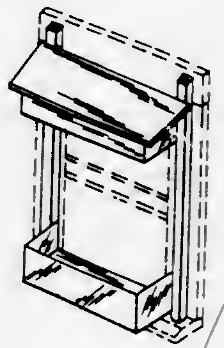
220,317
CONTAINER FOR STEREO TAPE CARTRIDGE

Robert Adell, 1525 Ardmore Drive, Birmingham, Mich. 48010
Filed June 4, 1968, Ser. No. 12,197
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—253



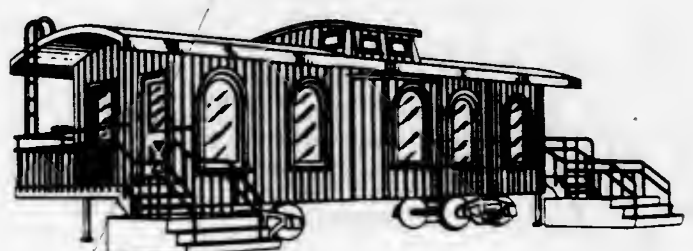
220,318
COMBINATION WINDOW AWNING AND CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Continuation-in-part of design application Ser. No. 13,387, Sept. 4, 1968. This application Nov. 3, 1969, Ser. No. 19,901
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1



220,319
BUILDING

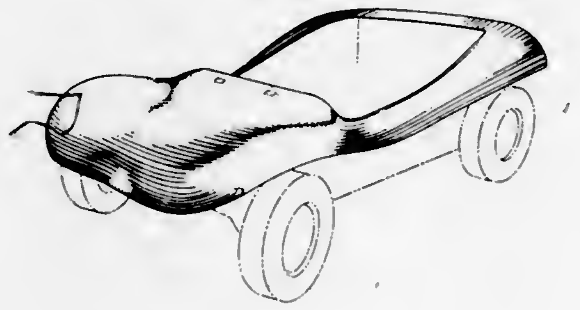
John C. Gruner, Grand Rapids, Mich., assignor to Casey's Caboose, Inc., Waukesha, Wis.
Filed Nov. 10, 1969, Ser. No. 20,000
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



220,320
AUTOMOBILE BODY

Richard L. Dirovizza, Redwood City, Calif., assignor to Plastech Industries, Redwood City, Calif.
Filed Mar. 5, 1969, Ser. No. 16,051
Term of patent 14 years
Int. Cl. D12—*08*

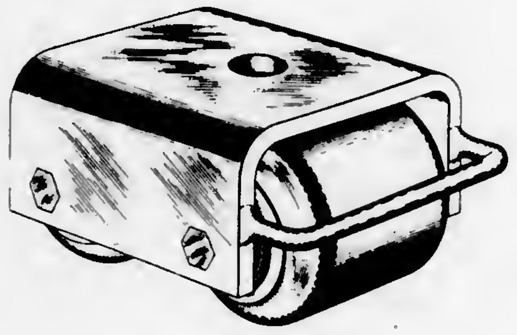
U.S. Cl. D14—3



220,321
LOAD TRANSPORTING DOLLY OR THE LIKE

Wilson S. Howe, Longmont, Colo., assignor to Over-Lowe Company, Inc., Englewood, Colo.
Filed Aug. 20, 1969, Ser. No. 18,766
Term of patent 14 years
Int. Cl. D12—*02*

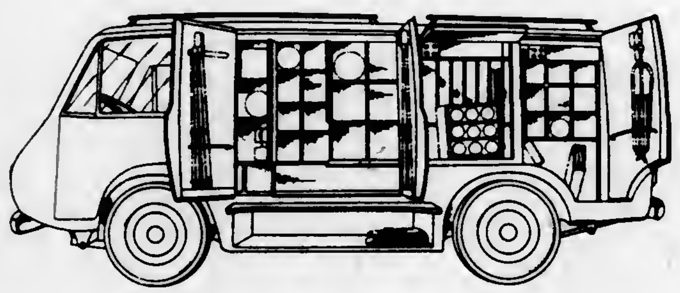
U.S. Cl. D14—3



220,322
PHOTOGRAPHIC VAN

Fouad Said, Los Angeles, Calif., assignor to Fouad Said Productions Inc., Los Angeles, Calif.
Filed Aug. 27, 1969, Ser. No. 18,867
Term of patent 14 years
Int. Cl. D12—*09*

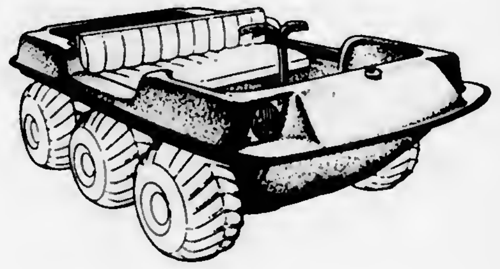
U.S. Cl. D14—3



220,323
ALL TERRAIN VEHICLE

William Michael Nobbs, Clarkson, Ontario, Canada, assignor to ATV Manufacturing Limited, Clarkson, Ontario, Canada
Filed Sept. 15, 1969, Ser. No. 19,137
Term of patent 7 years
Int. Cl. D12—*08*

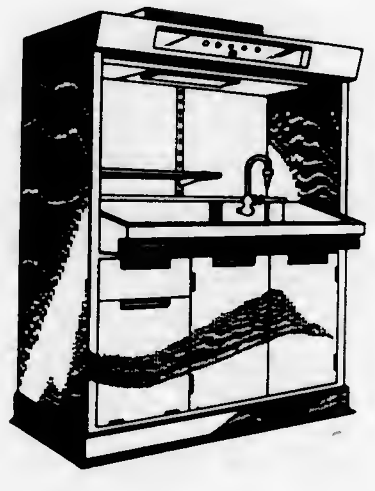
U.S. Cl. D14—3



220,324
LABORATORY WASH BASIN CABINET

Donald E. Ott and Arthur W. Carlson, Muskegon, Mich., assignors to E. H. Sheldon & Company, Muskegon, Mich.
Filed July 31, 1969, Ser. No. 18,488
Term of patent 14 years
Int. Cl. D24—*02*

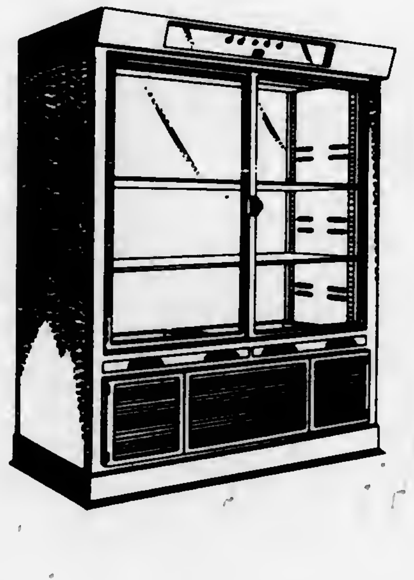
U.S. Cl. D16—2



220,325
ANIMAL AND PLANT CARE CABINET

Donald E. Ott and Arthur W. Carlson, Muskegon, Mich., assignors to E. H. Sheldon & Company, Muskegon, Mich.
Filed July 31, 1969, Ser. No. 18,496
Term of patent 14 years
Int. Co. D24—*02*

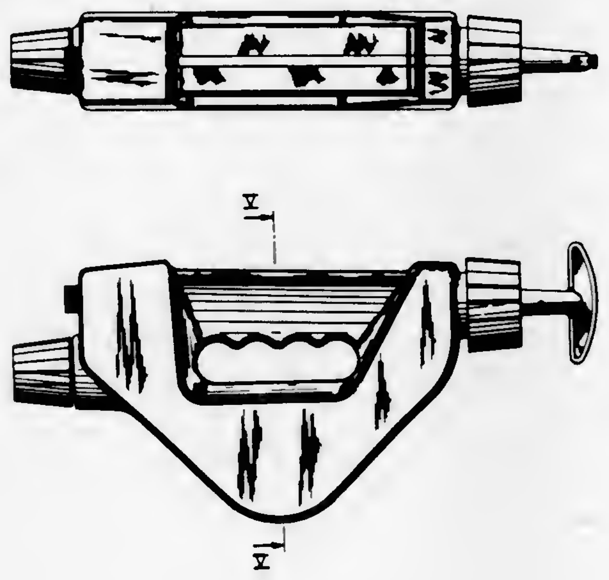
U.S. Cl. D16—2



220,326
HAND OPERATED FIRE EXTINGUISHER OR SIMILAR ARTICLE

Charles K. Huthsing, Jr., Old School Road, Libertyville, Ill. 60048
Filed Oct. 24, 1969, Ser. No. 19,701
Term of patent 14 years
Int. Cl. D29—*01;* D23—*01*

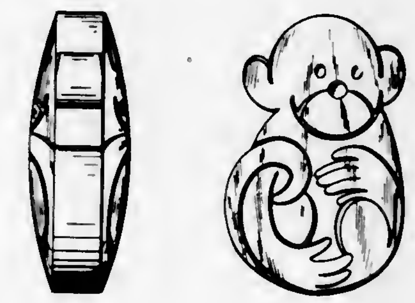
U.S. Cl. D16—2



220,327
PHARMACEUTICAL TABLET OR SIMILAR ARTICLE

William S. Tripp, Allegan, Mich., assignor to L. Perrigo Company, Allegan, Mich.
Filed May 1, 1970, Ser. No. 22,752
Term of patent 14 years
Int. Cl. D28—*01;* D1—*02*

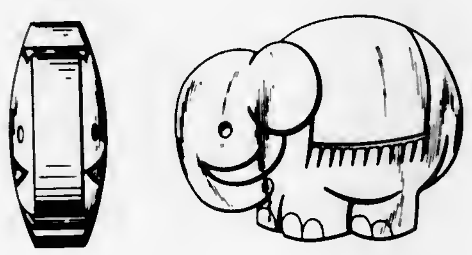
U.S. Cl. D16—3



220,328
PHARMACEUTICAL TABLET OR SIMILAR ARTICLE

William S. Tripp, Allegan, Mich., assignor to L. Perrigo Company, Allegan, Mich.
Filed May 1, 1970, Ser. No. 22,761
Term of patent 14 years
Int. Cl. D28—*01;* D1—*02*

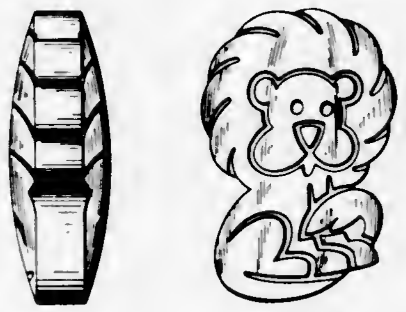
U.S. Cl. D16—3



220,329
PHARMACEUTICAL TABLET OR SIMILAR ARTICLE

William S. Tripp, Allegan, Mich., assignor to L. Perriga Company, Allegan, Mich.
Filed May 1, 1970, Ser. No. 22,762
Term of patent 14 years
Int. Cl. D28—*01;* D1—*02*

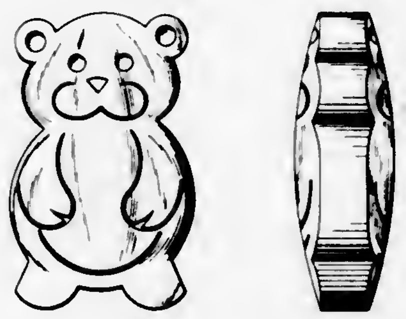
U.S. Cl. D16—3



220,330
PHARMACEUTICAL TABLET OR SIMILAR ARTICLE

William S. Tripp, Allegan, Mich., assignor to L. Perrigo Company, Allegan, Mich.
Filed May 1, 1970, Ser. No. 22,766
Term of patent 14 years
Int. Cl. D28—*01;* D1—*02*

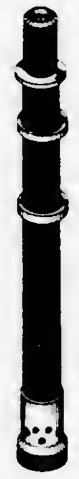
U.S. Cl. D16—3



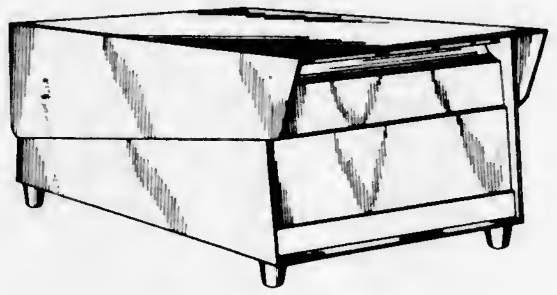
220,331
HEATED HANDLE FOR SPORTING EQUIPMENT OR SIMILAR ARTICLE

Eugene V. Plumb, 8513 Country Homes Blvd. 99208, and Zeno E. Mackay, 12414 E. 8th 99216, both of Spokane, Wash.
Filed Aug. 1, 1969, Ser. No. 18,505
Term of patent 14 years
Int. Cl. D22—*05*

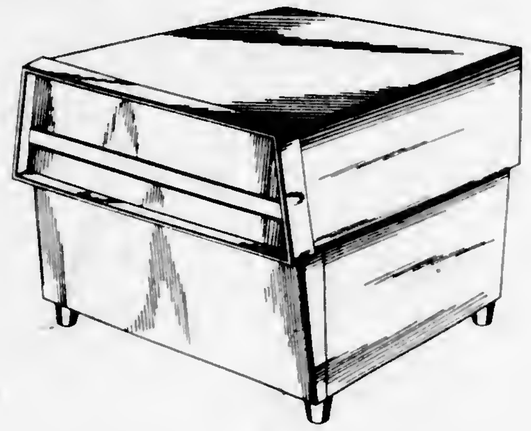
U.S. Cl. D22—23



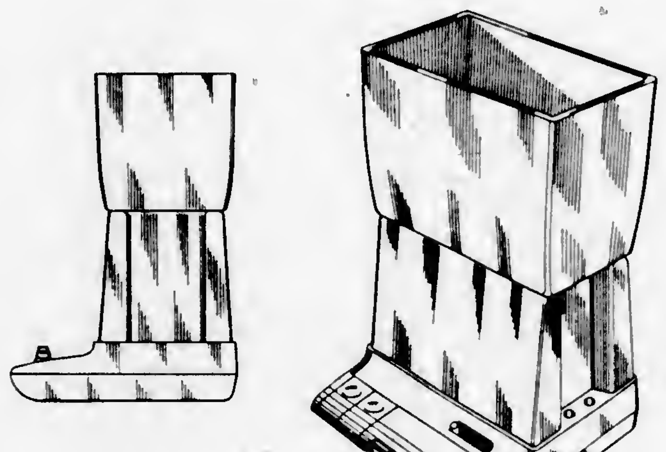
220,332
GAS FIRED WATER HEATER
George W. Myler, 1487 Langston Drive,
Columbus, Ohio 43220
Filed Feb. 3, 1970, Ser. No. 21,226
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—86



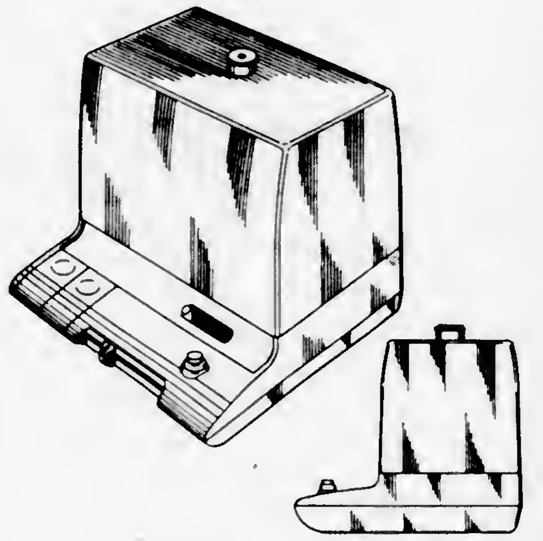
220,333
GAS FIRED WATER HEATER
George W. Myler, Columbus, Ohio, assignor to Columbia Gas System Service Corporation, New York, N.Y.
Filed Feb. 3, 1970, Ser. No. 21,235
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—86



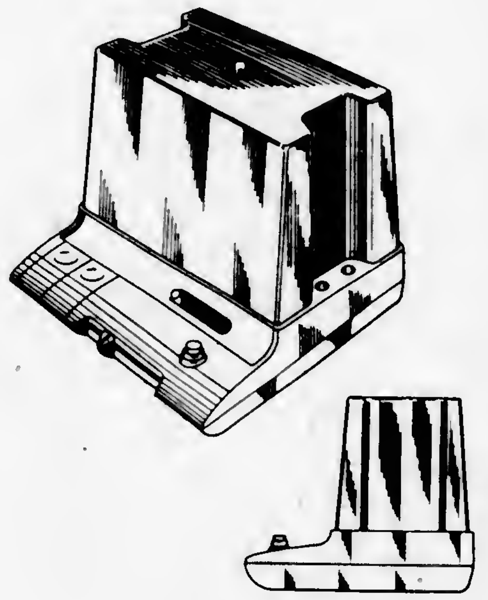
220,334
COMBINED DENTAL JET CLEANSING UNIT OR THE LIKE AND RESERVOIR THEREFOR
Frederick Gordon Mackay, Tarzana, Calif., Keith M. Mullins, Fort Collins, Colo., and Allan B. Johnson, Tarzana, Calif., assignors to Aqua Tec Corporation, Fort Collins, Colo.
Filed Jan. 14, 1970, Ser. No. 20,912
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1



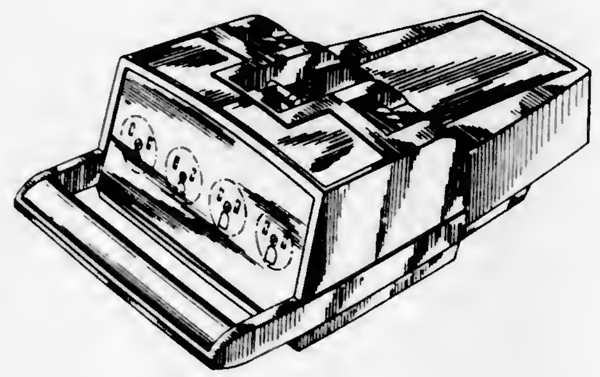
220,335
MOTOR PUMP HOUSING FOR A DENTAL JET CLEANSING UNIT AND COVER THEREFOR
Allan B. Johnson, Tarzana, Calif., Keith M. Mullins, Fort Collins, Colo., and Frederick Gordon Mackay, Tarzana, Calif., assignors to Aqua Tec Corporation, Fort Collins, Colo.
Filed Jan. 14, 1970, Ser. No. 20,913
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1



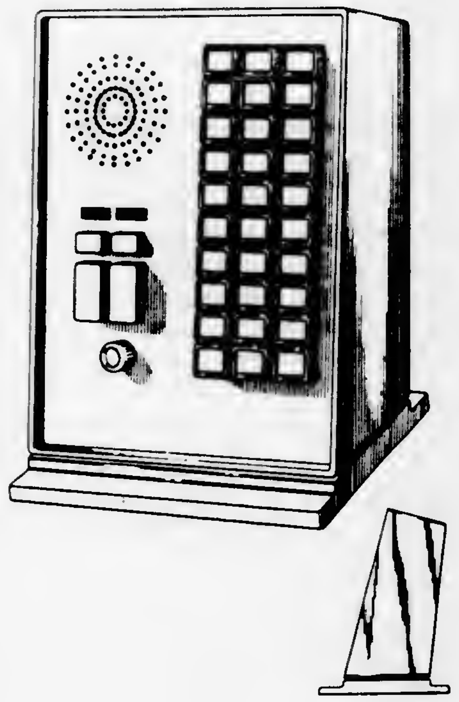
220,336
MOTOR PUMP HOUSING FOR A DENTAL JET CLEANSING UNIT OR THE LIKE
Keith M. Mullins, Fort Collins, Colo., and Frederick Gordon Mackay and Allan B. Johnson, Tarzana, Calif., assignors to Aqua Tec Corporation, Fort Collins, Colo.
Filed Jan. 14, 1970, Ser. No. 20,914
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1



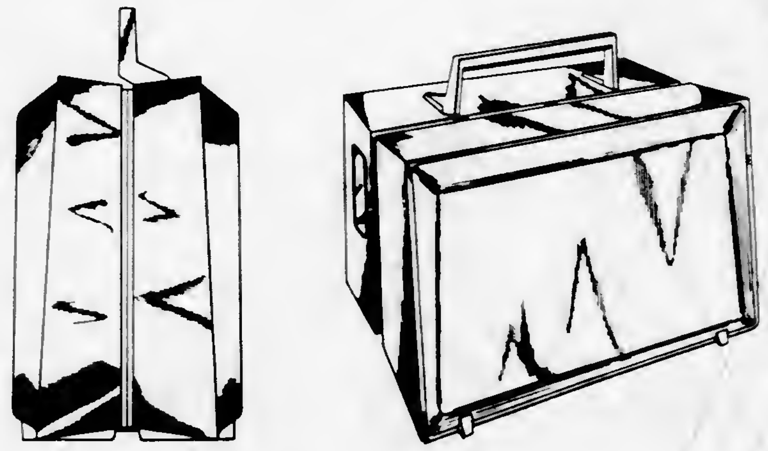
220,337
PORTABLE ELECTRICAL GROUND FAULT INTERRUPTER
Ernest R. Carlson, Fairfield, Conn., assignor to Harvey Hubbell Incorporated, Bridgeport, Conn.
Filed Mar. 11, 1970, Ser. No. 21,850
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13



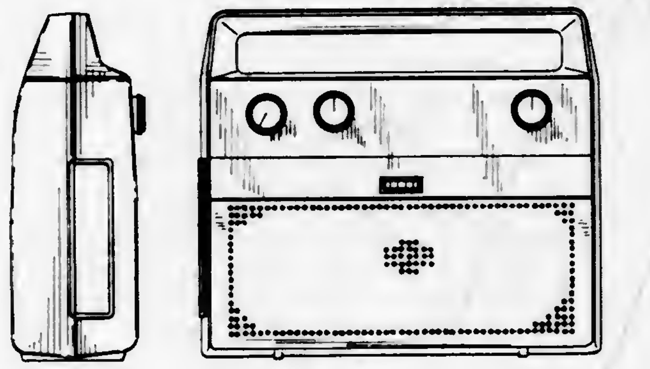
220,338
DESK TOP CONTROL ENCODER OR SIMILAR ARTICLE
Arnold S. Goldman, Hinsdale, Rudolph W. Krolopp, Palatine, and Martin C. Stessel, Schaumburg, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Oct. 20, 1969, Ser. No. 19,637
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



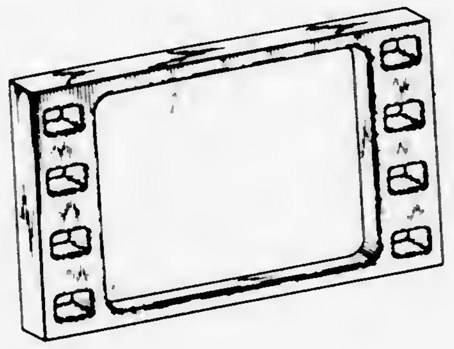
220,339
PORTABLE CARTRIDGE TAPE PLAYER
Takeshi Sasaki, Tokyo, Japan, assignor to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 7, 1970, Ser. No. 20,800
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



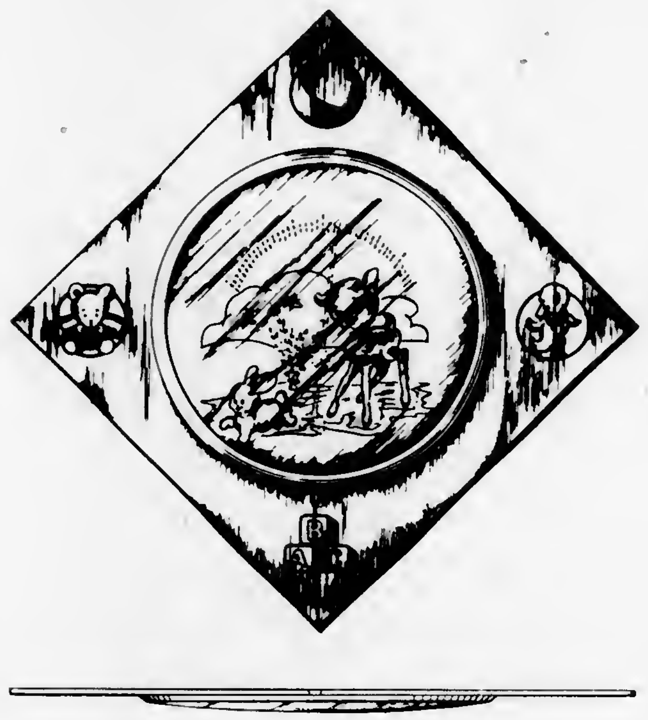
220,340
PORTABLE CARTRIDGE TAPE PLAYER
Takeshi Sasaki, Tokyo, Japan, assignor to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 7, 1970, Ser. No. 20,801
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



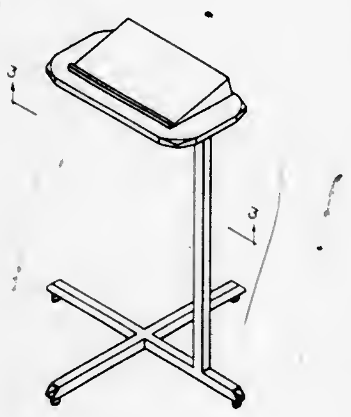
220,341
FRAME FOR A MIRROR
Sydney Cash, 496 Avenue of the Americas, New York, N.Y. 10011
Filed Aug. 6, 1969, Ser. No. 18,554
Term of patent 3½ years
Int. Cl. D6—*06*
U.S. Cl. D29—20



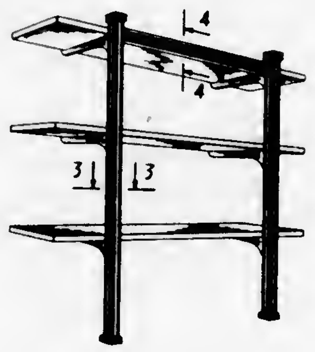
220,342
PLAQUE
Bert Rodney Anderson, Golf Road,
Reading, Pa. 19601
Filed Mar. 7, 1969, Ser. No. 16,115
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D29—23



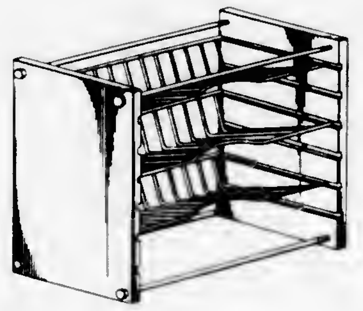
220,343
TELEVISION STAND
Claude M. Boissicat, 870 E. El Camino,
Mountain View, Calif. 94040
Filed Aug. 21, 1969, Ser. No. 18,782
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—3



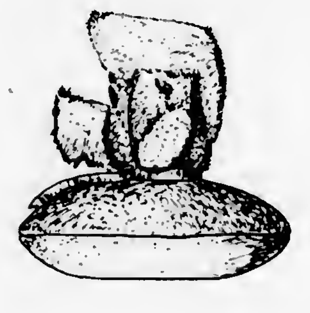
220,344
BOOKSHELF UNIT
Orestes M. Davey, Hartford, Conn., assignor to The Stanley Works, New Britain, Conn.
Filed Sept. 9, 1969, Ser. No. 19,073
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—3



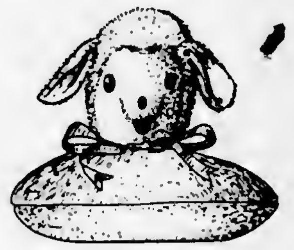
220,345
SHEET MUSIC STORAGE RACK
Pamela E. Burke, Boise, Idaho
(1153 Norton, Idaho Falls, Idaho 83401)
Filed Nov. 5, 1969, Ser. No. 19,946
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—3



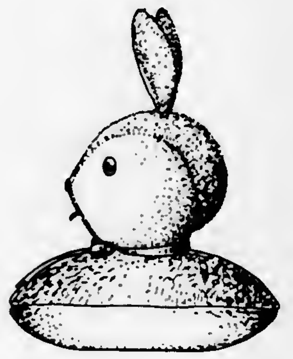
220,346
TOY FIGURE
John B. McCorkle, 442 Bristol St.,
Brooklyn, N.Y. 11212
Filed Oct. 15, 1969, Ser. No. 19,568
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



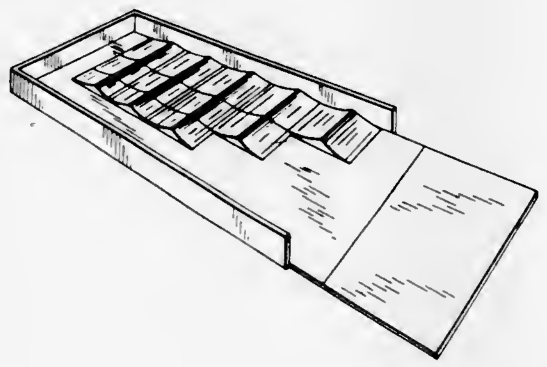
220,347
TOY FIGURE
John B. McCorkle, 442 Bristol St.,
Brooklyn, N.Y. 11212
Filed Oct. 15, 1969, Ser. No. 19,569
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



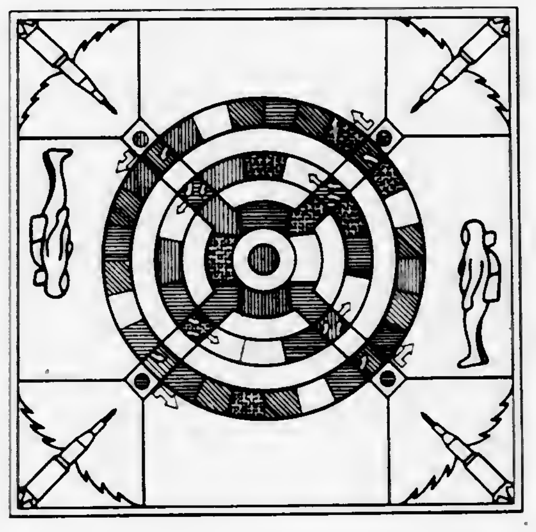
220,348
TOY FIGURE
John B. McCorkle, 442 Bristol St.,
Brooklyn, N.Y. 11212
Filed Oct. 15, 1969, Ser. No. 19,570
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



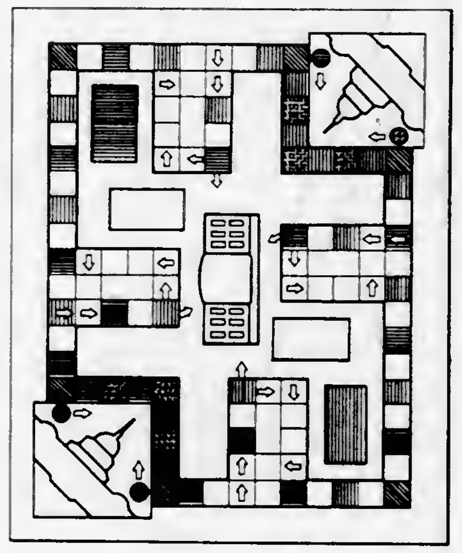
220,349
GAME BOARD
Russell E. Holt, Detroit Lakes, Minn., assignor of a fractional part interest to Robert W. Irvine, Detroit Lakes, Minn.
Filed Mar. 7, 1969, Ser. No. 16,119
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



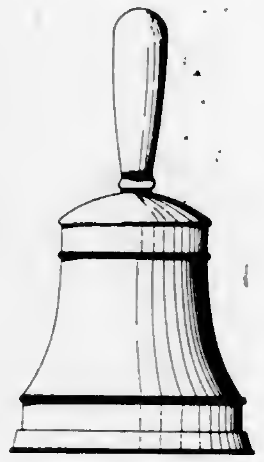
220,350
GAME BOARD
John W. Hankins, 6542 Grove Wood Lane,
Houston, Tex. 77008
Filed Apr. 13, 1970, Ser. No. 22,410
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



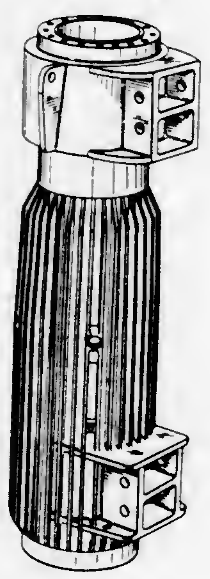
220,351
GAME BOARD
John W. Hankins, 6542 Grove Wood Lane,
Houston, Tex. 77008
Filed Apr. 14, 1970, Ser. No. 22,503
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



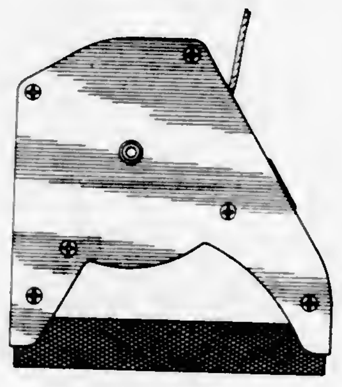
220,352
MUSICAL EDUCATIONAL TOY
Wesley E. Sharer, Chicago, Ill., assignor to Playskool, Inc., Chicago, Ill.
Filed Nov. 10, 1969, Ser. No. 19,988
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



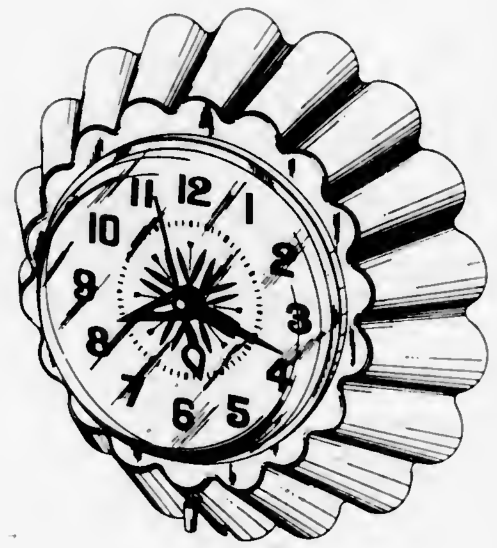
220,353
LOWER CYLINDER FOR DIESEL PILE DRIVER
Christopher William Bermingham, Dundas, Ontario, and Fred Kirkpatrick, Waterdow, Ontario, Canada, assignors to Berminghammer Corporation Limited, Hamilton, Ontario, Canada
Filed June 30, 1969, Ser. No. 17,958
Claims priority, application Canada June 28, 1969
Term of patent 14 years
Int. Cl. D15—*04*
U.S. Cl. D41—1



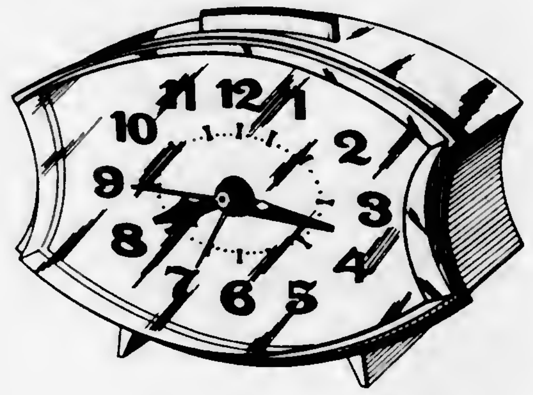
220,354
DESCENT BRAKE
George K. Russell, Castle Rock, Ronald L. Criley, Evergreen, and Richard H. Frost, Littleton, Colo., assignors to Frost Engineering Development Corporation, Englewood, Colo.
Filed July 3, 1969, Ser. No. 18,048
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D41—1



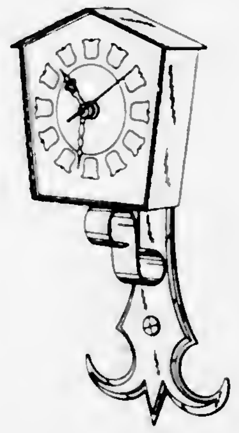
220,355
CLOCK OR SIMILAR ARTICLE
William V. Judson, Westport, Conn., assignor to General Electric Company
Filed Mar. 13, 1970, Ser. No. 21,899
Term of patent 3½ years
Int. Cl. D10—*01*
U.S. Cl. D42—7



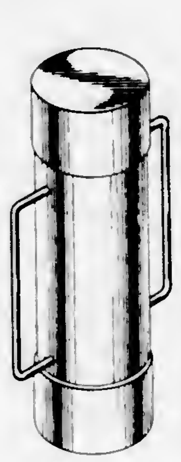
220,356
CLOCK OR SIMILAR ARTICLE
William V. Judson, Westport, Conn., assignor to General Electric Company
Filed Mar. 23, 1970, Ser. No. 22,034
Term of patent 3½ years
Int. Cl. D10—*01*
U.S. Cl. D42—7



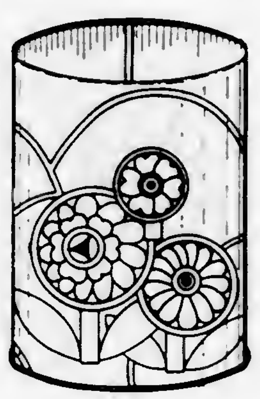
220,357
CLOCK
Waldemar Blessing, Waldkirch im Breisgau, Germany, assignor to Blessing Werke KG, Waldkirch im Breisgau, Germany
Filed Mar. 31, 1970, Ser. No. 22,133
Claims priority, application Germany Jan. 15, 1970
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7



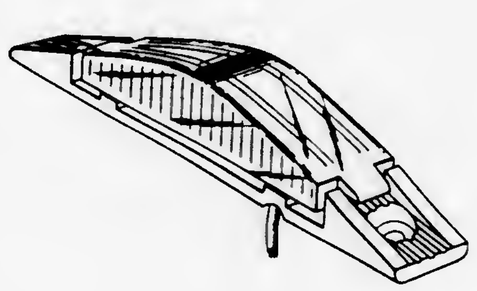
220,358
INSULATED CARRIER FOR MULTIPLE FOOD CONTAINERS OR THE LIKE
Homer G. Bewley, 1731 Mountain View Drive, Boise, Idaho 83705
Filed Aug. 26, 1969, Ser. No. 18,850
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—1



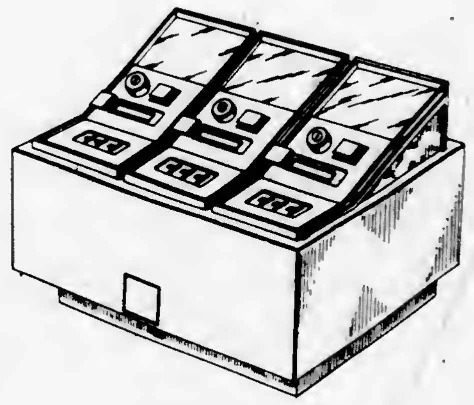
220,359
CANISTER
Joan G. Stevens, New York, N.Y., assignor to Pantry Queen Products Inc., Brooklyn, N.Y.
Filed Apr. 14, 1970, Ser. No. 22,422
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—6



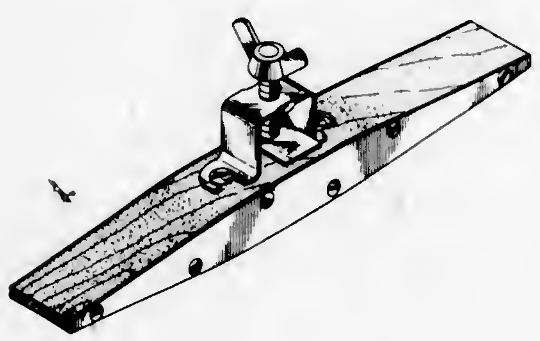
220,360
MARKER LIGHT
Robert R. Rossi, Audubon, N.J., assignor to Arrow Safety Device Company, Mount Holly, N.J.
Filed Oct. 1, 1969, Ser. No. 19,369
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D48—32



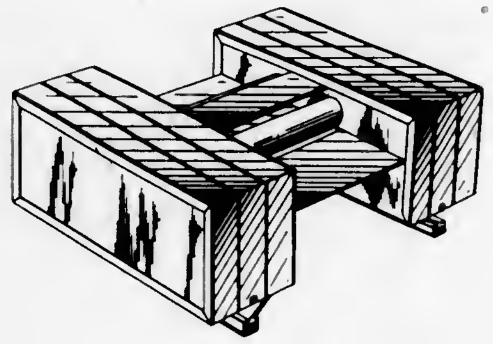
220,361
PRESET CONSOLE FOR A SERVICE STATION OR THE LIKE
Terry J. Simpkins, Dublin, Ohio, and George D. Robinson, Jr., Greensboro, N.C., assignors to Gilbert & Barker Manufacturing Company, New York, N.Y.
Filed Sept. 2, 1969, Ser. No. 18,941
Term of patent 14 years
Int. Cl. D20—*99*
U.S. Cl. D52—2



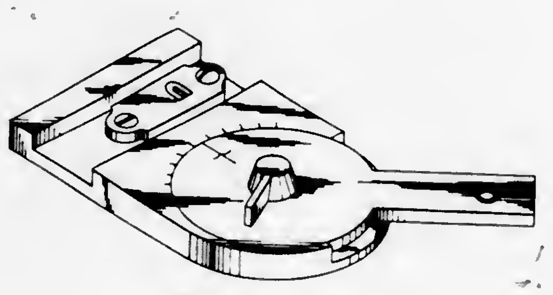
220,362
GAUGE LOCK FOR A RULE
Raymond P. Ricker, 20 Bartlett Ave.,
Somersworth, N.H. 03878
Filed Nov. 21, 1969, Ser. No. 20,210
Term of patent 14 years
Int. Cl. D10—*08*
U.S. Cl. D52—6



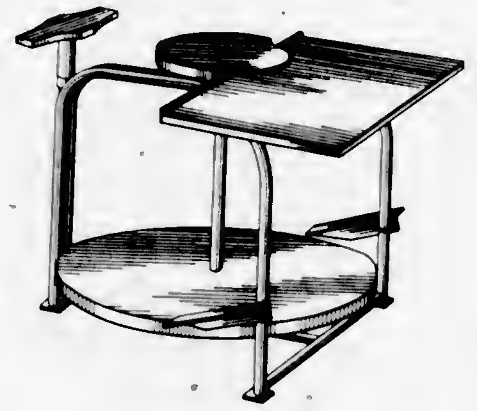
220,363
LAMINATING APPARATUS OR SIMILAR ARTICLE
Henry N. Staats, Deerfield, Ill., assignor to General
Binding Corporation, Northbrook, Ill.
Filed Nov. 13, 1969, Ser. No. 20,061
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



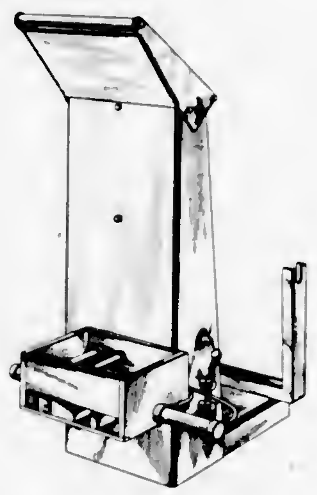
220,364
VERTICLE SCALE FOR DRAFTING MACHINES
Robert E. Pough, 414 Brookdale Drive,
Boise, Idaho 83702
Filed Feb. 16, 1970, Ser. No. 21,451
Term of patent 14 years
Int. Cl. D10—*08*
U.S. Cl. D52—6



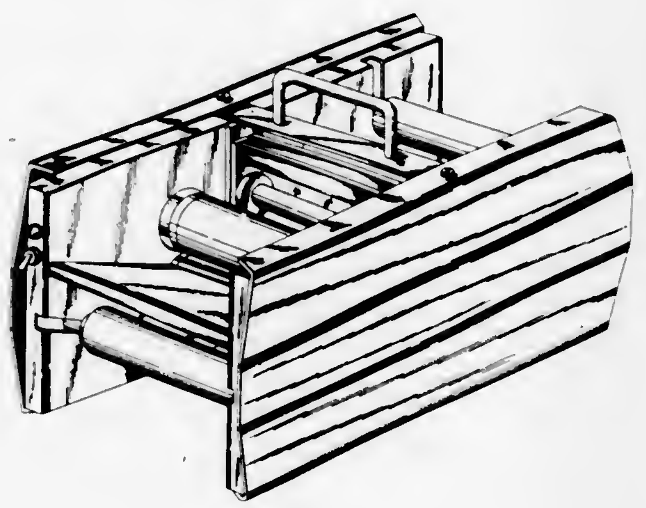
220,365
POTTER'S WHEEL
Paul E. Soldner, P.O. Box 917, Aspen, Colo. 81611
Filed Sept. 5, 1969, Ser. No. 19,043
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



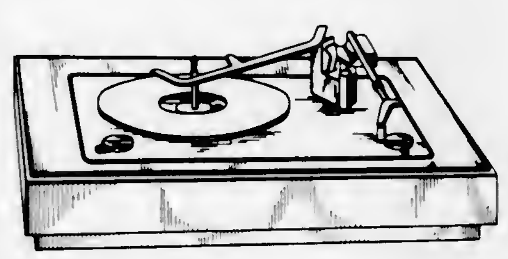
220,366
WRAPPING MACHINE
Raymond J. Dwyer, 4737 Secor Road,
Toledo, Ohio 43623
Filed Nov. 17, 1969, Ser. No. 20,157
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



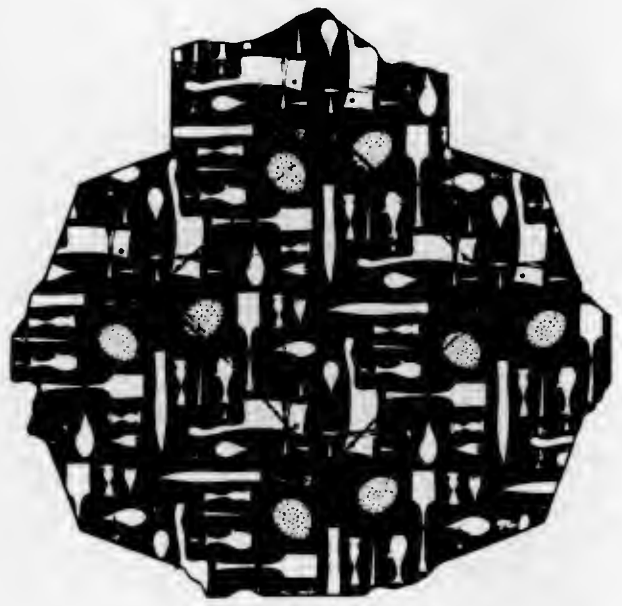
220,367
LAMINATOR
Frederick O. Bley, Reston, Va., assignor to Optical and
Electronics Research, Inc., Reston, Va.
Filed Mar. 24, 1970, Ser. No. 22,040
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



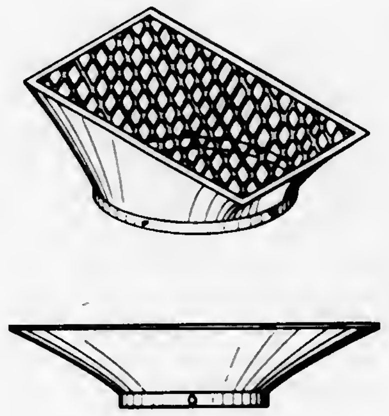
220,368
COMBINED PHONOGRAPH TURNTABLE AND BASE OR SIMILAR ARTICLE
Lawrence Levow, Huntington, N.Y., assignor to Harman-Kardon Incorporated, Plainview, N.Y.
Filed Oct. 15, 1969, Ser. No. 19,574
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



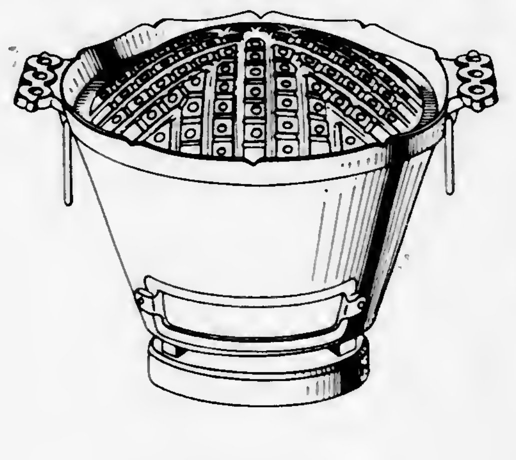
220,369
PACKAGING MATERIAL
John E. Stengel, Chesterfield County, Va., assignor to
Reynolds Metals Company, Richmond, Va.
Filed Apr. 25, 1969, Ser. No. 16,895
Term of patent 14 years
Int. Cl. D5—*03*
U.S. Cl. D59—2



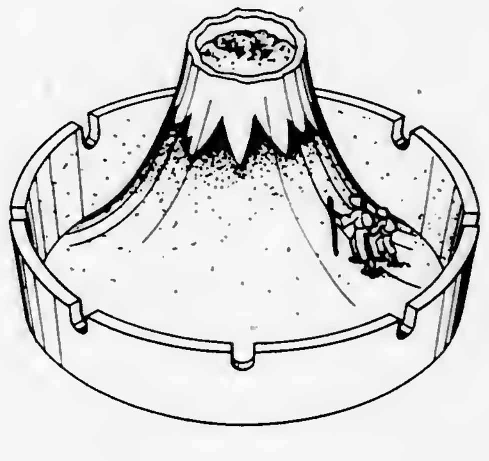
220,370
DETACHABLE COOKING GRILL FOR A HEATER OR THE LIKE
Marvin H. Mason, Bedford, Ind. 47421
Filed May 21, 1969, Ser. No. 17,262
Term of patent 14 years
Int. Cl. D7—*04;* D23—*03*
U.S. Cl. D81—10



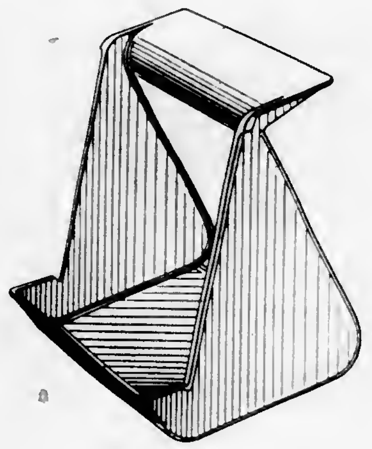
220,371
HIBACHI STOVE
George J. Strauss, 6606 10th Ave.,
Los Angeles, Calif. 90043
Filed Jan. 21, 1970, Ser. No. 21,024
Term of patent 3½ years
Int. Cl. D7—*04*
U.S. Cl. D81—10



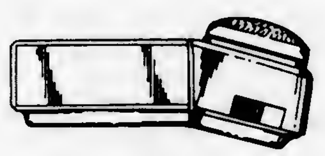
220,372
ASH TRAY
Harry W. Hollister, New York, N.Y., assignor of a fractional part interest to Betty Mabel Coester, New York, N.Y.
Filed Nov. 14, 1969, Ser. No. 20,095
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2



220,373
GRATER BIN OR THE LIKE
Kurt Krusche, Frankfurt, Germany, assignor to Hutzler Manufacturing Company, Long Island City, N.Y.
Filed July 30, 1969, Ser. No. 18,475
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D89—1



220,374
ELECTRIC SHAVER
Taisuke Ono, Hiroyuki Nishimura, and Yoritaka Ikejima, Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Sept. 25, 1969, Ser. No. 19,300
Claims priority, application Japan Mar. 28, 1969
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 30TH DAY OF MARCH, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AB Byggforbattring: *See—*
  - Johansson, Rolf Gustaf, 3,572,636.
- Abbey Manufacturing Company Limited: *See—*
  - Levin, David, 3,572,780.
- Abeck, Wilhelm; Eichler, Wolfgang; Menold, Richard; and Seidel, Bernhard, to Agfa-Gevaert Aktiengesellschaft. Process for determining the magnetic orientation in magnetic recording materials. 3,572,950, Cl. 356-210.
- Ables, Billy D.; Fort, Charles; and Jackson, Edmund D., to Texas Instruments, Incorporated. Step and repeat camera with computer controlled film table. 3,572,925, Cl. 355-46.
- Abrams, Irving M.; Knupp, Richard C.; and Lewis, Clifford J., to Diamond Shamrock Corporation. Countercurrent liquid-solids contact process. 3,573,004, Cl. 23-312.
- Acco Products: *See—*
  - Cooper, Edward W., 3,572,867.
- Acheson Industries, Inc.: *See—*
  - VanVoorhees, Alexander J., 3,573,230.
- Ackerman, David S.: *See—*
  - Ryerson, James N.; Ackerman, David S.; and Kream, Arnold E.,3,573,186.
- Adamik, Emil R., to United States of America, Atomic Energy Commission. Microscope slide and spinner. 3,572,890, Cl. 350-92.
- Addressograph-Multigraph Corporation: *See—*
  - Wilde, Frederick G.; and Booth, L Gordon, 3,572,694.
- Adler, Hans: *See—*
  - Adler, Hans, 3,572,931.
- Adler, Hans, to Wexler, Florence, and Adler, Hans. Surface comparator. 3,572,931, Cl. 356-46.
- AFA Corporation, The: *See—*
  - Malone, Carl E., 3,572,590.
- Agamian, Alexander. Push pull type exercising device. 3,572,701, Cl. 272-79.
- Agfa-Gevaert Aktiengesellschaft: *See—*
  - Abeck, Wilhelm; Eichler, Wolfgang; Menold, Richard; and Seidel, Bernhard, 3,572,950.
  - Nassenstein, Heinrich; and Kliemann, Manfred, 3,572,879.
- Aidlin, Samuel S.; and Aidlin, Stephen H. Hopper type apparatus for orienting and feeding jars, or the like. 3,572,494, Cl. 198-33.
- Aidlin, Stephen H.: *See—*
  - Aidlin, Samuel S.; and Aidlin, Stephen H.,3,572,494.
- Akin, Robert M., Jr., to Hudson Wire Company. Composite metal article of copper material with a coat of nickel and tin. 3,573,008, Cl. 29-199.
- Albrinck, Donald Joseph; and Asfour, Victor Said, to Formica Corporation. Styrene and vegetable oil modified phenolic resin and method of preparing the same. 3,573,238, Cl. 260-19.
- Alburn, Harvey E.; and Dvonch, William, to American Home Products Corporation. 1-Substituted cycloalkyl penicillins. 3,573,279, Cl. 260-239.1
- Alcan Aluminum Corporation: *See—*
  - Vecchiarelli, Francis, 3,572,640.
- Alfes, Franz: *See—*
  - Kloker, Werner; Alfes, Franz; Goerden, Leonhard; and Raichle, Karl,3,573,232.
- Alfes, Franz; Kloker, Werner; Goerden, Leonhard; and Raichle, Karl, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of foamed materials. 3,573,233, Cl. 260-2.5
- Allen, Clayton H.: *See—*
  - Jones, Royal V., Jr.; Allen, Clayton H.; and Gordon, Colin G.,3,572,473.
- Allentoff, Norman; and Goffe, Charles A., to Eastman Kodak Company. Photodevelopable direct print compositions comprising iodocadmates in admixture with silver halides. 3,573,055, Cl. 96-108.
- Allied Chemical Corporation: *See—*
  - Dear, Robert E. A.; and Gilbert, Everett E., 3,573,330.
  - Lohr, Thomas E., 3,572,818.
  - Pietrusza, Edward W.; and Pedersen, Jack R., 3,573,250.
  - Reimschuessel, Herbert K., 3,573,280.
- Allis-Chalmers Manufacturing Company: *See—*
  - Baugh, Robert T.; and Cannon, Craig W., 3,572,759.
  - Cannon, Craig W.; and Stikeleather, Larry F., 3,572,763.
  - Murphy, Edwin W., 3,572,805.
  - Walberg, Maynard E., 3,572,547.
- Alloys Unlimited, Inc.: *See—*
  - Herbst, Darwyn L.; and Dawson, William L., 3,573,229.
- Altec Manufacturing Company, Inc.: *See—*
  - Hall, Thomas R., 3,572,467.
- Ambros, Rafael Foguet, to Electro-Quimica de Flix, S.A. Cleansing composition and method. 3,573,212, Cl. 252-153.
- American Can Company: *See—*
  - LaCroce, Leonard Thomas, 3,572,540.
  - Mueller, David Charles; and Niesen, Peter Floyd, 3,572,579.
- American Cyanamid Company: *See—*
  - Megna, Ignazio Salvatore; and Sullivan, Frank Aloysius Vincent, 3,573,251.
- American Desk Manufacturing Company: *See—*
  - Barnes, Raymond C., 3,572,826.
- American Flange & Manufacturing Co., Inc.: *See—*
  - Koll, Stanley J., 3,572,533.
- American Home Products Corporation: *See—*
  - Alburn, Harvey E.; and Dvonch, William, 3,573,279.
- American Optical Corporation: *See—*
  - Anthon, Erik W., 3,572,952.
  - Chirayath, John Balan, 3,572,884.
  - Grolman, Bernard, 3,572,908.
  - Grolman, Bernard, 3,572,911.
  - Koester, Charles J., 3,572,910.
- American Seating Company: *See—*
  - Barecki, Chester J.; and Hogan, Arthur J., Jr., 3,572,831.
- American Standard, Inc.: *See—*
  - Shaughnessy, William James, 3,572,959.
- Amos, Homer C.: *See—*
  - Strickland, Edward T.; and Amos, Homer C.,3,573,014.
- Amos, James Lawrence: *See—*
  - Olstowski, Franciszek; Amos, James Lawrence; and Bauss, Herbert H.,3,573,122.
- AMP Incorporated: *See—*
  - Longenecker, Bruce Cameron, 3,572,891.
- Ampex Corporation: *See—*
  - Bousky, Samuel, 3,572,897.
- Amsted Industries Incorporated: *See—*
  - Wisler, Lee Gail, 3,572,518.
- Anderka, Gerold, to Riepe-Werk. Writing pen. 3,572,955, Cl. 401-33.
- Andersen, Ralph A. Sandwich panel type structural elements and method of making same. 3,573,144, Cl. 161-38.
- Anderson, Chester A., to Speco, Inc. Smoke generator with automatic control system therefor. 3,573,223, Cl. 252-359.
- Anderson, Glen W.: *See—*
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- Weatherboard Products, Inc.: *See—*
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- Willett, Richard M., to Iowa State University Research Foundation, Inc. Method for stabilizing aircraft and missiles. 3,572,618, Cl. 244-77.
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- Yokotsuka, Tamotsu; Saito, Nobuo; Okuhara, Akira; and Tanaka, Teruo. Kikkoman Shoyu Co., Ltd. Seasoning composition comprising α-amino acid, palatable 5'-nucleotide and L-glutamic acid and food being manufactured to contain the above three. 3,573,066, Cl. 99-140.
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- Yuki, Etsuji. Method of preventing the deterioration of frying oils in frying apparatuses and a hood for use on such apparatuses. 3,573,059, Cl. 99-1.
- Yurimoto, Juntaro; and Kojima, Yoshindo, to Sumitomo Chemical Company, Ltd. Modification of toluylenediisocyanates. 3,573,335, Cl. 260-453.
- Zdanowski, Richard E., to Rohm and Haas Company. Floor polishing compositions. 3,573,239, Cl. 260-22.
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- Zenno, Hisanao; Sugihara, Akira; and Tsubouchi, Sinji, to Fujisawa Pharmaceutical Co., Ltd. Pyridoxal derivatives and production thereof. 3,573,286, Cl. 260-240.
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- Zola, John C. Decorative finish-producing composition and method of applying same. 3,573,237, Cl. 260-16.
- Zschocke, Albrecht; Koenig, Karl-Heinz; and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. 4,6-Bis-(alkynylamino-s-triazines. 3,573,302, Cl. 260-249.8
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LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 30TH DAY OF MARCH, 1971

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- AMF Incorporated: *See*—
  - Henderson Robert B. Re. 27,106.
- Basic Incorporated: *See*—
  - Wilson, Roger E. Re. 27,111.
- Bentley Laboratories, Inc.: *See*—
  - De Wall, Richard A. Re. 27,100.
- Brewington, Phillip J. Replacement flush valve. Re. 27,105, 3-30-71, Cl. 4—57.
- Buzzards Corporation: *See*—
  - Cate, Dexter E. Re. 27,103.
- Cate, Dexter E., to Buzzards Corporation. Bridge circuit for determining the inverse of resistance. Re. 27,103, 3-30-71, Cl. 318—663.
- Cluwen, Johannes M., to U.S. Philips Corporation. Transistor element and transistor circuit. Re. 27,110, 3-30-71. Cl. 307—303.
- Conwed Corporation: *See*—
  - Videen, Otis R. Re. 27,109.
- De Wall, Richard A., to Bentley Laboratories, Inc. Oxygenator with heat exchanger. Re. 27,100, 3-30-71. Cl. 23—258.5.
- Goodwin, Joe E.: *See*—
  - Johnson, Ralph B., Jr., and Goodwin. Re. 27,108.
- Henderson, Robert B., to AMF Incorporated. Athletic game ball. Re. 27,106, 3-30-71. Cl. 273—65.
- Johnson, Ralph B., Jr., and J. E. Goodwin, to Sentinel Distributors, Inc. Electronic actuator for an engine protective system. Re. 27,108, 3-30-71, Cl. 123—198.
- Levesque, Charles L., to Rohm & Haas Company. Drug composition. Re. 27,107, 3-30-71. Cl. 424—22.
- Maynard, George A., to Textron Inc. Fastener driving apparatus. Re. 27,101, 3-30-71, Cl. 227—8.
- Nakamura, Katsuro, to Toko Kabushiki Kaisha. Magnetic memory device. Re. 27,099, 3-30-71. Cl. 340—174.
- Rohm & Haas Company: *See* —
  - Levesque, Charles L. Re. 27,107.
- Sentinel Distributors, Inc.: *See*—
  - Johnson, Ralph B., Jr., and Goodwin. Re. 27,108.
- Textron Inc.: *See*—
  - Maynard, George A. Re. 27,101.
- Toko Kabushiki Kaisha: *See*—
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- U.S. Industries, Inc.: *See*—
  - Van Huis, Robert L. Re. 27,102.
- U.S. Philips Corporation: *See*—
  - Cluwen, Johannes M. Re. 27,110.
- Valyi, Emery I. Apparatus for blow molding seamless hollow objects. Re. 27,104, 3-30-71. Cl. 18—5.
- Van Huis, Robert L., to U.S. Industries, Inc. Manure scraper. Re. 27,102, 3-30-71. Cl. 198—224.
- Videen, Otis R., to Conwed Corporation. Method and apparatus for producing special surfaces on panel board. Re. 27,109, 3-30-71. Cl. 117—10.
- Wilson, Roger E., to Basic Incorporated, Pitch-bonded refractory composition. Re. 27,111, 3-30-71, Cl. 106—56.

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- ATV Manufacturing Limited: *See*—
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- Adell, Robert. Container for stereo tape cartridge. 220,317, 3-30-71, Cl. D9—253.
- Anderson, Bert R. Plaque. 220,342, 3-30-71, Cl. D29—23.
- Arrow Safety Device Co.: *See*—
  - Rossi, Robert R. 220,360.
- Bardell, Ralph V., and R. G. Churan, to Bennett Industries, Inc. Shipping container. 220,316, 3-30-71, Cl. D9—216.
- Baun, Theadore. Cutter. 220,309, 3-30-71, Cl. D8—52.
- Bennett Industries, Inc.: *See*—
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- Berminghammer Corporation Limited: *See*—
  - Bermingham, Christopher W., and Kirkpatrick. 220,353.
- Bewley, Homer G. Insulated carrier for multiple food containers or the like. 220,358, 3-30-71, Cl. D44—1.
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- Boissicat, Claude M. Television stand. 220,343, 3-30-71, Cl. D33—3.
- Burke, Pamela E. Sheet music storage rack. 220,345, 3-30-71, Cl. D33—3.
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  - Ott, Donald E., and Carlson. 220,325.
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- Casey's Caboose, Inc.: *See*—
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- Cash, Sydney. Frame for a mirror. 220,341, 3-30-71, Cl. D29—20.
- Churan, Roy G.: *See*—
  - Bardell, Ralph V., and Churan. 220,316.
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- Dunton, Alex G., Jr., to Reynolds Metals Company. Food packaging tray or similar article. 220,314, 3-30-71, Cl. D9—187.
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  - Judson, William V. 220,356.
- Gilbert & Barker Manufacturing Co.: *See*—
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- Goldman, Arnold S., R. W. Krolopp, and M. C. Stessel, to Motorola Inc. Desk top control encoder or similar article. 220,338, 3-30-71, Cl. D26—14.
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- Ikejima, Yoritaka: *See*—
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- Levow, Lawrence, to Harmon-Kardon Incorporated. Combined phonograph turntable and base or similar article. 220,368, 3-30-71, Cl. D36—4.

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- McCorkle, John B. Toy figure. 220,346, 3-30-71, Cl. D34—2.
- McCorkle, John B. Toy figure. 220,347, 3-30-71, Cl. D34—2.
- McCorkle, John B. Toy figure. 220,348, 3-30-71, Cl. D34—2.
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- Myler, George W., to Columbia Gas System Service Corporation. Gas fired water heater. 220,333, 3-30-71, Cl. D23—86.
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  - Sharer, Wesley E. 220,352.
- Plumb, Eugene V., and Z. E. Mackay. Heated handle for sporting equipment or similar article. 220,331, 3-30-71, Cl. D22—23.
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